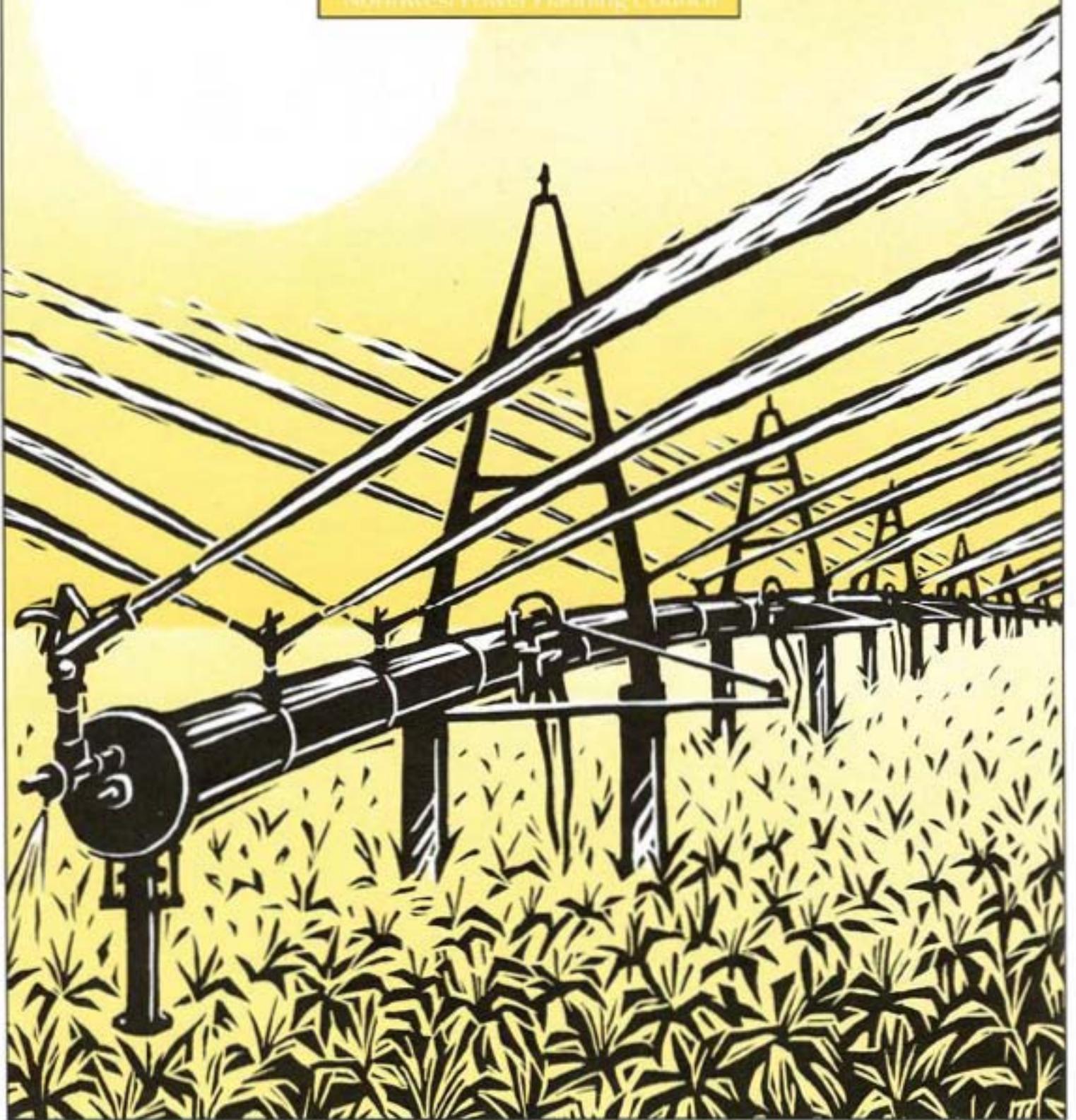


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CONTENTS

3 Smoothing Out the Ride to Tomorrow

The next Northwest Power Plan must address the chaos of new competition

7 Fishing for a Future

Record low salmon counts underscore need to rebuild the runs

11 Interview: Betsy Moler

Federal Energy Regulatory Commission chair talks about changes in the energy industry

17 Mesh of Complexity

Progress is being made, but slowly, on screening water diversions to protect juvenile salmon

21 Wind Thrift

Technological advances bring wind power closer to Northwest grid

27 Bonneville Belt-Tightening

Congressional task force identifies \$150 million in savings at the Bonneville Power Administration

30 An Unconventional Energy Strategy

British Columbia's Energy Council recommends ways to sustain the province

33 Shorts

34 Calendar

This issue's cover illustration is by Larry Milam.

from the **CHAIR**

I've been thinking a lot lately about how we've made the Columbia River into a series of reservoirs, and sometimes now we talk about turning it into a series of lakes. When we thought of the pools as reservoirs designed to serve the dams, it was easy to accept that they would fluctuate as the need for power, or irrigation, or flood control dictated. But more and more, we are choosing to operate the reservoirs to serve fish and wildlife needs. The problem is: different species of different needs in the reservoirs. If we drain our pools for salmon, for example, we may be harming fish that spend their lives in the reservoirs, or other fish and wildlife that need specific water levels to survive. Whether we drain the pools or hold their levels high, we will be affecting the power system.

The Northwest Power Act was designed in part to address this problem. Ours is a balancing act. We have to try to weigh the needs of one species against the needs of others. We have to protect the reliability of the power system at the same time. We have to take a systemwide approach.

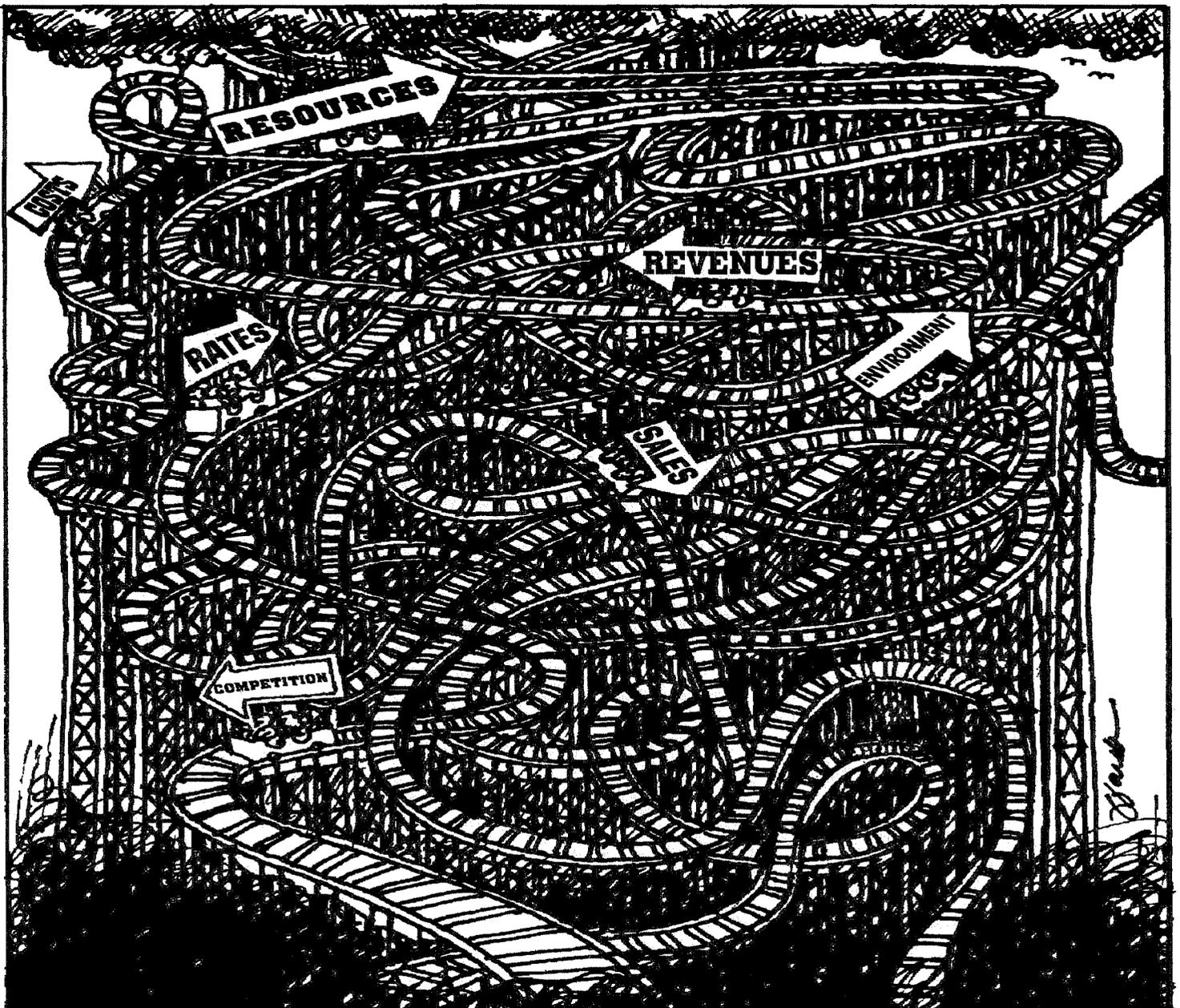


This is not true of the federal Endangered Species Act. The Endangered Species Act is designed to prevent the extinction of individual species. Enforcers of that legislation are not required to look upstream and downstream at the effects of their actions on other creatures. But what if draining reservoirs for salmon pushes resident fish closer to extinction?

The Council has been working with the National Marine Fisheries Service to try to get that agency, which is responsible for endangered salmon, to look at the river basin as an ecosystem with many important species.

Hard choices still will need to be made, but they will be made with an understanding of their broader impacts. They will be made with the intent of making future listings of our fish and wildlife unnecessary.





Smoothing Out the Ride to Tomorrow

by Carlotta Collette

The next Northwest Power Plan must address the chaos of new competition

It's been a dicey ride for electric utilities these past few years, and it may not get better for a few more. Competition on the generation side from independent power producers, federal legislation that opened access to transmission systems,

efficient technologies and low-priced fuels that made the cost of new resources much lower than the cost of some old resources utilities are still paying off — all these changes and more have challenged the stability (some might say rigidity) of the utility industry.

In the midst of this unsteady scene, which gives new meaning to the notion of uncertainty in the utility world, the Northwest Power Planning Council is beginning its next 20-year power plan for the region. The Council's planning process has a specific set of

goals mandated in the Northwest Power Act of 1980. These goals include: assurance of an adequate, reliable and least-cost power system for the region; development of cost-effective conservation, renewable and high-efficiency resources; inclusion of quantifiable environmental costs and benefits in resource decisions; protection, mitigation and enhancement of fish and wildlife resources in the Columbia River Basin; and an open, public planning process. The goals have been reaffirmed by the four Northwest states through their utility regulators.

To these, the Council has this year added a goal of helping Northwest utilities and consumers work their way through the roller coaster ride that is one consequence of the restructuring of the industry.

How to build a power plan

Power planning for the four-state Pacific Northwest is a complex and difficult process. Planners must find ways to explore the unknowable future. They must assess values to technologies that are still evolving. They must gauge the comings and goings of millions of people, and the ups and downs of the economy the people create.

Out of that assemblage of data, planners pick a path, or in the Council's case, a range of possible paths the future could take. Matching the possible futures to appropriate actions that can ensure achievement of the economic, societal and environmental goals of the Act may be the most arduous task in the planning process. This is particularly true in the new utility world, where the choices have been multiplied, and decisions could be made by a vastly expanded group of people.

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In such a context, power planning is at best an art form whose raw materials are numbers, trends and probabilities. It relies on strong analytical capabilities, objective resource information, strategic thinking about the power system and the ability to create a regional forum to address critical issues.

In many ways, it is the forum, the open exchange of questions and answers, that makes the Council's planning process most effective. This is especially the case this year, with this plan.

In light of all the changes the utility industry is undergoing, the usefulness of the regional power plan, and its success in meeting

the goals of the Northwest Power Act, will be based in large part on how involved the electricity community — producers, marketers *and* consumers — becomes in the planning process.

To help navigate through this year of numbers and assumptions, the Council has outlined a series of discussion papers on key issues. Some of these papers have already been released, debated and revised in response to comment. Others will be released over the coming year. The Council anticipates releasing a draft plan by the summer of 1995 to solicit public comment. Some decisions and actions may be adopted in the interim, as circumstances demand.

New industry meets new plan

The Council began this planning process with a look at how the electric utility world is evolving. An issue paper on the restructuring of the electric utility industry (publication 94-4) was released in January and discussed at several Council meetings this winter and early spring. The resulting dialogue with industry and consumer representatives helped clarify the directions the industry appears to be taking and explored ways the Council can guide the industry toward accomplishment of the Power Act's goals.

A follow-up paper described the scope of the the Council's next power plan (publication 94-21) and the role the Council can play in the new industry. Out of the discussion that paper drew came a list of five key ways the Council can contribute to the utility industry's transition. The Council can:

- continue to provide objective, high quality information and analysis to those making resource decisions, including developing a

utility-scale computer model for decision-makers;

- help the industry make the transition to more competitive markets so the benefits of competition and the goals of the Power Act are achieved;

- define realistic dimensions of key risks facing the region's power system and help devise strategies to manage those risks;

- provide leadership in addressing emerging problems and capitalizing on new opportunities for the power system; and

- provide an open, public planning process.

Exploring new assumptions

Computer models of the likely outcomes of various resource choices are the Council's principal planning tools. But computer models are only as good as the assumptions planners put into them.

In the case of the power plan, the Council has traditionally incorporated assumptions that tend to place a higher weight on future costs and benefits than typical private investors might use. These assumptions, which include anticipated rates of return on and costs of investments, are appropriate for the Council's long-term planning perspective, where old-style power plants might take 10 to 20 years to plan and construct.

But whether these are the correct assumptions to use in a more competitive and rapidly evolving electricity industry, where short-term impacts of resource choices take on greater importance, is a question the Council is exploring in a new issue paper (publication 94-30).

The move to a more competi- tive industry poses new risks.

Really leveling the playing field

In past power plans, the Council has compared all resource costs across the life of each resource. This had the effect of "leveling the playing field" among resources, meaning that the cost of conservation, for example, could be fairly compared to the cost of electricity from a new coal plant by adding up all the costs of both resources from the day they are proposed to the day they cease to save or supply electricity.

Where utilities had disincentives to choose resources like conservation or renewables, the Council worked with regulators to adopt mechanisms, such as special rate treatments, to induce utilities to make investments that have the lowest societal and environmental costs.

But those approaches assumed the utilities would be the principal builders of new power plants and buyers of conservation. Instead, new electricity resources are as likely to be constructed by independent power producers. It is not clear that these new power players will be subject to the same regulatory oversight of their practices. Utilities could be put at a severe disadvantage unless new market signals and regulatory approaches are developed to truly level the playing field.

The Council's next series of issue papers will look at these concerns, seeking the means to make all power suppliers operate equitably with an eye to the *regional* future, as well as to that of a given utility. The papers will look at ways to encourage energy efficiency and renewable resources, such as wind, solar, geothermal, etc., as well as possible regional criteria to use when selecting any resources.

Riskier business

The Council's planning process has always analyzed and, as much as possible, reduced the risky choices inherent in the electric utility industry. Uncertain growth patterns in the region's economy and in the future use of electricity have been accounted for in the Council's analysis since the first plan in 1983. This year the Council upgraded its computer modeling capabilities to incorporate fuel price uncertainty, too.

But the move to a more competitive industry poses new risks, as well as opportunities that utilities, which are essentially regulated monopolies, have not had to contend with as much in the past. From the regional point of view, it would be useful to have some understanding of the

systemwide impacts of a more competitive marketplace for electricity. In this year's planning process, the Council will be including simulations of new resource strategies utilities may take to remain competitive. The new plan will also explore potential impacts from incorporating environmental costs of electrical development.

Another variable the Northwest's power system must address is the role of regional aluminum companies and other large industries that buy huge amounts of electricity directly from the Bonneville Power Administration. These power markets fluctuate widely, exacerbating both Bonneville's uncertainty and that of the regional power system as a whole. How best to address potential changes in these industries will be the subject of an issue paper to be released this fall.

Finally, the Council will use its computer models to look at the Northwest's hydropower system from new perspectives. Traditionally, Northwest power planners based their planning assumptions for the hydropower system on what is termed "critical water planning." This is planning that assumes the river can produce at least as much electricity as it has in the lowest recorded water years. In its current planning process, the Council is expanding that approach to weigh other factors in determining how best to use the hydropower system.

As demands on the Northwest's power system — for electricity, fish protection, irrigation, etc. — grow, the system becomes less flexible. Even a system as vast as the Columbia's can be rendered less able to meet all the

demands put on it over a given period of time. To account for this reduced flexibility and future load growth, this new plan needs to be concerned with meeting peak loads, as well as ongoing energy needs. The Council is working

with an advisory committee and a consultant to find ways of incorporating these so-called "capacity" issues in the next power plan.



How to Get Involved

Over the coming year, there will be ample opportunities for interested people to participate in developing the new plan. Because the plan is for the whole region, major issues will be discussed in every Northwest state. Citizens with particular interests may sit on or attend meetings of advisory committees. Schedules for advisory committee meetings and public hearings are generally published in the Council's monthly publication *Update*. Call the Council's central office for more information.

Issue papers on each topic are released first as drafts designed to encourage ideas and debate in the region. Comment is taken on each paper, and the paper is then revised accordingly. Order issue papers from the list on the inside back cover.

During the next year, as issues of particular urgency or timeliness arise, the Council may make specific decisions ahead of adopting the entire power plan. In such cases, which are called "rulemakings," hearings are held in each Northwest state to listen to public opinion before any decision is made. Notice of these hearings is carried in *Update*.

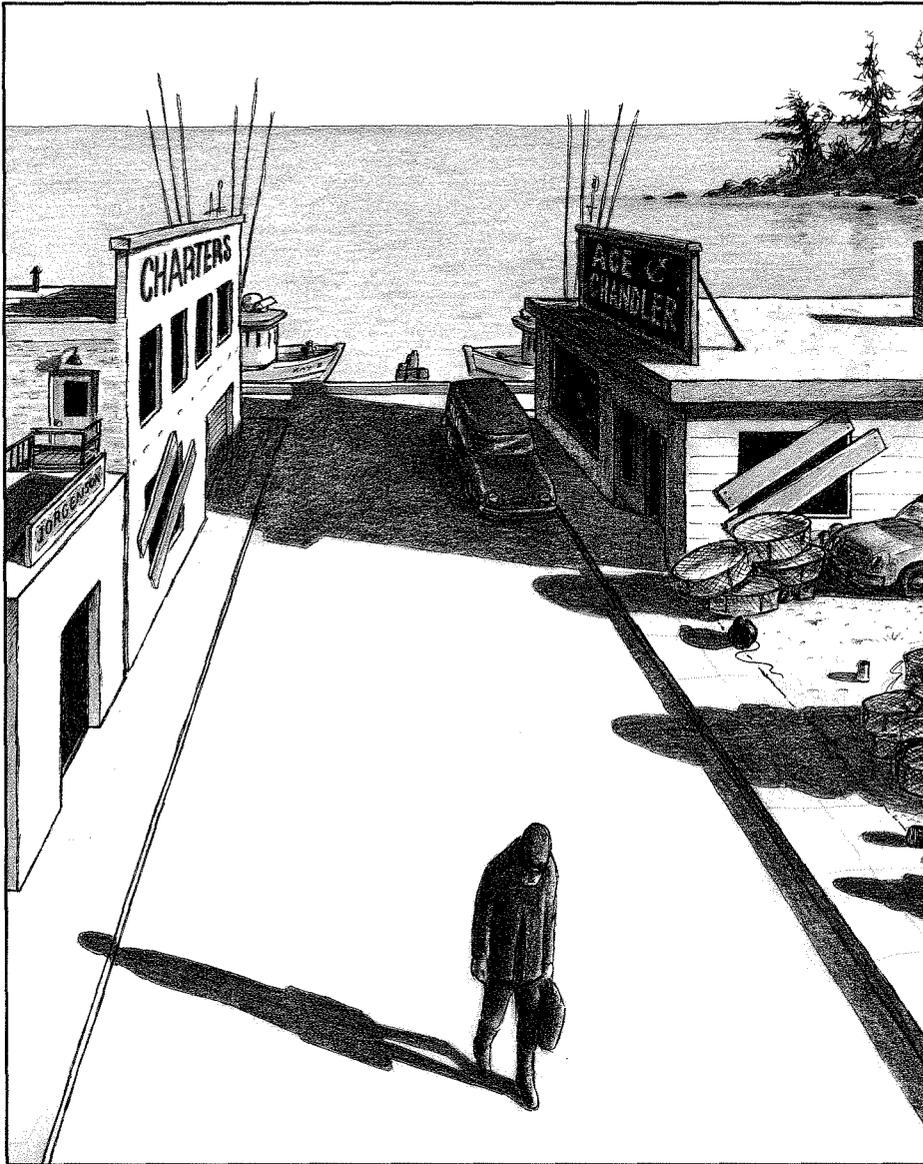
Early in 1995, the Council expects to assemble its draft power plan. With release of the draft, a lengthy public involvement process is kicked off. Comment on the draft is taken at each regular Council meeting, as well as at special hearings in each state.

After the Council adopts its final plan, Council staff responds in writing to comment on the draft that did not affect the final plan. This "Response to Comments" is also distributed to the public.

To have your name added to the mailing list for power plan-related documents, meeting announcements, etc., contact the Council's central office (see inside back cover of this issue).

Record low salmon counts underscore need to rebuild the runs

by John Harrison



Commercial fishers caught only memories of fishing this summer in most of the Pacific Ocean off Washington and Oregon.

That is because the Pacific Fishery Management Council adopted the most restrictive ocean salmon fishing regulations in its 18-year history. The Fishery Council, which regulates ocean fishing off the Pacific Northwest, banned all non-Indian salmon fishing from Cape Falcon, Oregon, about 60 miles south of the Columbia River's mouth, to the Canadian border.

By eliminating fishing this year, the Fishery Council hoped to protect critically depleted runs of salmon, including Snake River chinook and sockeye, which are being protected under the Endangered Species Act, and coho runs that spawn in coastal rivers. The Fishery Council estimated that as a result, revenue from commercial troll fisheries this year would be about \$4.7 million — 90 percent lower than the 1976-1993 annual average of \$43.7 million. A similar decline was expected in recreational salmon fishing income, the Fishery Council reported.

Fishing for a Future

Illustration by Jerry Kruger

The response from government was quick. On April 28, 20 days after the decision, the Governors of Washington and Oregon asked President Clinton for an emergency grant of \$15 million to aid coastal communities and fishers affected by the closure. The Governors noted that coastal communities already were hard hit by restrictions imposed on the timber industry.

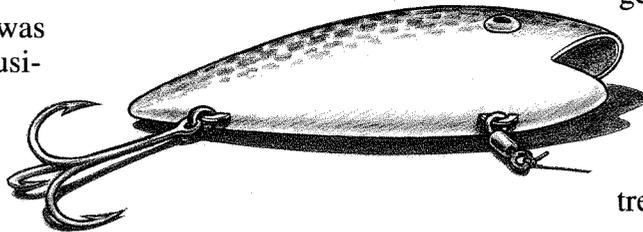
The response from the White House was nearly as quick. On June 2, the Clinton administration declared a "federal fishing disaster" in the Pacific Northwest and promised \$15.7 million in economic assistance. The money was earmarked for loans to start businesses in the affected areas, for tourism and for watershed restoration efforts in coastal salmon streams.

News stories about the fishing closure focused on economic impacts, underscoring the importance of salmon fishing to coastal communities. Some critics of the fishing closure blamed the Endangered Species Act, which has been invoked to protect Snake River salmon, but none — yet — from coastal streams.

"The Endangered Species Act wasn't the villain, only the last warning for Snake River salmon," said Northwest Power Planning Council Chairman Ted Bottiger of Washington. "In the same way, the fishing closure should serve as a call to action for those who hope to see coastal communities once again enjoy the benefits of harvestable numbers of salmon in the ocean."

By eliminating fishing pressure, the Fishery Council sought to help rebuild the runs — not just to the minimum levels that would take them off the Endangered Species List, but to fishable levels beyond

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mere sustainability. The 1994 closure will hurt, but the pain will be worthwhile if it leads to stronger salmon runs in the future, the Fishery Council reasoned.

In fact, conservation of fish runs is at the heart of the Magnuson Fishery Conservation Act of 1976, which created the Pacific Fishery Management Council. One purpose of the law is to "take immediate action to conserve and manage the fishery resources found off the coasts of the United States [and] to promote domestic commercial and recreational fishing under sound conservation and management principles."

Despite the implication in myriad news reports about the fishing closure, coastal fishing towns are not the only intended beneficiaries of better salmon runs. The Northwest Power Act

of 1980, which created the Power Planning Council, directs the Council to prepare a program to protect, mitigate and enhance fish and wildlife of the Columbia River Basin that have been affected by the construction and operation of dams. The program should complement the activities of the region's fish and wildlife agencies and Indian tribes, according to the Act, and so the program aims to rebuild fish and wildlife populations beyond self-sustaining levels to harvestable levels.

Besides the Northwest Power Act and the Endangered Species Act, there are other legal obligations that affect Columbia River Basin salmon, including state, national and international treaties.

The state treaty

The purposes of this compact are and shall be to promote the better utilization of fisheries ... and to develop a joint program of protection and prevention of physical waste of such fisheries in all those areas of the Pacific Ocean and adjacent waters over which the compacting states jointly or separately now have or may hereafter acquire jurisdiction.

— From Article I of the Columbia River Compact between Washington and Oregon, ratified by Congress on April 8, 1918.

The Columbia River Compact, whose members are the fishery managers of Washington and Oregon, sets salmon fishing seasons on the Columbia River. The states agreed to form the compact in 1915, even though it wasn't ratified by Congress until three years later.

President Theodore Roosevelt pressed for creation of a bistate fishery management agency in response to tremendous overfishing on the Columbia. Around the turn of the century, as the canning industry flourished along the lower 100 miles or so of the river, Oregon and Washington set their own fishing seasons. This led to confusion over who regulated the fishery, as the salmon didn't recognize the river as a state border. That confusion led to court battles and overfishing.

In 1908, Roosevelt said in a speech to Congress:

"The salmon fisheries of the Columbia River are now but a fraction of what they were 25 years ago, and what they would be now if the United States government had taken complete charge of them by intervening between Oregon and Washington. During these 25 years the fishermen of each state have naturally tried to take all they could get, and the two legislatures have never been able to agree on joint action of any kind adequate in degree for the protection of the fisheries."

Roosevelt suggested regulation of the river by the Federal Bureau of Fisheries. That same year, not coincidentally, the legislatures of Oregon and Washington began a series of meetings that led eventually to creation of the Compact. In the Compact, the two states agreed not to alter their fishing regulations without the consent of the other.

Conservation of the salmon runs was at the heart of the agreement, which remains in effect to this day.

The Treaties of 1855

The exclusive right of taking fish ... is further secured to said confederated tribes and bands of Indians, as also the right of taking fish at all usual and accustomed places, in common with citizens of the Territory ...

— From Article III, "Treaty between the United States and the Yakama Nation of Indians," June 9, 1855.

In 1855, the United States, represented by then-Governor of Washington Territory Isaac Stevens, negotiated treaties with four mid-Columbia Indian tribes: the Yakama, Warm Springs, Umatilla and Nez Perce. Each treaty reserved to the tribes the right to fish at all usual and

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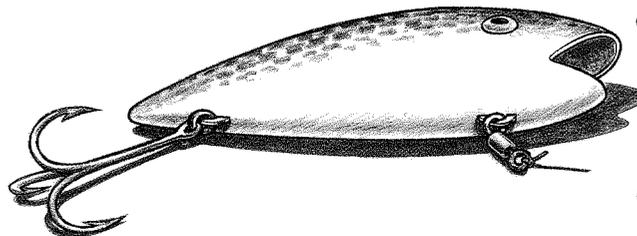
accustomed places. U.S. law considers Indian tribes sovereign nations, and so the tribes were not "granted" these fishing rights. Instead, the tribes "reserved" them for themselves in the treaty negotiations, a legal right upheld by the U.S. Supreme Court in 1905.

In a later case, the court further defined the Indians' fishing right as a right to use the resource, not a property right in the fish. The usual and accustomed sites were within reservations established by the treaties and also at sites outside the reservations.

This treaty language has been tested in numerous federal court cases since 1855. The Supreme Court consistently has ruled in favor of the tribes, and the fishing right has been defined as more than "the right to dip one's net into the water ... and bring it out empty," in the language of one ruling. In fact, the tribes "have an implicitly incorporated right under the fishing clauses of the Stevens treaties not to have the fishery habitat degraded by the actions of man which cause environmental damage," according to the language of another decision.

In a 1969 case regarding Columbia River salmon, the treaty tribes were held to have "an absolute right" to the fishery that entitles them to a "fair share of the fish produced by the Columbia River system." In 1974, in the now famous ruling by Judge George Boldt, the "fair share" was interpreted to mean half the harvestable surplus of fish.

Through the Columbia River Plan of 1977, the fishery management agreement for the 130-mile tribal commercial fishing zone between the Bonneville and McNary dams, Washington and Oregon



guarantee the four tribes 10,000 spring chinook each year for ceremonial and subsistence purposes. The tribes also conduct a commercial fishery.

To exercise the fishing right, there must be fish to catch. This year, because of the record low number of spring salmon returning up the Columbia to spawn above Bonneville Dam, the Yakama tribe moved its ceremonial and subsistence fishery to Willamette Falls on the Willamette River, where the salmon run was stronger this year. The tribe considers Willamette Falls one of its historic "usual and accustomed" fishing sites.

Conservation of salmon runs is critical to the fishing right reserved by tribes in the treaties. In late April, Lonnie Selam, chairman of the Yakama Nation fish committee, wrote to Washington, Oregon and federal fish managers, protesting the closure of the Columbia spring fishery. He said, in part: "The fish are of utmost importance to the Yakama people and their culture, as they represent the renewal of life in the Columbia Basin after the winter season. They have been used by us since time immemorial as a prime food source for our spring ceremonies . . . Your actions endanger our traditions, culture and religion."

The international treaty

With respect to stocks subject to this Treaty, each Party shall conduct its fisheries and its salmon enhancement programs so as to prevent overfishing and provide for optimum production, and provide for each Party to receive benefits equivalent to the production of salmon originating in its waters.

— From Article III, Principles, "Treaty Between the Government of the United States

of America and the Government of Canada Concerning Pacific Salmon," signed in Ottawa, Canada, January 28, 1985.

In the 1985 Pacific Salmon Treaty, the United States and Canada agreed to create the Pacific Salmon Commission to conserve the salmon runs of each country that are harvested by the other. Harvest recommendations of the Commission are implemented by the Pacific Fishery Management Council and its Alaskan counterpart, the North Pacific Fishery Management Council, and by Canada's Department of Fisheries and Oceans.

However, as Columbia Basin salmon runs declined, so did the Canadian catch of salmon off British Columbia, a large percentage of which are Columbia Basin salmon. Meanwhile, the Alaskan catch of salmon that spawn in British Columbia remained stable, as did the catch of Fraser River salmon by U.S. fishers in northern Puget Sound.

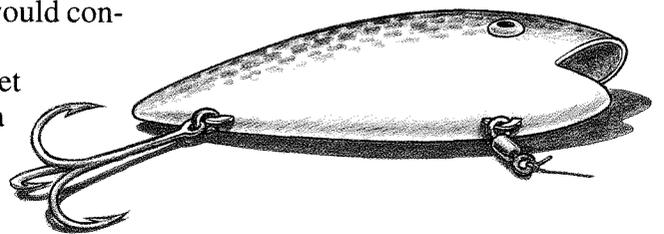
This year the two countries tried to renegotiate the treaty, but the talks broke down when Canada accused the United States of being unwilling or unable to present a unified bargaining position. Alaskan officials chafed at the idea of reducing their harvest in the bountiful Gulf of Alaska — including their take of Canadian fish — in order to conserve a comparatively few fish from the Columbia Basin that migrate that far north.

Canada responded by saying it would consider unleashing its commercial fishing fleet on the weak Columbia Basin runs unless the Americans returned to the bargaining table.

By June, the matter had escalated to the point that Canada imposed a fee on U.S. fishing boats passing through Canadian waters on their way to or from Alaska. The fee was canceled weeks later, when U.S. Vice President Al Gore intervened. Gore promised the Canadians that the negotiations would receive White House-level attention. As this issue of *Northwest Energy News* went to press, there were hopeful signs that the negotiations would resume.

"There will be an aggressive fishing strategy, but no fish war," Canada's Minister of Fisheries and Oceans, Brian Tobin, told the Associated Press. "We've made clear we want an arrangement with the United States. We are ready to go back to the table."

All of these concerns — whether they are expressed in coastal fishing towns, or by tribal fishers or in the rarefied atmosphere of international treaty negotiations — embrace a sense of regional responsibility that goes far beyond merely rebuilding depleted salmon runs to self-sustaining levels. Their goal is to rebuild the runs to levels that once again provide the benefits of sustainable fisheries, levels that allow fishers to catch more than memories.



B E T S Y M O L E R

FEDERAL ENERGY REGULATORY COMMISSION CHAIR TALKS ABOUT CHANGES IN THE ENERGY INDUSTRY.

with Carlotta Collette

Elizabeth Anne Moler, better known as Betsy, has a reputation for being “strong, bright and tough-headed.” She is an astute lawyer who is widely recognized as being among the best informed people on natural gas issues, in particular, and energy issues, in general, in the federal government. Hers is an understanding acquired through more than two decades of political and natural resource involvement,



beginning right after she graduated high school in her home town of Ogden, Utah.

Her first political job was a part-time stint as an assistant to Congressman Laurence J. Burton, which she did while pursuing undergraduate studies at the School of International Service in Washington, D.C. She went on to work for Senator Mike Gravel while doing her graduate studies at Johns Hopkins in Baltimore.

In 1977, she completed her law degree at George Washington University. She was already a seasoned political staff member.

She dropped out of graduate school, finding the academic approach to government "less exciting and fulfilling than actually doing it." Instead, she became chief legislative assistant to Senator Loyd Haskell of Colorado.

She was next asked by Washington Senator Henry ("Scoop") Jackson to join the legal staff of the Senate Committee on Energy and Natural Resources, where she remained (serving as senior counsel in her last year there) until her appointment by President Ronald Reagan to the Federal Energy Regulatory Commission in 1988.

A compromise choice by Reagan, her appointment was endorsed by every member of the Senate Natural Resources Committee, Republicans and Democrats alike.

She was reappointed to the Commission in 1991 by President George Bush and named to be chair of the Commission by President Bill Clinton in 1993. Her term expired on June 30, 1994, and President Clinton nominated her for a second term on the Commission, with the expectation that, if she is confirmed, she will continue to serve as chair.

During her tenure at the Committee on Energy and Natural Resources, Moler ushered in policies that eventually led to the deregulation of the natural gas industry. With passage of the Energy Policy Act in 1992, Moler's Federal Energy Regulatory Commission began what many observers consider the deregulation of the electric utility industry. She is also overseeing

THERE'S BEEN A TOTAL EVOLUTION IN THE THINKING.

the process of relicensing at many older non-federal hydroelectric dams (see sidebar).

Throughout her career, she has been both a central participant and an informed observer of major shifts in U.S. natural resource policy. The deregulation of the electric utility industry may be the most significant shift she will oversee.

In her statement upon learning she had been renominated by the president, Moler said, "I look forward to the continued challenge of the job. I unabashedly love it, and I appreciate the opportunity to continue to serve."

Q You have been involved in the politics of energy since soon after the Arab oil embargo, when resource scarcity was the concern. You have served through the ensuing oil wars and now deregulation of much of the energy industry. What are some of your observations of that transition?

When I first got involved in natural gas issues, Jimmy Carter was president. His administration produced the National Energy Plan and he announced the "Moral Equivalent of War" [to conserve energy].

The government was pervasively involved in the [gas] industry. I worked on a thing called the Natural Gas Policy Act that established specific prices, well-head price controls, for a plethora of categories of production. At the same time, the Powerplant and Industrial Fuel Use Act was enacted. The fundamental basis of that was that we had to husband our natural gas resources. They couldn't be used except for premium uses. It was later repealed.

Now, years later, there's been a total evolution in the thinking. Natural gas is a North American fuel, largely. There's plenty of it in the rocks. Obviously it's important that we have a pricing regime that is sufficient to encourage drilling and investment in the infrastructure. That's a problem when it competes with world oil prices, where there's still a glut in the world.

But the government is not a meddling regulator. We're relying more and more on competition and market forces where we can, because we don't have monopolies.

Q Why is there no apparent concern at your Commission about all the utilities and industries turning to natural gas?

I believe, and I think most policy types these days agree, that natural gas is one of the most desirable fuels from an environmental point of view. It's not a

renewable fuel, and I understand that, but it's a whole lot cleaner in terms of emissions than burning unscrubbed coal or than burning wood. You have to look at what the alternatives are.

Q Do you see a problem with everyone turning to gas?

I think it's a very positive development.

Q What was the rationale for deregulating natural gas? And was deregulation of the gas industry a success?

The government can help shape a competitive environment and indeed create a competitive environment where none existed before in both gas and, increasingly, in electricity, although it's slower. That works better than the old approach.

Natural gas is now a commodity in the marketplace, just like a lot of other commodities. It responds to demand. Prices go up and down. There is competition to serve new markets. All of that is very healthy.

It's considered a big success. Maybe the transition to this type of marketplace wasn't elegant. The manner in which we went about deregulating was not beautiful. But solutions to very, very difficult problems, where there are hotly contested issues of fact and policy, frequently are not elegant. But it worked.

Q Do you think it will work similarly for electricity?

Eventually. There are major transition issues in electricity. The regulatory structure is bifurcated between the states and the federal government. It is not really a

ELECTRICITY IS NOT REALLY A COMMODITY MARKET YET.

commodity market yet. There are clearly still some natural monopolies. Transmission is still a natural monopoly.

I don't believe new generation is a natural monopoly at all anymore. There is competition to build new generating capacity. In every state, there is competitive bidding to develop new resources. Whenever they put out competitive bids, there is at least a 10-to-1 ratio of plants proposed and offers accepted. I just don't see that as a monopoly circumstance anymore.

But there are other big problem areas. Major investments have been made in the electric industry, principally in generation, in an economic time when the cost structure was very different. You can now build a combined-cycle gas-fired power plant and produce power from it at a cost that is significantly less than a lot of the generating capacity in the country — the nuclear power plants, etc. Those investments were approved by the regulators.

The investors in those utilities and in those power plants certainly thought that once regulators approved the plants, they would recover their investment. Now those investments may be at risk.

That's a huge transition problem. How do you go to a competitive market when you have a financial structure and a utility structure where the price of the existing commodity is not competitive with new supplies?

Q What happens if you have an industry that then leaves that utility? The customers that are left have to keep paying for the high-priced power plants of the past.

That's right. These investments probably were made to serve the industry that's leaving. That is a very difficult problem.

Q That leads to the question of whether a deregulated electric industry that includes open access to retail transmission will benefit consumers.

A lot of industrial users and consumers that are contemplating a more competitive market believe that there are significant benefits. The difficulty will be working through the transition.

Q Could that leave residential and small commercial consumers holding the bag if industrial users and large customers can follow low prices and leave utilities?

That will depend on whether we do a good job during the transition, whether residential consumers or small commercial customers are left holding the bag, or whether those for whom these investments were made in the first

place pay a fair portion of the stranded costs.

Q As a sort of exit fee?

Exit fee or wires charge, yes.

Q I think the concern is that conservation and some renewables have greater up-front costs, even though their long-term costs may be much cheaper. If short-term rate impacts drive all resource decisions, what happens to these sorts of resources? Will utilities still be willing to make such investments if it threatens their ability to compete?

I am very aware of that issue. I've talked to a lot of environmentalists about it. I've been in meetings with them.

I think that concern is principally about retail wheeling,¹ which is not our problem, so to speak. It is not really a wholesale wheeling, or wholesale bulk power competitive market issue. The states are going to have to figure out how important such resource concerns are to them.

That's why states have developed various externality factors that they apply in their competitive bidding programs to account for precisely that phenomenon. One of the issues is whether in a competitive marketplace externality factors will work. But we don't have jurisdiction over generating assets. Under the Federal Power Act, we don't do generation. Not to be provincial about it, but the states are going to have to decide what kind of a value structure they want in place.

ONE OF THE ISSUES IS WHETHER IN A COMPETITIVE MARKETPLACE EXTERNALITY FACTORS WILL WORK.

Q Are you suggesting the states have to be more involved in resource selection?

They are up to their eyeballs in it already.

Q What about regional transmission groups?² Do you see them working with state or regional energy regulators on integrated resource plans, for example?

I don't see regional transmission groups working on integrated resource plans, necessarily. They could choose to involve themselves in that. It just depends on how broadly they want to plan — if they want to plan for the retail as well as the wholesale market.

Our concern is principally, again, with the wholesale market. We have adopted a policy statement on regional transmission groups. One of the things we have said is that all of the stakeholders

have to be at the table, including state regulatory commissions.

Q The current Commission is perceived by many to be more concerned about the environmental effects of hydropower than past Commissions. This is particularly interesting given the number of existing hydropower projects that will be coming up for relicensing in the next decade. Would you say this is an accurate observation?

I personally have a big interest in hydropower. That has not always been the case with the chairman of the Commission. I voted with the minority or was a lone dissenter on a number of hydropower issues during the first years that I was on the Commission.

Under the law, we're supposed to balance competing uses of the waterway. That's the statutory requirement. Prior to enactment of the Electric Consumers Protection Act of 1986 (ECPA) and even after that, I do not believe that the Commission balanced things well. I believe there are instances in which the Commission erred on the side of development.

I also believe the environmental ethic in this country is changing. A lot of utilities recognize this change as well. There certainly are utilities that run their hydropower operations in very environmentally sensitive ways. I think the new Commission is more sensitive to these things.

But hydropower is a very tiny part of our work. I mean it's a very important industry, a very important issue. But in terms of the number of cases, it doesn't compare with the number of gas cases we handle, for example.

I would think that may change with the number of hydropower projects that will be coming up for relicensing in the near future.

There are 157 relicenses, but we do 2,000 cases a year. And these are very important, very complex resource- and people-intensive issues. I mean people-intensive in the sense that these projects are in people's backyards, used for people's recreation, etc., but they are not a large part of our workload. We

do, however, devote considerable staff resources to hydropower issues.

If you were to give advice to project operators who are preparing to apply for relicensing, what would you say?

Talk to the people who are affected by your project. Try to work out a reasonable operating regime before you come before us. That wouldn't be limited to hydropower either.

What do you see is the state's role in hydropower relicensing, particularly as regards so-called 401 certificates?³

I believe that conditions attached to 401 certificates should be water-quality related. They should not be dealing with fish ladders. They shouldn't be dealing with recreation plans at a hydro facility.

The states are trying to use the 401 certificate as licensing authority. They just don't have that

SECOND TIME AROUND

When the Federal Energy Regulatory Commission licenses hydropower dams, it is for a fixed period, set by law at no more than 50 years. The intent of the Federal Water Power Act of 1920, which created the dam licensing regulation, was to offer private developers the opportunity to utilize the nation's waterways without surrendering to developers permanent control of those waterways. The relicensing process gives states and citizens the chance to review and comment on specific dams' petitions for relicensing.

Considering that most of the existing dams were constructed at a time when there was far less understanding of dams' impacts on local communities and wildlife habitats, it is no wonder that the relicensing procedures are viewed by many as an opportunity to correct old mistakes and change the way dams are designed and operated.

Federal legislation in the past few decades — the Clean Water Act of 1972, the Electric Consumers Protection Act of 1986, etc. — has added more environmental and recreational considerations to dam licensing requirements. And a recent Supreme Court decision in a case brought by the state of Washington affirmed states' rights to include water *quantity* as a component of water *quality* determinations regarding dam licenses. This change greatly increases the states' role in hydropower relicensing procedures.

All of this is critical now, because it has been about 50 years since the big dam-building era began, and operators of more than 300 dams — totaling more than 18,500 megawatts of electricity — will be appearing before the Federal Energy Regulatory Commission for renewal of their licenses in the next decade. The fate of many of these projects could depend on operators' willingness and ability to add fish screens and ladders; alter the amount and timing of water flows to protect fish and wildlife, as well as recreational opportunities; or provide compensation at other sites for dam-related losses of animal populations.

State fish and wildlife agencies, Indian tribes, local communities and other interested parties will be able to follow and comment to the Regulatory Commission on the relicensing process for dams in their areas. While it is unlikely that many dams will be removed because of failure to comply with relicensing requirements, *it is* likely that compliance will not come cheap.

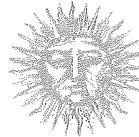
Elizabeth Moler, chair of the Federal Energy Commission, convened a round table discussion on relicensing with members of the National Hydropower Association in June 1993. She advised dam operators to get together with members of their communities, determine what local concerns are and work to resolve those concerns *before* the issues are brought to her Commission. — CC

authority. It's a very controversial issue before the Supreme Court right now. [In a follow-up with Ms. Moler on this question after the Supreme Court agreed with the state of Washington, she said: "I was obviously wrong in predicting the outcome of the Supreme Court Decision in P.U.D. No. 1 of Jefferson County vs. Washington Department of Ecology. We are evaluating our response to that decision."]

Q Do you think the states should have other roles in hydropower licensing beyond the 401 certificate?

They have a huge role beyond that. We look at every recommen-

dation they make to us. We have a process under ECPA known as the "10(J) process" where we look at every single suggestion that anybody makes. If we reject state proposals, we have to make a determination on the record as to why they are not consistent with the public interest. So they have a huge role to play. I just don't think they have mandatory conditioning power under 401.



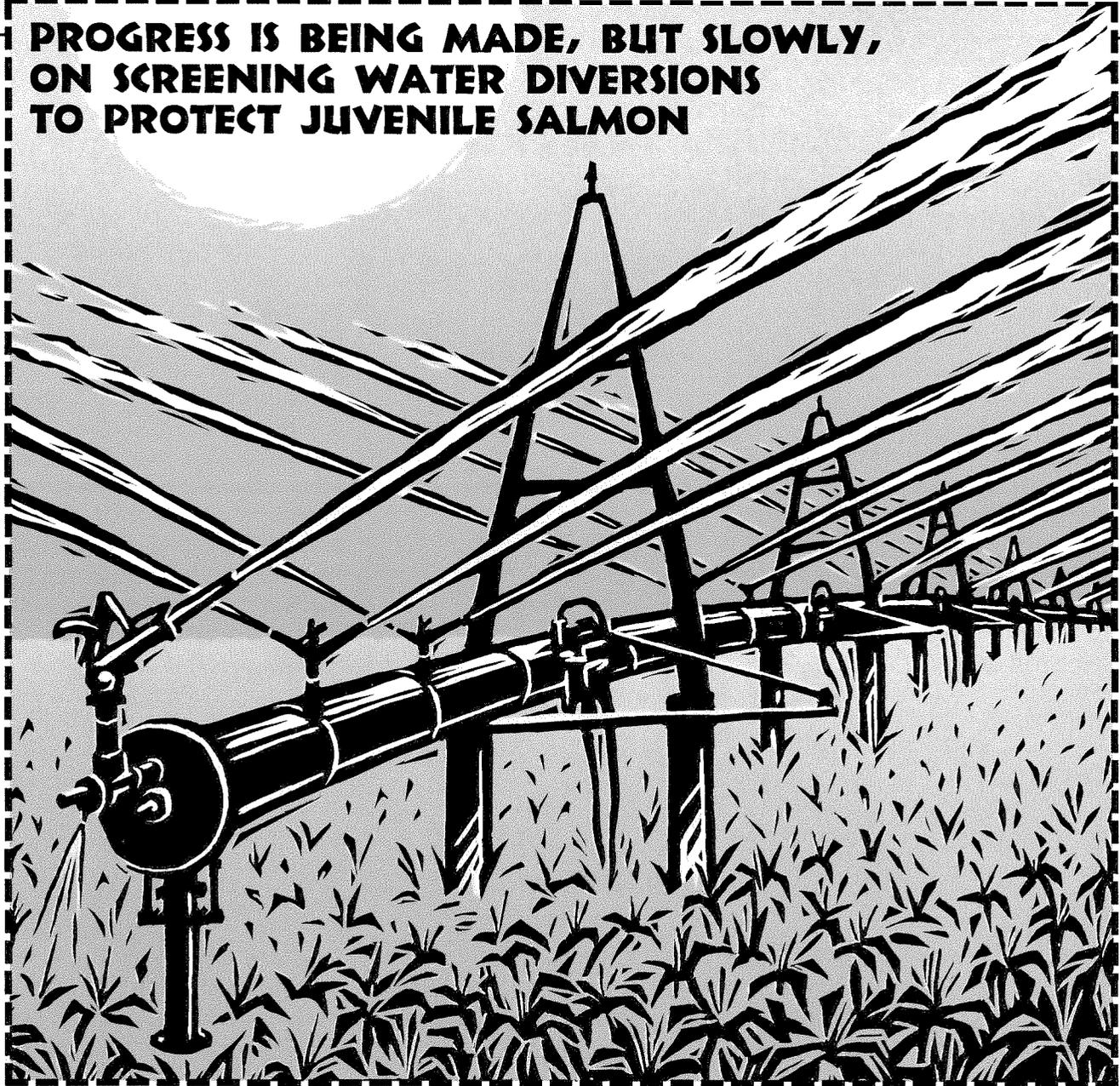
1. Retail wheeling refers to policies under consideration by several states to open transmission lines to electricity consumers. Consumers could then shop among power suppliers for the best prices.

2. Regional transmission groups are being formed in response to the National Energy Policy Act of 1992, which ordered transmission system owners to make their systems available to other utilities. The groups include utilities in given areas. They are negotiating access policies and proposing rate structures that will guide transmission transactions, subject to approval by the Federal Energy Regulatory Commission.

3. The "401 certificate" is the state issued water quality permit required as part of the licensing procedure for hydroelectric dams. The Supreme Court recently voted in favor of the states' authority to consider water quantity as well as water quality.



**PROGRESS IS BEING MADE, BUT SLOWLY,
ON SCREENING WATER DIVERSIONS
TO PROTECT JUVENILE SALMON**



MESH OF COMPLEXITY

by John Harrison

DUFUR, Oregon — Away in the distance, across a quarter mile or so of pasture, sprinklers shoot lazy arcs across the sunny blue sky of early morning, their slow click-clicking barely dis-

cernible above the drone of insects here along Fifteenmile Creek.

For more than 130 years, this tributary of the Columbia River has irrigated the Dufur Valley,

where the senior water right dates to 1863. It also is home to the easternmost run of wild winter steelhead in the Columbia River Basin.

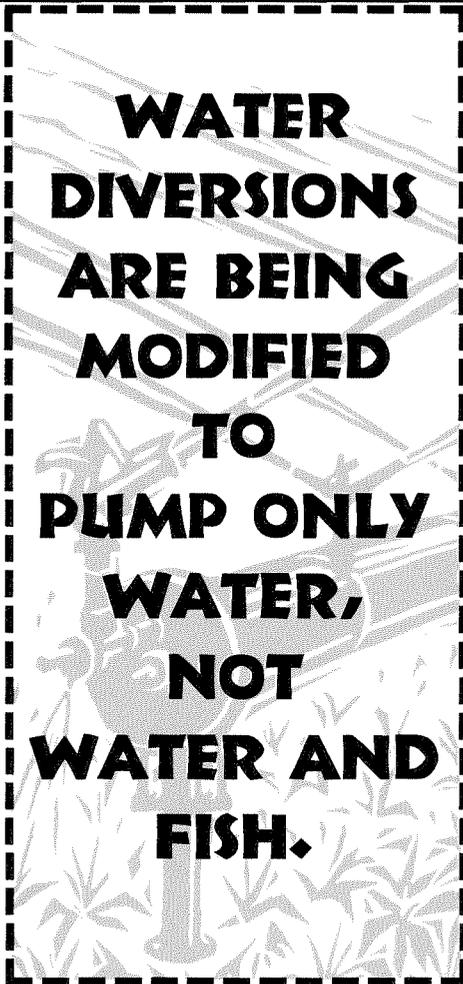
Over time, the steelhead run declined in Fifteenmile Creek. There was a variety of reasons — the impact of dams and overfishing in the Columbia, for example — but also the impact of agriculture. It's a familiar story in most tributary streams of the Columbia: damaged riparian areas, loss of spawning and rearing habitat, gravity-fed water diversions that carried juvenile fish away from the creek to fields and certain death.

Today, that's changing. It's changing in the Dufur Valley and in a number of other streams in the Columbia Basin where salmon and steelhead spawn. It's changing in the main channels of the Columbia and Snake, too, where water diversions are being modified to pump only water, not water *and* fish.

The most visible sign of that change on Gene Underhill's 2,700-acre farm, and at hundreds of other similar sites, is the unique fish protection device in the ditch that carries water from Fifteenmile Creek to the clicking sprinklers irrigating wheat in the distance.

The dominant feature of this device is a large paddle wheel that sits in the ditch behind a rotating drum covered with fine wire mesh. Water passes through the drum, driving the paddle wheel, which is connected to the drum by a drive shaft and gears. As the paddle wheel turns, the drum rotates, creating a current that guides juvenile fish into a buried pipeline and safely back to the creek.

Underhill, whose great-grandparents homesteaded the original, 200-acre farm in 1856, said he thinks the screen is "a great idea," as long as it continues to deliver his full water right.



**WATER
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Underhill's diversion is one of six in the Fifteenmile Creek Basin. Five have screens, and the sixth will be completed soon. In addition, there are about 120 irrigation pumps in the Fifteenmile Basin, and about half of those have been screened to date, said Ray Hartlerode, a biologist for the Oregon Department of Fish and Wildlife. The total cost of the screens in Fifteenmile Creek Basin is about \$250,000.

Screening water diversions is a key component of the Northwest Power Planning Council's comprehensive effort to improve salmon and steelhead survival in the Columbia Basin. In those parts of Idaho, Oregon and Washington still accessible to salmon and steelhead, hundreds of screens have been installed, and hundreds more are needed.

This is not a new effort. Many of the irrigation pumps and gravity-fed water diversions in Idaho, Oregon and Washington have been screened for more than 50 years. In areas of the Columbia Basin that support salmon most of the money to pay for the screens comes from the Mitchell Act, the federal law Congress passed in 1938 to pay for hatcheries and other salmon production measures to compensate for the impact that federal dams have on anadromous fish. In areas blocked to anadromous fish, funding comes mostly from the states.

The current federally financed screening program aims to install new screens or replace existing screens at 824 sites within that part of the Columbia Basin available to salmon and steelhead, said Bob Smith, director of the Columbia River Fisheries Development Program for the National Marine Fisheries Service. The estimated total cost is \$25.6 million to build the screens and \$20.6 million for operation and maintenance costs through the year 2002. After that, annual operation and maintenance costs will vary, but should average \$3.5 million.

This year, the funding totaled about \$4.5 million, and screening program managers anticipated about \$6 million for Fiscal Year 1995. However, the National Marine Fisheries Service's proposed Fiscal Year 1995 budget included no money for Mitchell Act screens or hatcheries.

It's a familiar story. For the last dozen years or so, administration budgets have ignored the Mitchell Act screens and hatcheries, and each year Congress has added the money, thanks primarily to the efforts of Senator Mark Hatfield of Oregon. Over the last

three years, Congress has added nearly \$11 million for installation of fish screens.

As *Northwest Energy News* went to press, the fate of 1995 appropriations for Mitchell Act screens and hatcheries had not been decided.

Funding is not the only dilemma the screening program faces. While progress is being made in Oregon's Fifteenmile Creek, the outlook elsewhere in the basin is less optimistic. For example:

■ In Oregon, most of the screening money is going to the Grande Ronde and Imnaha rivers because those rivers are Snake River tributaries that support threatened spring chinook salmon. Other rivers, such as the John Day, also need attention, the Department of Fish and Wildlife reported. There are 292 screens in the John Day Basin, an important producer of wild spring and fall chinook salmon and summer steelhead. Most of the screens date to the 1950s and 1960s. They need to be replaced. Oregon appropriated some \$240,000 as matching money for screening projects in the 1993-95 state budget. The state's target is to install 40 screens at high-priority locations around the state in that time period, and 15 have been completed to date.

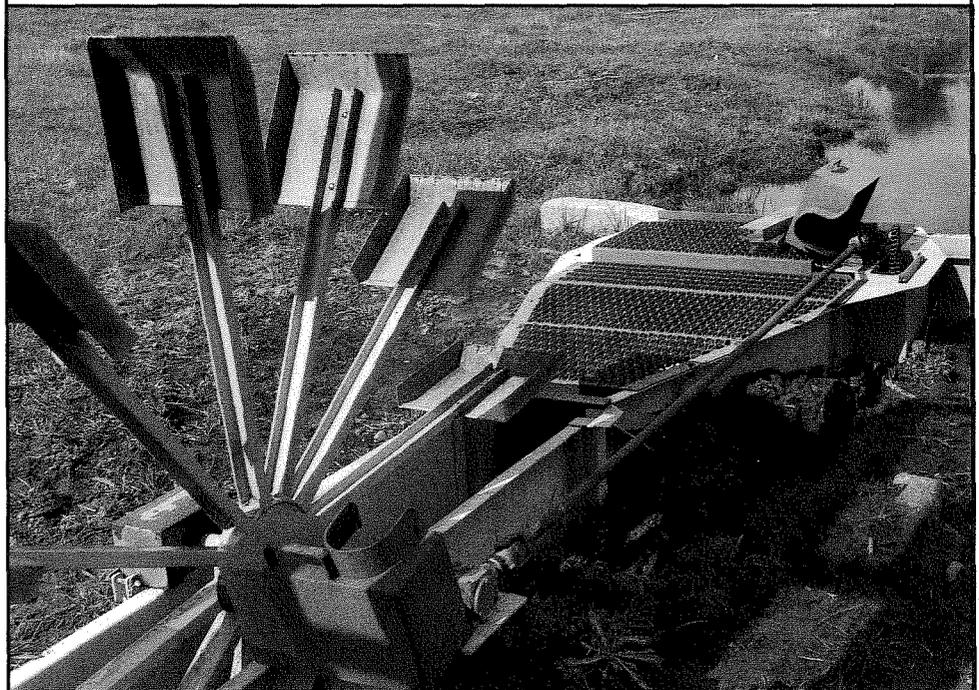
■ In Idaho, like Oregon, screening has focused on areas that support fish protected under the Endangered Species Act, particularly the Salmon River Basin, where there are 278 known gravity diversions that affect salmon. There are another 155 in steelhead and bull trout spawning areas in the Salmon Basin. Most of the Salmon Basin diversions have screens, but many are 30 years old or older. They are being replaced.

Fifteen screens were constructed in the Salmon Basin in 1993, and the completion of a screen fabrication shop in the city of Salmon should help accelerate the work. Also in Idaho, many screens built in recent years were built too small, as Idaho water law effectively allows unlimited diversions in certain areas. Undersized screens are being replaced with larger — and more expensive — screens. In addition, hundreds of miles of rivers and streams — the Clearwater River drainage, for example — have not been surveyed to determine screening needs.

■ In Washington, where there are fewer but generally larger diversions, screening has focused on the Yakima and Snake river basins. The Yakima project is scheduled for completion in the year 2000, but all gravity and pump diversions in the Tucannon, Asotin Creek and Grande Ronde subbasins, which support threatened spring chinook salmon, should be screened by the end of this year.

■ There are screening problems in the mainstem of the Columbia River, too, where a recent survey of 157 pumps at 53 sites on the Oregon side of the river found that 83 percent had some kind of problem. The problems included dirty screens, screens with holes in them, screens with wire mesh that was too large to deflect small fish, and diversions where screens simply were missing. The survey covered the area between Bonneville Dam and the pool behind McNary Dam. A similar survey in Washington included some 80 pumping sites on the Columbia and Snake rivers. Only 40 percent were in compliance with state law, and the chief problem was that the screen mesh was too large to protect fish. In both states, fish and wildlife officials are working with pump operators to fix the problems.

While most of those problems can be fixed through mechanical means, there are other problems that will only be fixed with policy tools. These have to do with state and federal water laws.



A rotating drum beneath the grating diverts juvenile fish back to Fifteenmile Creek.

Consider, for example, the problem known as a “migration barrier.” In plain English it means this: no water. A migration barrier occurs when diversions carry away *all* of the water in a stream or river. Fish migration to and from the Pacific Ocean comes to a halt.

Migration barriers are particularly acute in the Lemhi, North Fork Salmon and Salmon rivers of Idaho, according to the Columbia Basin Fish and Wildlife Authority, which represents the region’s state and tribal fish and wildlife management agencies. “Because of excessive diversion and/or small diversion dams, anadromous fish production does not currently exist in many small tributaries in this area (of Idaho),” Authority Director Jack Donaldson wrote in a letter to the Power Planning Council last January.

Screening laws differ from state to state. In Washington, it is unlawful to divert water unless the diversion is equipped with a screen, and diversion owners are responsible for the operation and maintenance costs of screens, but not the initial cost of installation.

Oregon law authorizes the state Department of Fish and Wildlife to require installation of screens or fish bypass devices on certain bodies of water. Installation, operation and maintenance costs are the responsibility of the diverter.

In Idaho, fishways are required at dams, and these must be maintained by the dam owner. But the law has not been enforced consistently on irrigation diversions. The Idaho Department of Fish and Game is authorized to build and maintain screens on gravity-fed diversions of 125 cubic feet per second or less. Fish screens are required at certain industrial water pumping sites, but not for irrigation diversions.

A “MIGRATION BARRIER” OCCURS WHEN DIVERSIONS CARRY AWAY ALL OF THE WATER IN A STREAM OR RIVER.

Federal law also is unfriendly to fish, in certain circumstances. Farming, mining and forest road-building, among several other land-use practices, specifically are exempted from Section 404 of the federal Clean Water Act. That section requires a permit from the U.S. Army Corps of Engineers for placing structures in waterways, such as pump stations in the lower Columbia and Snake rivers. Section 10 of the federal Rivers and Harbors Act requires a permit for some, but not all, water diversions.

Enforcement of screening regulations generally is the responsibility of state water and fish agencies. There hasn’t been a lot of enforcement in the past, but that is changing as the screening program steadily accelerates.

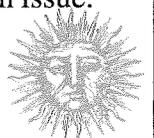
“It is true the screening work is going slower than we anticipated, but the big reason is that it has been difficult to get this program organized, dealing with the complexities of laws,” said Clayton Hawkes, tributary passage and habitat coordinator for the Columbia Basin Fish and Wildlife Authority. Hawkes also chairs the Fish Screening Oversight Committee, which is coordinating the regional screening effort. “It has been difficult working with some landowners, who don’t believe they are getting their full amount of water through the screens, and it has been difficult in some cases to get access to the screening sites.”

Ultimately, the success of the screening program may hinge on a key question: whose needs are greater, the fish or agriculture?

“In some parts of the basin, there is an excessive need for water — farmers are growing alfalfa on gravel,” Hawkes said. “Water law is the big bugaboo. We’re finding that the problems we face go far beyond just pouring concrete.”

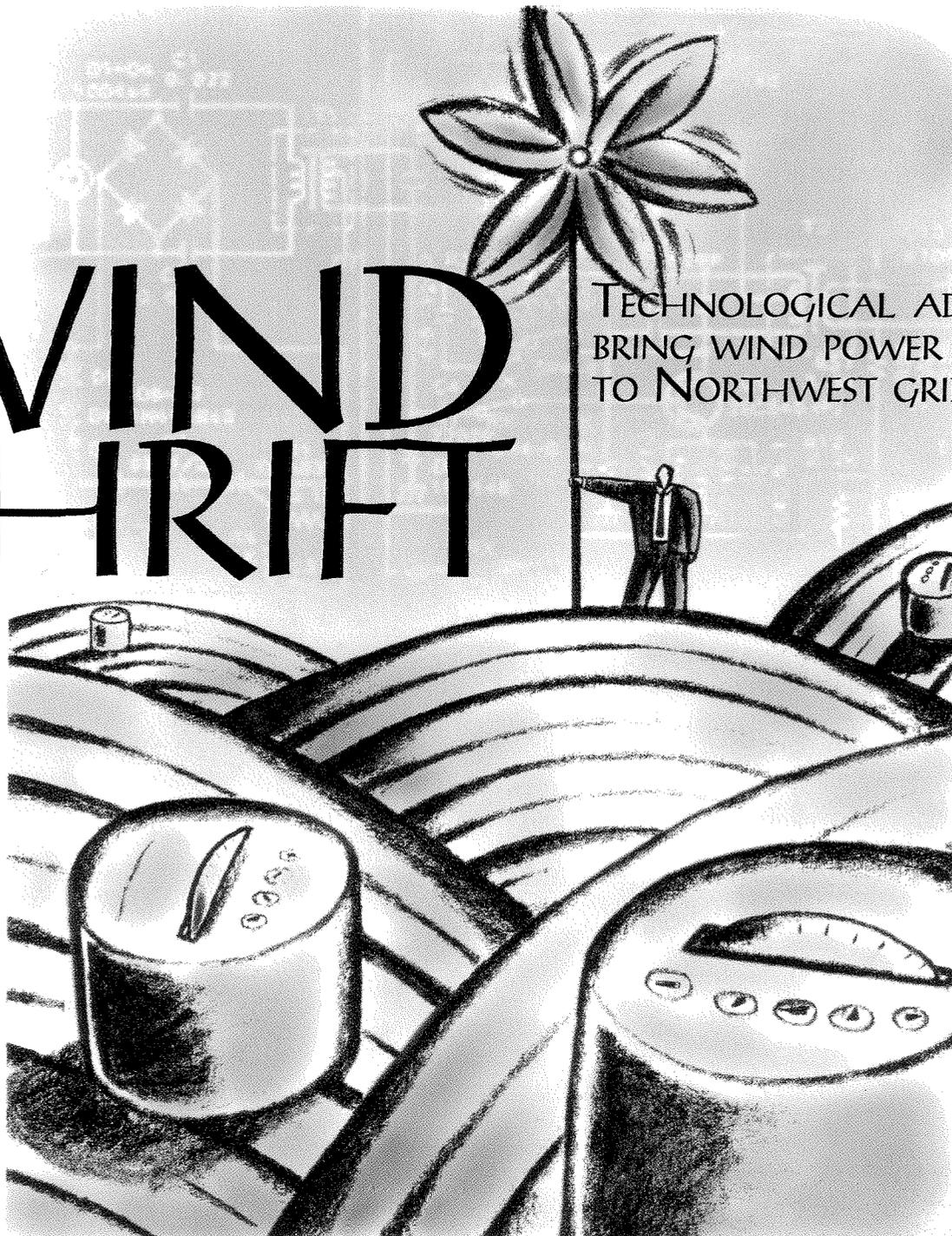
Gene Underhill hardly represents all of the farmers in the Columbia Basin, but he is not alone in worrying about the impact of the Endangered Species Act, and other restrictions, real or anticipated, on the agricultural way of life.

“When push comes to shove, what comes first?” he asked. “My own relationship [with the Oregon Department of Fish and Wildlife] has been good, but I know other farmers who see this as an intrusion. I don’t know what’s going to happen. It’s a really tough issue.”



WIND THRIFT

TECHNOLOGICAL ADVANCES BRING WIND POWER CLOSER TO NORTHWEST GRID



by Carlotta Collette

The wind at Altamont, just 30 miles east of San Francisco, is perfect for making electricity. Other places may have steadier gales or great bursts of it, but the Altamont Pass has wind, a need for power, transmission lines to move it and, perhaps most important, timing.

East of the Bay Area, dry grass hills slope upward before dropping down to the Central Valley. From April through October, the wind coming off the ocean warms as it crosses the land and picks up speed as the hot inner valley tugs at it. On summer afternoons, the winds pick up at just about the

time people start turning on their air conditioners. Perfect! The increasing wind speed synchronizes with Northern California's greatest need for electricity, and several California electric utilities were smart enough to capitalize on that.

Wind energy developers capitalized on the Altamont, too. It was easy. With federal and state

Illustration by Jud Guitteau

tax credits that were based on putting towers up, whether or not they successfully generated electricity, the Altamont became the new mother lode. In less than a decade and a half, more than 7,000 turbines were installed there, in long rows covering more than 80 square miles.

Altamont is the world's biggest "wind farm." Altamont and two other smaller California wind farms together generate more than enough electricity for the city of San Francisco, about 1 percent of all the electricity used in California.

But a number of the turbines at Altamont never spin. They are rusting in place, victims of the tax structure that created them and the immaturity of the industry when they were installed.

Altamont is the place where all the mistakes were made, the place everyone who hates wind power complains about.

Altamont also is where the early lessons were learned, and experience gained there is now being put to use in the Pacific Northwest and elsewhere across the United States.

Breakthrough wind

Altamont taught wind power developers a lot about what does and doesn't work. They now can offer advanced technologies, more conscientious siting, better reliability and much lower prices than in the past.

"The cost of electricity from wind has come down about 20 percent just since 1991," says Jeff King, senior resource analyst with the Northwest Power Planning Council. "When you add in the new federal credits for private utilities buying wind power — 1.5 cents per kilowatt-hour — you get a competitively priced new resource," King adds.

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The Council called for demonstrations of regionally applicable wind technologies in its 1991 Northwest Power Plan, largely because the region has so much potential for wind development. The power plan estimated that Montana *alone* could provide more than 4,000 megawatts of wind power — enough for four metropolitan areas the size of Seattle. And, as at Altamont, when the need for electricity is greatest — in much of the Northwest, it's in the winter — the winds blow strongest and steady.

But economic, technological, environmental and public opinion obstacles have to be overcome before the vast resource can be tapped. Wind development companies are responding to the challenge.

Arguably the most important breakthroughs are technological, and these have almost all occurred at West Coast wind companies.

Three wind developers: Kenetech Windpower (formerly U.S. Windpower), based in San Francisco; Advanced Wind Turbines, Inc., of Redmond, Washington; and Zond Systems, Inc., of Tehachapi, California, have made significant improvements in blade designs and electronic controls.

Kenetech Windpower is the 20-year old "granddaddy" of the American wind industry. Begun in 1974 by two engineering professors from Harvard and the Massachusetts Institute of Technology (but not incorporated until 1979 as U.S. Windpower), Windpower was one of the first companies to take advantage of federal and state support for the development of renewable energy resources.

The professors' small company is now the world's largest wind development corporation, with more than 1,200 megawatts of energy production to its credit and more than \$1 billion in project financing under way. About half the wind power generated at Altamont comes from Windpower's turbines (more than 3,500 turbines generating 420 megawatts).

The vast majority of Windpower turbines at Altamont and elsewhere are the company's "workhorse" model 56-100. The 56-100 has a 56-foot diameter rotor and can generate 100 kilowatts of energy. "The 56-100 is the DC-3 of the wind industry," says Clarence "Bud" Grebey, manager of corporate communications at Kenetech. "It is tough and reliable, kind of a classic."

But Windpower wanted a turbine that could generate electricity for a nickel per kilowatt-hour. The 56-100 couldn't.

"With the new 33M-VS, we've produced the jet of the wind industry," Grebey boasts. Few in the

business will argue the point. The 33M-VS' rotor measures 33 meters — more than 100 feet, but it's the "VS" part that's the breakthrough.

Most wind turbines spin at a fixed rate so they can generate electricity at an even 60 cycles per second — the utility standard. The machines have to adjust mechanically to slower and faster winds, which can stress and, ultimately, wear out the equipment. To compensate, most fixed-speed turbines have been built like tall tanks, strong and heavily armored.

Windpower, working with California's Pacific Gas and Electric Company, Niagara Mohawk Power Corporation in New York, and the Electric Power Research Institute, built a variable-speed turbine with electronic controls that convert the different frequencies of generated electricity into a constant frequency, enabling the blades to take advantage of both fast and slow wind speeds.

"We are able to produce four times the energy (400 kilowatts per turbine) at only two and a half times the cost," says Grebey. "We can now generate wind power for between 3 cents and 5 cents a kilowatt-hour, depending on wind speeds and constancy."

Advanced Wind Turbines and Zond Systems Inc., took different technological paths to obtain the same nickel a kilowatt-hour goal. Each of them looked more to simplifying their systems, rather than making them more complex.

Robert Lynette, president of Advanced Wind Turbines, Inc., has been involved in wind energy as long as U.S. Windpower has been in existence. "In the early 80s," Lynette says, "Most wind energy sites had imported turbines from Denmark. We built the

European wind industry. All European machines were heavy, three-bladed, 8 cent a kilowatt-hour machines. We figured we could leapfrog the Danes and build a good 5-cent machine in this country."

Congress and the U.S. Department of Energy agreed, providing research funding to build low-cost, efficient and reliable wind turbines in this country.

The outcome at Advanced Wind Turbines, Inc. was a turbine with a 50-percent increase in energy generated (between 225 and 275 kilowatts per turbine) at "almost no increase in production cost," according to Lynette.

"Our approach was to keep it simple," Lynette explains. "There are two blades instead of the typical three. There is passive braking. There's no variable speed. This is as low in complexity and as elegant as I know how to do and

still keep it fail-safe. It's like a palm tree, it bends in the wind." Part of the blades' resiliency and lightness stems from the fact they are made mostly of wood — by a boat manufacturer.

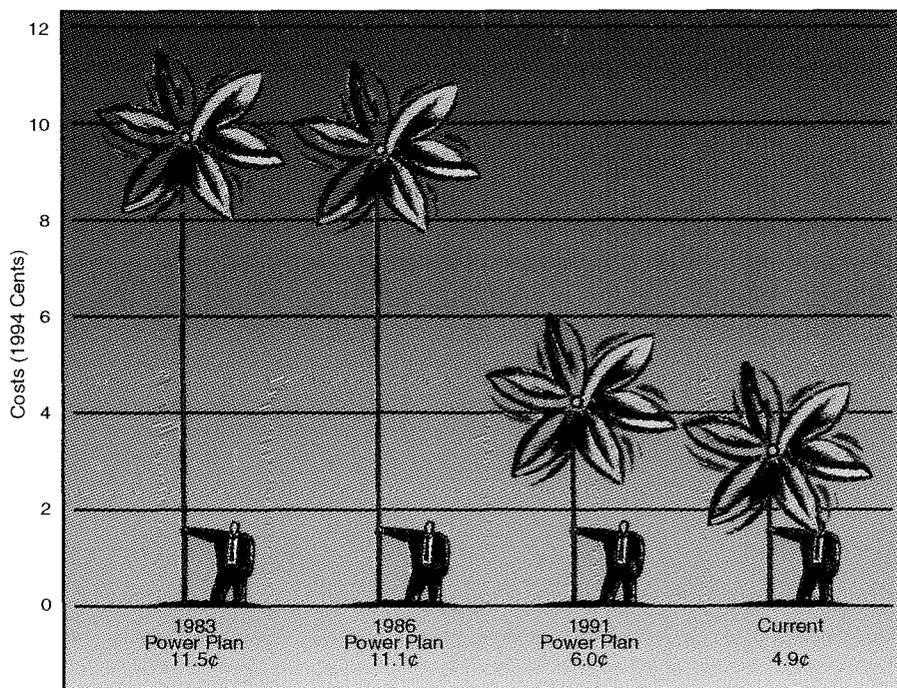
While the Windpower 33M-VS this year celebrated production of its 100th turbine, adding a promise that the company would have 650 built by the end of 1994, the AWT-26 (Advanced Wind Turbine with 26-meter rotor) has only two prototypes running.

"We've just begun to market these," says Lynette. "They have undergone so much testing. They have science behind them — \$5 million in testing," he adds. "I don't use a 'David and Goliath' analogy when I compare us to Windpower. We're smaller than David. But my philosophy has been, 'go slow, the market will still be there.'"

WIND POWER COST TRENDS

1983-1994

Excluding Federal Tax Incentives and System Costs



Graph by Stephen Sasser/Iud Guiteau

George Stricker of Zond Systems, Inc., has a very similar philosophy. His company has "enough cash flow and a good reputation in financial circles" to not feel any urgency about the near term. "The long-term picture is good for wind power in the Northwest," Stricker says. "It's inevitable. We're securing a number of good sites and are investing carefully so we'll be ready to build during the next five or 10 years, but we're in no big rush. We have a lot of fun doing what we do."

Zond was another early leader in the wind industry. The company has more than 2,500 turbines, totaling 260 megawatts, operating

around the world. But Zond's turbines were imported from Denmark. "We were making components for the past eight or nine years, but we only recently started designing and building our own turbines. We installed and maintained them in the past. Now we can offer full service from the beginning."

Zond's new turbine, the Z-40, is a 40-meter rotor on a massive structure that can generate up to 500 kilowatts per turbine. That's the biggest turbine in the United States. "Ours is an incremental improvement," explains Stricker, "It's not a new departure into unknown technology. It will

deliver cheaper energy over the 30-year life of the turbine than would turbines that are not as well built or as strong. The warranties on our turbine really mean something. There were a lot of companies during the 'boom-and-bust' period of the 80s that disappeared before their turbines failed. At Zond, there'll be a company behind the turbine.

"We've simplified many things," Stricker notes. "We have a stronger, more slender tower on a solid new foundation. We've used very advanced electronics that make the operation smoother, resulting in less wear and tear. Our airfoil, which we developed with help from the National Renewable Energy Laboratory, combines elements of three kinds of airfoils."

Winning Combinations

These West Coast innovators have brought the cost of wind power within reach of Northwest utilities attempting to cope with growing needs for power while minimizing environmental impacts of their resource choices. Renewable resources like wind power also offer a level of diversity to utilities, to help them avoid the risks inherent in having all their resources in one technology, whether hydropower or natural gas.

At least three major wind projects, totaling 125 megawatts, have been approved by Northwest utilities. More are in negotiation.

■ **Columbia Hills Windplant:** When Puget Sound Power & Light in 1992 solicited bids to supply electricity to its very



Photograph from Kenetech Windpower

Kenetech Windpower's Model 33M-VS turbines in the foothills of the Canadian Rockies of Alberta.

rapidly growing service territory, few observers thought a wind power project would make it onto the "short list" of final negotiations. But Puget wanted renewable resources in its resource cache, and Kenetech Windpower had just gotten its first model 33M-VS up and operating. With the new economics of the 33M-VS, the 50-megawatt "windplant" (a term Kenetech trademarked) made it through the first round of selection. With co-sponsorship from Portland General Electric and Portland-based PacifiCorp, the project was approved and contracts signed this winter.

The 140-turbine wind farm is to be located three miles south of Goldendale in Klickitat County, Washington, high above the Columbia River. The Columbia Gorge's formidable and steady winds will be generating electricity at this site as early as 1996, pending completion of an environmental impact statement.

■ **Wyoming Windplant:** The Wyoming Windplant proposed for Carbon County, Wyoming, is another 50-megawatt Kenetech/PacifiCorp joint project. Half the output of the plant will be sold to the Bonneville Power Administration. The project is expected to be expanded to 70.5 megawatts with participation from the Tri-State Generation & Transmission Association of Denver, the Public Service Company of Colorado and the Eugene (Oregon) Water & Electric Board. The Wyoming project will take about 200 33M-VS turbines. Kenetech has begun the permitting process to expand the project to 500 megawatts. The current 50-megawatt parcel should be completed in 1996.

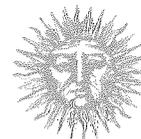
■ **Columbia Wind Farm #1:** Not far from the site of Kenetech's Columbia Hills Windplant is the Columbia Wind Farm #1 site, where a consortium of Washington utilities — the Conservation and Renewable Energy System (CARES) — has linked up with Robert Lynette's Advanced Wind Turbines, Inc. and FloWind Industries to develop a 25-megawatt project. The project will feature 91 AWT-26 wind turbines. Power from the project, which is scheduled for completion in 1996, is expected to be sold to the Bonneville Power Administration.

Big wind

The American Wind Energy Association estimates that there are more than 2,000 megawatts of wind projects under negotiation or development in the United States.

The association reports that 500 megawatts of new wind will be online in the country by 1996. There are big projects under way in Minnesota, California and Texas, as well as those in the Northwest.

All of these will contribute to the wind energy industry's goal of installing 10,000 megawatts of wind turbines in the United States by the year 2000. Already, the U.S. wind industry generates enough electricity to serve 1,000,000 Americans. Almost all of that is in California, but the Northwest, with its tremendous wind potential, is coming up fast.



More...

Want to learn more about new wind technologies?

American Wind Energy Association

122 C. Street, NW,
Fourth Floor
Washington, D.C. 20001
Phone: 202-383-2500
FAX: 202-383-2505

Advanced Wind Turbines, Inc.

15042 NE 40th Street,
Suite 204
Redmond, Washington
98052
Phone: 206-867-0683
FAX: 206-881-8468

Kenetech Windpower

500 Sansome Street
San Francisco,
California 94111
Phone: 415-398-3825
FAX: 415-391-7740

Zond Systems, Inc.

13000 Jameson Road
Tehachapi, California 93561
Phone: 805-822-6835
FAX: 805-822-7880

BIRDS

About 150 million birds of all sorts die each year when they crash into windows, cars, tall buildings and smokestacks. Others, particularly birds of prey like eagles and falcons, are electrocuted when they attempt to land on or fly through power lines.

At the Altamont Pass wind farm east of San Francisco, researchers from the California Energy Commission and consultants have estimated that about 500 birds of prey died of various causes within the 80-square-mile site over a two-year study period. Approximately 78 of these were endangered golden eagles.

These are numbers that greatly concern wind power developers — many of whom came to the wind industry because they think of wind as relatively environmentally benign. Communities where wind farms may be sited are also concerned.

Arguments can be made in defense of these deaths: no one is certain how the birds are killed; only Altamont of all wind sites seems so deeply plagued; the numbers could be considered fairly small; actual *populations* of these birds have *increased* rather than decreased; development around the Altamont has turned the wind site into the only wild place left for birds and other animals in that area, etc.

But wind developers want to solve the problem, not just respond to criticism. The deaths of endangered species could kill the wind industry as well as the birds.

Kenetech Windpower has been the leading wind company trying to understand how the birds are killed and how to prevent the deaths, since the problem was first identified in the mid-1980s. The company has purchased wildlife habitat to compensate in some part. It has spent more than a million dollars in research on turbine blades, bird behavior, warning systems, etc.

“Our objective is not to drive birds out of wind plants,” says Richard C. Curry, coordinator of the Avian Research Task Force that Windpower established to bring some of the nation’s leading ornithologists together to help resolve the issue. “This is good habitat. We want to make it safe for them.”

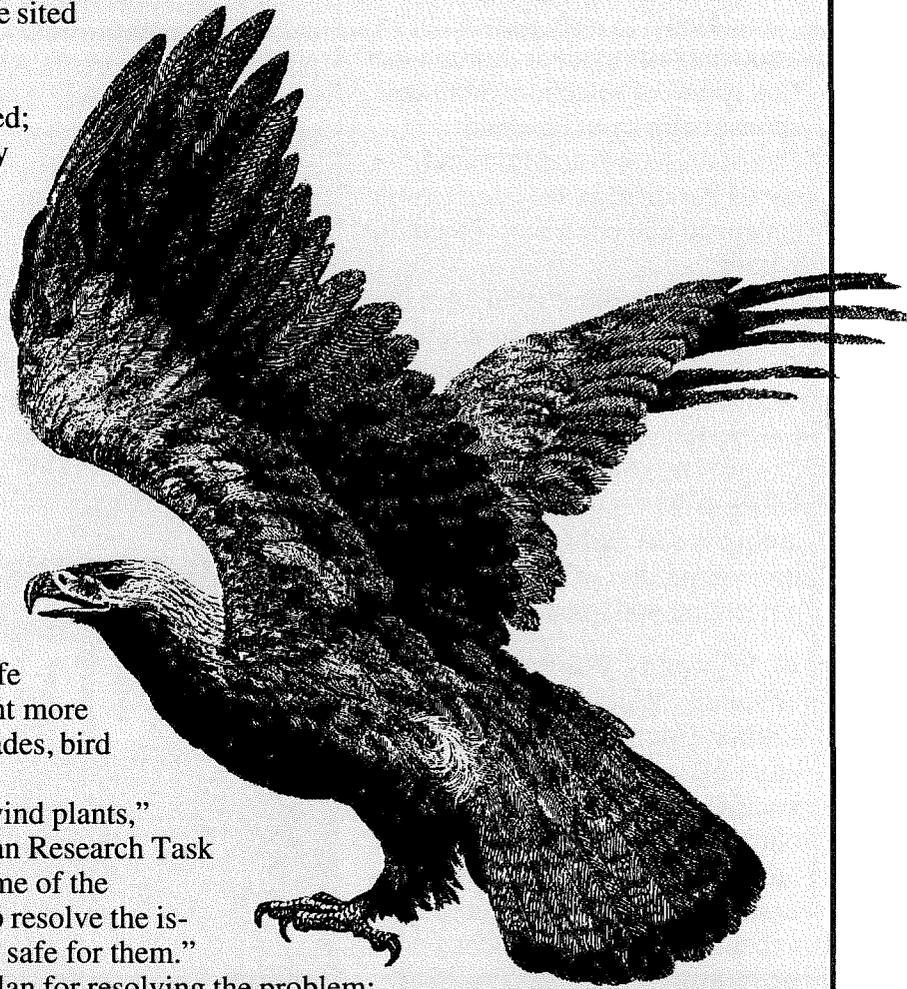
The company now has a three-part action plan for resolving the problem:

1. Develop and implement siting procedures designed to eliminate potential environmental conflicts. This includes identifying and consulting with local and regional experts, and reviewing any data about existing wildlife at all potential wind sites.

2. Mitigate any losses of plant or animal species affected by wind energy development. This may include purchasing replacement habitat.

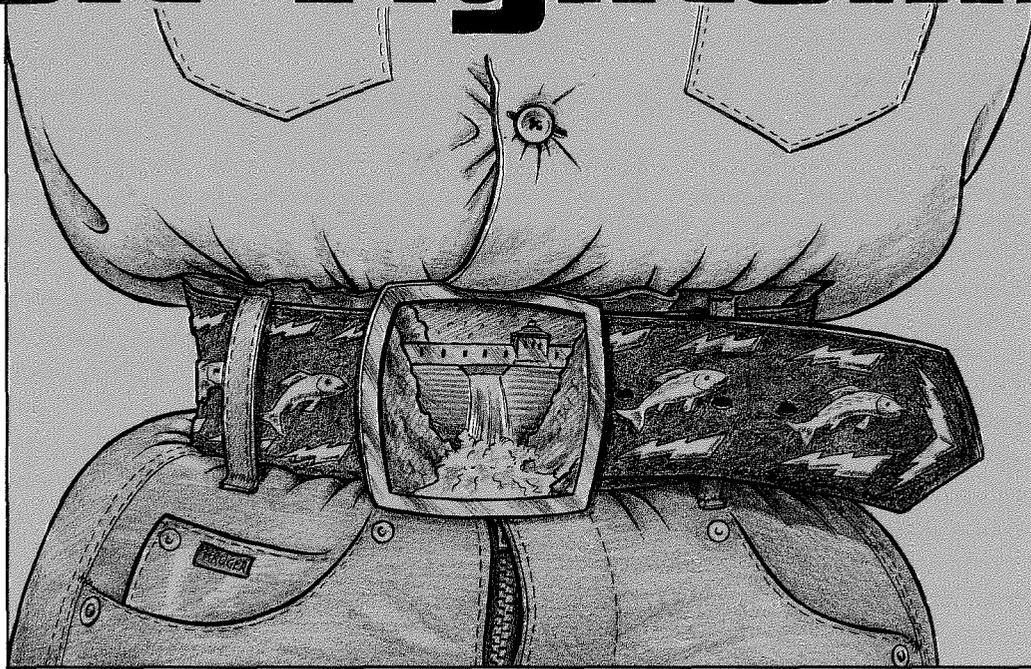
3. Research and implement modifications of wind turbines or wind plants to prevent harm to wildlife. The American Wind Energy Association and its member companies are working with the U.S. Fish and Wildlife Service to develop guidelines for siting wind projects where there will be no likely impacts on wildlife populations.

— CC



For more on birds and wind power, contact:
Richard C. Curry,
Avian Research Task Force
Kenetech Windpower
1730 M Street, NW
Washington, D.C. 20036
Phone: 202-833-8954
FAX: 202-833-8960

Bonneville Belt-Tightening



by John Harrison

Congressional task force identifies \$150 million in savings at the Bonneville Power Administration

Principal goals of the Northwest Power Act — conserving energy, and protecting fish and wildlife of the Columbia River Basin — remain sound and should not be sacrificed by the Bonneville Power Administration (BPA) to minimize electricity rates, a Congressional report concludes.

“BPA at a Crossroads,” a majority staff report of the House Committee on Natural Resources, is the result of a year-long Congressional oversight investigation of Bonneville that concluded in May 1994. U.S. Representative Peter DeFazio of Oregon chaired

the Task Force on the Bonneville Power Administration, which prepared the report after conducting public hearings in Washington, D.C., and around the Northwest.

The Task Force formed in response to Bonneville’s efforts to improve the efficiency of its operations, including the agency’s proposal to change from a federal agency — a division of the U.S. Department of Energy — to a federal corporation. The Task Force identified up to \$150 million in annual savings that could be achieved *in addition* to the \$66 million Bonneville already has announced it could save through

greater administrative efficiency. The Task Force concluded these savings could be realized without the incorporation legislation. If all identified savings were achieved, they could lead to a Bonneville rate *decrease* of 8 percent, Defazio said.

“The DeFazio report and BPA share more common ground than might be readily apparent,” said Bonneville Administrator Randy Hardy. “Certainly it is critical to BPA, but we have been our own harshest critics. We recognize that we have to change and have been working aggressively for some time on most of the issues that the

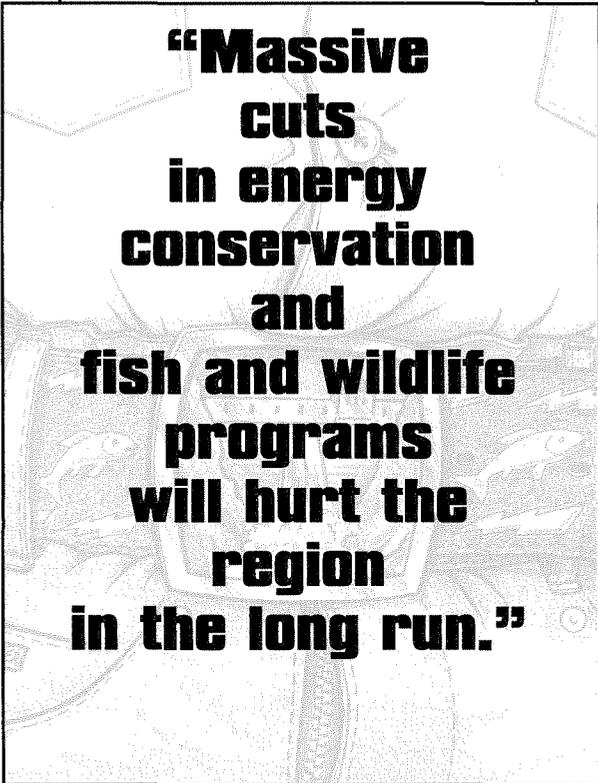
report raises. We have cut hundreds of millions of dollars in overhead and are in the process of downsizing our staff by 600 to 800 people, which is about 15 percent of our work force."

DeFazio said he supports Bonneville's effort to become more efficient and competitive, but he said the agency should be careful not to make cuts in areas that respond to obligations under the Northwest Power Act. He noted that the Northwest Power Act required regional energy planning and placed a priority on conservation and renewable energy resources. The Act requires Bonneville to take steps to protect and enhance the Columbia River Basin's fish and wildlife populations and to treat fish and wildlife equitably with other river uses, such as power generation.

"The goals of the Act remain sound," DeFazio said. "They should be the yardstick by which Bonneville's current plans are measured. Massive cuts in energy conservation and fish and wildlife programs will hurt the region in the long run."

Hardy said Bonneville intends no lessening of its legal obligations.

"We absolutely agree with the Congressman that we must remain committed to the conservation and fish and wildlife goals laid down by the Northwest Power Act," the Administrator said. "If we have been remiss, it has been in not communicating clearly enough that the goals are unchanged. The only thing that is changing is how we get there. We are refocusing our programs so that we will be



"Massive cuts in energy conservation and fish and wildlife programs will hurt the region in the long run."

judged on results, not on dollars spent."

Hardy said Bonneville would not pursue government corporation "unless there is a general regional consensus to do so," and he added that the proposal would be reviewed publicly around the region. He said the incorporation legislation has been redrafted to clarify that "the proposal focuses on a narrow spectrum of administrative procedures and would not in any way relieve us of our obligations or change our relationships with our constituencies."

Other recommendations in the Task Force report include:

■ **Nuclear plants:** More than one-third of the \$150 million in savings identified by the Task Force is associated with Washington Public Power Supply System nuclear plants. Bonneville spends about 25 percent of its annual budget on nuclear costs. These include debt service, operating costs and the expenses of keeping Plants

1 and 3 ready to resume construction.

The Supply System board of directors recently voted to terminate Plants 1 and 3, where construction was halted in 1982. Terminating the plants, which also was recommended by the Task Force, will save Bonneville about \$10.5 million per year.

The Task Force said Bonneville also should insist on the following Supply System savings: 1) \$25 million in capital expenditures; and 2) \$20 million in staffing costs at Plant 2.

Hardy replied: "We called for termination of the two unfinished nuclear plants a year ago, and we pursued

that goal successfully. Those are the Supply System costs we have control of. There may be other cost-savings to be gotten, but they are outside of our control."

■ **Rate subsidies:** Bonneville should review the costs and benefits of the region's aluminum industry, and design a new rate structure that balances the interests of the industry with the interests of the region's other ratepayers. Bonneville also should examine its irrigation discount.

Bonneville sells electricity to the Bureau of Reclamation to power the pumps in its widespread irrigation systems throughout the Columbia Basin. The price paid by the Bureau varies with each project, but in most cases the rate is less than half of the 26.8-mill priority firm rate paid by most Bonneville customers. In fact, for about two-thirds of the power it buys from Bonneville, the Bureau pays less than 1/28th of the priority firm rate, according to the report. Charging the Bureau the same

price as other Bonneville customers would raise about \$32 million per year.

Bonneville also sells power at discounted rates to individual irrigators to power pumping systems. The value of the discount is about \$14 million per year. The Task Force recommended that a new rate be designed to discourage excessive use of energy and water.

Hardy replied: "The variable rate for aluminum industries worked well until the Berlin Wall fell. The world has changed in ways no one could predict, and we are responding to those changes. We are conducting a rate redesign, and all rates — including the direct services industries and irrigation rates — are on the table.

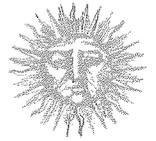
"For the record, since 1986, the variable rate has earned BPA \$50 million in cumulative revenues more than we would have earned had the companies paid the utility preference rate. The region has not lost money."

The Task Force report noted that while the decline of certain salmon runs in the Columbia Basin lends a sense of urgency to needed changes at Bonneville, fish and wildlife responsibilities should not be neglected in the pursuit of savings. Bonneville has proposed tying its fish and wildlife expenditures to its fiscal success, according to the report.

"Since Bonneville's actual outlays for fish and wildlife expenses and capital outlays amounted to \$82.5 million in 1993, the potential for real savings through 'incentivization' of the fish and wildlife program is probably

**Charging the
Bureau of
Reclamation
the same
price as other
Bonneville
customers
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\$32 million per
year.**

small," the report said. "In addition, Bonneville's statutory fish and wildlife responsibilities do not somehow evaporate during bad water years or other financially difficult periods."

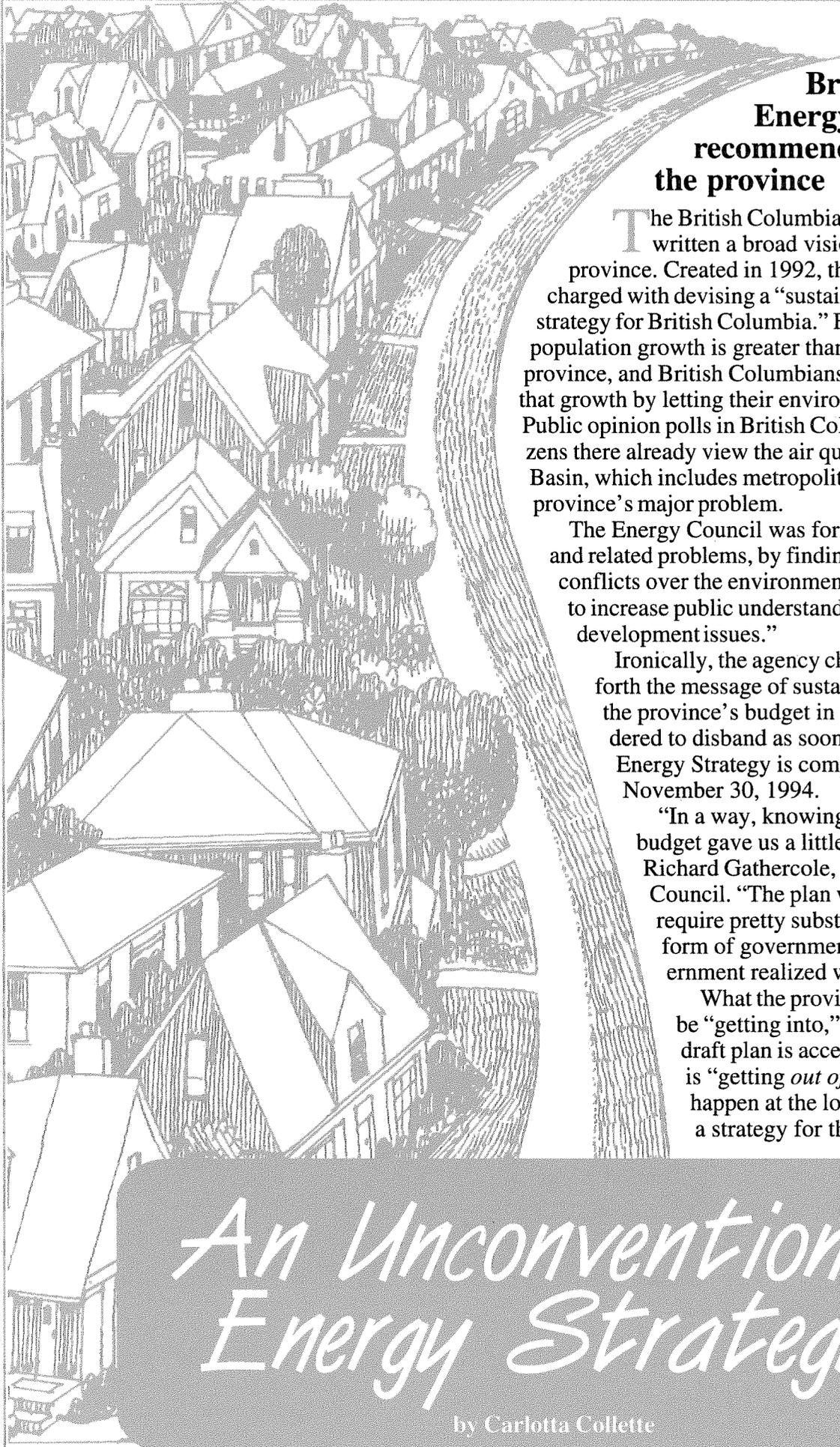


More...

Want to see the report?

Write to:
BPA Task Force
c/o Peter DeFazio, Chairman
Committee on Natural Resources
U.S. House of Representatives
Washington, D.C.
Phone 202-225-2761

Request the Majority Staff Report entitled,
"BPA at a Crossroads."



British Columbia's Energy Council recommends ways to sustain the province

The British Columbia Energy Council has written a broad vision for the future of its province. Created in 1992, the Energy Council was charged with devising a "sustainable development strategy for British Columbia." British Columbia's population growth is greater than any other Canadian province, and British Columbians are loathe to pay for that growth by letting their environment be degraded. Public opinion polls in British Columbia found that citizens there already view the air quality in the Fraser River Basin, which includes metropolitan Vancouver, as the province's major problem.

The Energy Council was formed to address that, and related problems, by finding "ways of resolving conflicts over the environment and the economy and to increase public understanding of sustainable development issues."

Ironically, the agency charged with carrying forth the message of sustainability was cut from the province's budget in March 1994, and ordered to disband as soon as its first Sustainable Energy Strategy is complete, no later than November 30, 1994.

"In a way, knowing we'd been cut from the budget gave us a little added freedom," says Richard Gathercole, chair of the Energy Council. "The plan we came up with will require pretty substantial changes in the form of government. I don't think the government realized what it was getting into."

What the provincial government will be "getting into," if the Energy Council's draft plan is accepted and implemented, is "getting *out of* the way to let things happen at the local level. ... The plan is a strategy for the *province*, not for the

An Unconventional Energy Strategy

by Carlotta Collette

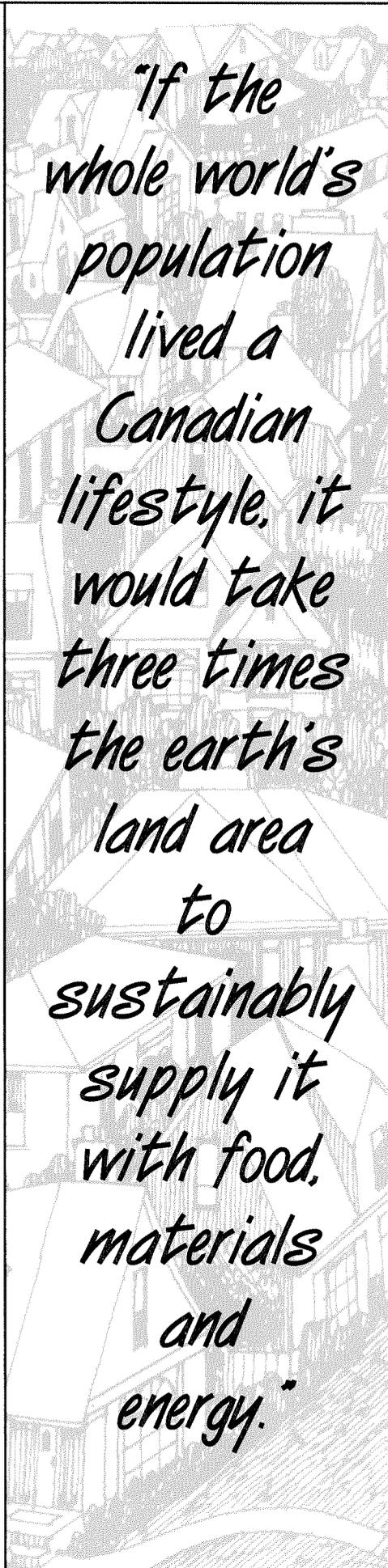
provincial government,” Gathercole explains. “A lot of this can be carried out by others.”

The Energy Council’s draft plan takes political, economic and environmental rhetoric about resource scarcity and the need for societal changes from the 1960s, 70s and 80s and brings it to the 90s with the principle that “sustainability means making decisions whose benefits last far into the future.”

“Presently, the people of B.C. are living beyond their means in terms of energy consumed in daily activities,” states the draft plan. “If the whole world’s population lived a Canadian lifestyle, it would take three times the earth’s land area to sustainably supply it with food, materials and energy. Sixty percent of the required land (or almost two ‘earths’) would be for energy. ...

“Energy sustainability requires that energy services can be continued indefinitely,” according to the draft plan, “with acceptable economic, environmental and social impacts. ... To use energy sustainably, the economy would have to evolve into something we have not experienced. Cities and towns would look very different. People would have different daily lives. Businesses would produce different goods and services...”

The first step proposed by the Energy Council, and one likely to position the draft plan in the middle of controversy, is that “government charges on energy should increase, raising energy prices.” That translates into rate hikes and taxes. “Higher prices tend to result in less consumption over time. This is good for sustainability, all else being equal,” reports the draft. “But all other things are not equal.”



“If the whole world’s population lived a Canadian lifestyle, it would take three times the earth’s land area to sustainably supply it with food, materials and energy.”

To compensate low-income households straddled with heating bills and long-distance commuters stranded by gas prices, the Energy Council proposes that the revenues from the higher prices and taxes be used only “to support sustainable energy initiatives.” Such initiatives include taking a comprehensive look at the way people in British Columbia settle into communities.

In the draft plan, the concept of “integrated planning” encompasses the design of whole communities, including not just more efficient buildings and businesses, but also transportation systems, land-use zoning, locally based power sources and other macro-design elements that make suburban communities more like “urban villages.”

Suburbia is a “40-year experiment that failed,” suggests a video the Energy Council produced to help involve the public in refining and carrying out the plan. “A major new energy resource for the 21st century is the revision of municipal bylaws,” the video declares. “Energy consumption flows from community design and lifestyle decisions.”

The “neo-traditional” cities the plan envisions would have higher population densities clustered around work and play sites. Transportation needs would be reduced because there would be less commuting. More of the housing would be multifamily units that use less energy than detached housing. Power plants would be onsite within the community and environmentally benign, as much as possible. Services, shopping and entertainment needs would all be met within the community.

The plan has similarly comprehensive visions for meeting the province's future transportation needs and for creating an industry based on the export of efficient and sustainable technologies.

The idea of forming an energy planning council for British Columbia came out of a 1990 experiment in provincial planning called the Round Table on the Environment and the Economy. The Round Table brought together people with widely diverging interests to debate the province's options for the future. Round Table participants developed a set of principles that the Energy Council adopted as the starting place for its plan:

- Limit our impact on the living world to stay within its carrying capacity.
- Preserve and protect the environment.
- Hold to a minimum the depletion of non-renewable resources.
- Promote long-term economic development that increases the benefits from a given stock of resources without drawing down on our stocks of environmental assets.
- Meet basic needs and aim for a fair distribution of the benefits and the costs of resource use and environmental protection.
- Provide a system of decision-making and governance that is designed to address sustainability.
- Promote values and actions that support sustainability.

The Energy Council took these principles on the road, meeting with as many people from as wide a spectrum of B.C. citizens as it could gather. It released discussion papers and convened brainstorm sessions. It engaged

the public in lengthy discussions and formed special consultative groups to review particular aspects of the evolving plan. As the draft took shape, details were published in the Energy Council's newsletter.

Then the draft strategy was released in May. Public involvement to refine the strategy continues. By November 30, 1994, the Energy Council plans to have it finalized to deliver to the Minister of Energy, Mines and Petroleum Resources.

When the B.C. Energy Council is "wound up," to use its expression, those of its recommendations that are adopted by the provincial government will fall to other government agencies and

non-government entities to carry out. Chief among these agencies will be the Ministry of Energy and the B.C. Utilities Commission.

Gathercole's principal concern about turning over the strategy without the Energy Council in place to see it implemented is whether the provincial government will continue to involve the public. "Traditional structures for planning don't work because they're vertical," Gathercole maintains. "The planning we're talking about is horizontal, bringing the people in at all levels. We're not really talking about system planning anymore. We're talking about planning at the local level. This is where energy planning will evolve."



More...

Want to see British Columbia's Draft Sustainable Energy Strategy?

For more information about the British Columbia Sustainable Energy Strategy or the Energy Council's video, "Energy Sustainability and the Planning of Cities and Towns," contact the British Columbia Energy Council, Number 601 - 1125 Howe Street, Vancouver, B.C. V6Z2K8.

Call the Energy Council at 604-775-1400
or FAX 604-775-1410.

SHORTS



Washingtonians think salmon runs can be restored and are willing to pay for it, according to an Elway Poll. Three-quarters of the people polled said they were willing to pay at least \$1 per month more in their electric bills, and about half the respondents said they'd pay higher taxes, if it could bring back the fish. Respondents also favored restoration of wild salmon instead of hatchery fish and gave salmon recovery higher priority than other commercial uses of the Columbia River. The Elway Poll is an independent, non-partisan analysis of public opinion trends in the Northwest. (Source: The Elway Poll, Seattle, Washington, May 1994.)

Washington has more power plants being developed by independent producers than any other U.S. state. Total U.S. power production by independents amounts to 51,300 average megawatts, with 3,321 plants in operation nationwide. Another 7,000 megawatts are under production in Washington. While there were fewer independent plants starting up in 1993 than in 1992 in the United States, U.S. producers are finding more markets in other countries. (Source: *The Energy Newsbrief*, Volume 8, Number 27, June 3, 1994.)

Minnesota utility ordered to build wind turbines in contested compromise. When Northern States Power Company asked its state legislature for permission to store wastes from the utility's Prairie Island nuclear power plant on site at the plant, the legislature

agreed — with one major caveat. The utility was ordered to build 425 megawatts of wind power generation by the year 2002, in increments that match increases in storage of nuclear waste. The 425 megawatts will make Minnesota the second "windiest" state in the United States, next to California. (Source: *Wind Energy Weekly*, May 23, 1994.)

The newly named Energy Efficiency and Renewable Energy Clearinghouse (EREC) now handles inquiries ranging from simple requests for fact sheets, videos and brochures to specific technical inquiries. The clearinghouse provides tailored responses to technical inquiries and assistance on financing for energy-related businesses. These services are available at no cost by calling EREC's toll-free number, 1-800-DOE-EREC, or for the hearing impaired, 1-800-273-2957 or by writing EREC at P.O. Box 3048, Merrifield, Virginia 22116. (Source: *Clearinghouse News*, May 31, 1994.)

The Trojan Nuclear Plant is providing a classroom for environmental cleanup studies. Concordia College officials believe the Trojan-based environmental course is unique because it will focus on the needs of industries by blending science and business studies. Students will study

the spectrum of environmental issues, ranging from wetlands restoration to radioactive waste. While Trojan is providing the classroom, Portland General Electric, Trojan's majority owner, emphasized that students will not have any connection with cleanup and decommissioning work of the restricted nuclear areas of the former power plant. (Source: *The Oregonian*, May 12, 1994.)



World's first offshore windfarm built in Denmark. Costing roughly 30 percent more than their onshore counterparts for the same amount of energy, the 11 wind turbines sited off the northwest coast of Denmark's Lolland Island generate 12 million kilowatt-hours of electricity each year. Offshore windfarm sites are considered an important element in Denmark's energy future because of the nation's population density and environmental restrictions on what little land remains open. (Source: *Caddett Renewable Energy Newsletter*, January 1994. For more information, contact Mr. Preben Thisgaard, NOVA PRO, Tølløse Slot, PPPO Box 80, DK - 4340 Tølløse, Denmark. Phone: +45 59 186 999. FAX: +45 59 186 573.)

SHORTS

In the most recent edition of *Northwest Energy News*, there was a "news short" regarding a lawsuit filed by the State of Oregon Fish and Wildlife Commission against the West Extension Irrigation District. The district is accused of allowing 44,350 salmon smolts to be sucked into an irrigation pump in May of 1992.

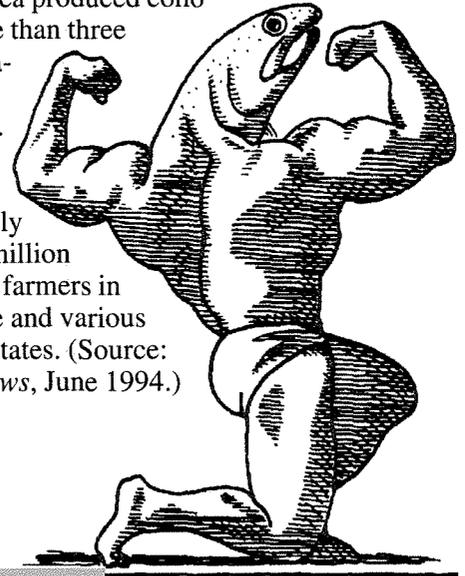
The article stated that the irrigation district is located in Pendleton. This is in error. Although the lawsuit may have been filed in Pendleton (the Umatilla County seat), the named irrigation district is based in western Umatilla County, about 45 miles northwest of Pendleton.

We in Pendleton are very sensitive to and supportive of efforts being made to restore the salmon fishery to the Umatilla River basin. We would like to set the record straight that Pendleton, which is predominately a dryland wheat farming area, was not involved in this alleged act of negligence.

Thank you for the opportunity to comment. We enjoy receiving your interesting publication.

Sincerely,
Mike Hyde, Planning Director

"Genetically superior livestock" coho salmon bred for commercial aquaculture. Washington Sea Grant scientists worked with financial support from Domsea Broodstock Inc., to develop coho that grow more quickly and are likely to survive conditions in aquaculture hatcheries. After 10 years of selective breeding, Sea Grant and Domsea produced coho that weigh in at more than three times the average mature weight of non-engineered coho. Domsea is a Washington-based company that annually ships 5 million to 8 million coho eggs to salmon farmers in Japan, Chile, Europe and various parts of the United States. (Source: *The Fisherman's News*, June 1994.)



CALENDAR

August 20-21 - Oregon SunWorks '94, Solar Energy Association of Oregon's 12th Annual Conference to be held in Portland on Saturday at Pioneer Square. The focus of this year's conference is the action needed to move toward a solar-based sustainable society, from both a hands-on individual perspective and a societal perspective. On Sunday, participants can take part in a tour of solar homes in the Portland area. To register, or for more information, call or write the Solar Energy Association of Oregon, 027 S.W. Arthur Street, Portland, Oregon 97201, 503-224-7867.

August 21-25 - American Fisheries Society, 124th Annual Meeting, World Trade and Convention Centre, Halifax, Nova Scotia, Canada. Contact AFS, 5410 Grosvenor Lane, Suite 110, Bethesda, Maryland 20814-2199, phone 301-897-8616.

September 10-11 - Third Annual I-RENEW Renewable Energy Expo and Alternate Fuel Vehicle Showcase, Cedar Rapids, Iowa. The event will include workshops, speakers, display booths, demos, entertainment and food. Find out

about energy alternatives including wind and solar, as well as energy conservation in the areas of agriculture, architecture, vehicles and more. For more information, call Stan Eilers in Cedar Rapids at 319-365-7314 or Tom Devesin in Dubuque at 319-556-4765. Expo cover charge is \$3.

September 19-21 - Retail Wheeling Conference, "Opening the Gates to Transmission Access," Swissôtel, Atlanta, Georgia, sponsored by the Institute for International Research. This three-day conference will cover the pros and cons for adopting retail wheeling, how to assemble a practical strategy to actively participate in your state's retail wheeling activities, how to focus your efforts on becoming a competitive contender and more. To register, write the I.I.R., 708 Third Avenue, 4th Floor, New York, New York 10017-4103, call 212-661-8740 or FAX 212-661-6677.

September 21-22 - Principles and Practices of Social Costing Conference, Sheraton Cavalier Hotel, Saskatoon, Saskatchewan, Canada. Hosted by the

Saskatchewan Energy Conservation and Development Authority. The goal of the conference is to help establish a common understanding of concepts and methodologies, and analyze case studies related to energy use and production. For more information, contact Merete Heggulund, phone 306-933-5310 or FAX 306-933-5616.

January 23-25, 1995 - Fifth International Symposium of Distribution Automation and Demand-Side Management, Silicon Valley, California. The program will include how-to insight into real-world applications of distribution automation, information technology and demand-side management. The theme is "Information Equals Power" and the focus is on the dramatic technological and economic changes affecting the management of energy distribution and demand. For more information on registering, participating or obtaining exhibit space, write DA/DSM '95, 3050 Post Oak Boulevard., Suite 205, Houston, Texas 77056-6524 or call 713-621-8833 or FAX 713-963-6284.

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Toll Free: 1-800-222-3355
Executive Director: Edward Sheets
Public Affairs Director: Steve Crow

The Northwest Power Planning Council is required by an Act of Congress to develop a program to protect, mitigate and enhance the Columbia Basin's fisheries and a regional electric energy plan that provides a reliable electricity supply at the lowest cost. For further information, see Pacific Northwest Electric Power and Conservation Act-Public Law 96-50.



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COUNCIL PUBLICATIONS ORDER FORM

Please send me a copy of the following publications of the Northwest Power Planning Council. (Note: not all publications are available immediately, but they will be sent to you as soon as possible.)

Publications

- 94-17 Making Conservation Work: Practical Answers for Commercial and Industrial Program Managers.
- 94-18 The Green Book: Tracking Pacific Northwest Electric Utility Conservation Achievements 1978-1992 (TRACK-92), Volume I, Regional Summary.
- 94-19 The Green Book: Tracking Pacific Northwest Electric Utility Conservation Achievements 1978-1992 (TRACK-92), Volume II, Appendix.
- 94-20 Status of Fish Bypass Systems and Production Impacts.
- 94-21 Scope of New Power Plan.
- 94-22 Briefing Paper: Power System Impacts of the National Marine Fisheries Service 1994 Biological Opinion.
- 94-23 Briefing paper: Predation.
- 94-24 Briefing Paper: Background and Status of Columbia/Snake River Fish Spill Program.
- 94-25 Briefing Paper: Smolt Transportation and Its Role in Rebuilding Fish Populations.
- 94-26 Briefing Paper: Ocean Production.
- 94-27 Briefing Paper: Integrated Rule Curves.
- 94-28 Briefing Paper: Biological Drawdown Test.
- 94-29 Draft 1994 Annual Report.
- 94-30 Issue Paper: Exploring New Power Planning Considerations.

Mailing Lists

Please **add** my name to the mailing lists for the following publications. (Note: please do not check if you already are receiving them.)

- Northwest Energy News** (this bimonthly magazine)
- Update** (monthly public involvement newsletter that contains the Council meeting agenda, deadlines for public comment and a more detailed publications list)

Please **delete** my name from the mailing lists for the following publications (please include the 12-digit number next to your name on the mailing label).

- Northwest Energy News**
- Update**

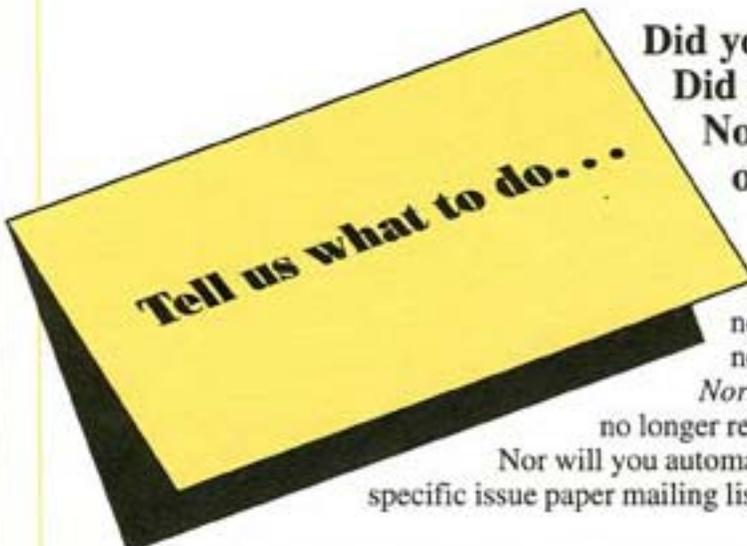
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If you want to be kept informed about Northwest fish and wildlife and electric power issues, fill out and return the form on the inside back cover of this magazine.

With this issue we are also switching from bimonthly to quarterly. This is the summer issue. The autumn issue will be available in November.

