Council Meeting
Portland, Oregon
February 8, 9 and 10, 2016

Monday, February 8, 2016

Council Chair Henry Lorenzen called the meeting to order at 1:36 p.m. All members were in attendance.

Review of changes in chapters for the Seventh Power Plan

Tom Eckman, director of the power division, said the agenda was to go through the changes that were made during the webinar in Chapters 1, 3 and 4. Then Members will review Chapters 2, 5, and the rest through Chapter 20. Then Members will look at the Appendix.

Chapter 3: Resource Strategy

Eckman said there weren't many changes in Chapter 3. However, the priorities of existing gas and new gas generation is the third item examined. We need to get those ordered consistently, he said. Natural gas is number three and renewables is number four.

Therefore, the order of topics is energy efficiency, demand response, natural gas and renewables. Eckman says we discuss natural gas more than renewables.

The Regional Resource Allocation section has the most changes. On p. 36, there's a revision in the narrative about the Resource Portfolio Model (RPM) treating the analysis as a single system. That produces results that allow you to balance the system with resources from anywhere to anywhere they're needed — no matter who owns them, he said. We can satisfy the regional adequacy standards by interregional transfers. That sets up the problem statement, because the region isn't like that.

Therefore, the region has the possibility of overinvesting in resources if we don't take advantage of the interregional transfers for surpluses that are there.

The narrative was revised to make it shorter. Council Member Phil Rockefeller observed that on p. 33, he thought Bonneville's surplus is sold, not purchased. It should be changed to '"most of the surplus is sold into short-term markets."

Council Member Bill Bradbury asked how our proposal differs from current reality.

Eckman said that we have a large surplus of generation on average — about 4,000 MW. In one out of 80 years, we have zero. So in between that is risk. The purpose of this is that there are economic benefits to the region, but there are risks associated.

Member Rockefeller asked, what steps mitigate that risk?

Eckman replied by securing contracts, either financial hedges or market hedges, in the event of a lack of water supply. You find suppliers that might cost you more.

Member Rockefeller asked if BPA follows this course, could they back it up. Eckman replied that they also could do recall. It might not be 100 percent firm, but there are ways to hedge it financially or physically.

Member Rockefeller asked if we know if BPA engages in that kind of hedging? Kujala said that the mid-Cs sell off a portion of their system and those who buy it to assume some of that risk. They're exposed to low-water conditions, but get a lot of energy in high-water conditions. BPA traditionally kept risk maintained by planning for low-water conditions and then being in surplus to offer a product. Some utilities have a much-lower-risk profile than other utilities. By combining forces, they can get a blended, overall, lower-risk profile.

Council Member Tom Member Karier said the risk could land on the buyer or seller. That's why we talk about creative arrangements, Eckman said.

Ben Kujala, staff system analysis manager, said that when a utility builds a project, they plan to have more than they need, just for adequacy.

Member Rockefeller said that if they were prepared to pool resources, they could mitigate risk.

Eckman said it's how you build an ISO/RTO market. You build what's necessary to serve the market. Everyone has to sit on the sidelines until they can bid in. We've had those discussions, when everyone ran as fast as they could away from them. Here you have a collegial investment in sharing risk, rather than forcing it through a market mechanism. We have a lot of experience in this region with bilateral contracts and making those risk-sharing agreements work. Not like it's out of the question, but there's money to be saved and resource development options to avoid.

This language is replicated in the Executive Summary.

On p.42 – Table 3-1's title was edited.

On p. 49 – A mention of Montana was added. "Montana, which must reduce its carbon emissions by 47 percent, is second only to South Dakota that must reduce its carbon dioxide emissions by 48 percent."

Member Karier had an edit on p. 51 of an earlier draft. The wording was changed to “higher value regional exports.”

Chapter 3 is approved.

Chapter 1: Executive Summary

The principal change was reversing the order of natural gas and renewables.

Carbon policies had revisions. Member Bradbury asked if demand response should be added. Eckman replied that demand response doesn’t do much to mitigate carbon.

In Resource Allocation, Eckman struck the reference to 5 percent in wind generation, and added the value of assumed carbon costs. It reproduces the language that was in Chapter 3.

They made the same Bonneville purchased-to-sold edit in the Executive Summary.

That completes Chapter 1.

Member Karier said we don’t identify distributed solar generation in any of these chapters, but the plan does forecast distributed generation. No, because we’re not acquiring it in modeling, Eckman replied.

Member Karier wants a sentence in the Executive Summary acknowledging distributed solar. We talk about “locally developed” and could add it in the renewable generation paragraph in the Generation Resources section.

Council Member Pat Smith agrees it should be in there, and include electric vehicles (EVs) as well.

Chapter 4: Action Plan

The water resource edit is taken care of.

Chapter 2: Key Assumptions

Eckman sent this out two weeks ago and first time discussed with the Council.

We received a comment that the Big Hanaford project wasn’t mentioned as retired, so we added a sentence there.

We can take the solar photovoltaic (PV) and EV notation on p. 7 and add it to the Executive Summary.

The p. 7 methane emissions are noted.

In the State of the System, the advent of the energy imbalance market (EIM) and the proclivity of Northwest utilities to move in that direction, were mentioned. It's happening a little late to deal with in the Seventh Plan.

The Balancing Reserves from Bonneville were updated.

Member Karier asked about using a range on p. 3 from 2015. He believes people will be confused and wonder why we didn't use a real number. Just delete it. Then the entire bullet was wordsmithed.

- The Seventh Power Plan uses a range forecast of $3.95-$4.03 per million British thermal units (MMBtu) for 2015. The actual 2015 Henry Hub benchmark price was $2.64 per MMBTU. However, the Council's forecast for future natural gas prices over the next 20 years spans a wider range; from a low of $3.56 per MMBtu to a high of $10.00 per MMBtu by 2035. This is a lower range of future gas prices than was used in the Sixth Power Plan.

Chapter 5: BPA

In the Bonneville chapter, mostly numbers were updated. It gives a sense of its need for loads and resources, and its power. The Bonneville resource acquisition and activities section had the most substantive edits.

Chapter 6: The Power Act

It had very few edits. It just restates what the law says.

Chapter 7: Demand Forecast

Sections on distributed solar and EVs were added and edited by the Members.

Member Yost joined the meeting and had a question on Chapter 3. "When we were talking about the surplus power, it's generated when we have a lot of hydro," he said. "The graph had annual averages on exports, but it didn't tell me anything. Does that happen only in the spring?"

John Fazio, staff senior power systems analyst, said that based on critical hydro planning, anything above the firm energy, load-carrying capability is considered surplus. We get surplus every month, because each winter, we get critical hydro. Spring also is a transition month for wind.

Member Yost will visit with staff to better understand the issue. "The issue is we want to keep the energy in the region, but there are times when we want to export and sell more. But if we do it in the spring, when prices are rock bottom, what difference does it make? When you look at specific, real-time, month-to-month, it might bring more light on what option you want to look at. I just want to rationalize it in my mind. We want to keep energy in region except in the spring, when we want to sell it. Maybe there's the option of importing because of demand response.

Member Lorenzen said the discussion pointed out that in general, the model looks at the region as a whole as if we have a perfect sharing of the resources — which doesn't occur. One reason is because we have greater sales outside of the region. Some language pointed out that it might not be just for maximizing profit for Bonneville, but minimizing the impact to the region.

Member Karier said that we'd all be interested in that. So the idea is how do net exports vary by month? If it's just a few months, then you have a different problem, broader than the "once in 20 years."

Eckman said if it were all being sold at rock bottom prices in the spring, there wouldn't be an economic advantage to keeping it here. So, it's being sold in other months as well. But the bulk of it is in the spring, but that doesn't bring as much value proposition. We're either spilling water, spilling wind or the wires are fully loaded.

Member Lorenzen asked if staff was planning to bring this back for the Power Plan. We're getting close to that point where we're running out of time. Eckman said he'd bring something back.

Chapter 8: Price Forecast

Most changes are numbers between the draft and final. There weren't any other changes of substance. No changes were requested.

Chapter 9: Existing Resources and Retirements

Updates were made to the reserves held for balancing and they updated the wind numbers. Member Yost had questions about the Key Findings section. It says that the region has seen rapid development of wind generation, he said. We shouldn't characterize it as "rapid" since we're talking about a period of 10 years.

Gillian Charles, energy policy analyst, said that 2012 had more spectacular development. But in 2014 it wasn't as much. The rapid development was between 2010 and 2012.

There also were edits on p. 26.

Chapter 10: Operating and Planning Reserves

Member Yost said that in the key findings, we use the same language three times. Wordsmithing ensued. Fazio said they weren't trying to be redundant but it was language requested. The purpose of the chapter is to define what we mean by reserves, what kinds and then how we model reserves. This lays out how the Council defines these reserves and how they're treated in the model and the Plan itself.

No real policy issues in this chapter.

Chapter 11: System Needs Assessment and Resource Adequacy

Fazio said that in the draft regional portfolio model, we were focusing the methodology on one quarter. We should be looking at all quarters. If there's a shortage in the summer, we

should deal with summer adequacy tests. So the system analysis group went back to deal with changing form a single reserve margin to a quarterly reserve margin.

We also looked at the associated system capacity contribution. This is important because in the RPM, hydro is fixed. It varies by water condition, but it doesn't have that dynamic interaction. If the RPM didn't get the effective capacity for a resource, the model would tend to overbuild. For every new resource, it recalculated the associated system capacity contribution (ASCC).

So we went from an ASCC for two resources to all resources, for every quarter.

Member Karier said that if you use a simple load resource balance you could overestimate the need for energy, but you could greatly underestimate the need for capacity. It's buried in Chapter 11 and should be highlighted somewhere for planners.

Fazio said that we're doing is somewhat state of the art. This is relevant for hydro and applies to the Northwest.

Member Karier said the fact that it could be systematically off is an important finding. Place it in the "difference between deterministic and problemistic" in the key findings sections.

Fazio said that we responded to comments on the resource adequacy results published in May. In 2021, there was a disconnect where we said in May that the loss of load probability (LOLP) would be 8 percent. There is narrative we added with newer information. In both cases, the system will be inadequate. In the Plan, the LOLP would be 15 percent. But the Plan loads don't include energy efficiency. With energy efficiency, it would bring that down. The section "Resource Adequacy versus the Seventh Power Plan" tries to address this.

Council Member Bill Booth asked if going to the quarter change the bottom line as far as the resource strategy going forward.

Fazio replied that we had adequate supplies before. But the summer problems come later in the study horizon — 10 to 15 years. Going quarterly gave us better control over the study horizon.

Kujala said resource adequacy had an annual look. The plan refines that and breaks things out.

Fazio said that every Power Plan we've done pushes the envelope further. The things we've done in the adequacy test in Seventh Plan is for energy and adequacy. And we've gone from one quarter to four quarters.

Chapter 12: Conservation Resources

There were some numbers changes and minor narration changes.

Member Yost had a detailed question about the conversion for energy and capacity. Kujala said it's been a challenge. We talk about thermal plants by their nameplate capacity — the maximum they can produce, and we talk about energy efficiency by the average MW

saved. So when we're talking about energy efficiency of 5,000 aMW, there is a shape behind it that contributes to the peak savings. You have these concepts: peak from energy efficiency and what it does to our system. We do that to the thermal system as well. It's confusing and there's no way to make it really clear.

Member Yost sought some clarification using a roulette-wheel analogy. Eckman said that it's a three-factor multiplication, and each resource has its own.

Staff also added direct application renewables to the chapter. It includes the range of Solar PVs.

Chapter 13: Generating Resources

The methane section had significant additions. There were changes to update the federal investment tax credit, and staff added geothermal to resources we would model.

Member Karier called out the sentence: *Overall methane emission rate estimates from the natural gas system in the U.S. range from 1 percent to 3 percent*. He asked if it should be higher.

Steve Simmons sited the source: EPA's mean estimate is 2.4. Member Karier wants it mentioned somewhere that it could be as high as 15 percent in some fields. Appendix I also had a lot of methane updates.

The rest are numerical updates.

Member Yost said we don't explain very clearly why we don't discuss more about geothermal development. The process of permitting and drilling can be too expensive. When they get a hole that meets qualifications, then the price of $85 is reasonable. But to the company doing it, it's a small fortune because they have so many small holes. I just want people to think about it.

Eckman said we did mention it in resource strategies. We'll add a couple of sentences in this chapter about exploration risk.

Member Karier asked for a clarification on the process of closed loop geothermal, which staff provided.

Member Lorenzen asked what still needed to be looked at in the Appendices.

Eckman said that Appendix I and G should be looked at.

Chapter 14: Demand Response

There were some changes in the supply curves and some narration changes. John Ollis, staff power system analyst, said that the biggest change was the price of the fourth minute.

Eckman said there were deletions insertions of data. Staff added a sentence that it looked at demand response for peak, and it would be useful for other applications and ancillary services.

Chapter 15: **Analysis of Alternative Resource Strategies**

This is a more-lengthy version of Chapter 3.

Member Smith pointed out some needed edits on page 18.

There was a discussion of table 15-8, which looks at the social cost of carbon and other scenarios. Where they retired coal and didn't allow natural gas to be brought on, it's a very expensive incremental cost. You get a lot of impact right away, but when you look at it, it's expensive to pursue.

Member Lorenzen said the relative magnitude seems to be missing from the table. He's looking for a baseline. Kujala said that the 351 MMT was cumulative in the study. Kujala referenced that the Cumulative Emission Reduction Over SCC-MidRange Scenario (MMT) of 25 is in addition to the 351 to provide perspective. Member Lorenzen suggests revisions to make it clearer.

Member Karier agrees and thinks that perspective is missing a bit. "What happens when you add renewable obligations on top of those two?" he asked.

Kujala said you just see a higher cost if you put the 35 percent on top.

Karier said he'd like to see a baseline and the increments.

Eckman said they would work on the table.

The narration has been updated to reflect the new charts. Yost said it was hard to understand, but he made his way through it.

Chapter 16: Analysis of Cost-Effective Reserves and Reliability

Eckman said to maintain adequate balancing reserves in region, we need to implement the Seventh Plan. That's the message of the chapter.

Member Smith said that there's a paragraph repeated multiple times throughout the Plan:

> Note that the total INC and DEC reserve requirements from Table 16 – 1 should not be summed to determine the maximum regional reserve requirement. This is because the maximum within-hour reserve requirement for individual BAs are not necessarily coincident with other BAs in the region. The maximum coincident INC reserve requirement for the region is 2,645 megawatts in January, while the maximum coincident DEC reserve requirement for the 3,063 MW in November.

Staff will take care of the repetition.

Ollis said that one of the main takeaways is that if we implement the resource strategy, we're okay. If we didn't do anything we'll be in big trouble. A lot of the major problems are in peak-load hours. Something that different than last time is that the hydro system had a little unused hydro capability in the system in some hydro conditions. Now, with the additional reserves for the entire region, it's pretty much tapped out all the time. You have to rely on the thermal, so it's something you have to keep in mind.

Chapter 17: Model Conservation Standards

No changes

Chapter 18: Coordinating with Regional Transmission Planning

No changes

Chapter 19: **Environmental Methodology**

There were minor changes. John Shurts, staff general counsel, said this updates how we did the analysis of methane. There is a methodology for quantifying environmental costs and benefits.

Member Rockefeller said he assumes that the amount of methane isn't having that relative impact right now. Shurts said that it's less volume, but it persists. Member Rockefeller said that could be misread. Shurts will clarify it per unit.

Member Lorenzen asked how much of a disconnect is there between our Plan, which says no new gas is needed over the next six years, and how much gas is actually going to be built in the region?

Eckman said time will tell. We saw in public comment that a fair new gas development, about 1,500 MW of capacity is being discussed. To the extent people take on our resource allocation issue, will have to be seen, but some of that 1,500 MW will be developed.

Member Lorenzen asked, "What about the McCarty plant?" Eckman replied that will be built. Port Westford is going online too.

Shurts explains that we're adding a line to point to the discussion in Chapter 3.

Member Karier said we discussed that we didn't look at all the impacts, just the energy impacts. He asked if we should we spell that out.

Shurts said you could get a broader sense of the issues in Sixth Plan.

Member Yost said that Chapter 3 already has a lot of detail about what we didn't do.

Chapter 20: **Fish and Wildlife**

Shurts said there were no material changes. It describes how the Council developed a resource strategy understanding the impacts to the Fish and Wildlife Program.

Appendix G: Conservation Resources and Direct Application Renewables

Contains the formulaic methodology for determining the cost effectiveness of energy-efficiency measures. It also is a lengthy chapter on the details of getting to the conservation numbers. We talk about 4,300 MW of conservation over 20 years. Appendix G contains the formula and a description of how to use it. We added a chapter that utilities might have different values to put in their cost-effective calculations.

Member Rockefeller asked if this has its roots in the Fifth Power Plan.

Eckman replied that the formula comes from the First Power Plan. We made it explicit in the plan because there was question on how some could take our findings and translate it into taking individual measures, and determining if they are in or if they are out.

Member Rockefeller said that Initiative 937 in Washington was passed after the Fifth Plan. The utilities said they don't have to follow any methodology after the Fifth Plan. Eckman said it's the same math we used in the Fifth Plan.

The RTF employs this methodology in its work as well.

Appendix I: Environmental Impacts

Shurts said there are six categories of changes. He credited Nate Larson and Gillian Charles for their work on this section. The changes in the draft aren't too significant Updates came from comments. We updated tables for costs and added more information about the methane issue. We described two other resources: wave energy and offshore wind.

We tried to get environmental effects from distributed generation, but we couldn't get enough data, so that's for the Eighth Plan.

We added a section on the environmental impacts of conservation resources. We gave examples and discussed how the Council captured those.

Member Yost thought it was pretty well done. Coming from the West Coast, they did pretty good. It was well documented.

Member Rockefeller said you didn't mention transmission. It's a real concern of Washington Fish and Wildlife. We do have a section at the end on that, Shurts said.

Member Lorenzen said due to the importance of this section. We should review and then vote on this.

Member Yost said he doesn't understand the environmental impact of turning off lights through demand response.

Member Lorenzen said that the Public Affairs Committee will meet in the conference room.

Adjourned at 4:25 p.m.

Tuesday, February 9, 2016

Council Chair Henry Lorenzen called the meeting to order at 1:31 p.m. All members were in attendance.

NORTHWEST POWER AND CONSERVATION COUNCIL MOTION TO MEET IN EXECUTIVE SESSION

Member Booth moved that the NWPCC meet in executive session at the call of the Chair to discuss matters related to civil litigation. Member Smith second.

The motion was unanimously approved.

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

Fish and Wildlife Committee

Member Bradbury, Fish and Wildlife Committee Chair, reported that the committee reviewed two funding requests that will come before the Council today. One request on ocean research received an endorsement for partial funding.

Another item was a report by Council Member Jennifer Anders' cost savings workgroup on the questions she posed to BPA. Staff shared budget priorities, which will come before the Council in the coming months.

Power Committee

Member Smith said that no meeting was held.

Public Affairs Committee

Member Anders, Public Affairs Committee Chair, reported that they yesterday afternoon. The entertained three items. First, the contract with Owen Jones was terminated. It was determined that the direction of the contraction wasn't consistent with the Council's vision in the RFP. They have decided to put out a new RFP with input from a firm. They will combine with the RFT website as a first step.

They had a short discussion of the August 16 Congressional tour, which will be based out of Spokane. It will feature tours of Grand Coulee and Lake Roosevelt.

Last, given that we will be distributing the Seventh Plan tomorrow, the committee handed out talking points for Council Member review.

1. Council decision on project reviews.

Mark Fritsch, project implementation manager, presented two, within-year funding requests. Part of the FY 2016 first quarter BOG request to the Council. They were presented to committee last month and had a 14-day public comment period. Today, we took a staff recommendation to the committee.

The first is Lake Roosevelt Data Collection, Project #1994-043-00. It addresses the suppression of northern pike in Lake Roosevelt. The Spokane Tribe of Indians (STOI) is requesting $71,211 in expense funds for the removal of Northern Pike from Lake Roosevelt. Northern pike have been found with increasing frequency in Lake Roosevelt since 2009. Spokane Tribe is part of an effort to do gill netting and suppression. In an effort to proceed with the suppression effort until the science review is complete, the STOI has requested that they be allowed to continue the gill netting effort March 2016 as supported last summer by the Council. The cost associated with this effort is $8,507. All other elements associated with the northern pike suppression effort would be dependent on a favorable science review.

Fritch said they would be back in April to review the status.

Project 2 is *Ocean Survival Of Salmonids,* Project #1998-014-00. The National Oceanic and Atmospheric Administration (NOAA) is requesting $141,309 in expense funds to expand and seek additional data and analysis associated with their marine survey work. It has three components:

1. Additional ship time, which totals $36,000.
2. Analysis of parasites in the fish's stomachs, the smolts in the ocean. Gives an idea of what fishes eat as they transition from the fresh to the marine environment.
3. Do some work with the otoliths (ear bones) in the fish to refine the size and timing of the migration of the fish and their transition.

Based on outcomes of the *RME and AP review*, Council priorities and the anticipated ruling on the judge in the BiOp, Fritsch said the committee suggests just funding the additional ship time of $36,600.

Member Karier said the Council is developing a new research plan, and would rather make the decision in total rather than piecemeal.

Member Rockefeller said that was the thinking of the Fish and Wildlife Committee. This should not be a precedent for continual BOG funding and would be a one-time activity. Another nuance was the invitation to NOAA to come back to the BOG committee if their attempt to get funding from other sources falls short.

Member Booth echoed the same sentiment. We need to be careful about approaching the BOG as an alternate funding source, he said. They should receive alternative funding.

NORTHWEST POWER AND CONSERVATION COUNCIL MOTION TO APPROVE WITHIN-YEAR PROJECT FUNDING ADJUSTMENTS FOR IMPLEMENTATION

Member Booth moved that the Council recommend that Bonneville implement within-year funding adjustments for the following two projects, as presented by staff and recommended by the Fish and Wildlife Committee [with the changes made by the Members at today's meeting]:

Project 1994-043-00 Lake Roosevelt Data Collection: An additional amount of $8,507 for the March 2016 gill netting effort. Any further support is conditioned on favorable ISRP and Council review for all remaining efforts associated with the removal of northern pike.

Project 1998-014-00 Ocean Survival of Salmonids: An additional amount of $36,000 for the addition of three-days of ship time for NOAA to gather data associated with their marine survey work.

Member Bradbury second.

The motion was unanimously approved.

2. Presentation on Independent Scientific Advisory Board (ISAB) and Independent Scientific Review Panel (ISRP) report on critical uncertainties.

The 2014 Fish and Wildlife Program calls for the Northwest Power and Conservation Council to review ongoing research and revise the Program's Research Plan. The current Research Plan (Council Document 2006-3) lists 44 critical uncertainties, defined as "important knowledge gaps about resources and the functional relationships that determine fish and wildlife productivity in the Columbia River ecosystem." To help update the Research Plan, the Council asked the Independent Scientific Advisory Board (ISAB) and Independent Scientific Review Panel (ISRP) to reexamine these uncertainties and to recommend revisions after reviewing progress achieved by current research, monitoring, and evaluation projects within the Program.

"You gave us a heck of an assignment," said Steve Schroder, ISRP chair and ISAB vice-chair. "There was no lack of uncertainties. When Nancy Leonard (the Council's fish, wildlife and ecosystem M and E report manager) went through 130 reports, she identified 1,400 uncertainties."

Schroder said the uncertainties were looked at, put into one of 14 themes and then organized further into a searchable database. Then they were asked to prioritize them by how much progress has been made and how they met the Fish and Wildlife Program's goals and objectives.

We came up with 50 of them. We developed rationales for each of the top 50. They're our opinions. You'll want input from fish and wildlife managers, project proponents, and researchers and others working with resources in the Basin.

Next, you wanted use to look at how much progress has been made in the 144 critical uncertainties identified in the 2006 Research Plan. Council staff extracted 184 Annual reports for us to review. We determined each project's direct and indirect connection to those critical uncertainties.

A lot of projects were just small things. There were 30-60 projects that were truly research focused. It was very useful for us to read these things. It gave us an idea of the breadth and scope of all the activities in the Basin. In many cases, more projects indirectly addressing uncertainties than addressing them. There's tremendous potential in getting people

together who are working on the same problems. Our first recommendation is to try and facilitate communications results and challenges.

Member Karier said when he read executive summary, he wondered what indirect is? It's what contributes to addressing uncertainties.

Other recommendations are:

- Anticipate climate change effects
- Ensure water quality and security
- Support research on contaminants
- Evaluate the effects of non-natives
- Continue to assess the benefits and risks of artificial propagation
- Refine approaches for harvesting hatchery fish
- Track changes in population structure and genetic diversity
- Demand rigorous monitoring and evaluation programs
- Recognize that restoration takes time
- Encourage research on ecological interactions
- Anticipate human development impacts – this one's really important.

"We heard that the population is going to double in the Basin by 2100," Schroder said. "Where are those people going to live, what resources are they going to draw upon, and what is their attitude going to be about natural resources? Is society going to be willing to put money into natural resources to maintain the quality we have now? Those are big uncertainties."

The rest of the presentation is a justification for these recommendations. Since 2005, 4,600 actions have taken place associated with habitat restoration. There are uncertainties associated with habitat restoration.

Schroder said that the Basin has some of the foremost thinkers in habitat restoration. He pointed to the successful Methow River Floodplain Reconnection project as achieving a 400 percent to 800 percent increase in fish abundance. Schroder also talked about the uncertainties on whether supplementation can increase the population of salmonids. The results aren't as important as people have identified factors that affect supplementation. These include release location, brood stock origin and history.

Another uncertainty is Pacific lamprey enhancement. At the Yakama Tribe's lamprey hatchery, they're working on questions on what kind of food to feed them, rearing densities and other questions. He also mentioned continuing to assess the benefits and risks of artificial propagation, including the need to understand its genetic effects.

He mentioned methods for assessing population structure and diversity, and environmental DNA. Researchers have come up with a technique of collecting water and identifying species (both their presence and absence). Every fish taken from the hatchery has DNA attached to it.

Moving forward, we should track changes in population structures. The role of mainstem habitat is poorly understood. For example, is it an important rearing area for juvenile salmonids? What is the overall abundance of non-native fish species in mainstem habitats? What is the cumulative impact of non-native predation on juvenile salmonids?

For example, the American shad population in the Columbia River is the largest in the world. Between five and six million come back in the spring to reproduce. They compete with juvenile salmon for food.

The New Zealand mud snail can multiply to a half-million in density, and can consume 75 percent of the primary productivity in the stream. It's competing with aquatic insects, which are an important part of the food chain for salmonids. It's part of evaluating the effects of non-native species and would be valuable for the research plan to consider.

Alec Maule, ISAB/ISRP, covered the hydrosystem and fish passage. The uncertainties he mentioned were:

- How do dam operations affect fish survival (salmonids, eulachon, sturgeon, lamprey, others)?
- How do dam operations differentially affect salmon life stages and stocks?
- How do water temperatures at mainstem dams affect fish passage?
- How does multiple dam passage vs. transport affect SARs?
- A new uncertainty is reintroduction above blocking dams feasible?

Moving forward, there's value in rigorous monitoring to address these questions. Injectable acoustic tags would be a valuable tool in that effort.

Looking at contaminants, what are distributions, uses and concentration of toxics in the basin? How do those impact fish in the region? They are increasing, such as mercury and pesticides. Mercury is responsible for the most fish warnings.

Chemicals of emerging concern include flame-retardants and pharmaceuticals in the environment. The sources are varied, including the atmosphere, wastewater, sewage and storm water runoff.

Legacy contaminants are called that because they were outlawed in the 1970s, but are still in the environment, such as DDT and PCBs. They can cause biomagnification. This is when it is passed on up in the food web to other animals in higher concentrations.

Member Bradbury said he had never heard of that and asked for an explanation.

Maule said these contaminants love fat and are in the fat of these animals. They don't clear from the body and stay in the fat. It's a special issue for the lamprey since they spend up to 10 years living in the sediment and are picking up these contaminants. We know they exist in the fish, but we don't know the extent of the impacts. He asked for continued support of research on the effects of contaminants and to identify cleanup areas in the Basin.

Maule next talked about Climate Change, which has two uncertainties:

1. How will climate change affect fish and wildlife in the basin?

2. What strategic actions can we take to ameliorate those affects?

Moving forward, we need to anticipate climate change and act strategically in the next Power Plan. Why should the council be concerned about climate change and contaminants? Millions of dollars spent on fish passage and habitat restoration might be wasted, and the impact on human health from eating contaminated fish — especially Tribal subsistence fishers.

Greg Ruggerone, ISAB Chair, covered the next section of uncertainties.

Two questions are:

1. To what extent is the viability or abundance of native fish and wildlife populations in the Columbia River Basin jeopardized by predation?

2. How effectively can undesirable impacts of predation be ameliorated by management actions including hydrosystem operations, habitat modifications and predator population control?

A third area is compensatory mortality.

There were several uncertainties related to the harvest of salmon and other species. Medium progress has been made on mixed stock fisheries, new harvest strategies, and incorporating the ecological benefits of spawning escapements.

Moving forward, there are three priority uncertainties were identified that involved harvests, largely stemming from the 2006 Research Plan, plus the recent ISAB report on density dependence. This first critical uncertainty involves spawning escapements to produces productive and sustainable populations.

The second harvest critical uncertainty involves both biological and social sciences to develop harvest strategies that benefit both people and fish, which is a primary goal of the Fish and Wildlife Program.

An area of progress involves genetics, using an efficient tagging approach.

The third theme from the 2006 critical uncertainties is estuary, plume and ocean. There has been a moderate to high-level of improvement. Effects of actions in the fresh water habitat can be impacted by not tracing survival in the estuary. How much do specific factors impact growth, fish conditions, residence time and age at maturation?

Ocean conditions for smolts in 2014 and 15 were mostly poor. The outlook for coho and Chinook in 2016 is poor to intermediate.

Questions include: How can we restore estuarine habitat to increase the carrying capacity in the estuary for salmonids and other focal species? What are the responses of the focal species to alternative restoration actions?

Member Rockefeller observed that the group's first recommendation addresses communication, which is building synergies among similar projects. It strikes me as something that if we could figure it out, it could have benefits. If we sponsored a conference for entities involved in research or managers, would you or representatives of the board be available to help feed the process?

Erik Merrill, ISRP/ISAB coordinator, said if we stay in our independent role, it wouldn't be a problem at all.

Schroder said it seems like if you're going to have a research plan, you need to use it to direct future activities. When project proponents are writing reports, we want them to tell us HOW they're addressing the issue. I don't see a lot of exchange of information and techniques.

Jim Ruff, staff manager of mainstem passage and river operations, said that he and Karl [Weist] just returned from the Willamette Science review meeting being held in Corvallis, a Corps of Engineers research symposium. The Corp sponsors it for the Columbia and Snake. BPA used to do it with fish and wildlife projects. But there is such a large number, we need to find a way to break it up into topics.

Member Karier remarked that he didn't think their job is done. The Plan should guide future research. Once we finalize the critical uncertainties, we need to make sure we guide towards research priorities and then have an annual assessment of progress. It's up to the Council to figure out which uncertainties lend themselves to legal obligations, and some that have strong regional interest.

Member Anders said she was struck by the public engagement theme being number one. Five uncertainties are related to it. "I looked at your landscape report from 2011, a lot of similarities are there," she said. "Not only do we have a need to disseminate information, to encourage cooperative management, but you say that effective dissemination may be a necessary condition — but it may not be sufficient to ensure expected outcomes due to a range of factors, such as community perceptions, beliefs and mental models that lead to different reactions to scientific information. That's code for having proactive discussion about the human role in our landscape."

"If that's true, you phrase this as a critical uncertainty, but I can answer that question now," she continued. "The answer is no, we don't do that. Is it a critical uncertainty or is it something you want the council to be proactive about because it's built into our program?"

Dave Heller, ISRP, said that we would need to look at engagement and try to measure effectiveness in terms of program goals. Do you do it the same everywhere in the Basin? Or do you use diff techniques for different audiences? It's monitoring effectiveness in terms of results and costs.

Member Yost said he's not surprised with the report. "If the question was 'how many certainties do you have?' the room would be deathly silent." He talked about an example of measures dealing with irrigation and removing cattle from streams as examples of being politically correct to interfere with Mother Nature.

We need to look at what science recommends, but we need a group of statesmen, not politicians to decide what to do. I hope statesman will take your report and decide how to proceed.

Member Lorenzen said, “I’d agree as long as the statesmen agree with me.”

Council Member Bill Booth thanked the group for their work and said, “Often work like this doesn't result in much change. If we’re going to spend time developing a new research plan, we need to do it from a perspective of what we’re trying to change and a decision on what our goal is.”

3. Update on next steps for revising the research plan

Patty O’Toole, staff program implementation manager, introduced the need for revising the research plan, which is called for in the 2014 Fish and Wildlife Program.

We already have a research plan, approved by the council in 2006, O’Toole said. We don’t talk about it all that much. It can be a simple process or it can consume a lot of time. Biological systems are complex. We have a lot of questions about them. We’ve been trying to get to the “so what” on why this is important. The ISAB and ISRP looked at every one of these critical uncertainties and asked what are the management implications. Their report is useful as the Council thinks about its priorities in the next couple of months. We’re trying to make better decisions. We need to think about what’s important moving forward.

Council Member Karier has done a lot of thinking on this. “It’s a tough process and it shouldn’t be,” he said. “The research work has suffered from neglect. Research and monitoring is about 35 percent of our budget. The ISAB and ISRP have given us a comprehensive report on what we’ve learned and what we have left to learn. I vote for the simple version. We don’t need to reproduce the ISAB and ISRP report, just a roadmap for going forward.”

He added that the critical uncertainties provide issues we should study and any priorities we want to lay over that. As Member Booth suggests, we can have some applied research to tell us what’s working and what’s not.

The ISAB and ISRP report has a number of bullets of priorities and we should look at those. Ultimately, goes back to the Council to interpret what we see as the most important issues for funding and program decisions. Plus, we can get that input from the region too. A simple, easy-to-understand report would be better than a great big report.

Member Rockefeller said there are a number of ways to look at this. We’re dealing with biological systems that are complex and we have found it convenient to divide the Columbia Basin into sub-basins. There are 58 or 59 that we’ve identified. Then there are provinces, which are aggregated sub-basins. We should be making sure that the conditions of those biological systems speak to us in terms of constraints and challenges. I wonder if the uncertainties identified by the scientific community could be allocated or associated with the sub-basins provinces. Whether we also could draw upon the work that National Marine Fisheries Service, the Council and others are pursuing to identify recover objectives. We are trying to identify what our recovery goals are. They could be constraints or uncertainties

that are basinwide and others that are limited to certain locations. I don't know if we can go back and ask the ISRB to identify that.

O'Toole said that she's familiar with the set of uncertainties. Many are global or we can call them out if they're about different species. The ISRB looked at how different projects addressed those uncertainties.

Member Booth said we tend to group this category together. With 187 projects, a lot of this is just monitoring results. We don't have that many pure research projects, do we?

Member Rockefeller said it's 30 to 60.

Member Booth said you could always improve the monitoring plan. We do have a manageable sphere of pure research going on. It's not just the Plan, it's the projects involved as part of that Plan. We can do it without a three-year process.

O'Toole said that's right. The review will begin with an update of how previous research funds were allocated to particular categories and critical uncertainties. Some are direct and indirect. We just have to figure out where to apply that line.

Basic steps:

- Release of the plan. Seek public comment on the report. (march 12? Recording)
- Meet with agencies and tribes, other partners to seek input
- Use the report, comments and input to revise research plan
- Review the draft with committee and council, seek ok oto release plan
- Release draft for review, collect comments
- Revise draft plan
- Review revisions with committee
- Review revisions with council, seek approval by council
- Begin research project review.

The Plan has been released. As soon as it came out, we put it on our website. There's a 45-day public comment period with a March 11 deadline. We will have a meeting with agencies and tribes, and others who may want to provide input. The day before the March Council meeting, March 7, we'll put a meeting together for managers to provide input. Then I'll be back before the Council to decide how to form that plan.

Member Yost said there are two things he interested in: He wants to keep paying for the benefits of large woody debris, steam bank stabilization and riparian fencing to learn the biological benefits are to that water body. We've been doing it forever and we should keep doing it. Also, as a goal, a recovery goal, I want every participant to put down the number of fish they want to kill, so we know what the end goal is.

Council Business

NORTHWEST POWER AND CONSERVATION COUNCIL MOTION TO APPROVE THE MINUTES OF THE NOVEMBER 17-18, 2015, COUNCIL MEETING

Member Booth moved that the Council approve for the signature of the Vice-Chair the minutes of the January 12-13, 2016 Council Meeting held in Portland, Oregon. Member Anders second.

The motion was unanimously approved.

NORTHWEST POWER AND CONSERVATION COUNCIL MOTION TO APPROVE THE CHARTER OF THE INDEPENDENT ECONOMIC ADVISORY BOARD

Tony Grover, staff fish and wildlife division director, presented the need to approve the charter of the IEAB. The budget is $200,000 per year. Travel costs shouldn't exceed $20,000. Dr. Terry Morlan is the chair. Last year, we reappointed two existing member of the IEAB: Dr. William Jaeger and Dr. JunJie Wu at OSU. They can be voted upon in a bundle.

Member Booth moved that the Council approve the Charter of the Independent Economic Advisory Board for a period of two years, as presented by staff [with the changes made by the Members at today's meeting]. Member Bradbury second.

The motion was unanimously approved.

NORTHWEST POWER AND CONSERVATION COUNCIL MOTION THAT THE COUNCIL AUTHORIZE STAFF TO REAPPOINT DR. WILLIAM JAEGER AND DR. JUNJIE WU TO THE INDEPENDENT ECONOMIC ADVISORY BOARD

Booth moved that the Council reappoint Dr. William Jaeger and Dr. JunJie Wu to the Independent Economic Advisory Board for a one-year term each, as recommended by the staff. Member Bradbury second.

The motion was unanimously approved.

The Council then convened in executive session.

Adjourned at 3:25 p.m.

Wednesday, February 9, 2016

Council Chair Henry Lorenzen called the meeting to order at 8:31 a.m. All members were in attendance.

Member Lorenzen said that a press conference is scheduled for 11 a.m. He would like to go over the talking points received yesterday to make sure there is agreement on those. He asked Eckman to lead off the press conference with the salient points of the Power Plan.

Continuation of review of changes in chapters for the Seventh Power Plan

Executive Summary

Eckman reviewed the change to executive summary paragraph that adds and describes the magnitude of rooftop solar impacts. Member Rockefeller observed there's no mention of the challenge of storage or intermittency of distributed generation. Eckman said they discuss that in the emerging technology area in Chapter 13.

Member Lorenzen said storage may be more important with larger, centralized renewables such as wind or utility-scale solar.

Eckman replied that storage is a ubiquitous problem. It's the bell ringer if we solve it for renewables of any type.

Rockefeller said that it's fine if it's there already.

In the carbon section, language was added about the operational challenges of integrating a lot of renewables. Next we explain what happens with the alternate policies where we incorporate the social cost of carbon across the Westwide system.

Chapter 3: Most cost-effective CO_2 emissions reduction policies are those that result in the retirement or significant reduction in the use of existing coal plants.

Member Lorenzen said that looking at single policy option of reducing carbon with the lowest cost. The other way is to require they shut down the coal plants by government regulation. Eckman said that it turns out that's not the lowest cost, because the Westwide imposition of the carbon market lowers our cost.

In Chapter 3, there is identical language from executive summary. Plus, restructured paragraphs to go through single, combined policy options. It describes the cheapest way to get there with a single policy, then it looks incrementally at combined policies.

Member Yost said that one of the problems is when we explain what the cost of these programs are. There's nothing they can relate it to, such as what is the cost today? I'm not sure they're going to realize about how much money that is — how expensive it is compared to what we're doing today.

Eckman replied that it's in the table. It's 45-55 percent more expensive than the "no-stayed" Clean Power Plan. It's a pretty significant hit to get to these numbers. The average system cost is $80 billion for all other scenarios.

Kujala said in Chapter 15 tried to sort out the average residential bill, so that's the best way to try and get to the different scenarios. It doesn't show the impact on each residential customer. But those rates would be different depending on if they're an IOU or public customer.

Member Yost said, "You didn't do a good job on the rates and bills. But it's okay because we didn't select any of these as THE PLAN. We're supposed to have an economic power supply and we have. We pointed that out. This is just explaining what options we're looking at and I'm okay with that.

Member Lorenzen remarked, “I’m pleased with this additional description. Adds a lot for those looking at our plan for policy direction.”

Eckman we have not repeated several scenarios in the draft. Felt we learned as much as we could and we felt we didn’t need to rerun them. On advice from counsel, we need to put it someplace in the Final. We put it into Chapter 15 and Appendix O, and moved the glossary. It will show what the decision-making was based upon.

Member Lorenzen: from a procedural standpoint, how will it impact our ability to adopt the plan?

Shurts replied that as long as you understand what we’re doing, you can move to adopt the plan, knowing that appendix will be there. In the motion, we also authorize staff to do some editorial.

Member Yost said you’re staying there were five or six scenarios we didn’t run again with the lower natural gas prices.

Eckman said we didn’t run planned and unplanned loss of resource, high social cost of carbon and several others that we talk about in the draft, because we learned what we could, there was no public comment, and we’re moving on.

Member Yost said you’ll just explain why they weren’t rerun.

Eckman we’ll put in a paragraph at the top, explaining why. If we thought they would have changed the strategy, we would have rerun them. Chapter 15 has a more complete documentation of the initial runs.

Appendix I: Environmental Effects of Electric Power Production

Shurts said we don’t have any changes to Appendix I, except we might add that the Clean Power Plan got stayed by the Supreme Court. We’ll put that in a footnote.

Member Karier asked how long will it delay it?

Shurts said the Supreme Court not only stayed the Clean Power Plan until the D.C. court rules on the merits, but until the Supreme Court can rule on it. A ruling by the D.C. Circuit will not affect the stay order. The assumption is that even with an expedited case, the D.C. Circuit will get an opinion out in the summer. Then the Supreme Court will take it if it agrees to hear it. That will require a year and a half of litigation. Plus we have a Presidential election in between.

Member Karier had a question about the response to Member Yost’s question about the monthly pattern of the surplus.

Member Rockefeller asked if we could look at the Washington statues in place? There is a variety of pertinent statutes, such as the cost of carbon. Shurts said that we address that they exist, but didn’t get into them in any great detail.

Eckman said that we do reflect state regulation for carbon emissions allowed for new generation. Oregon, Washington and Montana have restrictions restricting the kinds of heat rate and carbon emissions output that are allowed for new generation development. Those are already incorporated in our selection of resources. The CPP was redundant with three states that already have that in place for new resources.

Member Rockefeller there are probably three or four distinct statutes that have some bearing. Shurts said we'd come back to it.

Appendix M: Climate Change

Fazio did some updates to this chapter. The key is that in the past, we used information from global circulation models from the Northwest. The River Management Joint Operating Committee (RMJOC) is in the process of taking the latest International Panel on Climate Change (IPCC) results and downscaling them for the Northwest. That information won't be ready until the end of this Fiscal Year or early next Fiscal Year. We use some IPCC 4 data and a different technique to analyze how the physical impacts of climate change affect river flows and temperatures. We did that by looking at the variations in stream flows compared to the average change for climate. RMJOC had no issues with it. The key conclusion is that the physical effects of climate change should not affect the resource strategy in the first five years. Because of tremendous energy efficiency driven by the Council in the region, we've gone a long way to reducing emissions.

Member Karier said you're focused on the average. Another part is that there's more extreme weather. And that's something we don't have data or insight into.

Fazio there are two limitations to this and that's one of them. Also, I might be missing future stream flows we haven't experienced yet.

Shurts said that if we had time, we would have gone deeper into different state policies. We do have a review of RPS, including Washington's on p. 104. We make clear that we're dealing with federal regulatory compliance and state RPS, but there is a range of other state regulations.

Appendix B: Wholesale and Retail Price Forecast

No change in financial assumptions from the draft. There are some changes in natural gas and electricity price forecasts. The tables were changed to reflect those. Natural gas prices were down by about a $1 MBTUs, and that resulted in a reduction in electricity of about $3-$4 per MWh.

Appendix C: Fuel Price Forecast

Changes were similar to Appendix B, where we lost $1 per MBTUs. Chart with the new gas supply forecast. Member Yost asked if staff will do a review of fuel prices every year. Eckman said it depends on the Council. We hadn't planned on annual, but we can update any point in time. We'll certainly do s by the midterm.
Member Yost remarked that commissions aren't using Council's fuel forecasts any longer.

Appendix D: Economic Forecast

In the economic forecast we went through a discussion on the DSIs and the methanol plants. There was a change in loads with respect to the plants shutting down for a period of time. In the near time, Alcoa shuttered plans and bringing them back on in a year. Plus, there are three possible new methanol plants.

Appendix E: Demand Forecast

There's a discussion on data centers, cannabis, PVs and DSIs. We used to have a lot more load uncertainty than we do now.

Member Karier asked about the possibility of aluminum plants coming back. Eckman said we expect half of them to reopen.

Massoud Jourabchi, staff manager of economic analysis, said they are hoping in the next plan that can produce more dynamic loads for DSI, and embed them into the RPM. This issue was in the previous plan, but because the size of DSI has gone down so much, it's not as big an issue. There is still a 300-500 MW swing.

Appendix H: Generation Resources

Some discussion of storage was added here. They did not have conventional geothermal in the Plan, so that was added. Staff added Westside utility-scale solar has more marketable price because there's no transmission associated with it. Member Lorenzen question had a question about transmission cost, whether they're looking at point-to-point or network. Eckman said, "Network, and for integration we're using the tariffs that are out there." Eckman said they we have an action plan to look at both.

Appendix J: Demand Response

Demand Response was updated a bit with the chapter. We didn't get a lot of new info. There was some change in marginal cost.

Appendix K: Reserves and reliability

Eckman said that the big change is we got new information about what BPA was carrying for balancing reserves. We could incorporate that into the total regional reserves. The principal summary is that we were fine because incorporated the reserves for the entire region, not just Bonneville's region. To make ends meet, we need to achieve energy efficiency and demand response goals so we have adequate balancing reserves in 2021. The implementation of the Plan is what keeps us in balance. When we were only looking at Bonneville's area, it was less of a requirement, but over the whole region, it's needed to make ends meet. That's stated in the plan.

Member Rockefeller asked if the executive summary captures that. Eckman replied it doesn't.

Kujala said that it's a conservative estimate of reserves under all water circumstances. It's to meet requirements under all possible water conditions. Most of the time, we have enough water to cover reserves.

Eckman said that market access might end up being very expensive.

Member Lorenzen asked how does PacifiCorp joining CAISO impact it?

Kujala said has an impact because could reduce the reserves they're required to hold. It's an evolving market and a lot of things that have to be worked out between now and then.

Eckman said any utility would have to bring a lot of reserves to join.

Member Lorenzen said that a major question is to what extent the demand response obligation falls on BPA versus the other utilities.

Kujala said this is where we put it on each utility to look at their own adequacy.

Appendix L: RPM

The RPM is in depth read for those who like equations. It addresses the method.

Appendix O: Glossary

This is now the glossary and will become Appendix P as discussed.

Eckman said that staff has completed its course. It's now time for Council Members to weigh the benefits and costs and decide what to do.

Member Karier said he wanted to talk about an email. He said the issue was in the Northwest we don't have firm power every year. Some will be drought years, but other than that, there should be power available. But it's different month by month. And that could complicate the long-term contracts that we're proposing. And we should look at the data.

Fazio discussed how much surplus is on hand by month using a graph.

Member Rockefeller observed that in September and October, there's less.

Fazio said October is when we start the water year.

Member Anders asked about the bars dividing April and Aug? Fazio said those are months were the river flows are vastly different – the shoulder months for flows.

Member Karier said that even in an average year, a time when we won't generate a marketable surplus. Other months there will be enough. Whomever takes the risk on this contract will have to …find power in some month.

Eckman said it depends on the load shape. What are they buying? Winter, month-to-month? It depends.

Fazio described the agreed-upon operations of reservoirs in the region.

Kujala said these conversations make him nervous. We're not advocating planning for water. Different utilities have different risk profiles and they can combine to share risks. We don't want to march forward and depend on surplus water showing up.

Fazio talked about historical aluminum loads and contracts to curtail that load in the case of critical hydro.

Member Yost said that the difference is surplus power, but there could be loads required that reduce that surplus. The loads will be allocated more in the winter than in the spring. So you haven't shown us the surplus every month that wouldn't be allocated or sold. The objective is to keep energy in the region. That may impact BPA's bottom line. We need to take a look at that.

Fazio said for planning purposes, the region has always planed its resources on the FELCC line. There's a lot of potential surplus.

Member Yost said there may need be a different mechanism. But increasing the length of time for the contract isn't one of them. The issue here is risk. There needs to be a different mechanism for BPA, utilities and their customers that will give the PUC and the assurance that the energy will be there. Extending the length of contract won't do it.

Kujala said longer contracts probably would be able to avoid having to add resources in an IRP setting. But that would have to be a five-year contract or something along those lines.

Council decision and adoption of the Seventh Power Plan

NORTHWEST POWER AND CONSERVATION COUNCIL MOTION TO ADOPT THE SEVENTH NORTHWEST POWER PLAN

Vice Chair Booth moved that the Council:

- approve the Seventh Northwest Power Plan, as presented by staff, with the changes agreed to by the Members at this February 2016 meeting;

- authorize the staff to make non-material, editorial revisions to the Seventh Power Plan as approved by the Council and otherwise prepare the plan for publication;

- direct staff to prepare for later review and approval by the Council the necessary statement of basis and purpose, including response to comments, to accompany the Seventh Power Plan; and

- direct staff to provide appropriate notice of the Council's decision to approve the Seventh Power Plan.

Member Lorenzen called for a roll-call vote.

Member Karier first wanted to discuss the need for an editorial board.

Shirts said the Council could designate a couple of members. You can do it after voting.

Member Lorenzen called for a roll-call vote.

Member Smith voted aye.
Member Yost voted aye.
Member Karier voted aye.
Member Bradbury voted aye.
Member Rockefeller voted aye.
Member Booth voted aye.
Member Anders voted aye.
Member Lorenzen voted aye.

Motion carries unanimously.

Member Lorenzen said it is the culmination of a lot of work and said the members of the Council worked very hard going through the plan, and credited the Power and Fish committees for bringing it to this point. He also said he is overwhelmed by the quality of work by the staff and the time put into it. There was the complete revision of the model and a lot of risks associated with that. Just going through the appendices … this is amazing stuff. There's such cutting-edge analysis. Even if you say it's a regional model, the methodology set forth is going to be valuable to the region.

He asked Members to read talking points and ensure that everyone is in agreement.

Member Karier commented that it's his fourth Power Plan that he's voted on. He expressed immense appreciation for Eckman and his staff. The work done was brilliant. It set a standard for the region and the country. Some of this has not been done before: assigning capacity values to renewables and efficiency. I'm very proud to be part of this effort, he said. It was a bit of a test to combine seasoned power planners with clever young analysts. We could see the team effort and it was quite inspiring.

Eckman said he couldn't commend his staff enough.

Public comment on any issue before the Council

There was no public comment.

Adjourned at 9:56 a.m.

Approved March _____, 2016

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Vice-Chair