

PNUCC REPORT Council



Northwest Power and Conservation Council July 8-9, 2014

PNUCC revved up the regional conversation about carbon reduction by presenting the results of its new report “Carbon Emissions, a Northwest Perspective” to the Council in Portland. Energy Northwest’s Mark Reddemann outlined accomplishments at the Columbia Generating Station and previewed new initiatives like small modular reactors. The Council approved comments endorsing BPA’s post-2011 conservation proposals, with minor quibbles and tweaks. Next Meeting: August 5-6 in Portland.

In This Issue

PNUCC Kicks Off New Carbon Colloquy	1
Energy Northwest Generates Performance Awards	3
BPA’s Post-2011 Conservation Plan Gets a Nod, Mostly	4
F&W Amendments: Are We There Yet?.....	6
Dissecting BPA’s Fish Numbers	7

The Agenda



PNUCC Kicks Off New Carbon Colloquy

PNUCC executive director Dick Adams told the Council PNUCC decided to prepare a new analysis of carbon emissions in the Northwest to “hit the refresh button” on the issue and provide current information to help in the development of the Seventh Power Plan. We plan to ask our Board to approve the report, “Carbon Emissions, a Northwest Perspective,” at a meeting this Friday, he said.

Adams pointed out that last July Washington Governor Jay Inslee challenged the Council to work toward reducing the use of coal in the region. We think our new report could be informative in that effort, he added.

PNUCC policy analyst Tomás Morrissey presented the seven key points of the PNUCC report. They are:

1. there are many ways to define a carbon footprint;
2. transportation is the largest contributor of CO₂ in the Northwest;
3. the Northwest produces low-carbon power;

4. there are large changes in annual emissions due to water supply;
5. there are big differences in utilities' portfolio emissions;
6. the Northwest is taking steps to reduce its carbon footprint; and
7. there are many options for reducing carbon.

There are many ways to define a carbon footprint, Morrissey noted, explaining how PNUCC chose to define it in the report and comparing that with what EPA does.

In 2012, transportation contributes 44 percent of the emissions in our region, followed by electricity production at 32 percent, and other sources, such as industry, contributing 24 percent, he said.

Because of our hydro resources, the Northwest produces electricity with half the carbon intensity of the U.S. average, Morrissey stated. Annual emissions in the Northwest depend on water supply, with high-water years resulting in lower emissions and low-water years producing higher emissions, he said.

In our region, utility resource portfolios are not uniform, Morrissey noted. Some utilities have mostly hydro, and some rely much more on thermal resources, he said. So if the region were to adopt carbon policies, they would affect utilities and ratepayers differently, Morrissey pointed out. Bill Booth suggested it would be helpful to have charts showing how the four states in the region vary in their use of hydro and thermal resources.

Morrissey described the efforts being made in the Northwest to reduce carbon emissions, including energy efficiency, coal plant retirements, and renewable portfolio standards. Our report estimates the effect of coal plant retirements, and one thing it stresses is that the

mix of electric power that will replace retired coal generation will likely contain emissions, he said.

There are many options for future carbon reduction, Morrissey noted, describing several studies that provide cost estimates and different policy choices, such as cap-and-trade and a carbon tax. I hope the Seventh Power Plan will analyze the least expensive options to reduce carbon in the region, he stated. Tom Karier suggested the Council should do more analysis of using energy efficiency to reduce carbon.

Diminishing Returns with Wind?

If wind has to be backed up by gas turbines, carbon reduction is not that great, Henry Lorenzen stated. Have you compared the carbon emissions created by backing up wind with a combined-cycle gas plant versus a single-cycle plant? he asked. I've heard we are tapping out the amount of hydro available to back up wind, Lorenzen noted.

Adams said it could be useful to have an analysis of whether the Northwest is reaching a state of diminishing returns in carbon reduction in light of the need to back up wind resources with natural gas generation. Some studies on wind integration have been done, but it could be a good time for the Northwest to roll up its sleeves and do some analytics to compare different strategies, he stated. I hope the work plan for the Seventh Power Plan will include that, Adams added.

There are many issues to be looked at, said Karier. We will need the help of utilities and transmission planners in the region, he stated. There's a great opportunity here, and I hope we can address this issue with your help, Karier told the PNUCC representatives.

The Council has a good structure in place to do that, responded Adams. He suggested the System Analysis Advisory Committee would be a good vehicle to enlist utility resource planners in fleshing out answers to these questions.

Morrissey briefed the Council on EPA's proposed new 111(d) regulations to control emissions from existing power plants. One thing that is notable is that EPA's calculation excludes hydropower, he said. Also, the 2012 baseline EPA picked for the Northwest was a low emissions year, which could give Northwest states a target that is unintentionally difficult to hit, Morrissey noted. We are still digging into this rule and will have more to say in the future as it evolves, he concluded.

Energy Northwest Generates Performance Awards



Mark Reddemann, chief operating officer of Energy Northwest since 2010, gave a presentation titled "Our Road to Excellence," which recounts the steps Energy Northwest has taken in the past few years to transform its culture and improve performance. Our mission is to provide our public power members and regional ratepayers with safe, reliable, and cost-effective power, he noted. Reddemann said Energy Northwest's four generating projects have a capacity of about 1,300 MW. In 2012, we earned the American Public Power Association's safety award of excellence, he reported. Last year, we received a workplace safety award from the Association of Washington Business, Reddemann said, adding that as of 2013, Energy Northwest had 12 million consecutive hours without a lost-time injury.

In its 23-year history, the Columbia Generating Station (CGS) hasn't been a consistent performer with respect to reliability, he stated. In 2011, we launched an "excellence in performance" initiative to improve reliability, and it's working, Reddemann said. We brought in new leadership, and we have now moved into the first quartile for performance among nuclear facilities in the country, he reported.

In 2012, the Association of Washington Business gave us its job training and advancement award for our leadership development programs, Reddemann said. CGS is now being used as an example of how to turn around a plant and its work force, he added.

In 2011, during our 20th refueling outage, we made substantial investments in the plant and came out with 20 MW more of generation, Reddemann said. CGS contributed over 9.3 million MWh of electricity to the regional grid in 2012, the most in the history of the plant, he reported.

We have been operating without an unplanned shutdown for four and one-half years, Reddemann told the Council. Our average availability factor for 2012 and 2013 was 92.47 percent, he said.

In May 2012, our license was renewed out to 2043, Reddemann reported. As a result of the relicensing, Energy Northwest and BPA were able to collaborate on a decommissioning fund and debt management program that provided the region \$190 million in rate relief in the next rate period, he said.

Our uranium tails fuel purchase agreement will generate over \$88 million in additional BPA savings through the current and next rate case, so we expect the total savings for Northwest ratepayers to be between \$171 million and

\$275 million through 2028, Reddemann stated. We expect total savings to be hundreds of millions of dollars for Northwest ratepayers as a result of the regional debt agreement we entered into with BPA, and it has helped BPA preserve its borrowing authority, he said.

Small is Beautiful

We have teamed up with NuScale Power and other partners to study the feasibility of a small modular nuclear reactor, which could be located in southeast Idaho, Reddemann said. A small reactor can be built on an incremental basis when demand requires, and can provide cost-effective and environmentally responsible power, he added. Energy Northwest has the first right of offer to operate the facility, Reddemann noted.

Energy Northwest is also participating in a demonstration project to test a modular energy storage system using lithium ion batteries that is portable and scalable, he continued. We have tested it at our Nine Canyon wind project, and the Pacific Northwest National Laboratory is analyzing the results, Reddemann said.

He summed up by saying “we have been working hard and have accomplished our goals, and we’ve changed the way we do business” at Energy Northwest.

It is good to hear this report because some years ago, the Council was concerned about the performance of the CGS, Karier said. He asked about costs per megawatt-hour for Energy Northwest projects. For CGS, in a non-outage year, it is \$35/MWh, and in an outage year, it is \$40 to 45/MWh, said Reddemann. For small modular reactors, \$85/MWh is the prediction, and we don’t know the cost yet for the storage system, he added.

Booth asked about disposal of nuclear waste at CGS. Because there is no national nuclear waste repository, we have been storing more used fuel on site than we expected, said Reddemann. We have purchased additional dry fuel storage containers and will continue to do that until the Dept. of Energy takes action on the nuclear waste issue, he stated.

How far are you from building a small reactor and how big are they? Booth asked. They are 300 MW or less, and the NuScale unit would be 45 MW, replied Reddemann. That unit is currently under design, and NuScale estimates it will submit an application to the Nuclear Regulatory Commission in 2016, with three years of NRC review likely, he added.

Are the 45-MW units stand-alone? Booth asked. You can start with one, or whatever number you need, and you can add units, 45 MW at a time, said Reddemann.

Phil Rockefeller asked about the collaboration with BPA on debt management. Reddemann said after CGS was relicensed, there was an additional 20 years for repayment of bonds and contributing to the decommissioning fund, and the savings from those time extensions were able to be used in rate cases where BPA was looking for savings. Our costs will be the same, but we have 20 more years to work with, he added.

BPA’s Post-2011 Conservation Plan Gets a Nod, Mostly



Richard Genecé, BPA vice president of energy efficiency, described BPA’s recent review of its post-2011 energy efficiency program, which culminated in the release of a proposal for which BPA is now seeking comments. I am happy about the collaborative nature of the process and about how close we came to near

universal adoption of the work group recommendations, he said.

One issue we did not agree on was the frequency of publishing the implementation manual, Genecé noted. BPA proposes publishing one a year, while utilities wanted a manual published every two years, he said.

Genecé pointed to four issues he called “our big wins”: utility self-management of incentives; capturing savings from large projects; inter-rate period budget flexibility; and capturing low-income savings. He explained BPA’s proposal to consider requests for billing credits in exchange for conservation acquired independently by utilities for the FY 2016-2017 period. In this option, BPA and a utility would sign a contract that includes a target for conservation and a financial penalty for underperformance, Genecé said.

Another success is the proposal to replace the Large Project Fund with a Large Project Program that provides incentives to customers for large projects, he reported. Customers found BPA’s existing Large Project Fund cumbersome, Genecé said. This new program is contingent on third-party financing, he noted.

Customers told us they should be able to roll over unused funds from one rate period to the next, and so we have proposed allowing a customer to roll over up to 5 percent of its start-of-rate period Energy Efficiency Incentive budget from one period to the next, beginning October 2, 2015, Genecé said. This gives utilities the flexibility they have been requesting, he stated, adding that this option is also contingent upon third-party financing.

As for low-income residential energy efficiency, BPA proposes to sponsor an ongoing work group to explore best practices and find ways to overcome barriers to serving

low-income customers, Genecé said. Utilities are very wary of the perception that BPA would insert itself between them and the community action programs that serve low-income customers in their service territories, he noted.

I think conservation helps reduce BPA’s wholesale power rate, but some co-ops without load growth think conservation can lead to rate increases, said Lorenzen. Given the variety of opinions and factors, how do you find a way to spend the maximum for conservation but in a way that makes utilities happy? he asked.

BPA can bring people together, but all too often utilities don’t see a direct tie to conservation and how it impacts their long-term costs, Genecé replied. Our best possibility is to try to show that to them and share best practices, he said.

You have run a good process, said Karier. I’d like to see more data on costs and on what utilities are spending by MWh, he stated. Also, I’m concerned the region has doubled its spending on energy efficiency, but not on low-income weatherization, Karier pointed out.

Pat Smith asked about BPA’s backstop authority. BPA has a history of meeting the Council’s conservation targets, and we would convene a regional discussion if we saw a danger of not meeting them, Genecé responded. I don’t see that happening at this point, he added.

The problem with providing energy efficiency services to low-income housing is that once you make a building more energy efficient, the landlord raises the rent and the low-income customer doesn’t benefit, Jim Yost said. Your work group should discuss how to reduce energy consumption and also help low-income people, he advised.

Staffer Tom Eckman presented a proposed comment letter for the Council to send to BPA, noting that there was one recent change to strengthen the language about low-income energy efficiency. He explained the Council's comments. For example, with respect to BPA's backstop authority, the Council recommends asking BPA now to assess its ability to meet conservation targets going forward, and if the assessment indicates a "significant potential shortfall," that BPA evaluate the need for backstop remedies, along with the timing and structure of implementing such mechanisms, Eckman said.

We also recommend BPA review whether low-income customers in some areas are not receiving the benefits of energy efficiency and that BPA ensure sufficient funds are available to avoid any disadvantage to low-income customers, he noted.

To Send or Not to Send?

I don't support sending this comment letter to BPA, Yost stated. It's not the Council's position to write public comment to BPA, he said. BPA and the Council should have discussions about these issues, but we are not "the public," Yost added.

We support what BPA is proposing with a couple of little changes, he said. I don't need to send a letter unless "we are trying to impress somebody," and besides, "this is kind of a milquetoast letter anyway," Yost stated.

This was a successful process, and BPA listened to the utilities, especially rural utilities, commented Booth. Is there anything in the letter that objects to the process or outcome? he asked. At the highest level, no, replied Eckman. We are endorsing BPA's proposals mostly, but our recommendation about low-income energy efficiency is a little more forceful, he said.

I read the letter and noted a number of recommendations from the Council that offer "some tweaks and enhancements," said Rockefeller. I like the idea of our being on the record with these comments, he added.

I agree, said Karier. The letter is highly supportive with a number of constructive suggestions, he stated. It is important for the Council to be on the record, and this gives guidance to our staff, Karier added. It is appropriate for us to comment, and we need to have a formal mechanism for the Council to collectively endorse this effort, said Lorenzen.

The Council approved sending the comment letter. Yost voted no, and Booth abstained.

F&W Amendments: Are We There Yet?



Staffer Patty O'Toole said while the deadline for public comments on the Council's draft fish and wildlife (F&W) program has been extended to July 25, the September 17 target date for adopting a final program has not changed. We are still aiming for that, she added. Staff will discuss comments received with the Council at the August meeting, and then staff will draft revisions to the program, O'Toole stated.

There could be a need for additional special Council meetings in August and/or September, she noted, suggesting several dates for consideration. At our September meeting, we plan to discuss the revisions to the draft program, and the Council could adopt the program then or wait until later in the month, O'Toole said.

Is September 17 a statutory deadline, or could we wait until the October meeting? Booth asked. In accordance with the statute, the Council has to act within one year, although

twice in the past, the Council did exceed that deadline, staffer John Shurts said. The Power Act says it should be done in a year, but doesn't specify what should happen if that doesn't occur, he added.

I think we should try to hit the September 17 deadline, Yost said, and Council Chair Bill Bradbury agreed. We will continue to communicate with you as the comments come in, and we will aim for that, O'Toole said.



Dissecting BPA's Fish Numbers

Lorri Bodi, BPA's vice-president of environment, fish and wildlife, led off a presentation on BPA's FY 2015 start-of-year budget and finances with respect to the F&W program. She explained three components of BPA's F&W program: the integrated program which funds several hundred mitigation projects annually to meet BPA's Northwest Power Act and Endangered Species Act obligations; fish-related O&M, the hydroelectric share of O&M and other non-capital expenditures for F&W activities by the Corps of Engineers, Bureau of Reclamation, and U.S. Fish and Wildlife Service; and debt service, the projected amortization, depreciation, and interest payments for investments funded through BPA borrowing, as well as capital investments by the Corps and Reclamation funded by the Treasury and reimbursed by BPA. To our knowledge, these add up to the largest ecosystem improvement program in the nation, Bodi said.

We are at about \$500 million a year in direct expenditures of ratepayer funds for BPA's F&W program overall, and the debt service is increasing over time and is expected to go up, she reported. Staffer Tony Grover pointed out that the integrated program, which is where the

Council's actions have the most effect, adds up to about \$239 million.

Bodi described the public processes BPA uses to make financial decisions, including the Capital Investment Review, the Integrated Program Review, and rate cases. She stated that BPA does have an access-to-capital challenge, but noted that F&W capital expenses are just "a small sliver" of BPA's overall "capital and debt management challenge." F&W is in "the background noise" of this issue, Bodi added.

She went over BPA's current F&W capital investment projections for FY 2014-2015 and 2016-2017, which include hatchery programs, land acquisitions, and passage improvements. F&W program capital budgets must be based on specific assets and the satisfaction of measurable commitments, and they must have an estimated life of more than 15 years and a cost of at least \$1 million, Bodi noted.

Bodi discussed F&W expense projections, noting BPA implements over 800 contracts annually. We are your partners in this, and you know the scope and scale of the integrated program better than I do, she told the Council. All our environmental and cultural resource compliance is also covered in the expense budget, Bodi noted.

She explained a chart projecting spending of \$343.5 million for the FY 2015 start-of-year budget, which includes: \$98 million for Biological Opinion requirements, \$102 million for the Columbia Basin Fish Accords, \$31,700,000 for the Lower Snake River Compensation Plan hatcheries, \$51,800,000 for capital, \$42 million for "general" expenses, and \$18 million for overhead.

Success upon Success

The F&W program is 32 years old, and we've accomplished a lot, Bodi stated. In the hydro area, the federal dams have been extensively overhauled to improve fish passage, and we have the highest dam and in-river survivals for juvenile and adult salmon and steelhead in the Columbia River system since before there were dams, she said.

Over 500,000 acres of habitat have been protected and restored throughout the basin, and we are seeing incredible benefits as a result, Bodi reported. Since 2008, BPA and its partners have re-opened or improved access to about 2,500 miles of river and stream habitat, more than twice the length of the entire Columbia River, she noted. We've helped bring water markets into effect and restored more than 254,125 acre-feet of water to rivers and streams, some of which formerly ran dry when fish needed them most, Bodi added.

We've opened up blocked areas, and through scientifically managed hatchery programs, we are bringing fish that were virtually extinct back to the rivers, she said. Bodi thanked the Council for being a partner in all these achievements. It's a lot of money, but it's a lot of progress, she summed up.

I appreciate BPA's recent efforts to provide more clarity with research projects and what they are contributing, stated Karier. I've noticed there has been a larger role for consultants, and I wonder if those contracts are bid competitively, he said. We don't do a lot of competitive bidding on subcontractors, noted Bryan Mercier of BPA.

We have heard from people in the region that we should work with BPA to make the F&W program more efficient, said Karier. I'd like to have more competitiveness and more of a focus on useful results, and we are pushing for that, Bodi responded.

We should do a better job of promoting the successes our F&W program has had, stated Booth. We've invested a lot and made progress, and our Public Affairs Committee could work on some new ways to tell that story, he suggested.

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