

# PNUCC REPORT Council



## Northwest Power and Conservation Council August 5-6, 2014

Convened in Portland, the Council had a briefing on BPA’s action plan to meet the energy efficiency goals in the Sixth Power Plan. The Power Committee got an initial glimpse at proposals for high-level indicators for the power system, including a newly devised System Reliability Index. Staff compared four scenarios in the Sixth Power Plan’s resource portfolio with the proposed Environmental Protection Agency carbon regulations; the analysis is teeing up questions for the Seventh Power Plan. Climate gurus reported that an El Niño taking shape near the equator is fizzling. Next Meeting: September 9-10 in Portland.

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### The Agenda

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#### Are We There Yet? Metrics for the Power System

Council staff rolled out a first look at high-level indicators (metrics) for the power system at the August Power Committee meeting. The Council has approved indicators for the fish and wildlife (F&W) program and is now devising them for the power side, according to staffer Tom Eckman. We came up with a list of indicators for the Power Committee to consider based on the

purposes in the Northwest Power Act, he said: to encourage *conservation and efficiency* in the use of electric power; encourage the development of renewable resources in the region; and assure the region of an *adequate, efficient, economical, and reliable power supply*.

Potential metrics for conservation and efficiency include such things as cumulative savings since the Act’s passage, annual savings versus power plan targets, annual savings as a share of regional loads, levelized cost of savings, energy use per capita, electricity use per unit of economic output, and total energy use per unit of economic output. Potential metrics for renewables

include cumulative renewable resource development since 1980, annual contribution of renewables to total load service, and trends in renewable resource costs.

Potential metrics for regional resource adequacy and reliability include the current loss-of-load probability (LOLP) of less than 5 percent and a newly devised System Reliability Index (SRI), which staffer John Fazio explained is based on the probability of Grand Coulee refill and the use of stored water. The SRI reflects the probability that storage at Grand Coulee does not reach the level anticipated for fish operations by April 10, he said. If we run short of the level, it means we are using water for something else, Fazio noted. The proposed SRI is a prototype we could get working as a good companion to the LOLP, he told the committee.

The SRI provoked considerable discussion, including Jim Yost's observation that the Biological Opinion calls for refill by July 1. I don't think your portrayal of stored water is entirely accurate here, he said. The SRI result you describe might reflect a forecast error for the hydro system and not the use of water for another purpose, consultant Jim Litchfield pointed out. We could be "cruising toward refill" and find out in March that it's a drier year than was forecast, he said.

I'm not a proponent of this, Tom Karier stated, adding the following concerns: it isn't a yes or no answer, there are gradations; the system is all of the projects, not just Grand Coulee; and there is more to it than spring flows. We could spend a lot of resources to develop this and not get anything useful, he cautioned. Rather than worry about modeling something, why not look at the years when we actually had to suspend fish operations, Karier suggested, noting that 2000 was the last time that happened.

Henry Lorenzen asked why the SRI focuses only on the hydro system. What about other resources? Could you look at actual losses on the BPA or utility systems that affect customers? he asked. That gets into the question of transmission and distribution reliability, Eckman responded. We're trying to focus on what the Council has authority for in terms of a reliable power supply, Fazio added.

Eckman went on to describe potential metrics for an economical power supply, including the average regional residential electric bill versus the rest of the United States, where Northwest states rank among all 50 states, and electricity revenues as a share of gross domestic product. A potential metric for carbon emissions could be used to address the Northwest Power Act requirement for "due consideration" of the environmental impacts of resource development, he said. A carbon metric would be "an odd man out" since none of the other potential metrics track compliance with regulatory requirements, Eckman acknowledged.

I'm encouraged by the discussion, and there is obviously good news on the Northwest power system, Dick Adams of PNUCC said. But I'm not sure you need high-level indicators, he added. The proposals lack a metric for the hydro system, which has evolved and improved, Adams pointed out. Wouldn't we want to capture that? he asked. And what about natural gas? There are improvements in technology, and there could be a story about the efficiency of the units and how their use is changing, Adams said.

I'm perplexed by the outcome of the LOLP, and I'd like to go back and see what happened, he continued. The Northwest has built everything in the Council's plan, plus more, and yet by the LOLP metric, the system looks unreliable, Adams said. Why is that?

he asked. There's a mixed message if the Council puts out a plan, the region follows it, and we don't meet the 5 percent LOLP, Adams stated. That needs to be investigated, he added.

Power Committee chair Pat Smith directed the staff to come up with an issue paper on the indicators for the committee's September meeting.

Eckman briefed the committee on \$100,000 in contracts that have been let to consultants for work on the Seventh Power Plan. Among the contractors are former Council staffers Terry Morlan, Jeff King, and Michael Schilmoeller. Morlan will survey the Resource Strategies Advisory Committee members and others to identify issues for the power plan.



### **BPA Confident in EE Plan**

The Council's Sixth Power Plan calls for developing 6,000 megawatts of energy efficiency between 2012 and 2030, staffer Charlie Grist said. The plan also found that acquiring conservation at a faster pace reduces system costs, he said. The Council asked BPA how it would achieve the accelerating goals given the flat trajectory of its capital spending budget for efficiency, and Richard Genece and Danielle Gidding of BPA are here to talk about that and how the agency will monitor the achievements, Grist said.

BPA is committed to achieving the public power share of the energy efficiency target, Genece began. The target is 504 average megawatts (aMW) from 2010 to 2014, he said. BPA is back to normal energy efficiency budgets and is where it wants to be for meeting efficiency expectations in 2015, 2016, and 2017, Genece reported.

BPA has multiple sources of energy efficiency savings, he continued: programmatic, non-programmatic, federal standards, market transformation, carryover, and baseline adjustments. BPA funds about 75 percent of the programmatic savings, with utilities self-funding the other 25 percent, Genece said. An update of BPA's 2010 to 2014 energy efficiency action plan illustrates how we plan to achieve the 504 aMW across the different sources, he added.

The "good news" is that BPA and the public power utilities are on track to exceed their share of the Council target, Genece said. Through our collaborations and work with utilities, we see no risk that we won't succeed in achieving the target, he stated. We have seen higher than expected achievements in non-programmatic savings; slightly higher than estimated achievements in total program savings; and the self-funded utility achievements are in line with our forecast, Genece said.

If there was any question about whether utilities would deliver savings, the "resounding answer is yes," he stated.

BPA is in the process of setting annual savings goals for 2015 to 2017 based on public power's share of the numbers from the Council's Sixth Plan, Genece continued. BPA's total goal is 400 aMW for the three years, he said. Genece presented estimates of how the savings would be achieved from the various sources, saying "this is why we are comfortable with our ability to reach the targets." There is lots of research on non-programmatic savings and the degree to which they contribute to the total, he noted. "These are real savings and we need to be able to prove that they are there," Genece added.

Phil Rockefeller asked how BPA captures the impacts of codes and standards accurately

since states have their own codes that are adopted at different times. How can you be so confident? he asked.

All of our numbers are estimates, and there is some uncertainty in them, Grist responded. The Northwest Energy Efficiency Alliance (NEEA) does an analytical study of what the codes will achieve, he said. I don't know if there is a lot of independent review, but the NEEA advisory committee looks over the study, Grist said.

We've seen a big jump in the non-programmatic savings, Genece said, noting that there is a small field of experts involved in the complex work of estimating the savings. BPA staff are very conservative with the estimates, he added.

Genece went on to provide a comparison of actual savings from 2010 to 2013 with the projections and estimates for 2014 to 2017. What ensures that BPA will make the target is the growth in federal standards and non-programmatic savings, he said.

As for capital costs, BPA has budgeted slightly over what it believes the costs will be to assure achieving the targets, Genece said. The projection for programmatic savings is \$277 million and the budget is \$284 million, he explained.

BPA has also considered how to mitigate for uncertainties and risk, Genece continued. The current projects have the potential for falling short of the goals, but we believe the risk is minimal, he said. BPA has consistently achieved the energy efficiency targets and new utility reporting procedures allow for increased transparency into the savings achievements, Genece stated. He also noted that BPA is investing in market research to better identify savings and is diversifying its energy efficiency portfolio across many

savings types and markets. Given the variety of offerings, when we see a shortfall in one area, we can increase the achievement in another area, Genece explained.

In terms of mitigating the uncertainties and risk, we have the potential to pursue additional funding if needed through third-party financing, as well as in the 2018-2019 rate case, he said. BPA has already identified a third-party lender if one is needed, Genece added. He outlined a series of next steps, including continued research into non-programmatic estimates; participation in development of the Council's Seventh Power Plan supply curves and targets; and reassessing the budget when the curves and targets are available.

This is part of the energy efficiency success story in the region, Karier said. We need to think about the timing we have on the targets going into the next plan, he said. We set a five-year target, but there wasn't an explicit target for 2015, Karier pointed out, reiterating that timing is a consideration for the Seventh Power Plan.

Once codes are adopted on the state level, there is a huge process to make sure they are being implemented, Yost pointed out. There shouldn't be any problem with getting data from the states, he said.

In Washington, new standards were adopted, but the building industry rebelled, and the Governor delayed implementation, Rockefeller reported. In that case, adoption did not guarantee implementation, he said.

The region has done code compliance studies in the past, Grist said. It may be a good time to look again at the real-world compliance, he stated.

Jennifer Anders said the savings goals for 2015 to 2017 are aggressive. Are they achievable? she asked. Yes, the achievements are consistent with what has happened in the past, Genece said. And we are adding new markets for savings, Gidding added.

Grist said BPA will get quarterly reports from utilities and will track achievements. That is an improvement, and we'll also monitor as we go along, he said. There are also opportunities if more money is needed, Grist added.

Referring to comments about synching up the Council's conservation targets with BPA's rate case schedule, Grist said that would be tough to do. There will always be budgets set at BPA years ahead, and they won't be in synch with the Power Plan targets, he added. We have "an early warning device" and ways to cope with timing, Grist stated.

## Council in Wonderland on Carbon



Staff conducted an assessment of how projected carbon emissions rates for the Sixth Power Plan's resource portfolio compare to limits in the Environmental Protection Agency's (EPA's) proposed rule on existing power generators, Eckman told the Council. The assessment has implications for development of the Seventh Power Plan, he said. The assessment isn't about the cost or feasibility of individual state-level compliance with EPA, a critique of the timing or levels in the EPA proposal, or a recommendation that states seek a regional solution rather than state compliance plans, Eckman clarified.

The starting point is the total Northwest power system carbon emissions, he said.

There is a significant connection in the region between annual hydro production and carbon emissions, Eckman pointed out. EPA uses 2012 as the base year for its rule, and that was a good water and low emissions year in the Northwest, he said. To comply with the proposed year, the Northwest would have to lower its emissions below those in 2012, Eckman explained.

The use of a single year as the baseline is problematic for the Northwest and for the rest of the nation, he said. The trend in carbon emissions in the Northwest has been downward since 2001, as it has been in the rest of the United States, Eckman noted.

EPA's proposed rule limits carbon emission rates for individual states, but the rule can be met by regional compliance plans, he continued. Eckman clarified other aspects of the compliance options, pointing out that the emission rates are calculated on "in-state" resources and ignore imports and exports. Existing hydroelectric resources are also excluded from the EPA calculation, he said.

Staff selected four policy scenarios from the Sixth Power Plan to compare with the EPA carbon reduction targets, Eckman explained: current policy, carbon risk, coal retirement, and no conservation. According to graphics he presented, hydro has made up 60 percent of the Northwest's resource mix since 2002, with coal and energy efficiency taking up the next two spots. The resource mix varies when projected out to 2020 under the four Sixth Plan policies, Eckman explained.

He described the four scenarios and how they measure up to EPA's interim, 2020, and 2029 targets. In general, things look best under the carbon-risk and coal-retirement scenarios, and "things get dire" if we lose conservation under the no-conservation scenario, Eckman explained.

In listing staff observations on the analysis, he said the resource portfolio in the Sixth Plan has a high probability of meeting EPA's proposed emissions regulations at the regional level. In addition, failure to achieve the conservation goals in the Sixth Plan significantly reduces the probability of meeting the EPA regulations at the regional level, Eckman said.

Strategies that produce zero carbon to serve load have a much greater impact on meeting the regulations than replacing existing fossil fuel generation, like coal, with lower emitting fuels, like natural gas, he noted. Adding non-emitting resources, like energy efficiency and renewables, has a much greater impact, Eckman added.

But the analysis doesn't reflect the different impacts of east versus west and public versus investor-owned utilities in the region, he acknowledged. There are limitations under our analysis and those limitations would have to be addressed on the sub-regional level, Eckman said, adding that institutional arrangements would have to change to get the desired results.

This analysis is "the Council in Wonderland," Yost commented. It doesn't reflect reality, he said.

It is important to run the scenarios to address how the Council should deal with the proposed EPA regulations in the Seventh Power Plan, staffer John Shurts said. What should the Council assume in its plan about whether we aim for regional or state compliance? Should we consider a cap on emissions? Karier asked. Those are issues on the table, Shurts agreed.

The proposed EPA rule could change before it is final, and there will be lots of litigation, Eckman concluded.

## El Niño: Humdinger or Ho Hum



Staffer Jim Ruff introduced Phil Mote, director of the Oregon Climate Change Research Institute at Oregon State University and Bill Peterson, a NOAA Fisheries Science Center oceanographer, to present the outlook on an El Niño event developing in the tropical Pacific Ocean. The term El Niño originated with South American fishermen who first recognized the weather phenomenon that develops over a period of time and peaks around Christmas, Mote explained.

This is the most important climate variation we experience in the southern Pacific Ocean, and we have found that it is predictable, he said. In an El Niño year, there is a departure from normal conditions in the water temperatures in the southern hemisphere, and with the warming water temperature, rainfall shifts to the central Pacific, Mote explained. This shift of tropical rains has global repercussions, he said.

If we know an El Niño is coming based on the departure from normal ocean temperatures, we can look at past events and see what is likely to happen, Mote continued. NOAA's climate center has developed considerable capability in predicting what will happen with an El Niño, he added.

So far, we are not seeing an El Niño event in the Pacific, but things are heading in that direction, Mote said. When we have an El Niño, there is a departure from normal temperatures across the country, he said, explaining the variations that occur. In the Northwest, El Niño creates an approximately 1 degree difference in winter temperatures, according to Mote.

Cross sections of the equatorial ocean temperature anomaly earlier in the season showed an El Niño was forming, he indicated. But the latest cross section shows closer to average temperature, Mote said. “It looks like nature has backed off an El Niño event,” he stated. Right now, the indices are trending back to more normal conditions, Mote added.

Typically, El Niño peaks in the northern hemisphere in December through February, he explained. Now it looks like a weak El Niño event that some say will be slight and others say could be larger, Mote stated.

He went on to give the NOAA three-month outlook for conditions related to El Niño, including precipitation and streamflow forecasts for the Columbia River. During an El Niño, the likelihood of high flows is reduced and the likelihood of low flows is higher, Mote said. If an El Niño occurs, the 2015 spring flows are likely to be lower than normal, he reported.

NOAA is forecasting a 70 percent chance of a weak El Niño and that figure is likely to go lower, Mote said. An El Niño increases the odds for a warmer drier winter and a lower spring snowpack and summer streamflow, he said, adding “there’s some chance of nothing” happening.

There is a question about whether there will be an El Niño or not, Peterson agreed. In the 1997-98 event, the waters off the coast of Oregon became very warm, up to 65 degrees Fahrenheit, he said. If there is a big El Niño, you might enjoy a swim in the Pacific Ocean, Peterson stated. In addition, with water temperatures high, warm water fish are sighted off the Oregon coast, he added. Salmon do poorly in these warm conditions, Peterson said, adding that there are big differences in the food chain between cold and warm water.

As of yesterday, this year’s El Niño “has been a real enigma,” he continued. Many of us were thinking that it would be a big event this year, but now the signal is pretty weak, and “a strong event seems quite unlikely,” Peterson added. NOAA is predicting a weak to moderate event, he said, noting that things have changed again in the past week.

### Some Like it Cold

The signs of an El Niño are definitely weakening, but other problems in the ocean haven’t gone away, Peterson went on. The Pacific Decadal Oscillation (PDO) is in a positive warm phase and the Gulf of Alaska is very warm, he stated. Neither of these conditions is good for salmon, especially for types that migrate to the Gulf of Alaska, Peterson added. The PDO is the tendency of the Pacific to oscillate between cold and warm phases, he explained. In the cold phase, salmon do well, but not so well in the warm phase, Peterson said.

According to temperature records for the Pacific, he said the Gulf of Alaska was warm in January, became warmer by May, and by July, it was warmer across the entire North Pacific. The fish we worry about “are out in super warm water,” and we have a big problem on our hands regardless of whether we have an El Niño, Peterson said. We’ve never seen temperatures like these in the Gulf of Alaska, he stated, pointing out that the declining weight of southeast Alaska chinook salmon could be due to the warm water.

You guys sound disappointed that there isn’t an El Niño brewing, Yost commented. We have “a purely scientific interest in El Niño,” Mote responded. In April and May, “it looked like a humdinger” with the big oceanic precursor to an El Niño, he said. Every El Niño is different, Peterson added, and we learn a lot from looking at each one.

## End Notes

**Council Begins a March through F&W Comments.** Staffer Patty O’Toole reported that the Council received 1,400 pages of comments on its draft F&W program. There was a broad range of commenters, and comments were aimed at every section of the draft, she said. Staff has prepared a summary of the comments and teed up issues for the Council to consider, O’Toole said.

At the meeting, the Council took a stab at reshaping its language on protected areas. While decisions are preliminary, the Council agreed to retain an exemption process for projects in protected areas that could provide “exceptional benefits” to F&W. The exemption process would provide the Council an opportunity to build a record and have it considered by FERC in its licensing process, Anders said. That would be of benefit, she added. In the end, members concurred and said the program needs a better definition of exceptional benefits

With regard to reintroducing anadromous fish above Grand Coulee and Chief Joseph dams, staffer Laura Robinson said 62 comments on the topic were pretty evenly split between those in favor and those opposed. Some commenters said the Council has no authority to get into the question, she noted.

Shurts told the Council the topic is “inbounds.” It is an issue related to Grand Coulee Dam and mitigation for the hydro system, he said. Council members acknowledged the polarization around the topic and decided to describe a process in the F&W program for methodically examining the question.

Public comments on many program issues remain to be reviewed. The Council will continue its march through them in meetings in August and September.

**RTF Releases 2013 Annual Report.** Regional Technical Forum (RTF) manager Jennifer Anziano made her debut at the Council’s August meeting to review the forum’s 2013 accomplishments. Among the highlights, she said, is that the dedicated team of analysts that replaced multiple contractors is making for a more efficient work flow, and RTF members are satisfied with the new structure. The RTF made significant progress on bringing efficiency measures into compliance with its guidelines and identified a contractor to provide third-party review and quality control on work products, Anziano stated. Former RTF manager Nick O’Neil completed an operations and procedure manual that lays out the nuts and bolts of how the RTF works, and the RTF has secured a five-year funding commitment from its sponsors, she reported.

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