

**Bill Bradbury**  
Chair  
Oregon

**Henry Lorenzen**  
Oregon

**W. Bill Booth**  
Idaho

**James A. Yost**  
Idaho



**Jennifer Anders**  
Vice Chair  
Montana

**Pat Smith**  
Montana

**Tom Karier**  
Washington

**Phil Rockefeller**  
Washington

## **Council Meeting Spokane Washington**

**April 9-10, 2013**

### **Minutes**

Council Chair Bill Bradbury called the Council Meeting to order at 1 p.m. on April 8. Jennifer Anders moved that the Council meet in executive session to discuss Council organization, structure, and procedure issues, and Council participation in civil litigation. Pat Smith seconded, and the motion passed unanimously on a roll-call vote. The Council met in Executive Session to discuss Council organization, structure and procedure issues, and Council participation in civil litigation.

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Council Chair Bill Bradbury called the Council Meeting to order at 1:32 pm on April 9th and adjourned it at 11:50 am on April 10th. All members were present.

### **Reports from Fish and Wildlife, Power and Public Affairs committee chairs:**

Phil Rockefeller, chair, fish and wildlife committee; Jim Yost, chair, power committee; and Henry Lorenzen, public affairs committee.

Phil Rockefeller reported that the Fish and Wildlife (F&W) Committee discussed the latest on the F&W amendment process and had a staff presentation on hatchery and supplementation issues. We also talked about ocean research and instructed staff to prepare a charter for the upcoming forum on ocean research, he said.

Jim Yost reported the Power Committee discussed demand forecasting and conservation resource assessment and how they interact. We also had a demonstration of the wholesale power price forecast and a report on stakeholder consultations on a potential new resource strategies committee, for which staff will draft a charter, he said. The committee talked about energy efficiency in manufactured homes and had a report on the highlights of the EUCI EIM conference, Yost stated. Staff gave a presentation on inflation rates and financial assumptions, and we discussed preparation of a charter for the Resource Adequacy Forum, he said.

Henry Lorenzen reported the Public Affairs Committee is working on the upcoming summer Congressional staff trip, which will be held in Montana in August. We are also reviewing the final draft of the latest *Council Quarterly*, he said.

## **1. Presentation from Upper Columbia United Tribes (UCUT)**

Washington staffer Stacy Horton introduced a panel presentation by the Upper Columbia United Tribes (UCUT). Keith Kutchins of UCUT explained the UCUT member tribes are the Coeur d'Alene Tribe, the Kalispel Tribe of Indians, the Kootenai Tribe of Idaho, the Spokane Tribe of Indians, and the Confederated Tribes of the Colville Reservation. The UCUT tribes manage 2 million acres of lands, he noted.

Deane Osterman, natural resources director for the Kalispel Tribe, described the lands and resources managed by the tribe and their philosophy for managing natural resources. Concerns of the Kalispell tribe include coordination of FERC license implementation and Federal Columbia River Power System (FCRPS) responsibility, invasive species management and predation, and toxics.

The Kalispel Tribe recently signed an Accord agreement with the federal action agencies that will provide benefits for wildlife and listed and non-listed fish, he said. BPA will provide funding for on-going, expanded, and new F&W projects, and the Corps will complete bull trout passage studies. The agencies and the tribe will also collaborate on water quality modeling of water releases from Albeni Falls dam to benefit aquatic species, he noted.

Osterman said the region should add an "I" for invasive species to the four H's, habitat, hatcheries, harvest, and hydropower. He mentioned Northern pike, brook trout, walleye, and smallmouth bass and described the tribe's Northern pike suppression project. We have removed almost 4,000 Northern pike, and we plan to continue the program, Osterman said. Another problem we are working on is toxics, especially mercury contamination of fish, he noted.

Ron Abraham of the Kootenai Tribe of Idaho said they have taken a lot of positive steps forward in their F&W program, and he thanked the Council and UCUT tribes for their help. Sue Ireland, F&W director for the tribe, described the Kootenai River Subbasin, which covers 9 million acres and contains multiple endangered species. The subbasin was once one of the most productive watersheds in the Northwest, but its ecosystem has been altered by agriculture, diking, logging, and development, she said. The most profound changes to the ecosystem resulted from the construction and operation of Libby Dam, Ireland stated.

The dam and its operation altered flows and temperatures, trapped nutrients, led to erosion and land loss, and the elimination and modification of critical F&W habitats, she said. Native F&W, like the white sturgeon, bull trout, burbot, grizzly bear, and caribou have declined as a result, Ireland reported. She described the tribe's F&W program, which is based on integrated ecosystem-based restoration, and said it addresses tribal restoration objectives and is consistent with the Council's F&W program.

Ireland explained a number of their BPA-funded F&W projects. She said all the projects include targeted monitoring, evaluation, and adaptive management "so we can build on what we've learned."

Randall Friedlander from the Colville Tribes reported that this is their sixth year of implementing F&W projects. We are pleased with the working relationship we have with BPA, and we have successfully applied BPA funding to on-the-ground F&W projects, he said.

Friedlander emphasized the importance of salmon to the Colville Tribes. On June 20, we are planning to hold a ribbon-cutting ceremony for our Chief Joseph hatchery, he said. Friedlander invited Council members to attend.

Angelo Vitale, fisheries program manager for the Coeur d'Alene Tribe, described the model watershed restoration approach the tribe is developing. Conservation and recovery of cutthroat trout are a primary concern for our tribe, he said.

We have developed monitoring and evaluation tools to better inform management decisions, validate assumptions associated with ecological restoration, demonstrate outcomes to stakeholders, and contribute to the larger body of knowledge that supports landscape-scale ecological restoration, Vitale explained.

We plan to build an extensive database over time for cutthroat trout, he added. What we are doing has the potential to inform an adaptive approach to watershed restoration that can be applied to other places in the Columbia Basin, Vitale said.

One of the most important tools in our program's success is the purchase of properties under the mitigation ledger, he noted. We go in and restore those properties on a scale that allows us to measure fisheries' response, Vitale stated.

B.J. Kieffer, on behalf of the Spokane Tribe, recalled a presentation Tribal Chairman Rudy Peone gave to the Council last summer about what's important from the tribe's perspective. He quoted a tribal elder who said: "we never wanted for anything until Grand Coulee Dam was built, and after that, we had nothing."

The Spokane Tribe has not been allowed to propose new projects since 2007 to mitigate for our resource impacts, while Accord agencies have had the opportunity to do so, Kieffer stated. The upcoming F&W amendment cycle needs to provide opportunities to mitigate losses to the Spokane Tribe's anadromous fish, resident fisheries, and terrestrial resources, he said.

One of our major concerns is predation in Lake Roosevelt, especially by walleye, Kieffer stated. We are trying to get our waterways prepared for the return of salmon so we've got to get these predators knocked back, he said. As for wildlife resources, we are close to being the first agency in the basin to be able to say we are done with construction and inundation mitigation for wildlife losses, Kieffer added.

You are doing a lot of innovative work, Karier told the UCUT panel. I encourage you, as you get ready to submit your amendments, to think through the work you are doing on topics like toxics, habitat, and hatcheries and consider how you can provide guidance for the region based on what you have done in your area, he said.

Smith asked where the toxics Osterman mentioned originate. Finding the source is a challenge, replied Osterman. Mercury is atmospheric, and there may be effects from coal plants in China,

he said. Also, there's a pulp mill near us that contributes PCBs, Osterman added. We are not sure where all the toxics come from -- all we know is that they are there in high concentrations, he said.

## **2. Presentation on Fish and Wildlife Issues:**

Lorri Bodi, Bonneville Power Administration.

Lorri Bodi, vice president of environment, fish and wildlife for BPA, told the Council she sees the upcoming fish and wildlife amendment process as an opportunity to confirm priorities and acknowledge progress and common goals. The amendment process overlaps other key processes, including the updated Federal Columbia River Power System Biological Opinion (BiOp) scheduled to come out in draft this August, as well as the NOAA Assessment Process, and Columbia River Treaty work, she said. It is important that we keep working together to keep all these threads together, Bodi stated.

She described the legal framework of the fish and wildlife program, noting its provisions to protect, mitigate, and enhance fish and wildlife affected by development and operation of hydro projects while assuring the Northwest an adequate, efficient, economical, and reliable power supply. Bodi pointed out that the Power Act also says that BPA's expenditures have to be in addition to, not in lieu of, other expenditures authorized or required from other entities. This provision will be relevant in terms of toxics programs, she said.

Significant ratepayer investments in the F&W program as mitigation for the federal hydrosystem are having real results for fish, wildlife, and their habitat, she reported. We have over 500 contracts with federal, state, tribal, and NGO partners, and we spend about \$450 million annually for the program, Bodi noted.

We have accomplished a lot, she said, adding that hydrosystem passage is the foundation of the program. We have improved flows and have a sophisticated water management program that balances flows for fish every month, and it's not just for salmon, Bodi stated. We have improved dam passage, she said. We are on track to meet or exceed our performance standards of 96 percent dam survival for spring migrating fish and 93 percent for summer fish, Bodi reported.

BPA spends almost \$90 million a year on offsite mitigation, including habitat restoration and protection and predator management, she pointed out. Predator management remains a challenge for us and will continue to be, Bodi said.

We are also working to make sure we have successful hatchery programs, she stated, noting that BPA has to walk a balance between hatchery fish programs, but also protecting wild fish. Bodi said hatchery genetic management plans have been completed for 44 mitigation hatcheries. Snake River sockeye and fall chinook are returning in record numbers, and coho have reached harvestable levels where they were once extinct, she reported.

We have a world-class research, monitoring, and evaluation (RM&E) program, and we are improving it based on recommendations from the Council and the Independent Scientific Review Panel (ISRP), Bodi stated. We are working to standardize metrics, protocols, and reporting and to have more transparency, she said.

In terms of the scientific basis of the program, we have taken an ecosystem approach to restoration that benefits multiple species and encourages regional collaboration among our partners, according to Bodi. Science reviews of projects are an important part of the process, she added.

We look forward to working with BPA, and we hope you can address the concerns we've heard from the Independent Scientific Advisory Board (ISAB), said Anders. Some of the answers to the ISAB's concerns can be found in the details of our implementation work, said Bodi.

You didn't include a budget number for RM&E, Tom Karier noted. What is it? he asked. Bill Maslen of BPA said it could be \$90 million a year, plus or minus, depending on definitions. But in our work to improve our RM&E program, we think we can achieve a minimum target of a 10 percent reduction, he stated. The goal isn't just to cut back funding, but to focus the funding so we are getting more effective information, Bodi said. We can look at overlaps and efficiencies and "put a sharper focus on what is now a mature program," she stated.

Rockefeller referred to an earlier presentation by the UCUT tribes about blocked areas and asked what more could be done as mitigation. We view the blocked areas as blocked, replied Bodi. I know there's an aspirational goal to restore salmon production and passage, and that will involve a lot of challenges, she said. I think full mitigation is a goal, but we don't have the cross-walk at this point, and we are looking at how to optimize conditions there, Bodi stated.

Bill Booth asked Bodi to respond in writing to the primary critiques in the ISAB report. We'd be glad to do that, she said.

### **3. Briefing on Independent Science Review Panel Habitat RMW Review – ISEMP, CHaMP, and Action Effectiveness Monitoring**

Rich Alldredge, ISRP

Rich Alldredge, chair of the ISRP, presented the results of an ISRP review of reports about three habitat programs: the Integrated Status and Effectiveness Monitoring Program (ISEMP), the Columbia Habitat Monitoring Program (CHaMP), and BPA's Habitat Action Effectiveness Monitoring Plan (AEM). He described the ISEMP program, which began in 2003, and said it had produced an "excellent" report. ISEMP, Alldredge said, tests and develops monitoring methods and data management tools for use across the interior Columbia River Basin. The CHaMP program began in 2011, and it conducts a monitoring protocol for fish habitat status and trends for the portion of the Columbia Basin that is accessible to anadromous salmonids, he noted. The AEM report provides a framework for how BPA proposes to implement a standardized effectiveness monitoring program, Alldredge stated. AEM grew out of ISRP and Council recommendations to get the region moving toward a standardized, programmatic approach to evaluating the effectiveness of habitat actions, he said.

Allredge went over the questions the ISRP asked with respect to the different programs and the panel's recommendations. For ISEMP, ISRP recommendations include having more collaboration with other large-scale monitoring efforts, as well as support for Intensively Monitored Watersheds (IMWs), as long as new IMW designations meet strict criteria for experimental design, he said.

IMWs look at the cause and effect relationships between habitat restoration and improvements in fish populations, Alldredge explained. There are eight IMWs in the region -- they produce a lot of data and they are expensive, he said.

Council members asked a number of questions about IMWs. The idea with these was to transfer techniques that could be used in other parts of the basin and then close some of them out, noted Booth. How close are we to getting the payoff, and have they delivered what they need to? he asked. It depends on what type of restoration is being conducted, replied Alldredge. Neither the ISRP nor the ISAB has been asked to evaluate the overall IMW program, he added.

Pete Bisson of the ISRP, speaking by phone, said the ISRP had asked ISEMP representatives how long it would take, and they said it is premature to give definitive answers yet. The work is taking longer than they thought, and it looks like it will take a while to get the answers managers need, he stated.

We have spent \$40 million on the IMWs, said Karier. I used to support them, but I don't now, he added. I think these projects need to be looked at carefully, Karier stated.

The ISRP's recommendations for CHaMP include continuing to streamline habitat measurements, consider using additional metrics, and more collaboration with habitat and water quality monitoring programs, Alldredge reported. For the AEM, the ISRP recommends better connections with other monitoring programs and consideration of alternative analysis techniques and modification of experimental designs, he said.

Alldredge summarized by saying ISEMP and CHaMP have achieved major gains in collection of habitat data, understanding relationships between fishes and habitats, and improving the effectiveness of tributary habitat restoration. They are improving their analytical tools and have enhanced coordination of habitat monitoring efforts and the process of learning from successes and failures, he said.

Karier asked for an example of how the programs have improved effectiveness. Alldredge mentioned improvements with fencing, and Bisson mentioned habitat improvement actions involving beaver dams in the John Day River.

Booth asked if the techniques are being spread across the region. I would like to hear from ISEMP and CHaMP themselves about how this is working and more specifics on how these efforts are helping improve the Council's F&W program, he said.

Alldredge summarized the review of AEM by saying the AEM is "a good start" and that its plan provides a useful framework for stratifying action effectiveness monitoring. More details are needed, especially with regard to integrating AEM's approach with other monitoring program objectives, he added.

Bradbury asked about the history and creation of the monitoring programs. Staffer Tony Grover recounted some of the history and how the programs started with hydrosystem passage monitoring, followed by habitat monitoring programs and then ocean and estuary research and hatchery evaluation work. We have not discussed whether we still need ISEMP now that we have CHaMP and other efforts, he noted.

We are all concerned about not overspending on monitoring, Bradbury said. Our F&W amendment process will be an opportunity for the Council to address these questions again, stated Karier.

We want BPA to fund projects that produce outcomes, and we still need to correlate habitat work and outcomes and measure benefits, he said. The amendment process is an opportunity to ask the agencies and tribes what information they need to get the outcomes needed, Karier added. It will give us the chance to look again at these programs and determine whether we are finding out what we need to know to help guide our investments, Bradbury said.

#### **4. Presentation on implementation of energy efficiency:**

Bruce Folsom, Avista; and John Francisco, Energy Services Manager, Inland Power and Light : Charlie Grist, senior analyst.

John Francisco, manager of energy services at Inland Power and Light, the largest electric cooperative in Washington, told the Council his utility “is very proud of what we’ve achieved in conservation in the past several years.” Inland Power has 39,000 customers and a large rural service territory that extends across 13 counties in Washington and Idaho, he noted. About 74 percent of our load is residential, and except for the Spokane area, we have about five meters per mile of distribution line, compared to a Washington state utility average of 41 meters, Francisco said.

Our highest year of conservation acquisition was 2011, followed by a drop in 2012 due to saturation in the agricultural sector and with CFLs, he reported. The Northwest Energy Efficiency Alliance has accounted for a lot of the savings, Francisco stated, adding, “we would have had a hard time meeting our conservation targets without them.”

Inland has a broad offering of conservation programs, including CFLs, appliances, duct sealing, heat pump conversions, and commercial lighting programs, as well as sprinkler and pumping plant improvements for agriculture, he said. One of the biggest challenges, according to Francisco, is the difficulty finding qualified contractors willing to travel to such a remote service territory as ours. Another challenge is delivering conservation to the 42 percent of our co-op members who are low-income, he noted.

Our board and CEO are very supportive of conservation, Francisco said. We are working on a low-interest loan program for energy efficiency and exploring conservation outside the BPA umbrella, but our efforts to find the potential for more conservation are hampered by the treatment of conservation under I-937, he stated.

Washington’s renewable portfolio standard requirements are not aligned with regional priorities and the Council’s power plan, according to Francisco. Conservation is preferred to meet load growth, yet the renewables requirement in I-937 is not sensitive to slower load growth derived from conservation, he said. It is difficult to leverage extensive investment in conservation when you also have to do renewables, and it causes a pancaking of costs, Francisco stated. Utilities are forced to choose between the two to keep from impacting rates, he said.

We need to put conservation on an equal footing with all resources and ensure that planning assumptions consider the diversity in utility service territories, Francisco stated. There needs to be a better understanding that each increment of conservation is more expensive than the last, he said. BPA should formulate policies responsive to business cycles and that are practical and cost-effective for utilities to carry out, Francisco recommended. It's difficult for us if BPA "can't move at the speed of business," he added.

There was a proposal to change the relationship of energy efficiency and renewables under I-937, and it's a shame it didn't pass, said Tom Karier. We need to do something about that, he added.

Bruce Folsom, director of energy efficiency policy at Avista, began his presentation with two messages: Avista has been meeting its conservation targets since 1978, and "we are in the age of innovation versus risk in terms of energy efficiency." He noted Avista is a 124-year-old utility that provides electric and natural gas service in four states. We are small enough to be nimble, but big enough to work with the Council and innovate, Folsom said.

We have had a 35-year commitment to energy efficiency and have acquired 150 aMW of conservation, representing about 14 percent of our load, he reported. "Our CEO wants us to be the efficiency utility," Folsom noted.

Our programs are consistent with the Council's methodology, and we have our own Avista-specific data and forecasts, he said. We look at the cheapest way to deliver energy efficiency to customers, Folsom stated. We have over 250 demand-side management measures and are hitting our targets for both natural gas and electricity savings, he noted.

Natural gas costs have fallen tremendously, and when that happened, "it knocked the tar out of our energy efficiency programs on the gas side," Folsom said. For electricity, our avoided costs have gone down 30 percent, he pointed out. We can still run a viable electricity conservation program, but it is more challenging, Folsom said.

Our load forecast is quite flat now, and we are long on resources for the next 10 years or so, he reported. We are focused on conservation in the near term to meet load, Folsom added. We are compliant with I-937 and satisfied we will be in the future, he said.

Folsom described Avista's top measures for conservation, starting with lighting. LED costs are declining and should start to pass the cost-effectiveness test in 2015, he said. Folsom explained how Avista does evaluation and monitoring and said they are trying to "right-size" those efforts and reduce costs. Having more effective evaluation and monitoring allows us to provide more consistent and effective regulatory compliance and resource planning, as well as customer satisfaction, he told the Council.

I-937 has caused Avista to spend a little less time on innovation, and more on risk management, Folsom stated. When you can be penalized for not meeting targets, you tend to put your resources into programs where you know you can hit, he added.

It's important to recognize that "one size does not fit all," and that geography, customer base, and delivery infrastructure all create the need for customized approaches, Folsom said. The



Council should reward the courage it takes for prudent experimentation and customization and accept that some investor-owned utilities will offer delivery methods that may deviate from measures defined by the Regional Technical Forum (RTF), he added.

Jon Powell, manager of partnership solutions for Avista, observed that Avista's demand-side management portfolio has undergone tremendous changes in the last few years. In the past, we explored innovative things that benefited us and the region, but we can no longer do that, he stated. We have to ask: does a measure match the RTF numbers? Powell said.

The path of least resistance is to offer programs the RTF has defined, and with financial penalties for not meeting I-937 targets, it limits innovation and risk-taking, he stated. The Council could be supportive by allowing utilities to offer measures that meet different needs and may vary from RTF measures, Powell suggested.

Where are the pressure points that constrain you from taking risks? Phil Rockefeller asked. We have worked to explain to regulators that variations can add value, replied Powell. We are only in the second biennium of I-937, and we are still "making case law" on what this is going to look like, and regulators are key, he added.

Council chair Bill Bradbury asked how many measures the RTF has approved, and staffer Charlie Grist said the RTF's library has 90 to 100 unit energy savings (UES) estimates. The RTF can't do a UES for every single measure in the world, and the library ebbs and flows, depending on what RTF members want, he stated. There will never be a complete universal set of measures, but there's a lot of room for cooperative work among utilities and BPA, Grist said.

Bradbury asked whether the RTF limits Avista's ability to achieve its innovation goals. Some IOUs will only offer the RTF's UES measures, but we are not there yet, replied Folsom. But if we are asked by our regulators to do them, we will do them, he added.

We should let utilities have flexibility to acquire measures that might be a little different without having to spend a lot of money studying each measure, said Jim Yost. We need to give them the flexibility they are asking for, he stated.

The RTF is a way for utilities to consolidate knowledge, Karier said. All utilities participate in the RTF, and they steer it toward the most common practices, he stated. We are hearing the need for us to think more about variations from RTF measures, and I'd like to hear what other utilities would say on this subject, Karier said.

We need the RTF and its standards, but also to understand they are not perfect, said Francisco. For us, it costs a lot to implement a program and in some cases, there may be a need to "soften up that spec," he stated. "You rang some bells" and have gotten our attention on this matter, Bradbury told the panel.

## **5. Presentation on Chelan PUD's hydro marketing program:**

Gregg Carrington, Managing Director - Energy Resources, Chelan County PUD.

Gregg Carrington, managing director of energy resources at Chelan PUD, began a presentation on the utility's hydro marketing program by noting Chelan PUD is the 73<sup>rd</sup> largest power

generator in the country. He recounted some of the utility's history, noting that Chelan PUD now has a new general manager, who asked Carrington in 2009 to lead a new strategic planning effort. We looked at four key financial indicators: liquidity, rate of return, debt coverage, and debt ratio, and found we needed to improve in all four so we began our hedging program, Carrington said.

We decided to auction 5 percent slices of our hydropower surplus annually as a way to reduce risk and improve our financial situation, he explained. We conduct the auction ourselves, Carrington noted. We have no affiliation with BPA, he said. We don't buy from BPA or use its transmission, and our energy efficiency program is independent of BPA, although we follow most RTF standards, Carrington added.

Through this hedging program, we can lock in prices, and it gives us predictability to know what our income will be, he said. The point is not to try to beat the market, but to dampen the risks from occurrences like low water, Carrington stated. We've been able to increase our income, and our cumulative net wholesale revenue projections for 2013 to 2018 show a median of \$670 million with hedges, and \$556 million without hedges, he noted.

As of this year, we are meeting our goal to pay down debt, Carrington reported. We expect to be down to 1970 levels by 2017 and to 1950 levels 10 years after that, he said. We have also done a lot of cost-cutting, Carrington noted. We have turned around our financial situation and now all our key indicators are positive, he reported. We also have the lowest retail rates in the nation, Carrington added.

Staffer Charlie Black asked about buyers remarketing what they purchase from Chelan. Until this year, we held on to the environmental attributes, but this year, bidders could bid on the slice with or without them, Carrington said. The bid that won this year took the environmental attributes and is remarketing them, he added.

The Council's plan says even utilities that are long can benefit from energy efficiency, which frees up more power that can be sold, stated Karier. We believe in conservation, and when we talk with our customers, conservation is one of the top three things they mention, Carrington said.

## **6. Briefing and primer on flexibility reserves:**

Charlie Black, director, power division; and John Fazio senior power system analyst.

Black kicked off another in a series of primers on basic energy concepts, part of the Council's preparation for the Seventh Power Plan, this one focusing on operating reserves and planning margins. Our presentation deals with how power planning is done to ensure there are sufficient resources to meet long-term demand and the need to have "a smooth handoff" from that to what operators do to meet actual conditions and maintain the second-to-second flow of power to customers, he said.

Flexibility is the ability to continuously and reliably match generation and demand-side resources to system demands for electricity, staffer John Fazio explained. He described the six ancillary services that provide flexibility for the power system: 1) scheduling, system control,

and dispatch; 2) reactive power and voltage control; 3) regulation and frequency response service; 4) energy imbalance service; 5) synchronous (or spinning) operating reserves; and 6) supplemental (or non-spinning) operating reserves.

Operating reserves, Fazio said, are used to cover short-term mismatches between load and resources, while planning margins are used as long-term resource expansion targets. Both are measured in megawatts, and both can be made up of generating resources and/or load-management actions, including demand response, he stated.

Operating reserves are made up of contingency reserves (synchronous and supplemental) and surplus reserves, meaning surplus capacity, Fazio explained. Operating reserves are used during normal operation and under contingency conditions, such as a generation or transmission failure, to make sure electricity is provided without interruption, he said.

In our region, the Northwest Power Pool defines operating reserves, and each balancing authority must provide reserves, according to Fazio. For the Northwest Power Pool, the contingency reserve requirement is about 6 percent, and half of that must be synchronous, he said. The surplus capacity to cover variations due to short-term temperature changes is 2 percent, Fazio stated. That makes the total operating reserves in the Northwest Power Pool 8 percent, he said. Within the Pool, utilities can share reserves, he noted.

Planning margins are like a long-term planning target, Fazio said. They include operating reserves, plus enough surplus capacity to cover variations in long-term economic growth, extreme temperature deviations, prolonged resource or transmission outages, and variations in hydro and wind generation, he explained. Individual utilities develop their own planning margins to satisfy their own planning needs, Fazio noted.

He said the North American Electric Reliability Corporation (NERC) is trying to standardize methods for assessing adequacy. NERC's 2012 planning margins range from less than 10 percent to 50 percent, mostly because some areas have fewer uncertainties than others, Fazio stated.

He said the Western Electricity Coordinating Council (WECC) requires an 18 percent planning reserve, consisting of: 11 percent operating reserves; 4 percent for forced outages; and 3 percent for temperature adders. The Northwest Power Pool's planning margin ranges from 12 to 28 percent, Fazio noted. It requires operating reserves of 8 percent, with a load forecast variation from 1 to 10 percent, and 3 to 10 percent for a prolonged outage, he said.

The Council bases its planning margin on a probabilistic standard, Fazio stated. We have adopted an adequacy standard of 5 percent loss of load probability (LOLP), and we derive winter and summer planning margins from a system that just meets the 5 percent LOLP, he said. For the Sixth Power Plan, the planning margins are about 23 percent for winter and 24 percent for summer, and these are fed into the Regional Portfolio Model, Fazio added.

NERC and Northwest utilities are moving toward using probabilistic assessment to develop their planning margins, he noted. To sum up, WECC uses an 18 percent planning margin, the Council's is 23 percent, and the Northwest Power Pool's is 28 percent, Fazio said.

Could the reserve margin concept become archaic in the future? Karier asked. It could be phased out in time, but it offers a common language for utilities to talk among themselves, replied Fazio. Do control areas share reserves? Yost asked. Yes, sharing allows them to carry fewer reserves of their own, replied staffer Ben Kujala.

## **7. Briefing and primer on generating resources:**

Charlie Black; and Steve Simmons, energy analyst.

Staffer Steve Simmons gave a primer on electric generating resources in the region, noting that hydropower, at 70 percent, is dominant. He said hydropower and combined-cycle gas plants can be used to meet energy, capacity, and flexibility needs, while other types of resources can meet some of those needs, but not all, or not all economically.

Simmons described the three major types of natural gas-fired generating facilities in the Northwest: single-cycle combustion turbines (SCCT), combined-cycle combustion turbines (CCCT), and reciprocating engines. CCCTs make up the bulk of those facilities, he noted.

SCCTs are based on aircraft jet engines and have low capital costs and rapid start-up times, and they are typically used for peaking capacity and flexibility, Simmons explained. He said GE's LMS100 turbine with intercooling is state-of-the-art right now.

CCCTs are larger, with higher capital costs, but they are much more efficient and often the choice for new baseload power, Simmons stated. The trend with these plants is going toward greater flexibility and fewer emissions, and a state-of-the-art example is Siemens SGT5-8000H, with 570-MW output, 60 percent thermal efficiency, and a potential start-up time of 15 minutes, he said.

Reciprocating engines are internal combustion engines that drive a generator, Simmons stated. They provide rapid start-up and response times and are most useful for peaking and flexibility, he explained. Typically, several small units are lined up in a "farm," Simmons said. As an example, he cited PGE's proposed Port Westward 2 plant that would provide up to 200 MW of capacity by 2015.

One takeaway message is that there are different types of gas-fired generation with different strengths to meet different needs, Black said. Are we tracking utility IRPs? Karier asked. There could be a danger of overbuilding natural gas plants, he said. We are not seeing a lot of load growth in the region, and energy efficiency is being developed aggressively, replied Black. But there are individual utilities that have significant resource deficits, and they are acquiring resources, such as the Port Westward plant, he added.

New natural gas generation is also being targeted to help in the integration of renewables, Black said. That's the driving interest in SCCTs and reciprocating engines, he noted.

There are underutilized gas resources in the region, Karier said. You can't look at just energy, you have to look at capacity and flexibility, said Yost. A lot of SCCTs are getting old and may have to be phased out, he added. In the West, there's a lot of variability among utilities and control areas, and if we keep adding wind to the system, we will be adding more gas plants

proportionally, Yost said. We also have to look at transmission constraints, Karier noted. And how independent power producers fit in -- that adds another layer of complexity, Henry Lorenzen stated.

What's the life expectancy of gas plants? Pat Smith asked. Typically, 20 to 30 years, said Black. Puget, for example, has SCCTs installed over 20 years ago that are nearing the end of their service life, he noted. As time goes on, we'll see more SCCTs replaced with more efficient plants, Black said. Overall, the power system requires a mix of different types of resources to meet differing needs for capacity and energy, he summed up.

"You know, the more I serve on this Council, the more I'm amazed every time I flip the switch," Bradbury commented.

## **8. Council Business**

### **– Approval of minutes**

Smith moved that the Council approve the minutes of the March 12-13, 2013 Council meeting held in Portland, Oregon. Anders seconded, and the motion passed.

Approved May \_\_\_\_, 2013

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Vice-Chair

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