



Striking a Balance Between Energy and the Environment in the Columbia River Basin

Energy Trust Will Pursue Conservation, Renewables in Oregon



In March, Oregon's ambitious new energy conservation effort got under way, financed through a small portion of the revenues of the two largest electric utilities in the state and administered by a new agency, the Energy Trust of Oregon.

Under an energy restructuring law that went into effect March 1, the Oregon Public Utility Commission will collect an amount of money equal to 3 percent of the gross revenues of the two investor-owned utilities it regulates, Portland General Electric Company and PacifiCorp, and distribute the money for public purposes, which include energy conservation and renewable energy, low-income weatherization and housing, and energy conservation in schools.



The largest share, 74 percent, will go to the Energy Trust of Oregon, which in turn will spend the money on energy conservation and renewable energy efforts that directly benefit Oregonians in the service territories of the two utilities. The Energy Trust is expected to have about \$50 million to work with annually, depending on revenues of the two utilities.

In consultation with a 10-member board of directors, Executive Director Margie Harris and her small staff will solicit applications for funding energy conservation and renewable energy projects, review the proposals and

then award contracts for the work. Before agreeing to head the Trust, Harris operated a management and communications consulting firm in Portland and, before that, was executive director of marketing communications at Tri-Met, Portland's public transit system. Earlier, she held positions with the Oregon Department of Energy and the Western Solar Utilization Network.

The Energy Trust of Oregon is planning a smooth startup, communications and marketing director Jan Schaeffer said.

"At the outset, we are negotiating a transition with the utilities so their conservation programs continue," she said. "Between March 1 and the end of the year, money will go to PGE and PacifiCorp to sustain their core conservation programs. In the meantime, we are looking at all types of energy conservation and renewable power projects – especially projects that will have good results quickly or are innovative and different."

Publicly owned electric utilities, such as municipal utilities, peoples utility districts and electric cooperatives, are regulated by their own elected commissions and so are not affected by the law that created the Energy Trust. However, in Oregon as elsewhere in the Northwest, public utilities purchase some or all of their electricity from the Bonneville Power Administration, and the federal power marketing agency is offering a discount on its wholesale rates to its utility customers that operate qualifying conservation and renewables programs.

Oregon's Energy Trust is unique in the Northwest. Montana, for example, also has a system benefits charge established as part

(continued on next page)

What's Inside

Power Plan Issues	4
Distributed Generation	5
Salmon Recovery Budgets	8
The Power of Conservation	9
Wildlife Habitat Success	12

Council Decisions

In each issue of Council Quarterly, we include a synopsis of key recent Council decisions. In our last edition, we reported on decisions through September 2001.

November 2001

Columbia Plateau fish and wildlife projects

On November 8, meeting in Idaho Falls, Idaho, the Council recommended \$34.6 million in projects for funding in Fiscal Year 2002 to address the impacts of hydropower dams on fish and wildlife in the Columbia Plateau Province, which includes central and southern Washington and central and

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of its energy restructuring legislation. It is funded at the rate of 2.4 percent of utility revenues, but investments are administered by individual utilities and can be used for conservation, low-income weatherization, low-income power bill assistance and renewable energy projects. Montana public utilities that purchase power from Bonneville can use the portion of their Bonneville charges attributable to debt service on past conservation investments as an offset to the system benefits charge. This has the effect of reducing the amount available for new conservation investment. In Washington and Idaho, there is no overall system benefits charge, and utilities, both public and private, are pursuing efficiency improvements at different rates. Some utilities have been very aggressive, and others have not.

To provide direction for project solicitation and selection, the Energy Trust of Oregon developed an interim strategic plan. The Trust is working on a long-term strategy. For now, the Trust has identified the following key goals and strategies:

- Save 300 megawatts of electricity through cost-effective energy conservation investments by 2012.
- Diversify Oregon's power supply so that renewable resources account for 15 percent by 2012.
- Expand the market for energy-efficient products and services and renewable resources.
- Develop innovative products to support energy efficiency and renewable resources.

The history of the Energy Trust could be said to date to the National Energy Policy Act of 1992, in which Congress authorized a transition for the nation's electricity indus-

“...we'll be looking at all types of energy conservation and renewable power projects.”

Jan Schaeffer
Oregon Energy Trust

try from regulation to competition. This transition developed over several years, and in 1996 the governors of Idaho, Montana, Oregon and Washington convened the Comprehensive Review of the Northwest Energy System to investigate the risks and opportunities of the transition to competition for the region's unique energy system, dominated by hydropower – most of it federally owned.

In December 1996, the 20-member Comprehensive Review Steering Committee, which included energy policy experts from around the region, issued its report. Among the committee's recommendations was a proposal that 3 percent of the revenues from the sale of electricity be dedicated to sustaining investments in cost-effective conservation, renewable resource development and home weatherization for low-income citizens.

Three percent of revenues, which would have amounted to \$210 million regionwide in 1995, was approximately 65 percent of what was spent for those purposes by the region's utilities and Bonneville that year.

Oregon's Legislature responded to this challenge with energy restructuring legislation that included a 3 percent “public purposes” charge to the rates of the two largest investor-owned utilities operating in the state, PacifiCorp and Portland General Electric. The Oregon Public Utility Commission encouraged the creation of a nonprofit organization to administer the money collected through the charge, and the Energy Trust of Oregon was the result. The Trust board of directors organized in March 2001, and Harris was hired in November. Oregon's restructuring law became effective in March 2002, and the Trust begins receiving revenues from the public purposes charge in April.

Under contract with the Public Utility Commission, the Trust will implement programs to invest the public purposes money in energy efficiency and renewable resources, consistent with the Legislature's intent and the recommendations of the Comprehensive Review. Conservation programs, which will be designed to be cost-effective, will be independently monitored and evaluated to ensure they are effective. Renewable energy projects must produce electricity at competitive prices.

More information about the trust is available on its website, www.energytrust.org. ■



Illuminating Changes: New Technologies in Lighting

One way we responded to last year's energy crunch was by exchanging our incandescent light bulbs for more energy efficient compact fluorescent bulbs.

But there is another kind of light technology that has also been receiving some attention lately. Light-emitting diodes, or LEDs, have been used for a number of years as indicator lights in applications like stop lights on automobiles, traffic lights and exit signs. In fact, about 80 percent of exit signs being sold today use LEDs as the primary light source. This represents a significant increase in efficiency since, according to the USEPA Energy Star program, LEDs use 2 - 5 watts of electricity compared to 20 - 40 watts for incandescent and 12 - 24 watts for compact fluorescent bulbs. They are also used in large neon billboards and on giant display screens.

LEDs are solid-state semiconductor devices that convert electrical energy directly into light. Unlike incandescent

bulbs, they have no filament and produce no heat. They cannot be damaged by shattering or breaking. Their light generating components are encapsulated in solid epoxy. Because of this, they are extremely durable and long lasting. And they use only about one-tenth the electricity of incandescent bulbs. This past Christmas, the tree at the state Capitol in Salem, Oregon was decorated with strings of LEDs donated by Portland General Electric, another advance in the use of these lights.

What has limited their growth for general lighting purposes thus far has been the inability of manufacturers to produce a white LED product comparable to incandescent or fluorescent lights. LEDs are currently available in red, amber, green and blue.

But their promise is alluring: According to research professor Hongxing Jiang at Kansas State University, if all household lights could be replaced by white LEDs,



About 80 percent of exit signs being sold today use LEDs as the primary light source.

about \$100 billion in energy costs a year could be saved worldwide, in addition to significant decreases in pollution and heat.

A recent development toward products sometimes referred to as "the new LEDs" are organic light-emitting diodes, or OLEDs. These new lights are made from plastics and other organic molecules, and have the potential to supplant the use of LEDs in display lighting, since they can be more efficient and provide sharper definition. One big drawback, however, is their short life span—only about 10,000 hours compared to 100,000 for LEDs.

Still, there is considerable optimism about advancements in both technologies. And prospects on how such "solid-state lighting" might be used are intriguing. Researchers at the National Research Council in Ottawa, Canada are looking into portable computer screens that could be printed on a plastic sheet instead of a glass base. Imagine folding up your laptop like a newspaper when you want to store it discreetly away, or using a "wearable micro display" placed in your eyeglasses that would show an image comparable to viewing a 21-inch screen. Now that's a really portable computer! ■



The Goodman Theatre Center in Chicago, Illinois showcases the use of LEDs in giant display lighting applications through the use of intelligent LED-based lighting technologies from Color Kinetics. Lighting Design: Lightswitch Chicago. Photography: James Budd, Rosebudd Productions. Thanks to Light Design Center, Portland.

Power Council Seeks Comments on Key Regional Power Issues for Fifth Northwest Power Plan

With the energy crisis of 2001 and subsequent rate increases fresh in the public's mind, the Council plans to tackle some regional energy issues in the next version of its Northwest Power Plan.

The Council is required by the Northwest Power Act of 1980 to produce a regional power plan that incorporates 20-year forecasts of demand for electricity and assesses strategies for meeting that future demand for power. In the plan, the Council also addresses key issues that can influence the achievement of the Power Act's goal of protecting, mitigating and enhancing fish and wildlife affected by hydropower in the Columbia River Basin while also assuring the region an adequate, efficient, economical and reliable power supply. The Fourth Northwest Power Plan dates to 1998, and the Fifth Power Plan will be developed over the next year.

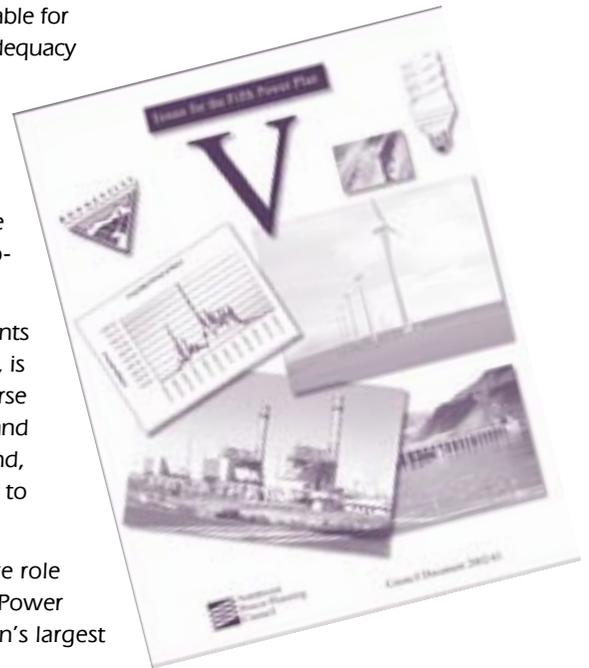
A paper that discusses potential issues for the next power plan is available for public comment. The paper is available on the Council's website, www.nwccouncil.org. Comments are due by April 19, 2002.

Key issues addressed in the paper include:

- While it is clear that high wholesale power prices encourage development of new power plants, what can be done to encourage the

- construction of new plants and the installation of new energy conservation measures when wholesale prices are low?
- What incentives would cause power users to reduce their demand when supplies are tight and prices are high?
- In the competitive wholesale electricity marketplace, how can timely information about power demand and supply be made available for assessing power supply adequacy and market performance?
- In a power emergency, what mechanisms and incentives might be employed to minimize the impact on fish from hydroelectric dam operations?
- With most new power plants using natural gas as a fuel, is there value in a more diverse mix of power generating and conservation resources, and, if so, what are the barriers to achieving more diversity?
- What should be the future role of the federal Bonneville Power Administration, the region's largest power supplier?

- What options are available for either expanding the region's system of high-voltage transmission lines or relieving the growing pressure on it, and what role might a regional or West Coast transmission organization play, if one is created?
- What effect does global warming have on the Northwest power system, if any? ■



Self-Powered: Is Distributed Generation in Our Energy Future?

At the city of Portland's Columbia Boulevard Wastewater Treatment Plant, a fuel cell is turning methane gas from the sewage treatment process into non-polluting, renewable electricity. The fuel cell operates like a battery, but never needs recharging. Methane gas that would normally be flared into the atmosphere is piped into the fuel cell; the cell extracts hydrogen from the gas, then combines it with oxygen. This creates a chemical reaction that produces electricity, heat and water. Portland's fuel cell generates as much as 1.4 million kilowatt-hours per year—enough electricity to power 120 homes for an entire year.

Fuel cells will operate continuously as long as they have a steady fuel supply. The city's fuel cell, which was installed in 1999, is a reliable power source, uses free fuel, and doesn't pollute the environment. According to Duane Sanger, who manages the project, "I think it's been successful. The first year was a learning experience, and it took awhile to get it stabilized, but it's been going well since then."

Fuel cells are just one type of technology referred to as "distributed generation." It is also sometimes called distributed energy, distributed resources, and micropower. Simply put, it is any small-scale power generation technology that provides electric power at a site closer to customers than central station generation. A distributed power unit can be connected directly to the consumer's power system or to a utility's transmission or distri-

bution system, and the electricity can be used on site or sent back to the grid. Along with fuel cells, other types of distributed generation include small-scale turbine generators, internal combustion engine/generators, photovoltaic-solar panels, and wind turbines.

"We hope that our ongoing involvement will bring the fuel cells even closer to commercial availability."

Kevin Watkins
PNGC Power

Sanger likens the future of distributed generation to the evolution of computers: "The technology is improving, and there is quite a lot of interest worldwide in fuel cells." He also thinks fuel cells may one day be used to power other devices like phones and cars.

Distributed generation has been called the "back to the future" phenomenon, because during the first part of the twentieth century, distributed generation was the norm. More than half of the electric power used by industry in the United States was generated on site. But as technology advanced and the transmission grid grew, the building of larger and larger power

plants prevailed. Greater economies of scale translated into declining average costs for consumers, and the end result has been a very well developed infrastructure for the production and transmission of electricity in the United States.

By the 1970s a number of changes signaled the end of the growth and stability of large, centralized power plants. Higher fuel costs, tighter environmental regulations, the skyrocketing capital costs of building plants, especially nuclear plants, legislative acts that opened up the competitive market, and technological advances all contributed to a growing interest in the development of alternative power sources.

For the past ten years, the promise of distributed generation has hovered provocatively off stage, a "not ready for prime time" technology inspiring the kind of attention and press coverage that makes centralized generation look old fashioned, and "do it yourself power" the new wave energy source.

Why is distributed generation so attractive and what are its benefits? Reliability and power quality are two important advantages. When you produce your own power, you don't have to worry about interruptions if a transmission line goes down. For users such as hospitals, electronics manufacturers and customers using electronic equipment that is sensitive to voltage surges, frequency noise, and other electric interference in the power supply, the assurance of a continuous flow of power regardless of disturbances or outages on the utility grid is a necessity.

An electricity grid with many small generators is inherently more stable than a grid served by only a few large plants. Distributed generation can be used to supplement central power generation during peak periods of use. It also precludes the need to build costly transmission and distribution facilities, and it gives people the ability to choose and control their own electricity generation.

Greater efficiency and lower air emissions are also major potential advantages of distributed generation. Net air emissions, water consumption and space requirements can be reduced because many distributed generation



Warren Ewing of IdaTech, the fuel cell's manufacturer (left) and Roger Manke of PNGC Power view the inside of a fuel cell.

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technologies, besides producing electricity, also produce heat and water. Cogeneration, or capturing these by-products of the electricity production process for use as space heating and hot water adds value and efficiency. In the past, this has only been possible for larger commercial and industrial applications, but the development of packaged fuel cell, and perhaps microturbine and reciprocating, cogeneration units may allow residential-scale cogeneration. Another bonus is the portability of the latest technologies. You can take it with you for recreational use on RV's, campers, boats and the like, which is why many industry groups—auto makers, fuel cell manufacturers, energy providers, component suppliers, and state agencies are working to bring fuel cell vehicles to the marketplace.

Early this year, the Bush administration decided to lend its support to a plan created by the U.S. Department of Energy and the auto industry to develop hydrogen-based fuel cells to power the cars of the future. The goal is to eventually replace the internal combustion engine, although experts say the commercial production of cars with fuel cell engines is 10 to 20 years away.

Distributed Generation Today

Both fuel cells and microturbines are among the most appealing technologies, and the two that have received the greatest attention of late. In a 1998 survey of small commercial businesses by research firm Frost and Sullivan, 28 percent of businesses

surveyed were interested in on site power generation. Fuel cells topped the list, along with generator sets and microturbines. State-of-the-art units are space saving, about the size of a photocopier or a refrigerator, and much quieter than the more typical diesel generators traditionally used as back-up power for homes and businesses. More importantly, they may be cleaner and easier on the environment.

Pat Reiten, vice president of Marketing and Public Affairs for the Pacific Northwest Generating Cooperative Power, a not-for-profit power marketing cooperative, is optimistic about the prospects of distributed generation. "It's exciting, because at some point, perhaps in another five to ten years, it will be a viable option," he said.

PNGC Power participates in the Bonneville Power Administration's Fuel Cell Development Program. Bonneville customers participating in the program are loaned a unit as part of a testing and development phase to commercialize fuel cell systems for homes and small businesses. Most recently, PNGC Power member utility, Lane Electric Cooperative in Eugene, Oregon, completed a six-week demonstration and test of a fuel cell unit that will rotate to other member headquarters for continued testing. The fuel cell will supply power to office and shop areas, including sophisticated electronic equipment, in an effort to evaluate its ability to provide a high degree of quality power.

According to Kevin Watkins, PNGC Power vice president of engineering, "We hope that

our ongoing involvement will bring the fuel cells even closer to commercial availability."

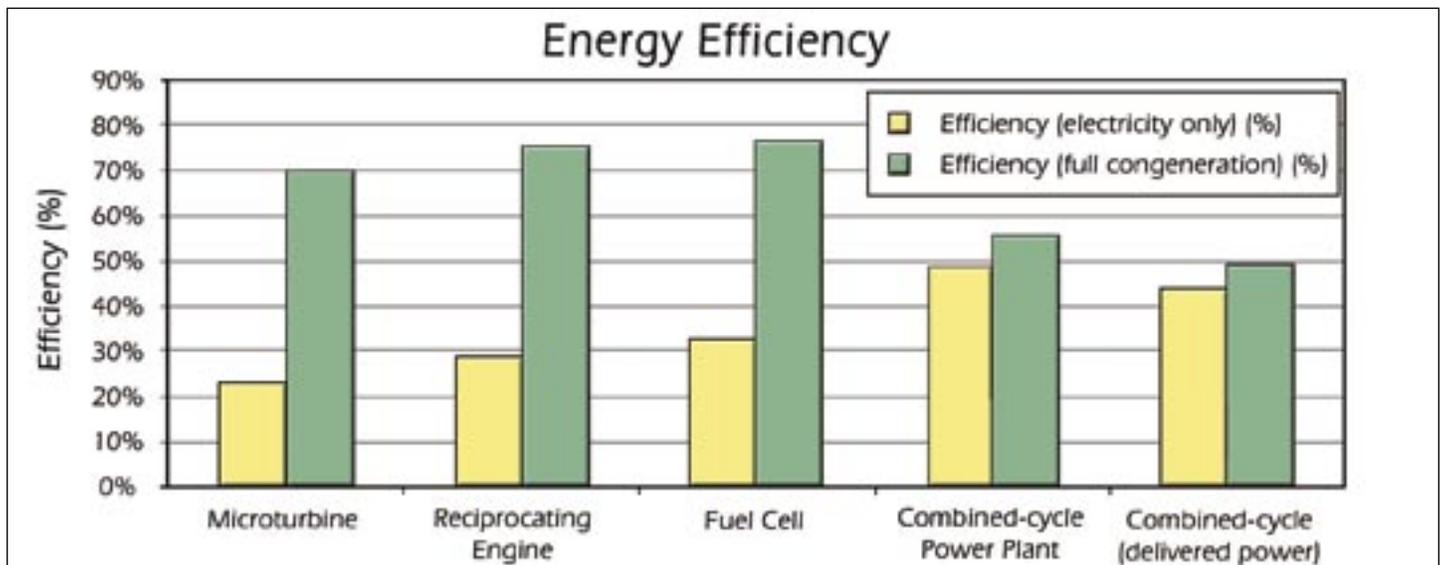
The general consensus has been that the fuel cell industry is at least 12 to 18 months away from having a residential commercial product, and it will most likely be another two to three years before a fuel cell is produced for residential use.

Most industry analysts, while positive, maintain a realistic view of the role distributed generation will play, at least in the near future, believing that the initial impact in terms of demand will probably not be significant enough to affect the grid for at least a decade.

One view holds that the impact of fuel cells will be one of incremental change rather than a widespread shift from the existing central generation system. Fuel cells will be used, at least at the outset, not so much for residential use, but for the odd niche application, like remote cellular communication sites, recreational vehicle use, and for people living off the grid in outlying areas. It is doubtful that our current centralized system, with its vast, established infrastructure, will be overtaken by distributed generation, as some analysts have envisioned.

It may be that distributed generation has the most potential in other parts of the world, and may make more sense outside the North American continent. In countries like Brazil—and South America generally—for

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Leaders of the Pack

The following technologies have gained the most interest and offer the greatest potential for the future of distributed generation. All of them can be used for cogeneration—besides creating electricity, they also can provide thermal energy that can be used to heat water and space—making them extremely efficient.

Reciprocating Engines:

Reciprocating engines have long dominated the market simply because they have been the most available product, usually used for back-up power. There are a number of models that are mass produced throughout the world. They cost less than any other distributed generation technology and have a fully developed sales, maintenance and repair infrastructure. While noise and emissions are an issue, major manufacturers are working to develop cleaner and more efficient systems.

Engines used for back-up purposes usually run on diesel fuel; for continuous use, natural gas is used. Total system efficiency can approach 80 percent if cogeneration is achieved; without cogeneration, efficiency is approximately 30 percent. At least for the immediate future, many analysts expect the reciprocating engine to continue as the market leader. Cost per kilowatt: larger units \$500; smaller units \$1,000.

Microturbines:

Microturbines are based on the same technology as jet engines. They were adapted from the turbocharger technology originally used in vehicle engines. Because of their simple design—they have only one moving part—they are expected to be easier to maintain and to last longer. Another benefit is their ability to run on a variety of fuels: natural gas, diesel, kerosene and propane, digester gas (from landfills and sewage treatment plants for example), bio-gas mixtures, and even jet fuel. Efficiency, with cogeneration, can reach 70 percent. Although their costs are still higher than manufacturers' earlier projections, next to reciprocating engines, they are the next affordable option. Cost per kilowatt: \$700 - \$1,000.

Fuel Cells:

Fuel cells have generated the most excitement because they produce virtually no emissions. They use chemical reactions instead of combustion to produce both electricity and thermal energy. However, they are extremely costly. There is only one commercially available fuel cell, manufactured by ONSI Corp.; it currently costs more than \$800,000 (\$4,000 per kilowatt). Installation for the 200-kilowatt unit runs an additional \$55,000 to \$80,000, depending on whether heat recovery is involved. Overall efficiency, again with cogeneration, approaches 80 percent. The support of the government through grant programs has been one way to off-set the high costs for some customers, like the city of Portland. The hope is to bring the price down to the range of \$5,000 to \$7,000 for homeowners.

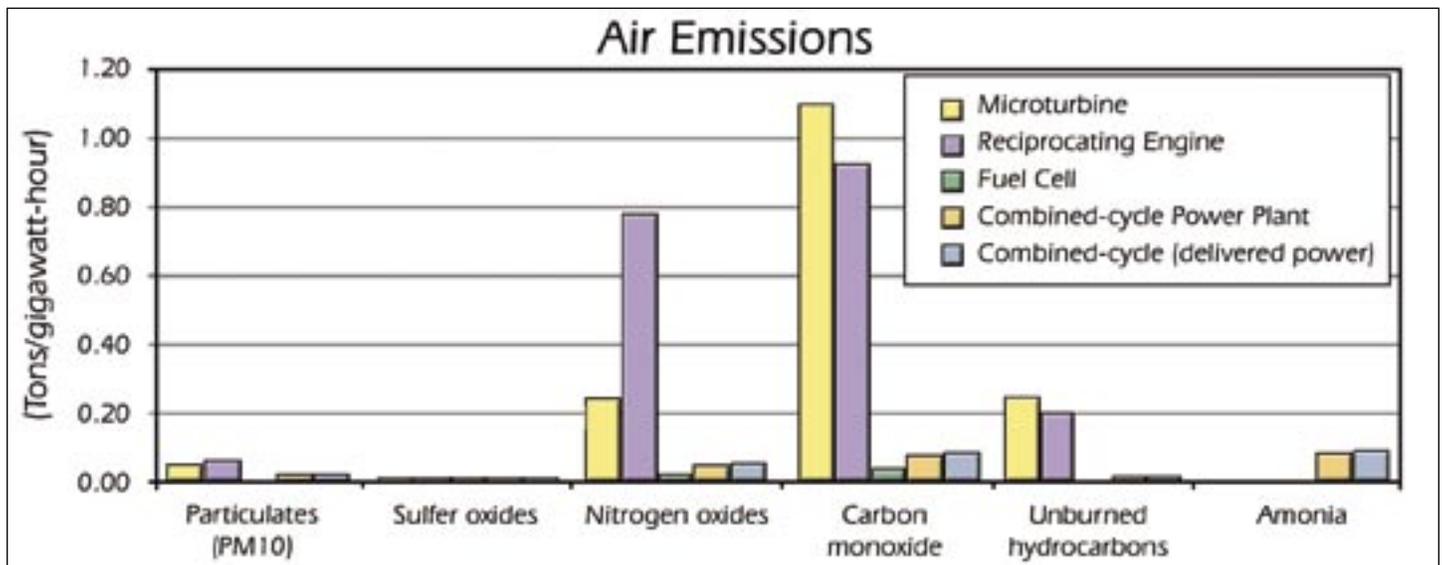
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example, that lack a widespread infrastructure, distributed generation may be a viable option. China, parts of Asia, and Africa are other regions where this also holds true.

Ultimately, fuel cells, microturbines and other alternative on site power technologies will need to prove themselves in the

marketplace. While progress is being made, fuel cells and microturbines are still emerging technologies. But the potential and interest is there. A variety of economic, social and environmental factors will influence the future of the distributed generation market. The move to restructure the power industry, the price of energy, including oil and natural gas, environ-

mental legislation, the development of uniform codes and standards to accommodate the installation of these new technologies, and the broader economic picture, like interest rates and the global economic outlook, will all play a significant role in how fast and how far distributed generation will go. ■



Federal Agencies Propose to Boost Spending on Salmon Recovery

The Bush Administration's proposed federal budget for Fiscal Year 2003 includes nearly \$220 million in annual appropriations to federal agencies for Columbia River Basin salmon recovery, a 19 percent increase over the current year if the budget is approved. At the same time, the Bonneville Power Administration proposes to spend about \$287 million in electricity ratepayer funds in Fiscal Year 2003 to protect, mitigate and enhance fish and wildlife affected by hydropower dams in the Columbia River Basin. That figure would represent about a 13 percent increase over expenditures in 2002, according to Bonneville.

"This is a vote of confidence that we are moving in the right direction with the Northwest's salmon recovery efforts," said Steve Wright, administrator for the Bonneville Power Administration, in a news release issued by federal agencies involved in salmon recovery. "We look forward to building on our progress along with our partners throughout the Northwest."

Also commenting on the proposed federal budget, Bob Lohn, regional director of the National Marine Fisheries Service, said, "This administration is serious about protecting the environment, and that commitment is reflected in this budget proposal. There will be significantly more money for salmon restoration in the Columbia River, for research and monitoring in the Columbia Basin, for habitat improvement, including the estuary, and for restoring streamflows."

Federal efforts in the Columbia Basin focus on finding better ways to move juvenile fish past a series of hydroelectric dams, improving the habitat for listed species and collaborating with states, tribes and other regional partners on restoration strategies and activities.

The funding for the National Marine Fisheries Service includes \$12 million for additional scientific work, monitoring and evaluation to implement the 2000 Columbia River and Lower Snake River biological opinion on hydropower operations.

Bill McDonald, regional director of the Bureau of Reclamation, said most of the \$4 million increase requested for Reclamation will be used for planning habitat improvement measures in partnership with private landowners and local watershed councils. Included in the budget are funds to continue Reclamation's water acquisition activity, which purchases water from willing sellers in accordance with state law. This water is used to augment flows for migrating salmon and is an important part of the recovery effort, according to Fisheries Service biologists.

Brig. Gen. David A. Fastabend, Northwestern Division commander of the U.S. Army Corps of Engineers, said the proposed federal budget includes \$128 million to improve fish passage at Snake and Columbia river federal dams and to help restore the Columbia River estuary. He said the budget request "underscores our commitment to regional salmon conservation efforts." According to Fisheries Service research, passage improvements at the federal dams have benefited fish, as survival of inriver-migrating Snake River juvenile chinook salmon has improved substantially in recent years.

The U.S. Fish and Wildlife Service will dedicate the additional \$3.7 million in the administration's budget request to enhancing river flows and fish passage, restoring instream habitat and improving national fish hatcheries' contributions toward salmon recovery. Regional Director Anne Badgley said the proposed budget "speaks volumes about the administration's dedication to restoring salmon populations in the basin."

Other federal agencies are also participating in salmonid restoration. "EPA is firmly committed to continue working toward improving water quality, which is an essential aspect of salmon recovery," said John Iani, U.S. Environmental Protection Agency regional administrator. Elaine Zielinski, Oregon/Washington state director of the Bureau of Land Management, commented that "the land managing agencies have extensive work underway to improve salmonid habitat in the Columbia Basin, from strategies to enhance streamside vegetation to collaboration on recovery actions with states, local governments, tribes and our other watershed partners." ■

Federal Agency Fiscal Year 2002-2003 Funding Columbia River Basin Salmon

	(\$ in millions)		
	FY 2002 Enacted	FY 2003 Budget	Change from '02
COLUMBIA RIVER BASIN:			
Army Corps of Engineers	108.75	128.2	19.45
Bureau of Land Management	1.5	1.5	
Bureau of Reclamation	11.0	15.0	4.0
United States Fish and Wildlife Service	10.0	9.7	(0.3)
Bureau of Indian Affairs	0.4	0.4	
United States Geological Survey	0.4	0.4	
National Marine Fisheries Service	24.6	36.6	12.0
United States Forest Service	13.0	13.0	
Environmental Protection Agency	14.6	14.6	
TOTAL (Discretionary Appropriations)	184.2	219.4	35.2
Bonneville Power Admin. Direct Fish Costs	253.3	286.7	33.4
TOTAL (Discretionary & Indefinite)	437.5	506.1	68.6
OTHER PACIFIC COASTAL SALMON:			
NOAA Pacific Coastal Salmon Recovery Fund	110.0	90.0	(20.0)
NOAA Pacific Salmon Treaty	45.0	20.0	(25.0)
State Pacific Salmon Treaty	20.0	20.0	
TOTAL (Other Pacific Coastal Activities)	155.0	130.0	(25.0)
GRAND TOTAL (Columbia & Other Pacific Salmon)	592.5	636.1	43.6

Conservation Investments Today Could Moderate Economic Impacts of Volatile Power Prices Tomorrow

Volatile electricity prices had the Northwest economy reeling in 2001, but a modest regional investment in energy conservation could help smooth the peaks and valleys of the wholesale power market if another energy crisis develops.

That's not a new message from the Northwest Power Planning Council.

Through the 1990s, wholesale power prices were low enough to discourage new investments in power plants and conservation. When the drought hit in 2000 and 2001, the power supply dipped dramatically, power prices rose substantially and new power plants were rushed to construction. Then the drought ended, new power plants came online, demand for power dropped (primarily this was in response to the economic recession), and wholesale power prices fell back to 1998 levels.

Investments in energy conservation several years ago would have smoothed the peaks and valleys of the wholesale power market's wild ride in 2001. Today, like four years ago, the region faces the possibility that investments in new generation and conservation will wane in response to low wholesale prices. And once again, the Council is touting the importance of energy conservation investments as a hedge against future price shock.

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Late last year, a Council analysis demonstrated that some 300 megawatts of energy conservation could be developed in the Northwest for a cost that is less than the cost of building a new natural gas-fired plant of the same size.

energy conservation could be developed in the Northwest for a cost that is less than the cost of building a new natural gas-fired plant of the same size. Not only would the conservation investment help meet the region's growing demand for electricity by using it more efficiently, a "conservation power plant" should contribute directly to making the economy of the Northwest more efficient and more risk resistant.

That's because more than 60 percent of the conservation potential identified in

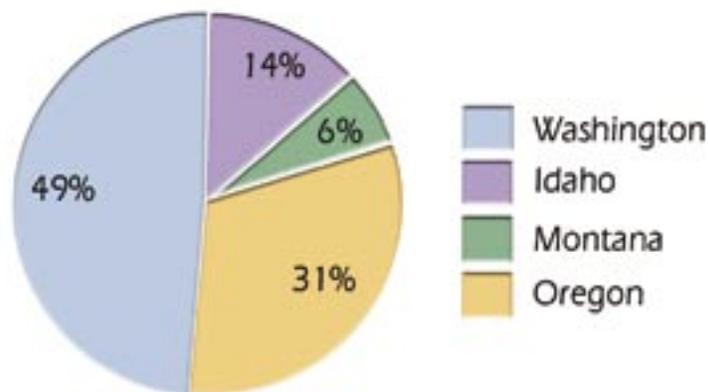
the December 2001 Council analysis is in industrial and commercial businesses. In those sectors of the economy, the energy savings are primarily in replacing old lights and electric motors with more efficient ones, improving the efficiency of heating and air conditioning systems, reducing compressed air leaks so that electric pumps don't work as hard and, where possible, improving the efficiency of electric furnaces. Other commercial and industrial processes also offer significant potential for energy savings, including water heating, building insulation, windows, laundry equipment, exit signs, pumps, fans, transformers, refrigeration equipment, dehumidifiers, heat recovery and thermal storage equipment, cooling towers and water recycling equipment.

According to the U.S. Energy Information Administration, there are 636,002 commercial and industrial electricity customers in the four Northwest states, with Washington (272,983) having the most. Those customers purchased just over 23 million megawatt-hours of electricity in 1999, the most recent year for which the federal agency has figures. In Oregon, the 203,161 commercial and industrial customers purchased 14.9 million megawatt-hours; in Idaho, the 90,798 commercial and industrial customers bought 6.5 million megawatt-hours, and in Montana the 69,060 customers purchased just over 3 million megawatt-hours.

While individual businesses can pursue savings on their own, it is more likely they will do so through their utilities. The Energy Trust of Oregon, a non-profit organization created by Oregon's Legislature to invest in conservation and renewable energy, will coordinate conservation activities in the service territories of Portland General Electric and PacifiCorp. The Bonneville Power Administration is offering a discount on its wholesale rates to its utility customers that operate qualifying conservation and renewables programs. To support that discount and calculate the savings from individual conservation actions, Bonneville and the Council analyzed more than 3,000 actions and made the analysis available to Bonneville's customers.

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Pacific Northwest Commercial and Industrial Energy Consumption by State in 1999



47.4 million megawatt hours total

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Even though the 300 megawatts of conservation is available and cost-effective, it is not certain it will be acquired. While it is true that the Northwest is capable of developing conservation resources at a significant rate – conservation acquisition peaked in 1993 at almost 140 average megawatts – the rate of acquisition fell dramatically in the latter years of the decade when wholesale power prices dropped to near or below the cost of conservation measures. This discouraged investment. Ironically, today's wholesale price again is low – lower by a factor of 10 than the price just a year ago.

The boom and bust cycle of wholesale power prices is not new, and an important issue for the region is how to ensure a steady rate of investment in new power plants and conservation – particularly conservation – in the face of declining wholesale power prices. In its Fourth Northwest Power Plan, completed in 1998, the Council identified approximately 1,535 average megawatts of conservation opportunities that could be cost-effective to develop over a 20-year period. The Council's analysis estimated that by developing these resources, rather than relying on new gas-fired generation, the region could save \$2.3 billion in avoided electricity costs and reduce carbon dioxide emissions that could be expected from fossil-fuel power plants by approximately 80 million tons. The plan estimated that electricity costs would stay low – 2 cents to a little over 3 cents per kilowatt-hour over 20 years. Of course, prices jumped up substantially in 2000 and 2001 and were back to about 2.5 cents in early 2002. But even with low electricity prices in 1998 and a forecast for more of the same, actual conservation acquisitions were only about half as much as the plan

estimated was available. The Council plans to address the issue of ensuring ongoing conservation investments in its Fifth North-

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west Power Plan, which will be developed in 2002 and 2003.

According to the Council's December analysis, over the next three to four years the region could acquire about 100 megawatts per year at 3 to 4 cents per kilowatt hour, and most of that at about 3 cents. That's \$30-\$40 per megawatt-hour, and that is the approximate cost of building a new power plant fueled by natural gas. The total investment would be \$220 million to \$250 million per year, which is less than was spent on

energy conservation, per year, in the Northwest in the late 1990s.

These costs would not be solely the responsibility of the utility system, but likely would be split between participating customers and the rest of a utility's rate-payers. Customers would benefit directly from reduced power bills and the potential for increased productivity, greater comfort, reduced maintenance costs and reduced emissions. And much of the expenditure already is planned. The Council estimates that at least half of the regionwide investment already is incorporated in utility commitments to the Northwest Energy Efficiency Alliance, Bonneville's Conservation and Renewables Discount and Conservation Augmentation budget, and the Oregon Energy Trust.

Acquiring 300 megawatts of conservation also makes sense in terms of the region's total energy supply. Demand for power continues to grow in the Northwest. More than 1,600 megawatts of new, natural gas-fired generation were completed in the region in 2000 and 2001, and 3,500 more megawatts were under construction in early 2002. While hydropower still dominates the region's power supply, augmenting it with 300 megawatts of new energy efficiency measures is a prudent diversification of the region's portfolio of power system investments. In fact, it would be a buffer against the impact of future price volatility. If, for example, over the next 15 years the region experiences even one year when the average price of wholesale electricity is half what it was in the energy-crisis year of 2001, the value of the energy savings from the 300 megawatts of conservation would equal more than 40 percent of the cost to install it. ■

Subbasin Planning Update

The Council's 2000 Columbia River Basin Fish and Wildlife Program set the course for a new review and selection process based on the development of local plans to identify and prioritize the most critical problems that need attention to help fish and wildlife within a particular geographic area. Called subbasin plans, they are another important step toward increasing the effectiveness and accountability of our investment in fish and wildlife recovery in the basin, and will eventually be adopted as part of the Council's program to guide the selection and funding of fish and wildlife projects in the Columbia River Basin.

With an initial two-year budget of \$15.2 million established to assist local

entities in developing subbasin plans and to provide technical assistance, the Council has been working to finalize the guidance information to officially open the doors for submitting subbasin plans. The Council is aiming to release the call for recommendations for subbasin plans this spring.

Key information in the request for recommendations will include the schedule for submitting subbasin plan recommendations; the criteria to be met in order to receive funding for plan development; and the review and adoption process, including the elements in the scientific review.

In addition to this important step, the Council is working to refine the contract and administrative process since the

Council will handle the contracts for subbasin planning.

Another key to the success of this effort will be the integration between the Council's process and the related work of other government agencies such as the National Marine Fisheries Service, the Fish and Wildlife Service and the Forest Service, as well as other watershed planning activities. To that end, the Council is working to forge relationships with its counterparts to create public information materials to educate people and promote coordination throughout the basin, as well as at the local level.

John D. Hines Appointed New Montana Council Member

Helena, MT - Governor Judy Martz has appointed John Hines as Montana's second representative to the Northwest Power Planning Council, filling the position vacated by Leo Giacometto, who resigned his position.

"We are glad to have John Hines join our team as a representative to the Northwest Power Planning Council. He has extensive experience working with diverse interest groups on energy and fish and wildlife issues, and has a strong background of work with groups like the Public Service Commission," said Governor Martz. "Throughout his professional career, John has been instrumental in working on a broad array of electric issues, currently serving as the council's administrative officer. I have full confidence that, with his extensive expertise, John will hit the ground running."

Hines is a native Montanan from Bozeman. He graduated from Bozeman High School in 1977, and graduated from the University of Montana - Missoula with a master's degree in economics in 1985 and a bachelor's in economics in 1982. Since his graduation, Hines has worked in various capacities with the Northwest Power Plan-



John D. Hines
Montana Council Member

ning Council and private industry, including serving as an economist for the Council (1988-1994), and serving as a financial consultant for the World Bank in 1987. Hines is also a member of the Board of Directors of the Northwest Energy Efficiency Alliance, and a member of the Governor's Low Income Advisory Group. Hines' salary will be \$87,637.

"I am honored to be chosen by Governor Martz to be a representative on the Northwest Power Planning Council," said Hines. "I am anxious to begin working in this capacity on behalf of the citizens of Montana and this Administration to help ensure that Montanans have fair, low-cost, and stable energy rates. I look forward to continuing the tradition that the Montana Council members have played in previous Council deliberations: one of leadership and prudence." ■

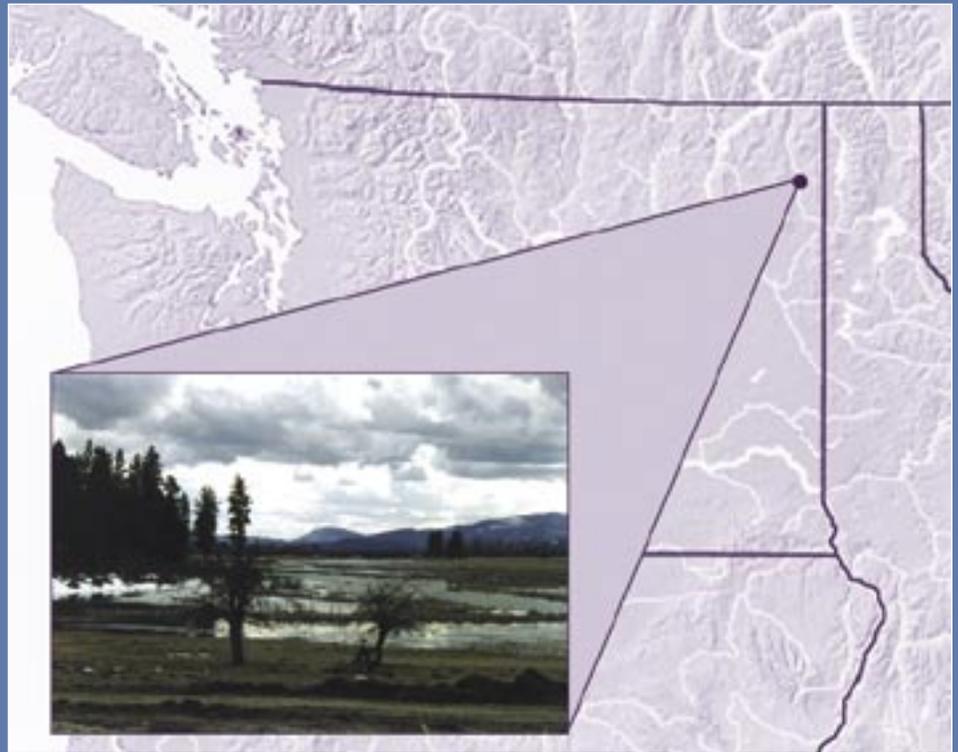
Success Stories — Pend Oreille River

It took time, but a floodplain on the Pend Oreille river in Northeastern Washington has been restored for the benefit of wildlife that were affected by the construction of Albeni Falls Dam, a federal facility that regulates the level of Idaho's Lake Pend Oreille upstream.

Eleven years ago, the 600 riverfront acres known today as the Pend Oreille Wetlands Wildlife Mitigation project comprised a pair of riverfront ranch properties sequestered behind a dike along the east bank of the river. In 1991, the Northwest Power Planning Council authorized the Bonneville Power Administration to purchase the ranch as partial mitigation for the wildlife and habitat losses caused by the construction of Albeni Falls Dam, which was completed in 1955. Bonneville purchased the 436-acre Flying Goose Ranch in 1992 and turned it over to the Kalispel Tribe of Indians, with headquarters in nearby Usk, to manage as wildlife habitat. An adjacent 164 acres were added to the project in 1997.

The Pend Oreille river and lake area of northern Idaho and northeastern Washington are within the traditional homeland of the Kalispel Tribe. In 1914, the 4,620-acre Kalispel Reservation was created by executive order. The reservation and the nearby Pend Oreille Wetlands project are about 50 miles northeast of Spokane.

According to habitat loss assessments completed in the late 1980s, construction and operation of the dam resulted in the loss of 6,617 acres of wetland, the inundation of 8,900 acres of deep-water marsh and the loss of habitat for a variety of species. Seven habitat types exist on the Pend Oreille wetlands project. These include 1) forested wetland, 2) scrub-shrub wetland, 3) emergent wetland, 4) wet meadow or floodplain grassland, 5) open water, 6) upland forest, and 7) riparian deciduous forest. These habitat types support populations of wildlife affected by the dam. The Kalispel Tribe's management activities have included planting trees along the river, stabilizing the river bank, enhancing stands of coniferous and hardwood trees, installing water control structures, burning vegetation in a managed way, managing pasture land, constructing nesting islands, and conducting general operations and maintenance activities that



include monitoring and evaluation. These actions have helped target species, including Canada geese, mallard ducks, muskrat, white-tailed deer, bald eagles and several species of song birds.

Ray Entz, a biologist for the Kalispel Tribe and manager of the Pend Oreille Wetlands project, said the project shows that environmental restoration doesn't happen in a hurry.

"It was an old floodplain farm when we started," he said. "We removed the dike at one end and restored the wetlands. It took more than six years for us to see the plant and animal communities, and the diversity of species, return. But they did return, and it is a beautiful place today."

And there was a surprise:

"Recently, we've been seeing leopard frogs on the project," Entz said. "They've been absent for 20 years, and now they're back. I don't think it's cause and effect as a result of the project, but it is interesting."

Council Decisions for 2001

(continued from front page)

northern Oregon. That province includes major tributaries of the Columbia River such as the lower Snake, Yakima, Walla Walla, Umatilla, John Day and Deschutes rivers. More information is available at the Columbia Basin Fish and Wildlife Authority website, www.cbfgwa.org.

December 2001

The Council approved the following changes to ongoing fish and wildlife projects:

Kalispell Hatchery design expansion

The Council approved a request for funding to design two half-acre lined ponds to rear largemouth bass in association with the Kalispell Trout Hatchery in northeastern Washington. Construction funding will be contingent on Council approval of the design. The total cost of design and construction is not to exceed \$180,000.

Moses Lake Fisheries Assessment

In response to concerns raised by the Independent Scientific Review Panel, the Council approved a plan to redesign a project that is intended to assess the recreational fishery in Moses Lake, Washington. An independent researcher will be retained to work with the Washington Department of Fish and Wildlife to develop the new project.

Nez Perce Tribe request for additional funds for cryopreservation projects

A total of \$51,000 was approved for the purchase of two additional storage freezers and liquid nitrogen tanks for storage of salmon and steel-

head genetic material. The equipment is for a project being undertaken by the Nez Perce Tribe to coordinate gene banking of genetic material from Endangered Species Act-listed steelhead and spring and summer chinook salmon in the Snake River Basin. The project has been under way since 1997, and the Tribe had run out of freezer space.

January 2002

Comments on the One-year Implementation Plan for the 2000 Biological Opinion on Operations of the Federal Columbia River Power System

The Council approved written comments to the federal agencies that operate Columbia and Snake river dams regarding the one-year implementation plan for the 2000 Biological Opinion. The Council's comments were directed to the Bonneville Power Administration, U.S. Army Corps of Engineers and the Bureau of Reclamation. The Council noted that the plan embraces projects developed through the Council's project selection process as meeting various requirements of the Biological Opinion, and that the one-year plan relies on the Council's ecological province-based project review process to a greater degree than does the agencies' five-year implementation plan. Federal funding commitments in the one-year plan are vague and should be made more specific in the companion five-year implementation plan, the Council commented.

Conservation Power Plant issue paper

The Council adopted the recommendations in a paper prepared by the Council's Power Division that identifies 300 megawatts of cost-effective energy

conservation potential in the Northwest. The Council adopted an interim conservation goal of 100 megawatts per year for the next three years while the Council develops its next regional power plan. Meanwhile, the Council will encourage regional utilities, conservation administrators and large industries that buy power directly from Bonneville to help achieve the conservation goal.

Letter supporting extension of the production tax credit for renewable resources

The Council approved a letter to members of the Northwest congressional delegation and members of the Senate Finance Committee supporting extensions to, and modifications of, federal renewable energy incentives.

The Council approved the following changes to ongoing fish and wildlife projects or project proposals:

1. Montana Department of Fish, Wildlife and Parks request for reallocation of funds to evaluate stock origin of native westslope cutthroat trout.

The Council approved a request to allocate \$28,250 to the Hungry Horse Mitigation Program to fund an alternative approach to evaluate stock origin and life history of native migratory cutthroat trout in the upper Flathead River drainage.

2. Request for reallocation of funds for Rattlesnake Slope Addition land acquisition.

The Council approved reallocating \$1,645,000 for the purchase of the

(continued on next page)

Council Decisions for 2001

(continued from previous page)

McWhorter Ranch, located near Richland, Washington, to be managed as wildlife habitat.

3. Response to ISRP review of Arrowleaf Conservation Easement project proposal.

The Council discussed the Independent Scientific Review Panel's second review of this habitat acquisition project in the Methow River valley of north-central Washington, and recommended that Bonneville not approve the project. Washington's two Council members and Montana member Ed Bartlett voted in favor of recommending funding, and the other five Council members voted against it. The prevailing Council members recommended that the \$2.5 million that had been earmarked for Arrowleaf be directed instead to funding a water brokerage that would purchase water in Columbia and Snake river tributaries for the benefit of Endangered Species Act-listed salmon and steelhead. Bonneville is required by the 2000 Biological Opinion (Reasonable and Prudent Alternative 151) to establish and fund the water brokerage.

4. Follow-up to Columbia Plateau project recommendations:

Resolution of funding level for Sagebrush Flats wildlife mitigation project.

The Council initially rejected this riparian fencing project because of its proposed cost of \$40,000 per mile. After negotiations between the Washington Department of Fish and Wildlife, which proposed the project, and Bonneville, Bonneville agreed to subcontract the work in an amount not to exceed \$10,000 per mile.

February 2002

Invite public comment on a paper that describes the issues the Council is proposing to address in the next revision of its Northwest Power Plan

In this paper, the Council describes issues that can affect the achievement of the Northwest Power Act's goals of ensuring a reliable power supply while mitigating the impact of hydropower dams on fish and wildlife, such as incentives for developing new power plants, increasing investments in energy conservation, determining whether and when to curtail water spills at the dams in favor of hydropower generation, and others. The paper is posted on the Council's website.

The Council approved the following changes to ongoing fish and wildlife projects or project proposals:

Evaluate live capture selective harvest using tangle nets for Columbia River commercial fisheries

The Council approved continued funding for this project, which began last year, in the amount of \$659,368. Unlike traditional gillnets, tangle nets have a small mesh that snares fish by their teeth, rather than their gills, so that the fish can be released live. In this way, threatened or endangered species, or weak populations that have not been listed, can be released rather than dying in the nets. Results from the 2001 tests were encouraging, as more than 95 percent of the captured fish were released alive.

2002 budget for habitat restoration and enhancement in Salmon Creek

Salmon Creek is a tributary of the Okanagon River in north-central Wash-

ington. The project is an effort to increase stream flows for anadromous fish. Previously, the Council approved a sequence of funding for the project to complete the necessary environmental review before proceeding with design and construction. After a review by the Council, Bonneville and the Colville Confederated Tribes, it was agreed that the work in 2002 would include administration and project coordination and continuation of a water leasing program and an on-farm water conservation program, but not design costs for streambank stabilization projects. Accordingly, the Council recommended funding in the amount of \$353,790 for 2002.

March 2002

Invite public comment on alternative fish and wildlife project selection process issue paper

The paper proposes a new project selection process that has two purposes:

1. Improve the ability of state and tribal policymakers to define project priorities when projects to implement the Council's fish and wildlife program are solicited and reviewed in the 11 ecological provinces of the Columbia River Basin.

2. Establish requirements for Bonneville funding of Endangered Species Act requirements before the Council makes final project funding recommendations to Bonneville.

The paper is posted on the Council's website, www.nwcouncil.org.

Calendar

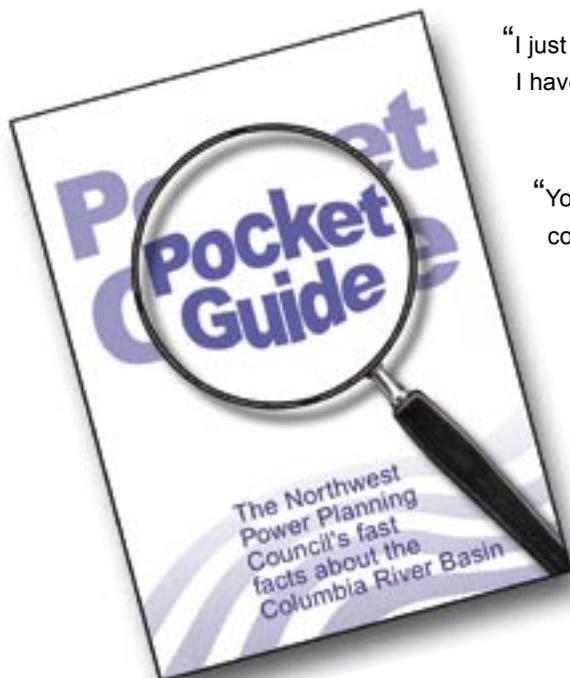
Council Meetings & Other Events

- April 22-24 National Hydropower Association 2002 Conference, Washington, D.C
(816) 931-1311 x105 or www.hydro.org.
- April 24-26 Environmental Summit on the West II - Sponsored by the Western Governors' Association and the White House Council on Environmental Quality, Salt Lake City, Utah
www.westgov.org/wga/initiatives/enlibra.
- April 25-26 Doing Business in Salmon-Land Seminar, Seattle, Washington
(800) 574-4852 or www.theseminargroup.net.
- April 27-May 1 Toward Ecosystem-Based Management: Breaking Down the Barriers in the Columbia River Basin & Beyond Conference, Spokane, Washington
Contact Don MacDonald at (250) 729-9623 or www.sff.bc.ca.
- May 14-15 Northwest Power Planning Council meeting, Grouse Mountain Lodge, Whitefish, Montana.
- June 4-5 Pacific Northwest Gas and Power Symposium, Hilton Portland & Executive Tower, Portland, Oregon, (888)ACI-2480 or www.americanconference.com.
- June 11-12 Northwest Power Planning Council meeting, Riverhouse Hotel, Bend, Oregon.

Public Comment Periods

- Mid-May-July Projected Public Comment Period for Mainstem Rulemaking
- May Projected Public Comment Period for Draft Fuel Price Forecast for the Fifth Power Plan
- May 25-June 28 Projected Public Comment Period for Innovative fish and wildlife projects in Fiscal Year 2002
- June Projected Public Comment Period for Demand Forecast for the Fifth Power Plan

Many happy returns.



“I just wanted to take a minute to say thanks for the NWPPC Pocket Guide. I have taken the time to look it over and found it to be very informational.”

Daniel Fuchs, State Rep. HD 15, Billings, Montana

“You recently sent us a copy of the Pocket Guide. I would like 25 additional copies to share with employees and members at our annual meeting.”

Tommi Reynolds, Wells Rural Electric Company, Wells, Nevada

“We received your Pocket Guide in the mail and find it very useful. I was wondering if I could get about 35 copies to have in the office for hand outs to people who come in?”

Vicki Keller, Port of Pasco, Pasco, Washington

Now available at the Council's website:
www.nwcouncil.org/pocketguide.
Or telephone 1-800-452-5161 and ask for the Pocket Guide.

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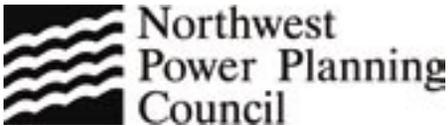
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