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STRIKING A BALANCE BETWEEN ENERGY AND THE ENVIRONMENT IN THE COLUMBIA RIVER BASIN

COMING UP: THE SIXTH POWER PLAN

long with its Columbia River Basin Fish and Wildlife Program, the Northwest Power and Conservation Council's power plan helps to fulfill two of the Council's responsibilities under the 1980 Northwest Power Act. The Act gave the Pacific Northwest a voice in how it should meet its electricity needs while also protecting fish and wildlife affected by hydropower dams. The power plan's goal is to ensure the region of an adequate, efficient, economical, and reliable power system.

In 2009, the Council will develop and complete its Sixth Power Plan amidst a daunting array of fast-moving challenges ranging from the fallout from the global economic crisis to climate change regulation. The Council's plans have always tried to provide the region with a road map for dealing with the major issues of the day, and central to that has been devising strategies to address uncertainties including fuel prices and demand for power. In early plans, long lead times for coal and nuclear plants coupled with highly uncertain load growth created risk. Over time, other risks like fuel availability and costs, industry restructuring, and environmental concerns had to be taken into consideration.

One of the overarching issues driving energy planning today is climate change. The region--like much of the world--is grappling with how to lower greenhouse gas emissions, and because of this, wind generation continues to grow at a brisk pace. Since the last power plan, adopted in 2004, more than 2,000 megawatts of wind capacity has been developed, producing about 755 average megawatts of energy. And there's much more to come. As much as 6,000 megawatts of wind power could be added to the power system within the next five years. But wind power brings unique challenges, too. Its variability requires significant services to integrate it into the existing power system.

Addressing these issues is the focus of a two-part series on wind energy. In the months to come, we'll be highlighting other key questions in the Sixth Power Plan. CQ

WIND GENERATION: MAKING IT WORK IN THE PACIFIC NORTHWEST

Wind energy has definitely arrived. Thanks to a number of favorable trends, wind has become one of the Northwest's most important resources for the foreseeable future. Why? For a number of years now, and particularly since the 2000 energy crisis when energy costs spiked, utilities have looked to diversify their resource portfolios as a hedge against possible future price excursions. Environmental considerations and economic incentives like the production tax credit also helped to improve wind's profile. Most recently, state renewable portfolio standards and emerging greenhouse gas control policies have helped to push wind forward.

Wind power is attractive for several reasons. It is the least-expensive renew-

(See *Wind Generation* on page 3)

WHAT'S INSIDE

Revised Fish and Wildlife Program Focuses on Implementation of Projects Based on Subbasin Plans

Following more than a year of work and public involvement, the Council in February adopted a revision of its Columbia River Basin Fish and Wildlife Program, the nation's largest regional effort to protect and enhance fish and wildlife. The Program directs more than $200 million per year in electricity ratepayer funding to address the effects of hydropower dams on fish and wildlife from the estuary of the Columbia to its highest mountain tributaries in the four Northwest states. The Program revision is the first since 2005.

"In the new Program, the Council brings together federal, state, and tribal actions to protect and enhance fish and wildlife in the Columbia River Basin," Council Chair Bill Booth said. "This will ensure that the region's significant investment in fish and wildlife is focused, coordinated, and scientifically credible."

The Program revision began in November 2007 when the Council called for recommendations from the region's fish and wildlife agencies and Columbia River Basin Indian tribes. Using the recommendations as a foundation, the Council and its staff developed a draft Program for public comment in 2008. The final version of the Program reflects extensive public comments on the original recommendations and on the draft Program.

Key themes of the revised Program include:

- Emphasizing implementation of fish and wildlife projects based on needs identified in subbasin management plans (these plans are included in the Program) and also on actions described in federal biological opinions on hydropower operations, hatcheries, and harvest, Endangered Species Act recovery plans, and the 2008 Fish Accords signed by federal agencies, Indian tribes, and the states of Idaho and Montana
- Continuing the Council's commitment to independent scientific review of all projects proposed for funding through the Program, including those actions described in the biological opinions and the 2008 Fish Accords
- Focusing on protecting and restoring habitat in order to rebuild healthy, naturally producing fish and wildlife populations
- Further review of specific issues such as the impacts of global climate change, toxic substances, and invasive species on fish, wildlife, and habitat

In the 2008 Fish Accords, the Bonneville Power Administration and other federal agencies committed to extensive, 10-year implementation plans, with associated actions and funding commitments, based on the foundation built by the Council's Program over the last 26 years. This foundation includes water management and fish-passage

(See Fish and Wildlife Program on page 5)

Notes From the Chair

It's customary as the year ends to look back on our progress, and also toward future goals. In this edition of the Council Quarterly, our lead story explores the tremendous growth of wind power. It is the region's fastest-growing source of renewable generation, but at the same time it presents unique challenges to the Pacific Northwest power system. How to integrate the large amounts of wind energy planned for development, which adds to its cost, is a major question for the Council as it develops its Sixth Power Plan.

On the fish and wildlife side, the Council's revised Columbia River Basin Fish and Wildlife Program, released in February, coordinates federal, state, and tribal actions to protect and enhance fish and wildlife. One excellent example of this is described in the story on Kootenai sturgeon. The project, funded through the program, has helped to settle litigation over Libby Dam operations in Montana that affect sturgeon downriver in Idaho. As described in the story, the project addresses the long-term viability of sturgeon, and it also helps to protect other resident fish in Montana. It's an effective, comprehensive approach and the hallmark of the Council's fish and wildlife program.

Finally, two stories dovetail on the need to invest in energy efficiency: in an interview with Snohomish PUD General Manager Steve Klein, we hear his perspective on a variety of topics, including the importance of energy efficiency as the region's "resource of choice"; and in a broader take, a story on the Northwest Energy Efficiency Task Force explains that group's plans to spur the growth of energy conservation.

WIND GENERATION: MAKING IT WORK IN THE PACIFIC NORTHWEST

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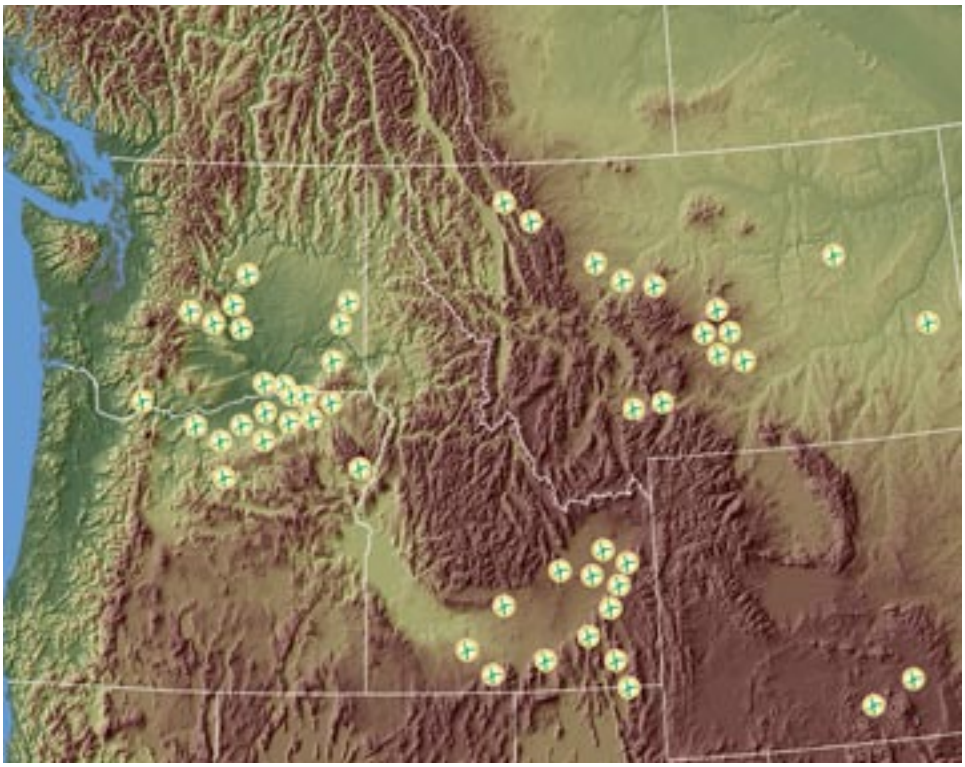
able resource available in significant amounts; it does not produce carbon dioxide or other pollutants during operation; significant environmental impact can usually be avoided with judicious siting; it has no fuel price risk; and its short construction lead time helps reduce investment risk. Added to this list is the fact that wind farms provide economic benefits to rural areas, another circumstance helping to promote it. For all these reasons, wind is, and will continue to be, a significant part of the region's energy mix. In addition, renewable-energy portfolio standards in Montana, Oregon, and Washington will require utilities to acquire electricity generation from renewable resources.

However, wind power is a highly variable resource. When the wind doesn't blow, wind power generation stops. Integrating the large amounts of wind energy expected in the coming years will be challenging. The Council's Fifth Power Plan, adopted in 2004, recommended assessing the ability of the region's power system to integrate cost-effective wind power. A group of regional energy experts was convened by the Council and the Bonneville Power Administration to address the issue, starting with the threshold question of whether the region could integrate 6,000 megawatts of wind capacity. The Wind Integration Forum answered in the affirmative, provided that actions were taken to enable fuller use of the existing system's flexibility.

According to a recent report by Bonneville, "The vast amounts of wind power lined up to interconnect to BPA's transmission grid are overwhelming the federal hydropower system's ability to provide sufficient integration services." Such services maintain the constant balance of loads and resources to assure system reliability. Unlike dispatchable resources, where the output can be adjusted, wind requires reserve capacity (system flexibility) to compensate for its variability. Each hour, power plant operators schedule the amount of power they plan to produce and transmit over the transmission system. If the output varies from that schedule, the transmission operator of that balancing area has to increase or decrease generation from other sources to rebalance the system. This helps wind power operate smoothly in the grid. And although capacity reserves represent a fraction of installed wind capacity, it is becoming a significant factor as more wind comes on line.



Wind generation sites in the Pacific Northwest.

In the Northwest, hydropower has been the key source of reserve capacity needed to match electricity consumption to generation. When there are discrepancies in the schedule because the wind blows too much or too little, Bonneville responds by increasing or decreasing generation from the federal dams. But as increasing amounts of wind generation are connected to the Bonneville transmission system, the federal hydroelectric system appears to be reaching the limits of its ability to provide all of these services.

"There are several reasons for this change," says Terry Morlan, power division director for the Council. "First, the flexibility of the system has been constrained by actions taken to help fish and wildlife affected by the dams. Second, the share of non-hydroelectric resources has been growing over the last 40 years and those resources typically don't have the same degree of flexibility as the hydrosystem. Third, the pattern of electricity use is changing, the growing use of air conditioning in the summer, for example." And finally, added to the list of demands on the hydrosystem is the burgeoning growth of wind generation.

So, how can wind resources fit into the Northwest's power system? Ultimately, it may be necessary to add generation to maintain system reliability reserves and provide the additional reserves needed to accommodate wind energy. However, in the near-term, operational changes could greatly

(See Wind Generation on page 6)

LIBBY DAM LITIGATION SETTLED WITH COMMITMENT TO KOOTENAI STURGEON RECOVERY PROJECT

A sturgeon habitat-restoration project in the Council's Columbia River Basin Fish and Wildlife Program is a central component of a settlement agreement among states, federal agencies, and the Kootenai Tribe of Idaho to protect Kootenai River white sturgeon, an endangered species. The agreement settles litigation over Libby Dam operations that affect sturgeon downriver in Idaho from the dam near Libby, Montana.

This quiet stretch of the Kootenai River is downstream of Bonners Ferry, Idaho. Photograph by John Harrison.

"We're hoping our comprehensive project will lead to a healthy ecosystem and the return of our Kootenai tribal resources," Tribal Chair Jennifer Porter said in a news release issued after the settlement was announced in September. Tribal Vice Chair Kym Cooper added, "the sturgeon are central to Kootenai culture, and we have worked hard toward their recovery in collaboration with our co-sovereigns the Corps, Bonneville Power Administration, and the U.S. Fish and Wildlife Service. It is through this sovereign collaboration that we have ensured that all governments with responsibility to the sturgeon are working together in a way that makes sense."

A master plan for improving sturgeon habitat, including an implementation strategy, was scheduled for completion by December 31, 2008 (a separate master plan for sturgeon aquaculture is being implemented and was not part of the settlement). The habitat project is important to the Kootenai Tribe's long-term sturgeon recovery efforts. To assist in developing the implementation strategy, the tribe established committees with representatives from the United States and British Columbia to provide technical and policy guidance.

The Kootenai River begins in British Columbia, flows south into Montana, and then north through Idaho into British Columbia again before its confluence with the Columbia River at Castlegar. Sue Ireland, the Kootenai Tribe's fish and wildlife director, said the habitat project is being designed "in a way that takes into account all the ecosystem needs and goes much farther than what is required under the Endangered Species Act."

The Kootenai River white sturgeon is threatened by Libby Dam operations, water quality degradation, and loss of spawning and rearing habitat. The species was listed as endangered in 1994. The population of adult fish has been decreasing at an estimated rate of 9 percent per year. Restoration efforts in recent years have focused on managing Libby Dam to mimic historic spring flow conditions to assist sturgeon spawning. The habitat project addresses those dam operations and also physical improvements in the river habitat where the fish spawn. The Kootenai Tribe established a sturgeon-conservation aquaculture project, including a hatchery, in the early 1990s.

The settlement ends litigation filed in 2007 by the Center for Biological Diversity and the Wild West Institute. The lawsuit challenged the 2006 Biological Opinion issued by the U.S. Fish and Wildlife Service regarding the effects of Libby Dam operations on white sturgeon, bull trout, and critical habitat for sturgeon. Under terms of the settlement, the U.S. Army Corps of Engineers, which operates Libby Dam, will ask the Fish and Wildlife Service to clarify certain portions of the Biological Opinion concerning dam operations. The intent is to further specify interim operations to assist sturgeon spawning and how the two agencies will evaluate the effects of those operations on sturgeon reproduction. If the dam operations are not successful, the Corps will utilize the spillway at the dam, within specified parameters, to test increased flows with the intent of assisting sturgeon reproduction. In the long term, the Corps will consider modifications to the selective withdrawal system at Libby Dam to manage the temperature of water releases more reliably and efficiently. Meanwhile, the Kootenai Tribe and its partners will work to restore habitat conditions for sturgeon.

Because Libby Dam and its reservoir, Lake Koocanusa, and a portion of the river downstream of the dam, are in Montana, the state took part in the litigation. The state has an interest in Libby Dam operations on bull trout as well as on sturgeon. The settlement is important to the state, said Bruce Measure, vice chair and a Montana member of the Northwest Power and Conservation Council.

"Montana will do all it can to protect our fish and people above and below Libby Dam," Measure said. "This agreement provides a base to help the sturgeon, protect other resident fish in the process, and allow actions and operations to proceed that local biologists know have the best chance of benefiting endangered white sturgeon. I would like to personally thank Governor Schweitzer,

(See Libby Dam on page 11)

Revised Fish and Wildlife Program

(continued from page 2)

measures (in the original, 1982 Program), mainstem and off-site mitigation measures (1987 and subsequent Program revisions), the Program framework (2000 revision), and the subbasin plans (2004-2005 revision). With the additional funding commitments in the 2008 Fish Accords, funding of projects through the Council's Program likely will total about $230 million per year beginning next year.

Thus, in the revised Fish and Wildlife Program, the Council's focus turns from planning to implementation and performance. The Program:

- Increases project performance and fiscal accountability by establishing reporting guidelines and using adaptive management to guide decision-making
- Calls for a renewed regional effort to develop quantitative biological objectives for the Program
- Commits to a periodic and systematic exchange of science and policy information; and
- Emphasizes a more focused monitoring and evaluation framework coupled with a commitment to use the information obtained to make better decisions

The revised Program also addresses a number of issues that are only briefly addressed in the subbasin management plans, if at all. These issues, identified in the Program as "emerging habitat issues," include:

- Increased concern over the adverse effect of non-native aquatic and terrestrial species in altered or improving habitats.
- The need to assess and, where necessary, respond to the impacts of climate change that could threaten the Program's past and ongoing investments in habitat improvements. According to the revised Program, future planning and implementation should include explicit consideration of the possible effects of climate change on habitats and populations of fish and wildlife that are the focus of projects funded through the Program.

- The adverse effects of toxic contaminants in rivers and streams on Columbia River Basin fish and wildlife mitigation and recovery. The revised Program encourages federal agencies to collaborate on investigation of contaminant source identification and long-term monitoring of priority toxic contaminants with federal, regional, and state agencies to better understand how contaminants are taken up by different fish and wildlife species. The revised Program specifically encourages long-term monitoring of known toxic contaminants including DDT, PCBs, mercury, PBDEs, PAHs, arsenic, dioxins/furans, lead, organophosphate insecticides and herbicides, copper, and estrogen compounds to establish trends in contaminant levels and locations. The results of these investigations and monitoring will assist in fish-recovery efforts and will inform the Council's subbasin planning and habitat restoration efforts.

The legal authority for the Program is in the Northwest Power Act of 1980, which directs the Council to develop a program to "protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, on the Columbia River and its tributaries … affected by the development, operation, and management of [hydroelectric projects] while assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply." The Act directs the Council to review the Program at least every five years. The Act also directs the Bonneville Power Administration, a federal power marketing agency that sells electricity generated at federal dams in the Columbia River Basin, to fund the Council's Program.

The revised Fish and Wildlife Program will be posted on the Council's website, www.nwcouncil.org. Original recommendations from the fish and wildlife agencies and Indian tribes and all public comments on the recommendations and the draft Program also are posted there.

CQ

WIND GENERATION: MAKING IT WORK IN THE PACIFIC NORTHWEST *(continued from page 3)*

reduce the demand for reserve capacity, and such changes are also likely to be much less expensive than adding generation for the sole purpose of providing operating reserves.

"These kinds of changes would involve new ways of coordinating and sharing transmission," says Morlan. "For a region that includes 17 separate balancing authorities, it would be challenging and it would take time."

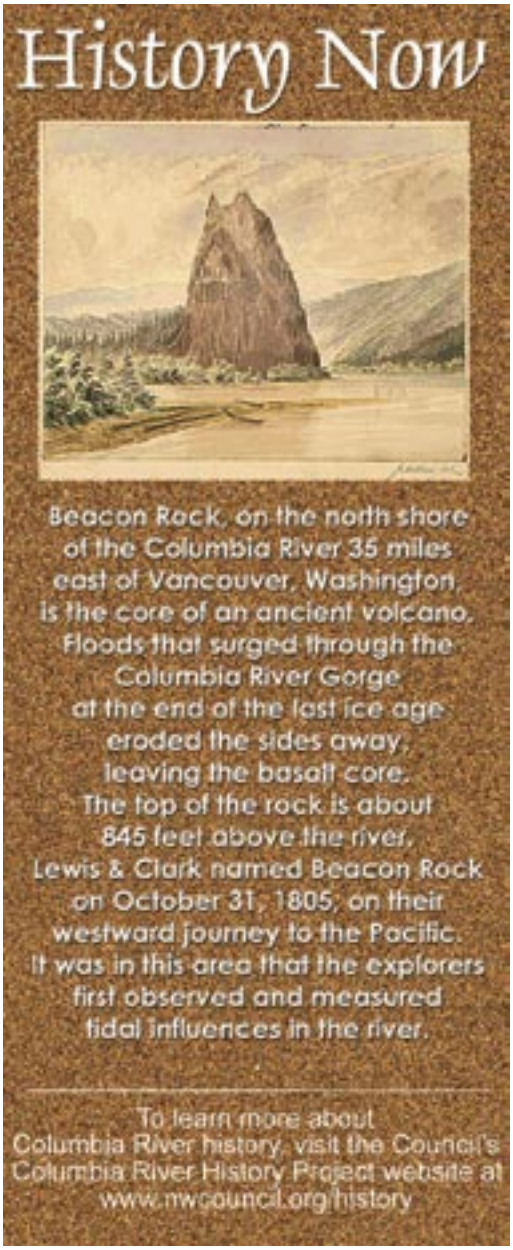
Still, there is a long list of potential solutions to the problem. They include:

- Improving the accuracy of wind forecasting and the schedules that wind plant operators provide, perhaps by developing a regional wind forecasting system.
- Tapping into third-party services. Bonneville is seeking a wide range of potential products that would add to its capacity reserves. These could include use of existing thermal capacity, demand-side arrangements with customers, and construction of new dispatchable capacity.
- Establishing protocols to deal with situations when the hydrosystem is unable to accommodate a sudden surge in wind power. In such instances, wind generators would be asked to curtail generation.
- Refining the calculations of the amount of reserves that Bonneville must hold ready.
- Improving the ability of the power system to respond quickly to moment-to-moment changes in demand for power. Anticipating changes in both loads and wind generation to reduce the amount of stand-by generation and wear and tear on the hydro turbines.
- Dynamically scheduling wind across interties to Canada and California to tap their balancing reserve capacity.
- When a control error occurs, sharing it among many balancing authorities, instead of just one, to reduce the amount of needed reserves.
- Improving transmission scheduling practices and procedures, including "fast" scheduling in increments shorter than an hour.

These are the kinds of changes that will help the region accommodate the large amount of wind generation that is expected to be developed in the coming years.

"We think there is ample balancing in the existing system," notes Jeff King, senior resource analyst for the Council. "If," he adds, "we select the right resources and can successfully resolve the institutional roadblocks along the way."

In the spring edition of the Council Quarterly, we'll explore how much wind energy is expected to come on line and at what costs. CQ



NORTHWEST Q&A: STEVE KLEIN

PART ONE OF A TWO-PART SERIES

Steve Klein was appointed to the position of general manager of Snohomish County PUD in 2006. He was previously the superintendent for Tacoma Power for 13 years. From 1988 to 1993, Klein was the utility's power manager and began his career at Tacoma Power in 1978 as an engineer.

Klein is currently an executive board member to American Public Power Association and a member of the Large Public Power Council. Additionally, he has served on many industry boards, often in a leadership capacity, including the Pacific Northwest Utilities Conference Committee, Transmission Issue Group, BPA Administrator's "Kitchen Cabinet," BPA Customer Collaborative, Public Power Council, Northwest Public Power Association, Public Generating Pool, and the Institute of Electrical and Electronics Engineers.

Mr. Klein is recognized for creating the concept of "Electricom," which is the integration of advanced telecommunications technology with the electric distribution delivery system. His vision led to the construction and successful operation of the ClickNetwork in Tacoma. He is also a leader in the study and development of renewable energy, having been instrumental in filing the first permits to study tidal power in the Puget Sound area.

He received a bachelor of science degree in electrical engineering from the University of Washington in 1977.

What is Snohomish's current supply mix? How much of your load is served by power purchased from the Bonneville Power Administration?

BPA	81%
Wind	7%
Hydro	4%
Biomass	4%
Market	3%
Landfill Gas	1%

Note: This supply mix incorporates 90 average megawatts of conservation achieved during the past 20 years at the district.

What are you projecting for future load growth in your service territory and how will you meet it?

We see and forecast around 2 percent of growth per year. Not all is coming from new load, as we are seeing energy use and intensity increasing from existing customers. We are committed to conservation and renewables to meet our needs. Under our 2008 Integrated Resource Plan, we will add a mix of several resources to our power supply over the next 10 years as follows:

Conservation	96 average megawatts
Geothermal	90 average megawatts
Wind	60 average megawatts
Biomass/Landfill	20 average megawatts
Small Hydro	5 average megawatts
Tidal	5 average megawatts

When you were at Tacoma, you were known for being skeptical about the value of conservation, yet at Snohomish you've developed one of the most aggressive utility conservation and efficiency programs in the region. What happened?

I have always seen great value in energy efficiency and the broader concept of wise use of resources encompassing everything from waste reduction to energy and natural resource conservation. But I have been guilty of asking people to refrain from viewing conservation in isolation, and to bring more innovation and analytic diligence to conservation planning, implementation, and evaluation processes.

Years ago, I was frustrated by the prevailing mentality that narrowly defined conservation as a "public purpose," where the emphasis was on how much money a utility donated to this "cause" rather than on the value that could actually be realized. The conservation efforts I witnessed at the time had no nexus to the specific energy and capacity needs of the utility. The utility operations and planning staff ignored the conservation staff, and the conservation staff ignored them right back. I tried to raise the level of analytic rigor associated

with all facets of energy efficiency, including potential assessment, operations, and performance evaluation. I viewed energy efficiency as a fundamental element of a utility's resource portfolio and as a critical cost and risk management tool rather than simply a social or political cause.

The views I had years ago have now come into the mainstream and I am seeing conservation vigilantly integrated as a core component, taking its appropriate place within utilities across the region. At Snohomish PUD, the holistic view of energy efficiency is in place, and I have the full support of policymakers and staff to move forward aggressively to make conservation the resource of choice.

> "WE ARE COMMITTED TO CONSERVATION AND RENEWABLES TO MEET OUR NEEDS."

When it comes to acquiring conservation, what do you think the appropriate roles are for all of the region's players—utilities, Bonneville, the Northwest Energy Efficiency Alliance, and end-users?

The fundamental role for every segment of our society should be the practice of wise use of resources in all we do. The region's emphasis on conservation is not a passing fad. It represents societal values, economic, environmental, and political realities, and it recognizes: expanding regulatory and legal requirements. I sincerely believe that a utility or end-user that is not aggressively pursuing conservation is not paying attention, is not well informed, or has allowed misinformation and bias to cloud their common sense. Those who don't embrace conservation today will ultimately pay the price of squandered value and opportunity.

For publicly owned utilities in Washington, there is a new world of tiered-rates and mandated conservation requirements. BPA's role should be that of a facilitator or backstop for those utilities that specifically ask for BPA's conservation support and for those who fail to acquire their share of the region's cost-effective conservation. Those who are meeting their acquisition obligations and require no assistance should not be required to fund or participate in BPA conservation programs and related administrative processes.

BPA's legacy approach made better sense years ago because it provided a forcing function to get more utilities to pursue conservation in a melded-rates world. Today, when many are aggressively pursuing conservation, it no longer makes sense. Tiered-rates have trumped melded-rates and some states have statutory efficiency mandates. In the long run, it is counter-productive to force utilities into duplicative administrative processes. We risk destroying the innovation and creativity of cutting-edge utilities by forcing them to conform to "one-size fits all" programs.

There are some conservation-related programs that are best accomplished on a regional basis such as market transformation; therefore, I am a big supporter of the Northwest Energy Efficiency Alliance. Individual utilities alone cannot move markets, manufacturing practices, research and development, or codes and standards. NEEA is an important component of a strategy that helps us cover all the bases.

Undoubtedly, there are also opportunities for cost-efficiencies when utilities share resources to leverage economies of scale to implement programs. Currently, there are several examples of these joint utility efforts underway in the Puget Sound area and others throughout the region. BPA has recently taken on a role to facilitate some of these opportunities at a regional level. However, it is the utilities that need to drive and determine the need. Conservation education is another component that has certain unique localized applications but provides opportunities at a shared regional level.

What large-scale changes in the energy sector do you expect over the next decade, and how will it affect Bonneville and its customers?

The electrification of transportation will accelerate, driven both by climate change and the unsustainable practice of sending $700 billion per year offshore for the importation of oil. The U.S. cannot become energy (oil) independent as long as its transportation systems remain addicted to fossil fuel. The electrification of transportation will shift most of the burden for energy to electric utilities that are already struggling to meet a wide assortment of growing challenges.

Northwest utilities and BPA will be under increased pressure, while in direct competition with surrounding states, to develop even more renewable power sources. In the near-term, the readily available commercial alternative of choice is wind energy, which will further exacerbate the problems the region has already begun to experience with reliability, integration, and transmission. Wind development will also drive up the demand on natural gas to help firm and shape this renewable. Gas supplies, previously constrained to the Northwest now have pipeline capacity available to move to the east to help reduce green-house gas emissions in the heavy coal-dependent regions.

Continued near-term pressure for new supply, coupled with the lack of diversity in new renewable supply choices, will prove problematic with increasing economic and operational consequences. While Snohomish wholeheartedly acknowledges the benefits of wind, as represented by its rapid rise by

the year's end to over 8 percent of our supply portfolio, we are aggressively pursuing prudent diversification through the development of tidal, geothermal, biomass, solar, and low-impact hydro resources. We fear that not enough is being done at the regional and national levels to support the research, development, and commercialization of other promising renewable energy sources.

"THE FUNDAMENTAL ROLE FOR EVERY SEGMENT OF OUR SOCIETY SHOULD BE THE PRACTICE OF WISE USE OF RESOURCES IN ALL WE DO."

Carbon will be tracked and priced into all markets. I see increasing demand for clean electric energy supply and innovation in all areas of energy efficiency and demand-management. We will see more emphasis on distributed generation by the end-user, especially solar and biomass. Also, expect more legislative and regulatory mandates on smart grids to integrate these new technologies into a grid system that has greater resiliency and flexibility to accommodate the changing paradigm.

The federal-based hydro system will become even more important and valuable in a carbon-conscious market. BPA and its customers will be affected by the significant demand for new transmission and integration services for an ever increasing amount of highly intermittent renewable resources.

I believe we will see increasing incidents of collapsing real-time power prices due to an overabundance of intermittent resources that will spontaneously cause supply to exceed demand for extended periods of time. This will bring down the average annual price for wholesale power in the real-time market, while at the same time, the price of natural gas and new long-term firm purchases of certifiable renewables will continue to escalate in price. This situation will continue until cost-effective and environmentally acceptable energy storage technologies are developed and implemented on a large scale to firm up the intermittent resources.

Carbon capture and sequestration technology has made little progress these past several years and will soon see renewed focus and funding, but I believe it will ultimately not prove environmentally, economically, and technically feasible on a large scale. The effort to solve the coal states' massive problems will likely be spread across the entire country and placed on the shoulders of Northwest consumers, who will be required to divert critical dollars needed to spend on our own challenges with fish recovery, as well as new renewable technologies and grid infrastructure.

How do you feel about Bonneville's tiered rates proposal? How will it affect Snohomish's decisions about new resources? Have you seen new alternative suppliers for your load growth come forward, or do you expect them to come in the future?

I am generally satisfied with BPA's tiered rates proposal. Snohomish is one of the fastest-growing utilities in the region, and despite an aggressive conservation program we have a significant need to add supply resources to our portfolio. Had BPA continued under the old paradigm of melded rates, Snohomish's load growth would have been picked up by BPA and the costs spread across all the other customers of the Northwest. Under the new regional dialogue approach, we feel the price signal directly and assume responsibility to establish our own integrated resource plan that reflects our local values and community interests. Our strategy focuses on conservation and renewables to meet our growing energy needs with an emphasis on resources in our own backyard.

Snohomish issued a request for proposals for renewable resources in July 2007, and we received 11 proposals. We found many entities ranging from asset developers to generation cooperatives willing to sell power with negotiated terms through power purchase agreements or develop resources that provide an equity position. Nearly all of the viable responses were for wind projects, which we pursued to address our near-term power needs, and meet the Washington state renewable portfolio standard requirement. However, we believe it is prudent to pursue a diversified portfolio, to the extent possible, within our own service territory. This strategy has required us to pursue the research and development of renewable resources that are not yet commercially available such as tidal generation, or have not been sited, permitted, and constructed before in our state such as geothermal generation. Furthermore, Snohomish is aggressively pursuing conservation resources, one among very few utilities that are exceeding their share of the regionally identified potential. CQ

Quarterly Quote

"The greatest thing in the world is to know how to be one's own self."

Montaigne

NORTHWEST ENERGY EFFICIENCY TASK FORCE PLANS RECOMMENDATIONS TO ACCELERATE ENERGY-CONSERVATION IMPROVEMENTS

According to a task force of energy experts, the time is right in the Pacific Northwest to add to the region's impressive energy-efficiency improvements of the last two decades. By accelerating efforts to tap the vast potential of electric power efficiency, the region will further reduce demand for power, improve environmental quality, and lower costs for consumers who face the seemingly never-ending escalation of fuel costs, leaders of the task force agreed.

The Northwest Energy Efficiency Task Force includes 30 energy experts from utilities, businesses, and government in Washington, Idaho, Oregon, and Montana. The task force hopes its recommendations, following a year-long study, will help chart a course for the region to coordinate, enhance, and accelerate programs and investments to use electricity more efficiently.

At the first meeting of the task force in early 2007, Ken Canon, an energy consultant who is managing the work of the group, joked: "You will be forgiven if you slip and refer to energy efficiency as energy conservation." In fact, energy conservation by any definition is the focus of the task force—how much is being achieved in the region, how much more is available, how to improve regional coordination in conservation investments, and how to share successes and, frankly, failures to improve and accelerate energy conservation.

The Northwest has a proven history in energy-efficiency leadership, dating to the Northwest Power Act of 1980, which made energy efficiency the preferred resource to meet increasing demand for power. Since then, about half of the growth in demand for electricity in the region has been met through efficiency. But the region could do better.

> **"The time is right for this effort . . . . We need to take advantage of the growing public interest in energy efficiency."**
>
> Steve Wright
> Administrator of the
> Bonneville Power Administration

"The outcome of this effort will be actions to improve what we already do very well," Canon said.

The taskforce has three co-chairs: Steve Wright, administrator of the Bonneville Power Administration; Pat Reiten, president of Pacific Power; and Tom Karier, a Washington member and former chairman of the Northwest Power and Conservation Council.

"The time is right for this effort," Wright said. "We face a rapidly changing energy landscape. The cost of alternative generating resources, like wind power, is rising. We need to take advantage of the growing public interest in energy efficiency."

Reiten, who leads one of the largest investor-owned electric utilities in the region, said investments in conservation are important to help moderate the widening gap between demand for power and the power supply. Cost-effective energy efficiency also helps the company reach its financial goals, compared to the much higher cost of building generating plants or buying power. Pacific Power's long-term plan includes efficiency improvements in its own operations and also significant amounts of new conservation. "We need to invest our customers' dollars wisely," he said.

Karier also noted the growing public awareness about energy efficiency. Doing a better job of coordinating conservation investments, and also research into promising new technologies, will pay long-term benefits, he said. "We need to look ahead and make sure the pool of energy efficiency in the Northwest doesn't dry up."

The taskforce addressed the future of energy efficiency in six areas: 1) data/research needs; 2) research and development of new technologies; 3) utility-funded initiatives to acquire energy efficiency; 4) marketing and public awareness; 5) education and workforce recruitment for energy-efficiency jobs; and 6) energy efficiency policy options.

Work groups were formed to study those six areas. In October 2008, the task force received interim reports from the work groups, which delivered their recommendations in January. The task force planned to issue its recommendations in February so that they would be useful for utilities currently planning for future resources and for state legislatures that may address energy legislation in 2009.

Key recommendations in the interim reports included:

- Investing in the data needed to identify new efficiency technologies, their costs, and how much energy savings they accomplish for the region.
- Focusing research and development on technologies and solutions at the end-user level, taking a longer-term view, and finding ways to achieve greater coordination within the region.
- Identifying high-impact initiatives for business, homeowners, and vulnerable customers (including looking at devices that can plug into electrical outlets to manage loads; efficiency opportunities

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in new-home construction and commercial data centers; greater enforcement of energy codes and standards, and improved educational and behavior-change programs.)

- Developing a regional marketing effort to advance energy-efficient practices and enhance utility efforts that could include partnerships with city, county, and state governments as well as private-sector businesses and industries.
- Finding ways to build the energy efficiency workforce of the future.
- Promoting policies, incentives, and regulations that are easy to navigate, encourage customer involvement and innovation, and minimize costs to individuals, the environment, and utilities.

Karier challenged the task force members to think about how to turn the recommendations into actions, and to determine who will do the work and why. "We will need to sell these recommendations to the region," he said.

Efficiency is the least-expensive way to meet new demand for electricity. While there is a cost to install efficiency measures, after that there is no fuel cost and no environmental risks from greenhouse gas emissions. The cost of efficiency improvements is, on average, about one-third the cost of new generating plants, including wind power. Since 1980, the Northwest has reduced demand for electricity through efficiency improvements by 3,700 megawatts; 202 megawatts of that total was achieved in 2007 alone, a single-year record for the 28-year time span since regional efficiency efforts began under the Northwest Power Act. Expressed as electricity generation, that is enough power for Seattle, Portland, and Boise combined.

The good news for the Northwest is that there is much more efficiency available. The Council has estimated the cost-effective energy conservation potential in the region is at least 3,100 more megawatts—an amount that will grow as the average price of electricity increases and efficiency becomes even more cost-effective. Achieving that potential, however, will require improved regional coordination, collaboration, commitment, and customer involvement. CQ

LIBBY DAM (continued from page 4)

whose support and encouragement have been instrumental in helping us get to this point."

The project at the heart of the settlement involves a variety of work, including monitoring river flows during the spring spawning period, gathering data to improve computer models of river function, and physical improvements to the river habitat and ecosystem function. The settlement includes a provision that would bring the parties back to the negotiating table if the habitat work does not proceed by December 2012. In the settlement, the parties agreed that if construction has not begun by then, the interim dam operations will continue and new consultations will begin over the use of the dam's spillway to boost flows. If those flows prove successful for spawning, the parties then would analyze the benefits to sturgeon from installing an additional turbine or turbines at the dam to take advantage of the additional flow through the dam to generate electricity. CQ

The Kootenai River begins in British Columbia, flows south into Montana, and then north through Idaho into British Columbia again before its confluence with the Columbia River at Castlegar.

Council Decisions

October

Hood River Fish Production Master Plan

The Council approved the Revised Master Plan for the Hood River Production Program. The approach outlined in the revised master plan incorporates best practices recommended by the Hatchery Scientific Review Group, Independent Scientific Advisory Board, and Independent Scientific Review Panel. In addition, the pending 2010 decommissioning and removal of Powerdale Dam will make the Powerdale fish trap, a key tool in the program, inoperable. Therefore, new trapping facilities are needed in order to continue salmon and steelhead broodstock collection and monitoring and evaluation activities. A Council staff report is posted on the Council's website at this location: http://www.nwcouncil.org/news/2008/10/1.pdf

Klickitat Fisheries Plan Moves to Design Phase

The Council recommended that the Klickitat River Anadromous Fisheries Master Plan proceed from the initial, conceptual phase to the design phase (step two of the three-step approval process for fish-production facilities funded through the Council's fish and wildlife program). The Council asked the Yakama Nation, the project sponsor, to respond to questions raised during independent scientific review of the initial proposal as part of the second phase of development. The Yakama Nation proposes to use artificial production in the Klickitat River Subbasin to benefit conservation and recovery of spring Chinook and steelhead populations while sustaining harvest opportunities and maintaining a focus on harvest augmentation for fall Chinook and coho salmon.

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