

N O R T H W E S T  
**ENERGY NEWS**

Volume 4, No. 1

Northwest Power Planning Council

January/February 1985



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# NORTHWEST ENERGY NEWS

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The Northwest Power Planning Council is required to develop a  
program to restore the Columbia fisheries and a regional electric  
energy plan, to be carried out by the Bonneville Power Adminis-  
tration, emphasizing cost-effective conservation and renewable  
resources.

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# EDITOR'S NOTES

We'd like to thank all of you who have filled out and returned our public involvement survey published in the previous *Energy News*. There were a number of good ideas, and some we've already begun putting into effect.

If you haven't sent in your questionnaire yet, please do. We are reviewing all comments carefully and will be finetuning our public involvement program to make it more meaningful and responsive to your needs. Extra copies of the questionnaire are available if you misplaced the previous issue.

*Notice:* Please note that the Washington Council office has moved from Olympia to Seattle. The new address and phone number are at the left.

*Cover illustration:* It started with our July/August 1984 issue which portrayed power decision moves on a Monopoly-like board. We decided covers didn't have to be deadly serious. Here was a place to be arty and whimsical. After all, such respected magazines as the *New Yorker* have set the pace.

We had some fun with this cover. Some see it as a take-off on the Statue of Liberty; others read Medusa into it. For our part, we like the pure art of it. The artist, who apparently agreed with us, is *Elsa Warnick*. -DM

# CALENDAR

**January 27-30** — The American Society of Heating, Refrigeration and Air-conditioning Engineers 1985 winter meeting in Chicago, Illinois. Contact Ralph H. Burkowsky, ASHRAE, 1791 Tullie Circle NE, Atlanta, Georgia 30329 (404/636-8400).

**January 28-February 1** — Annual Symposium on "Energy From Biomass and Wastes," Lake Buena Vista, Florida. Contact the Institute of Gas Technology, 3424 S. State St., Chicago, Illinois 60616 (312/567-3650).

**January 30-31** — Northwest Power Planning Council meeting in Seattle, Washington.

**February 18-20** — "Energy Management Congress" presented by the Association of Energy Engineers in Los Angeles, California. Contact Association of Energy Engineers, 4025 Pleasantdale Rd., Suite 340, Atlanta, Georgia 30340 (404/447-5083).

**February 20-21** — Northwest Power Planning Council meeting in Boise, Idaho.

**February 26-27** — Workshop on "Measuring the Thermal Performance Characteristics of Windows" in Gaithersburg, Maryland. Sponsored by the Building Thermal Envelope Coordinating Council and the National Bureau of Standards. Contact R. P. Tye, Dynatech R/D Co., 99 Erie St., Cambridge, Massachusetts 02139 (617/868-8050).

**March 13-14** — Northwest Power Planning Council meeting in Portland, Oregon.

**April 3-4** — Northwest Power Planning Council meeting in Missoula, Montana.

**April 24-25** — Northwest Power Planning Council meeting in Seattle, Washington.

**May 1-3, 1985** — Symposium on "Small Hydropower and Fisheries" in Denver, Colorado. Sponsored by the Western Division and Bio-engineering Section of the American Fisheries Society. Contact Conferences and Institutes, College of Engineering and Architecture, Washington State University, Pullman, Washington 99164-2992. Phone: (509/335-7225 Nancy Mack) or (503/335-1404 John F. Orsborn).

Compiled by Ruth Curtis

# IN THE NEWS

## Montana picks Brusett as new Council member

Montana Governor Ted Schwinden has appointed Morris Brusett one of the state's two representatives on the Northwest Power Planning Council. Brusett replaces Keith Colbo, charter member of the Council and former Council chairman. Colbo has been named to serve as director of Montana's Department of Commerce.

Brusett brings extensive finance, management, and decision-making skills to the Council.

A Montana native (his home town of Brusett is named after his father), he leaves the position of director of the Montana Department of Administration. With more than 500 employees, the department's responsibilities include state building codes, personnel, information services (telecommunications, data processing and office automation), and state purchasing.

As director, Brusett was treasurer of the State of Montana, responsible for the state's cash management; state controller, responsible for the state's accounting system; and chairman of the Governor's Capital Finance Council,

which developed the state's plan for managing its bonded indebtedness.

Brusett is a certified public accountant, and for 14 years served as Montana's legislative auditor, responsible for conducting financial and program audits of all state agencies.

Brusett said he wants to "properly represent the people of Montana and the Northwest" on the Council. He is, he said, interested in "looking at long-term objectives, and at the critical elements and timing that will enable us to steer a course for the region."

Brusett is familiar with building code enforcement and supports what is being done by the Council with model conservation standards. He recently completed his own energy efficient home.

As director of the Montana Department of Commerce, Colbo will be guiding the Governor's centerpiece "Build Montana" program. There are also plans to transfer the state building code activity from Administration to Commerce, so his familiarity with the Council's model conservation standards will continue to be of value to the region even in his new position.

— Jim Nybo

Morris Brusett



## N O T I C E

The Northwest Power Planning Council has filed its brief in the Seattle Master Builders lawsuit before the United States Court of Appeals for the Ninth Circuit. See page 22 for a synopsis of the brief.

## Zone 2 energy budget revised for MCS

The Northwest Power Planning Council is revising the model conservation performance standard for residential buildings in climate Zone 2, primarily eastern Oregon and Washington and parts of Idaho. The technical change raises the allowable annual energy budget for a single family home from 2.6 to 3.2 kilowatts per hour per square foot for electrical space heating.

The change is a result of a thorough review of the materials used to develop the standards. This review was conducted in preparation of the Council's brief in a lawsuit brought by the Seattle Master Builders Association.

At the same time, the Council is correcting a printing error which misstated the performance standard for Zone 3, primarily in Montana. It should read 3.2 rather than 3.1.

The Zone 2 change is a technical correction on the cost of one component of the standards, wall insulation, and has no effect on the overall cost effectiveness of the standards. Correction of wall insulation costs indicates that R-31 walls recommended in Zone 2 exceed the Council's criteria that conservation measures cost less than 4 cents per kilowatt hour — the price of power from a new coal plant. As a result of the change, walls in Zone 2 are now R-25. (Higher "R" levels measure increasing energy efficiency.)

Even before the change, the standards cost an average of 2 cents per kilowatt hour, more

than meeting the cost effectiveness test required by the Northwest Power Act. The stipulation that conservation measures not exceed the 4-cent limit was self-imposed by the Council over and above the requirements of the Act.

— DM

## Public comment given on goals study changes

The Northwest Power Planning Council is currently in a rulemaking process to amend Sections 201 and 1504 (Action Item 36) of its Columbia River Basin Fish and Wildlife Program. The amendment would change the funding source and modify some procedures in the Goals Study. These changes would not deal with the substance of the study.

The Goals Study will assess salmon and steelhead losses which can be attributed to hydroelectric development and operations in the Columbia River Basin. It would state goals and objectives for protection and restoration of these fish and set out methods for measuring progress toward these goals and objectives.

Hearings on the proposed changes were held in each Northwest state in January.

— DM

## Mid-Columbia agreement needs one more dam

Partial settlement has finally been reached in the five-year-old dispute known as the "Mid-Columbia Proceeding." An agreement between the Chelan, Douglas and Grant

## IN THE NEWS

continued

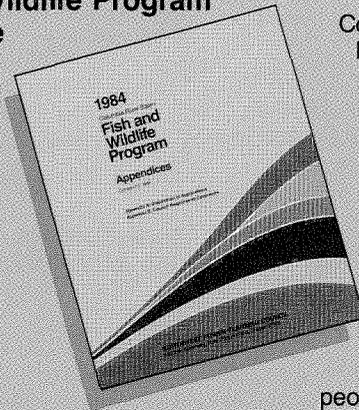
County Public Utility Districts (PUDs) and the State of Washington (co-petitioning with several fish and wildlife agencies and Indian tribes) should result in reduced juvenile fish mortalities at four of the five dams operated by the PUDs.

The settlement calls for increased water spill and bypass facilities at the Wells, Wanapum, Priest Rapids and Rocky Reach dams. Spilling water provides juvenile fish traveling to the ocean an alternative to passing through dam turbines, where fish mortalities are high.

Planned bypass facilities at the four dams will include such devices as traveling screens that move fish out of turbine intake channels and into conduits leading across the dam to the downstream side. At Wanapum Dam a large barrier net stretching over 1,600 feet across the opening to the dam's powerhouse will guide fish away from the turbines. Research will continue at Rocky Reach and Priest Rapids dams to find the best way to ease young fish safely downriver. In the interim, fish will be mechanically dipped from the gatewell to temporary bypass channels.

Wells Dam has a unique

### Fish & Wildlife Program Available



Copies of the recently amended Columbia River Basin Fish and Wildlife Program are now available from the Northwest Power Planning Council. The new program incorporates amendments adopted by the Council after a year-long process during which the Council took recommendations for changes in the program, held public hearings in each state and received comments on the proposed amendments from over a hundred groups and individuals.

To receive a copy of the new document call or write the Council's Division of Public Information and Involvement (see address/phone on inside front cover). Those people who received the draft amended program will automatically receive a copy of the final document.

configuration of spillgates located right over the powerhouse. This arrangement, called a hydro-combine, might, with minor dam modifications, permit fish passage over the turbines, rather than through them.

The question of how to get young fish around the remaining mid-Columbia dam, Rock Island, remains unresolved. Chelan PUD, operator of the dam, has agreed to a temporary spill program for this coming spring migration, but no long-term compromise was achieved. Consequently, Rock Island's future will go back on the docket for a hearing next June. — CC

### Model standards offer business bonanza, recent study says

Adoption of the Northwest Power Planning Council's model conservation standards (MCS) will create nearly 19,000 Northwest jobs and generate \$137 million in business income annually, according to a report released by the Northwest Conservation Act Coalition.

The report, from the Bainbridge Island, Washington firm of H. Glen Sims and Associates, compared the benefits of saving energy by building homes according to the standards with the benefits of

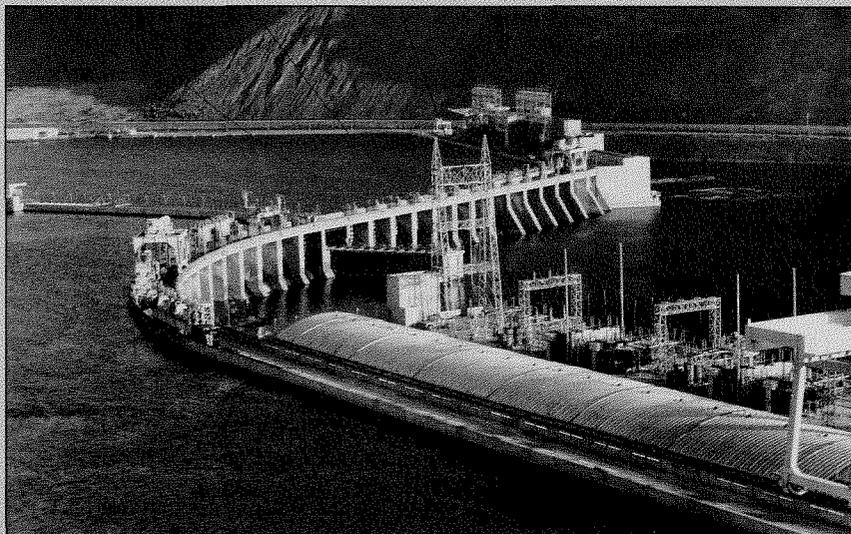
producing that energy from new coal plants. Over the lifetime of houses built in the ten-year study period (1992-2002), the region would increase its employment by more than 180,000 job years.

Building the better-insulated homes would provide more jobs than building the plants, the study found. So would production and sale of the products that go into the homes. The money saved by the homeowners and spent for other purposes would also generate more jobs, according to the study.

The study estimates that the MCS homes built during those ten years would save the region's ratepayers over \$1.26 billion because the energy costs much less to conserve than to produce.

"The net result of this study is that the Model Conservation Standards are not only the cornerstone of a least-cost energy future; they are also key to the economic development of the region," said the Coalition's summary. "The MCS are an extremely cheap, job intensive, environmentally benign and flexible resource which uses materials purchased and produced in the Pacific Northwest . . . [They] free up scarce capital for better economic development opportunities." — SE

Rock Island Dam



**Are cattle and crops affected by high voltage power lines?** Oregon State University's Eastern Oregon Agricultural Research Center will conduct a three-year study on the effects of the electrical field and air ion levels near the Pacific Northwest-Southwest Intertie. The \$1.4 million study is being funded by the Bonneville Power Administration along with eight other utilities and agencies.

**It's a bonanza for writers as well as lawyers.** The Washington Post and Wall Street Journal have joined a long list of national newspapers and magazines doing series on WPPSS — Washington Public Power Supply System — nuclear plants.

**Utility commissioners enjoyed higher credibility ratings than congressmen** in a Washington state poll conducted by Market Trends, Inc., for the Washington Public Utility Districts Association.

**Bonneville is looking for small hydropower projects** to test the feasibility of hydro resource banking. This refers to completing the planning, siting, and regulatory procedures for a project and then putting it on hold until the resource is needed. This allows initial development of potentially needed resources without committing to full development if they are not needed. This options concept, developed by the Northwest Power Planning Council, gives Bonneville the right to purchase the power when it is produced. Developers may submit proposals to Bonneville through February 28.

**Surplus power sales have brought in an extra \$49 million** for Bonneville since it implemented its new interim Intertie access policy. The Intertie is the transmission system for moving Northwest power to the Southwest. The agency earned \$81 million for export sales between September 14 and November 30, 1984, compared to \$31 million for the same period the previous year.

**"Perfecting the Plan" is the name of the Northwest Conservation Act Coalition's** proposal for the 1985 regional power plan to be developed by the Northwest Power Planning Council this year. The document focuses "particularly on opportunities for including more conservation in the plan," according to the NCAC Report. Copies of the proposal are available from NCAC, P.O. Box 20458, Seattle, WA. Phone 206-624-2875.

**The average cost of electricity in the United States is 7.67 cents per kilowatt hour,** according to a report issued by the National Association of Regulatory Commissioners. The report goes on to say that residential electrical bills vary widely

with those in the Northwest (averaging 4 cents) and Rocky Mountains the least expensive and those in the Northeast and New England the most expensive. (Source: *Insider*, Puget Sound Power & Light Company)

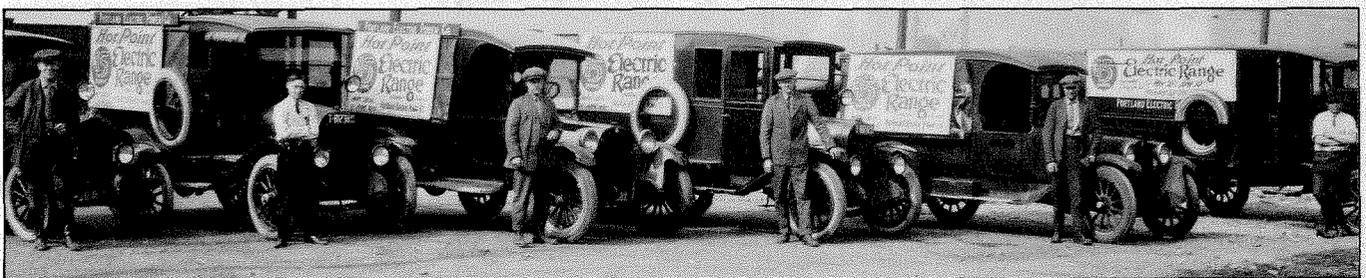
**Bonneville power rates could rise more than 50 percent** if some federal budget makers have their way. Some proposals call for a 50-year repayment schedule for the approximately \$8 billion Bonneville owes the federal government. According to political columnists, federal power prices may be one of the biggest regional issues before Congress this year.

**Nearly half of all new single family homes built in 1984 were heated electrically.** The American Society of Heating, Refrigeration & Air-conditioning Engineers *Journal* reported 49 percent of the new homes used electrical heat, which, according to the *Journal*, is becoming the favored energy source for residential use. The article also states the use of heat pumps is on the rise. The *Energy Conservation Digest* agreed with the 49 percent figure but disagreed that it is a trend toward increased use, noting that electricity's share of new single-family homes had declined from 52 percent in 1978. However, the *Digest* reported that electrical heat was used for 70 percent of all new multi-family housing, up from 68 percent.

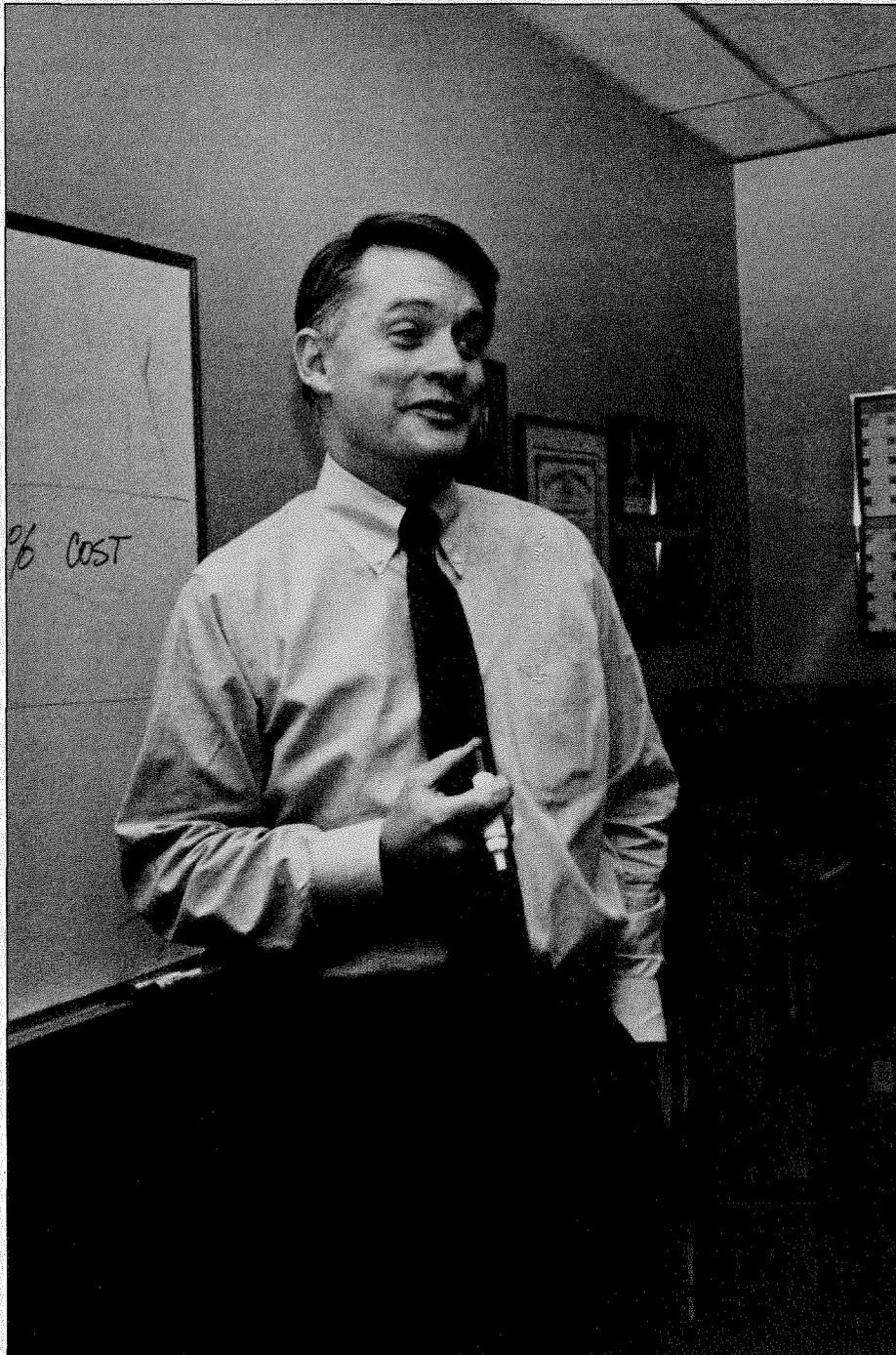
**The possibility of converting WPPSS nuclear plants 1 and 3 into coal-fired generating plants** is the subject of a study commissioned by the Snohomish County Public Utility District. The two plants are currently in mothballs, and there is concern that the plants could eventually become obsolete with new federal design recommendations if they remain mothballed for some time. (Source: *Public Power Weekly*)

**A Montana legislative committee has recommended the state adopt model conservation standards** proposed by the Northwest Power Planning Council. In a 4-2 vote, the Montana Legislative Power Plan Committee recommended new statewide energy codes to promote energy conservation and called on the state's legislature to adopt the Council's standards.

**The Columbia River had an all-time record run of steelhead** according to the Columbia River Inter-Tribal Fish Commission. Some 315,000 summer steelhead crossed over Bonneville Dam to travel upriver, the most since the dam was built in 1938 and fish began to be counted according to CRITFC NEWS. A record number are also reaching Idaho after passing the last Snake River dam.



# Chuck Collins



*What do you see as the biggest challenges facing the region?*

The biggest challenge is finding a way to focus on the future in ways that we have in the past. The result of the last half dozen years of travail has been that we've lost some of that ability. We have an environment in which it has become very costly for utilities to be concerned about the future. Understandably, decisions are being made which don't consider impact in the long term. This is not the system we had in the past. Utilities benefitted enormously because they considered the future. We've got to restore that.

Words themselves are powerful. For the past 40 years, this region has been driven by the idea of the "future." That word has inspired us to overcome parochial interests and form alliances between urban and rural entities, public and private utilities, and even between national and international interests.

In the late 1960s and early 1970s, the word "deficit" became the driving force. It also embodied a concern about the future that helped form alliances. But it was a word that we failed to examine carefully and to which we overreacted.

Today, we are being driven by another new word — "surplus," a word that may be equally imprecise and to which we are possibly overreacting. The word "surplus" reflects less a concern about the future than a concern with the immediate. Our preoccupation with the immediate — and temporary — surplus is setting a course that holds as many possibilities for harm as did our actions in the late '70s.

*What advice would you give the region to avoid this course?*

It is important for us as a region to examine our present actions and their possible consequences, to look at the nature of the

surplus and see if the exercise can't help us recapture the cooperation and concern we once had regarding the future.

If there's any one point we tried to make in the first plan it's that the future is uncertain. The region has accepted this uncertainty in high forecasts, but it hasn't learned the lesson with the low forecasts.

Recent discussion ignores the possibility of a stronger economy, of the fact that WPPSS (nuclear plants) 1 and 3 may not exist, and that major long-term thermal resources may be committed outside the region. The required posture in the face of uncertainty is not to do nothing. It requires that we take actions and prepare responses. We have convinced ourselves that we have an unprecedented surplus on the basis of 1 to 1½ percent load growths per year. This may prove a shaky foundation.

My own opinion about the surplus is that it's not unprecedented in respect to size. What is unprecedented is the expense. And the utilities, understandably, are preoccupied with the problem of that expense. Many of them have enormous sunk costs along with reduced revenues. They are trying to keep rates as low as possible and still balance the books. The private utilities are pressured by both their ratepayers and their stockholders. Many of them see selling power as their only option.

#### *What specifically do you see in the future?*

In the future, we will see smaller inventories of reserve as a function of costs. Three years ago that would have been an inflammatory statement. Now it's old business. It strikes many as ironic that the Council is in the position of talking about the need to prepare for retaining and acquiring resources.

It is likely that we will be looking at deficits by the start of the next decade un-

less we begin to develop new resources. The Council has identified the resources that we think are the cheapest ones for the region to buy. The development of these resources takes time and requires the efforts of all of the region's electric energy policymakers — Bonneville, utilities, state and local governments, and the Council. We all need to begin looking beyond the current surplus and start taking the steps necessary to avoid the crunch that will otherwise occur when the surplus of electricity ends — and it will end.

#### *What do you see as the major issues in developing the Council's 1985 power plan?*

The biggest issue is how the many players in the electrical energy industry of the Northwest are going to act. Are they going to act collectively and cooperatively? We simply have to establish — and by we I mean the industry not the Council — a way to identify the future which should be planned for, what resources we want, and how to pay for them. This will take a level of cooperation and collaboration that simply doesn't exist now. This will involve the utilities, Bonneville, the regulators, and the Council.

The institutional roles and the level of cooperation in planning and developing resources will be critical. When Congress passed the Regional Power Act, it assumed that Bonneville would provide the financing mechanism to develop the region's conservation and resources. But with only 40 percent of the utilities signing Bonneville's conservation contracts, we have to turn to new and creative ways to reestablish a cooperative, regionwide approach.

Certainly the model conservation standards will be a major issue. The Council will be reviewing any new information that is available on the standards.

The future of the region's aluminum

companies is another obvious issue. They have become a major source of planning uncertainty both in the short and the long term. Their increasing volatility creates real problems for the region because of the magnitude of their load, which is approximately 2,800 megawatts. They also represent an important industry to the region with a work force of over 10,000 people and an annual direct payroll of \$500 million.

The Council will also be taking a hard look at both out-of-region sales and purchases. We will continue to monitor negotiations to sell surplus Northwest power to California. We will also be making a detailed exploration of the long-term potential for purchasing power from British Columbia. B.C. Hydro may have a substantial surplus of low-cost power for some time. The Council will look at whether or not purchasing power from these sources would be cheaper than building new resources within the region.

We will also be looking at the costs and savings of conservation programs in all sectors of the economy; the costs and availability of new hydro, cogeneration, combustion turbines, and coal plants in the region; and what the best mix of all these resources will be to meet the region's future energy needs.

#### *What conditions have changed since the 1983 plan?*

Today, the region's utilities are confronted by two factors: risk and cost. When the Regional Act was passed in 1980, the assumption was that Bonneville would be the regional risk taker, that utilities would place their loads on Bonneville. But conditions have changed in the last three years and many of those assumptions are no longer true.

The Regional Act was a compromise among the various interest groups who

grew up on, and depended on, the federal hydro system. It provided a framework for sharing that system. But the Act did not end all the thinking we need to do as to how we are going to organize ourselves for the next round of resource development. Most important, the Act did not prepare us for the complexity of planning and coordinating regional conservation programs.

The current surplus is very likely to be over by the turn of the decade, and it is now up to those same groups — the utilities, the utility commissioners, Bonneville, the direct service industries, the ratepayers, and the Power Council — to either pursue their own separate immediate interests or to forego some of that and focus on a larger and more long-range goal — that of providing the region the resources that it needs at the lowest possible cost. It is an opportunity to recapture our past cooperation and renew our commitment to the region's economic future.

*What's your prognosis for the model conservation standards?*

I am confident that efficient building will happen. I hope it happens at least in part by codes, because that is the most equitable method. But it can also be accomplished through utility incentives which could be similar to home weatherization programs going on now.

The surcharge in the law is a strong remedy. What has not been clearly communicated — and the Council has to bear part of the blame if it's a communication problem — is that there is a variety of opportunities available to utilities to avoid the surcharge. A myth has emerged — and that myth is contradicted by both the law and the action plan — that somehow utilities will automatically be surcharged if their governments fail to adopt codes.

The model conservation standards do not mean and never have meant codes solely. Codes are one of several avenues by which to achieve the standards. There has been a strong reaction that the Council was taking utilities hostage, and they had no escape. If that had been the case, they would have had cause for concern. We are now attempting to clarify this. Failure to adopt codes will not automatically mean a surcharge. Failure to achieve energy effi-

cient buildings or their equivalent is what will result in a surcharge.

There are a lot of opportunities there — codes to some level with incentives to build above code, everything from incentives to a solar hot water program. In some ways this issue illustrates the problems the Northwest is facing now — communication difficulties, suspicions high, and a readiness to join disagreements.

A policy-making body will not flourish if it relies on written authority to make things happen.

It must develop policy that is so logical that others participate voluntarily.

*What is the current status of out-of-region sales?*

Some negotiation is going on now and utilities continue to pursue their own sales. Hopefully, the sales can be structured so that they're in the interest of both the Northwest and California.

What the Council doesn't want to see is cost-effective resources sold to California for a long period so that they are effectively lost to the Northwest. However, no individual utility can be expected to hold a resource for the region without some form of adequate compensation.

We must remind ourselves of how closely the economic base of the region is tied to electrical energy. Five leading industries in the Northwest — aluminum, agriculture, lumber, pulp and paper, and chemicals — are heavy users of electricity for their industrial processes and are extremely sensitive to price and supplies. If

we sell portions of the region's existing resources on long-term contracts and have to replace them with what will undoubtedly be more expensive resources, and if we fail to develop cheap conservation and instead have to build new plants at higher costs, what will be the effect on the region's economic base? How competitive will these industries be on the world market? And what will we have done for ratepayers?

In addition, we must ask if the region's environmental interests are served by running coal plants to produce energy that will be shipped out of the region. And what about new industries? The individual company that lobbied the Council most heavily during the development of the first plan was Hewlett Packard, and its major concern was the reliability of the power. These are desirable industries for the region because they are job-intensive. But they must have a reliable supply of electricity.

*How do you respond to recent criticism that the Council is overstepping its bounds by talking about an oversight policy on out-of-region sales, as well as other areas?*

The Council's oversight in this area is the regional plan and the forecast. Neither prevents private utilities from taking their own actions. What we have is not utilities trying to act against the public interest, but utilities trying to recoup their costs. We don't have very good mechanisms for accomplishing this. The regional plan can be helpful. It will be effective to the degree it represents consensus. The challenge is not in defining what isn't in the plan, but in defining what is. We've defined a corral, and we've spent a lot of time talking about what's outside that corral. Now we have to talk about what's in it and how we're going to keep it in.

I see a prospect for much more collaborative work. There's no question that in the first plan the Council was seen as pitted against the utilities over Skagit/Hanford and WPPSS 4 and 5. The conservation and renewable resources we put in the Plan were seen as competition for those plants. That inherent conflict doesn't exist this time. We have the opportunity for cooperation.

We're talking about free agents trying to

identify their collective interests. We are now truly at a point where — outside of the fish side — we don't have a host of opportunities for conflict. It's in everyone's best interest to build the cheapest resources.

*You mentioned fish interests. What conflicts do you see?*

A restoration of fish runs is required by law, and the utility system will bear the major portion of the financial burden. The questions are how much and how fast. The parties don't have similar interests. Even in the area of fish development, however, I'm convinced the opportunities for conflict are overstated. The utilities and tribes are more reasonable than their press suggests.

The Council has embarked on an effort to identify salmon and steelhead losses caused by hydro development and operations and to set goals for their restoration. We believe this is critical. Once the size of the loss and restoration requirements have been clearly established, many of the current conflicts will diminish.

*What is the most important thing the Council has accomplished?*

The most important thing the Council has accomplished is that its plan and program have been solid, well thought-out work. The Council has demonstrated it can take complex, often conflicting information and process that information into generally sound plans of action.

I think the current regional energy plan is a generally well received document. That's the product of our business. The main things accomplished in the plan and program are the recognition of forecast uncertainty and that resources must be flexible to meet that uncertainty.

*In just a year from now, the Council will have its fifth anniversary. What would you like to be able to tell Congress then?*

I would like to tell Congress it has every reason to believe that fish runs are improving and that the region is building the cheapest resources first and only the resources it needs. I hope to be able to report that conservation development outside

the residential sector is alive and well. I'm unable to make that statement now.

*Almost from its inception, the Council has been the subject of debate over how much actual authority it has. How would you define that authority and what do you see as the Council's major role?*

The Council will not have a long-term influence if that influence is attempted coercively or arbitrarily or dictated. The Council will raise issues. It will offer opinions and ideas. This is the important role for the Council — to plan.

On the fish side, there are control mechanisms in the law, and the Council will have to employ them if they are required.

I have always liked the distinction Dan Evans made between authority and power. The Council's power will flow from the quality of thinking and the clarity with which it is communicated. If that quality is poor, the Council will play no role. The Council's healthy role is to raise issues and make recommendations.

It's healthy that we have already had complaints on raising the DSI issue and it's refreshing that some of those complaints have turned into compliments.

The Council has absolutely no ability nor desire to dictate terms or conditions of increased DSI interruptibility. At the same

time we think the idea is worth exploring. But we can't make it happen. It will only happen, number one, if the analysis is correct and significant increased benefits are available, and number two, if all the parties can agree on a way to divide the benefits.

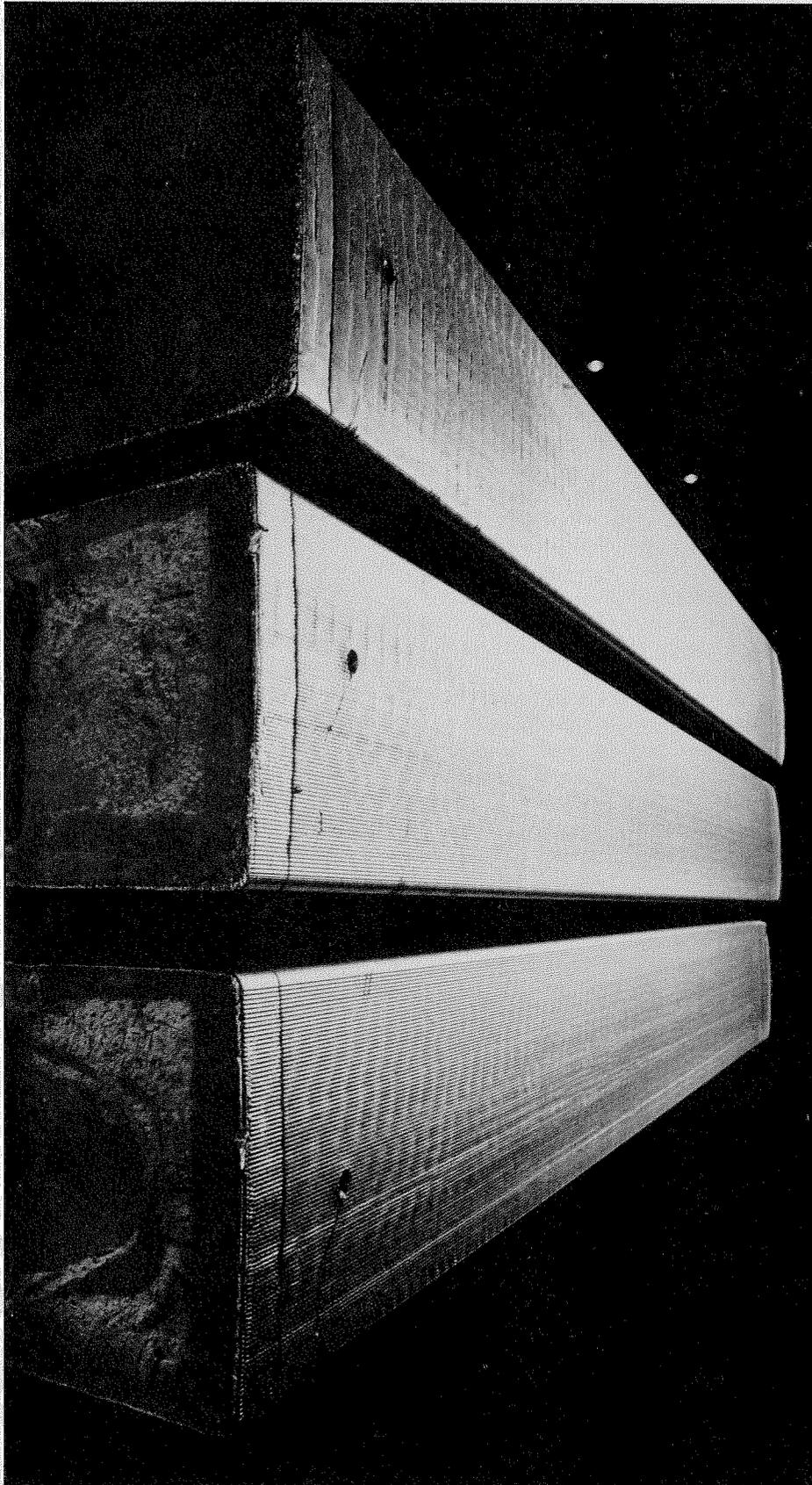
A policy-making body will not flourish if it relies on written authority to make things happen. It must develop the kind of policy that is so logical, makes such good sense, that other parties participate voluntarily. It must have the kind of processes that involve others at every level so that the policy becomes, not the Council's policy, but the region's policy. Obviously, we still have much to learn about how to be effective.

Where we've run into conflict is over the fact that our viewpoint is regional. By law, we must set the kind of policy that is most beneficial for the region as a whole. This is not always the most favorable policy for an individual utility in the short term. The long term, however, is another story. I believe that all parties will benefit in the long term from setting a course that goes beyond their individual and immediate interests, and takes the future good of the region into account. And — more than anything else — it is that kind of thinking the Council is trying to be a catalyst for. I hope it succeeds. ■



# INDUSTRY IN CRISIS

## NORTHWEST ALUMINUM COMPANIES



**J**im Nordquist wraps his hand around the big throttle switch at the west end of Potline 2. It is December 21, 1984, in Martin Marietta's aluminum smelter at The Dalles, Oregon. Nordquist pulls the switch to shutoff position.

In the half-mile long shed, nothing special seems to happen. There is no thud you can feel in your feet, no surge of brightness from the overhead bank of lights. No vast roar or whisper vanishes from the air. Smelting aluminum is a quiet process. Stopping the process barely catches a person's notice.

But out along the line a few probe rods and rakes fall off the metal bumpers and clang to the concrete floor. The 80 megawatt per hour electric load has departed, taking with it the magnetism upon which workers relied to hang their tools.

For the first time in nearly 30 years the current has gone out of the core of one of the region's most efficient smelters. If the current to the potline had cut out unexpectedly, the molten contents, bubbling gently at 960 degrees centigrade, would drop a calamitous 30 degrees within two hours. Restarting this line would then cost a million dollars and require four weeks to jackhammer out the frozen metal. This shutdown, however, is planned, phased, controlled — and final. The liquid aluminum has been tapped from the pots so it won't damage them. Martin Marietta, which has shopped the plant around and failed to find a qualified buyer, says it will not resume operation here in The Dalles.

The plant, the smallest of ten in the region, will no longer employ 220 men and women — a work force already down from

500 a year ago. It will no longer pay \$15 million per year to the Bonneville Power Administration for electricity. It will no longer produce 45,000 tons of aluminum ingot per year at a cost of 55 cents a pound — ingot that sells for only 50 cents a pound on the tumbling world market.

Brett Wilcox, director of the Direct Service Industries (DSI) Association (composed mostly of aluminum plants), is not happy, but he sounds grimly satisfied when he says, "Maybe now that people see a real corpse, they'll finally believe the electric rates are killing the Northwest aluminum industry."

There are people who say that a wretched world market is killing this region's aluminum reduction plants. There are those who add up high labor and transportation costs to find the culprit, and others who argue that countries abroad have brewed a fatal mix of capital, labor and energy subsidies to create overwhelmingly cheap competition for U.S. smelters. But whatever is killing domestic aluminum — if indeed it is dying — some say the falling bodies may crush several Northwest communities, damage the region's economy, and gouge a nasty hole in Bonneville's finances. There are also those who feel certain efforts to keep the industry alive could impose damages of their own.

But leaving the volatile situation the way it is has already proved plenty expensive. The region got a taste of life without aluminum customers when the industry weathered the 1983 recession by shutting down up to 1,500 megawatts of capacity. This drop represented 16 percent of Bonneville's total load and the cost to Bonneville was \$200 million in lost revenues — almost one-eighth of its income that year.

The ups and downs of aluminum industry electric load defy prediction. Edward Sheets, executive director of the Northwest Power Planning Council, emphasizes that "This kind of unpredictability places great risks and potentially great costs on the power system. We face the problem of planning new, expensive resources to meet a contractual demand that may fluctuate a great deal in the short term and could be very uncertain in the long

term. And yet we must meet our obligation to plan for the aluminum company contracts."

Says Sheets, "The region has already had a very expensive lesson regarding planning and building resources for loads that turn out not to be there. That kind of situation raises power rates for everyone."

A number of events created the rate increases that aluminum companies say are threatening their survival. Today, Bonneville's aluminum customers pay 750 percent more for their electricity than they did seven years ago — .3 cents per kilowatt hour then and 2.3 cents under current incentive rates (2.65 cents without the incentives). But, in fact, the aluminum companies sought and supported the instrument which permitted those higher rates — the Northwest Power Act of 1980.

At the time the Act was wading through Congress, contracts were about to expire for the aluminum companies and other direct service industries. (DSIs are industries whose operations use so much electricity that they buy power directly from Bonneville. More than 95 percent of the DSI load goes to aluminum companies.) The aluminum companies helped break the legislative logjam surrounding the Act when they agreed to pay, until 1985, most of the cost of equalizing wholesale rates to public and private utilities.

This exchange rate provision, according to the DSIs, has cost them \$550 million over the last four years. In return, they received guaranteed power.

But this plan hit a snag. In a rocky economy, and with a booming oversupply of cheap foreign ingot, aluminum prices fell far more sharply than anyone would have predicted. At the same time, Northwest electricity prices soared far higher — in part due to the costly WPPSS nuclear power plants, in part because loads didn't grow as quickly as forecast and because a new surplus defied Bonneville's marketing efforts.

Recently the aluminum companies decided they were paying too much. They made a series of successful rate and cost methodology appeals to Bonneville, gaining a variety of reductions — and raising howls of protest from several utilities and

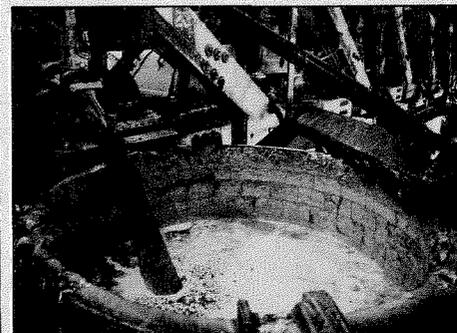
their customer groups. These parties object to paying those system costs from which the DSIs are being released.

Now Bonneville has proposed an 8 percent rate reduction for the DSIs, along with a 3 percent increase for the utilities. Bonneville is also studying other methods for rate relief, including *indexing*, which would peg the cost of electricity to the world price of raw aluminum; support for plant efficiency and *conservation* improvements; permitting DSIs to purchase cheap *out-of-region power*, such as that from British Columbia; and, in an idea raised by the Northwest Power Planning Council, converting DSI firm loads to cheaper *interruptible* electricity (see accompanying story).

**T**here is a cost to the regional power system if the aluminum companies fail — as well as a price for keeping them alive. What are Bonneville and its customers willing to pay? And what can they reasonably expect to get in return? These questions are receiving a great deal of attention around the Northwest region right now.

According to aluminum industry spokesmen, only steep rate cuts can save the region's 10,500 aluminum industry jobs, save the \$300 million in wages and salaries, the \$28 million in state and local taxes, the \$450 million in revenues paid to Bonneville, the \$409 million worth of freight and materials purchases — in all, the total \$1.3 billion impact in additional jobs and dollars pumped into the region's economy during 1983.

Wilcox says, "The question no longer is



**"It would cost people a lot more to get us out of the region than to keep us here."**



Photos: Direct Service Industries, Inc. & Doug Wilson

*what should be done, but how much."*

But Robert McCullough says, "The question is, who pays for the break."

McCullough, an economist for Portland General Electric, agrees that the aluminum companies are in trouble. "Of course they are," he says. "And most probably another rate break would help them. But the rest of the system shouldn't be subsidizing the DSIs."

"The DSIs are holding onto jobs at the expense of other sectors," says Kevin O'Meara of the Public Power Council. "Thousands of people around the region won't get hired, or will have to be laid off, because potential employers won't have the money — they'll be paying it for electricity. And the buying public will have less disposable cash to make the purchases that create jobs."

Aluminum industry spokesmen argue that the jobs they provide pay so well — around \$15 an hour — that it would take three or four lower-paying high-tech jobs to replace the tax-paying and purchasing power of a single reduction plant worker. And that many high-tech jobs simply aren't clamoring to enter the region, insist these spokesmen. Opponents of the DSI rate break turn that argument around. They say that a lot of electricity produces very few jobs in the energy-intensive aluminum industry, and that the same power could support far more employment and economic development.

In any case, contends Chip Greening, former director of the Public Power Council, "I don't think anyone is qualified to decide which industries should live and which ones ought to die. And that's what this subsidy decides."

"It isn't a subsidy if it's in everybody's best interests," Wilcox insists. If Northwest aluminum goes belly up, he argues, the cost will fall suddenly and hard on all the remaining customers. Wilcox points out that, even with a major cutback in operations, the DSIs paid a third of Bonneville's revenues in 1983, while drawing one fourth of its power. In a time of surplus, without other customers for that power and with fixed costs to meet, Bonneville would be forced to replace the DSI revenues by boosting rates.

"It would cost people a lot more to get us out of the region than to keep us here," Wilcox says.

Dave Piper, director of Pacific Northwest Generating Companies, agrees. "Sure it's a subsidy," he says. "If you're getting power at less than cost, it's a subsidy. But we all have that. This happens to be a subsidy that makes sense to me."

But will cuts in their electric bills really

save the smelters? Many observers insist that only a higher world aluminum price can do that.

ARCO's Jack Mayson agrees on this point. Mayson says, "You could give electricity to us for free and there'd be no profit in making aluminum right now. But the prices [of aluminum] have got to move back up, and then the electricity can make a big difference."

Joe Moffatt of Reynolds Metals, which runs smelters in Troutdale, Oregon and Longview, Washington, calls electric rates "the final determining factor" in corporate decisions to continue operating, and to invest in improvement or expansions.

According to an October 1984 report from CRU Associates, commissioned by the aluminum industry, a drop in rates could almost quadruple the survival chances of Northwest plants. The study concludes that, when world aluminum prices fall as badly as they have this year, Northwest smelters are more at risk of shutdowns than smelters in other parts of the free world. Recent aluminum prices peril production at 20 percent of the free world's smelters — and 55 percent of the Northwest plants.

CRU calculates that a rate reduction to 20 mills per kilowatt hour would bring all but 15 percent of the region's capacity into the safety zone. What's more, the study asserts, a permanent reduction in power rates would make it much more likely that the industry would modernize its plants in the Northwest, thereby improving their competitive position.

Right now, Northwest aluminum production and employment are down 15 percent below capacity — more at some plants. According to Moffatt, the region's plants continued to operate full bore during the 1974 recession, in spite of poor aluminum prices, because electric rates were an eighth of today's. (According to Bonneville data, however, the plants cut their loads significantly in 1971, 1972 and 1975.) Moffatt also claims that "The big Alcoa and Reynolds reduction plants in Massina, New York, haven't lost a pot or a person" during this feeble market, because the aluminum industry's electric rates there are about a third of this region's.

**M**eanwhile, several reduction plants have folded in the Gulf Coast states, citing excessive electricity costs. And here at home, Kaiser recently shelved a \$400 million modernization project in Washington, Alumax dropped plans to build a new plant near Hermiston, Oregon, and ARCO is getting out of the business in Columbia Falls, Montana.

Jack Mayson says, "ARCO does not believe that making aluminum is a divine mission. Gas and oil are a divine mission for ARCO, but aluminum has turned out to be a fair amount of trouble for what it pays. They're determined to let it go."

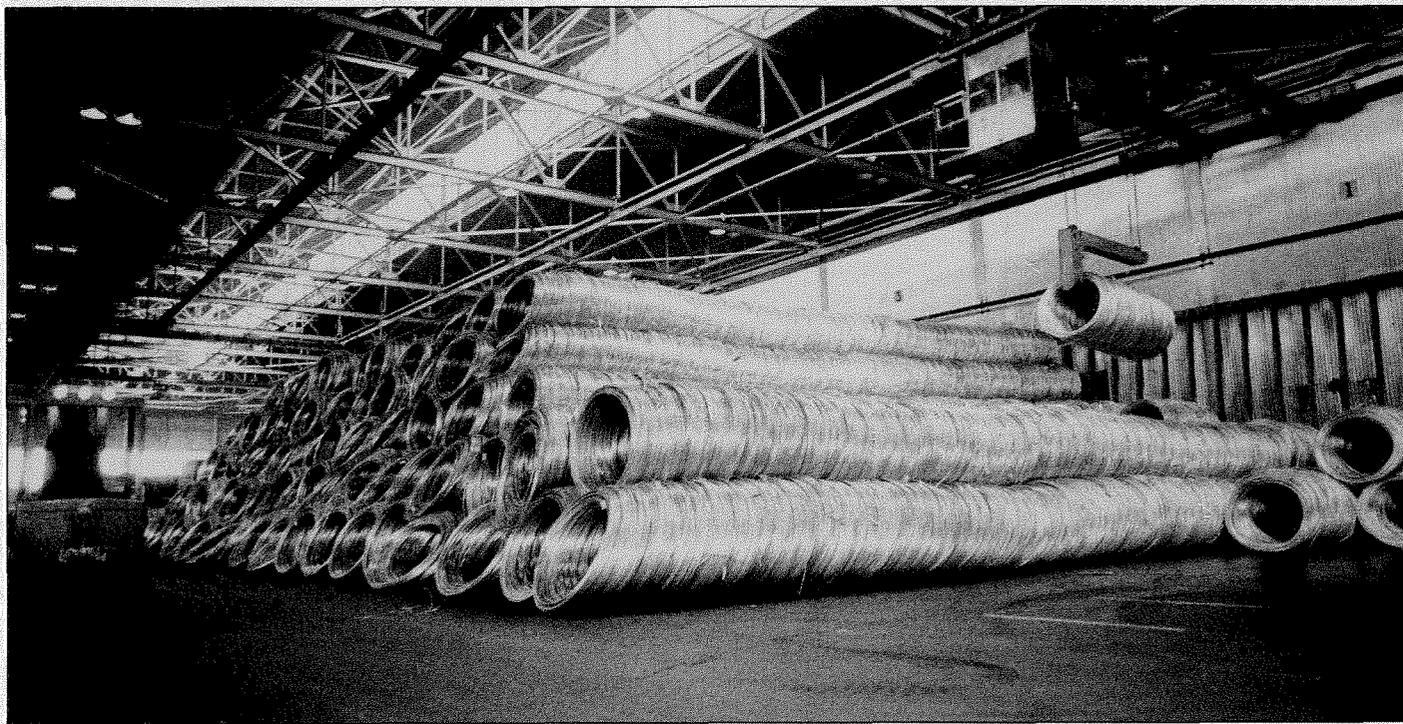
And therein may lie the difference between the fates of Northwest smelters — Martin Marietta and ARCO are not alumi-

num companies. They do not boast an integrated system of rolling mills, refineries, reclamation and fabricating plants. They do not own a host of other plants over which they can spread the risk of local losses. For despite the losing price on raw ingot, there's a profit in sheet aluminum and manufactured aluminum products. Right now, Reynolds, Alcoa or Intalco might lose a nickel a pound if they sold their 25,000 pound ingots on the commodity market; but they don't. They ship the huge blocks to their own in-house fabricators. And those fabricators turn out items that make money.

It's tempting to say a complete aluminum company can outlast a downcycle that will kill off a more narrow operation.

But local plants even compete to survive within their own companies. Intalco's Ferndale, Washington plant is widely recognized as producing the lowest-cost aluminum in the Northwest, "But that can be illusory," says Bruce Mizer of Intalco. "The problem is, we're the oldest of Alumax's four plants and the most expensive to run. When there's too much aluminum, the parent company is going to shut down the operation that costs the most money. Northwest electricity rates can spell that difference."

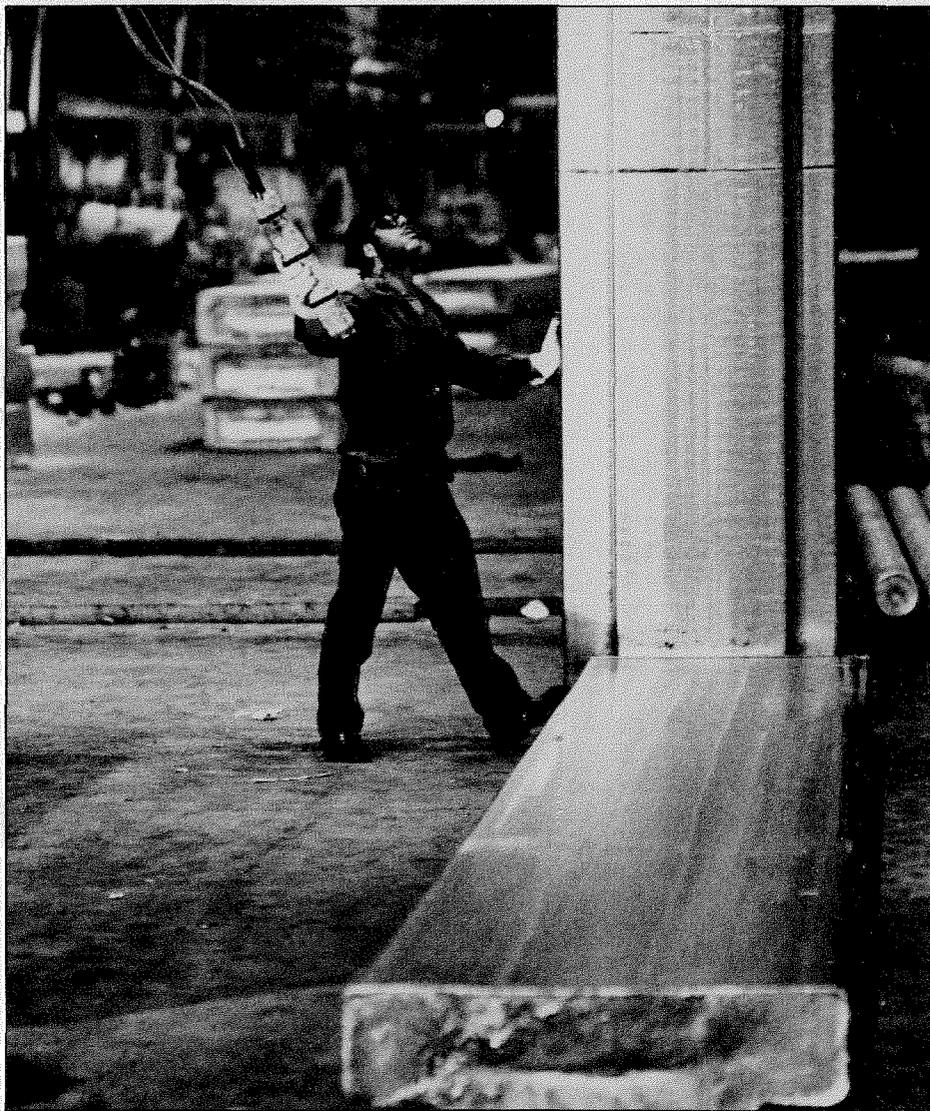
Mizer says the world average cost for electricity is dropping because plants that pay the high-end prices are vanishing. "And as the world average drops," he points out, "Pacific Northwest plants will look more and more costly." ■



# INDUSTRY IN CRISIS

by Steve Engel

## EXPLORING SOLUTIONS



**A**mid all the "doom and gloom" headlines about the crisis in the Northwest aluminum industry, some proposed solutions are beginning to draw attention.

The Northwest Power Planning Council has called for public discussion of an idea that could help the aluminum companies weather the current rough spell, but would also return immediate and continuing benefits to the region. This idea involves the aluminum companies and other direct service industries (DSIs) voluntarily changing a greater part of their energy contracts from firm (guaranteed) power to power on an interruptible basis.

If all the aluminum companies in the region ceased operations today, they

would stop using 2,700 megawatts of guaranteed ("firm") power and 900 megawatts of interruptible power. One fourth of every DSI contract is interruptible — which means that, if Bonneville needs the electricity to meet its priority firm contracts, it can call on that power. Such a need might arise during a power system mishap, or during the summer or fall of a low-water year.

Under the interruptibility concept, the DSIs would act as a large storage battery for the region, thus saving the region the need to build expensive new generating resources for reserves. Because the amount of reserves would be known (the amount of the DSIs' interruptible power), long-term planning would be easier.

With the recent energy surplus, the DSIs have enjoyed largely uninterrupted use of their energy contracts — including the interruptible portion. But because of the risk to them and the benefit to the region, they pay less for the interruptible power than for the firm power. They also enjoy reductions in cost because Bonneville can impose some restrictions on use of their other three quarters of power.

The Council's staff recently assessed the value to this region of converting an additional fourth of the total DSI load to interruptible status. While some revenues would be lost due to the lower rate, eliminating the need for new power plants would more than offset those losses. A net savings of between \$1 billion and \$2 billion could accrue to the system over the next 45 years if it acquires another full quartile (900 megawatts) of the total 3,600 megawatt DSI load. The amount of savings depends on actual demand for energy, systemwide.

For each 100 megawatts of new interruptibility, the system would net \$117 million, using the Council's medium range load forecasts.

Right now, the aluminum industry's volatile load levels introduce the potential for expensive errors into the region's long-term resource planning. The unpredictability of aluminum operations would present far less of a problem under increased interruptibility, according to a Council staff paper. The region could enjoy a market for its unstorable energy, without having to invest in firm energy. Stable revenues would further benefit the system, and stable rates are expected to help the DSIs.

If Bonneville gives each DSI a 9 mill (.9 cent) break per kilowatt hour on two additional interruptible quartiles of electricity, the overall electric bill for each plant would average out at close to 20 mills. Aluminum industry personnel assert, and a recent CRU Associates study reasons, that this level would keep the plants operating.

"The staff selected 9 mills for the analysis based on the world average price aluminum companies pay for electricity," according to Edward Sheets, the Council's executive director. "Obviously, the actual rate would be decided through voluntary negotiation between an aluminum company and Bonneville."

If a few plants accept such a contract, the other ones might well sign on to stay competitive. This outcome would increase potential savings to the region.

Bonneville itself was one of the first agencies to respond to the Council's discussion on interruptibility. Calling it an "interesting option for dealing with the DSI load uncertainties," Edward Sienkiewicz, assistant administrator for power and resources management, says Bonneville is looking at a number of options to help the DSIs. Among them are a long-term variable rate tied to the price of aluminum ingots, allowing DSIs to be served by other power carriers, and providing "substantial" financial support for conservation investments in DSI plants. These options will be explored in a "DSI options study" which began this month and is due out in draft form in April, when it will be available for public comment.

The Council welcomes the Bonneville study, according to Sheets, who says, "Our goal was to raise the issue so that the region could address it. We believe that any policy on the DSIs should meet certain criteria. It should meet the test of reducing planning uncertainty, reducing system costs, providing revenue stability, and offering timely implementation. To be workable, it should also address the effects on aluminum company employees and the communities around these plants."

The Council adopted a policy statement to that effect at its January 9 meeting in Portland, Oregon.

Some companies have already proposed variations on the Council's theme. Somebody would be far likelier to buy and run ARCO's plant in Columbia Falls, Montana, according to its energy manager, Jack Mayson, if its power were far cheaper. ARCO would like Bonneville to convert all four quartiles of the plant's energy to interruptible status, and charge the plant the lower rate. This proposal alone could, in theory, save Bonneville and its ratepayers half a billion dollars — the cost of building a new 350 megawatt coal plant to serve the ARCO contract, minus the \$450 million revenue reduction over time.

Kaiser Aluminum has approached the Council with a proposal to combine interruptibility with incentives for industry conservation. The incentives would be similar to "billing credits," which Bonneville grants to utilities. In such cases, Bonneville credits to a utility's bills an amount comparable to what the utility "buys" in conservation. The savings accrue to Bonneville because the agency does not have to develop resources to

meet that part of the load saved through conservation.

"The idea of increasing the interruptibility of the DSIs appears to have some real advantages," says Sheets. "Our analysis shows that the power system can save a lot of money, the DSIs should be more competitive, and it would reduce the planning uncertainty and the revenue instability associated with what is currently a very volatile load."

**B**ut different interests see different problems with interruptibility. "I'm not convinced that there's power available under more interruptibility," says Intalco's Bruce Mizer. "I'm not convinced there's a long term economic operation. More interruptibility may be a euphemism for giving up a portion of load."

Mizer admits that if other companies enjoy a benefit from such contracts, "We may be forced to take it." But he questions the wisdom of agreeing to a plan that might deprive the smelters of power "just when world prices begin to soar."

Marc Sullivan, executive director of the Northwest Conservation Act Coalition, believes Mizer might have a point. Sullivan says the second quartile would likely be shut down in one out of every six years, for at least a few weeks. Wallace Gibson, system analysis manager for the Northwest Power Planning Council, suspects that "If you exclude the possibility of outside region power purchases to keep the DSIs going, then the loss of service will be much more frequent" than Sullivan supposes.

Smelters don't switch on and off so easily, however. To overcome losses incurred during shutdowns, it's been suggested that the companies stockpile ingots — but industry sources claim stockpiling inventory is a money-losing move.

ARCO's Mayson suggests that interruptibility would work all right even if shutdowns threatened. "Let the companies make a decision at that point, based on the world price of aluminum and the cost of hooking up temporarily to more expensive power. If it pays to import more costly energy for a short time, they'll do it."

Sullivan believes "there is a more than 50 percent probability" the aluminum industries will soon depart the region anyway, and that interruptibility may be "a more aggressive managerial approach by which we could shape the date on which that happens." He is not alone in perceiving that interruptibility is attractive chiefly as a way to minimize losses for all parties if

aluminum is indeed phasing out of the region.

Nonetheless, says Brett Wilcox, director of the Direct Service Industries, Inc., "A short term future is better than no future at all." Wilcox concurs that greater interruptibility may benefit the region, but he ties his endorsement to what he considers a "fair base rate."

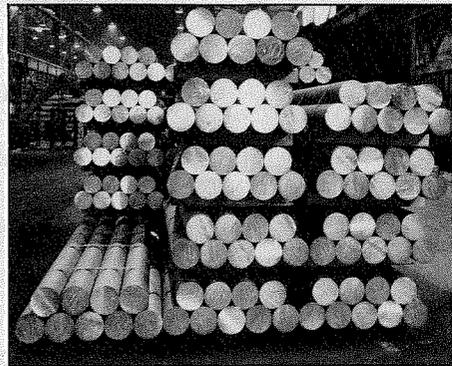
"I'm very leery of interruptibility," says Merrill Schultz, head of the Intercompany Pool, an association of privately held utilities. "Our experience of interruptibility is that the DSIs brag about the service they're performing when they don't have to surrender the power. Then when it's about to be interrupted, they go to the governors, senators, anybody they can find, saying 'How can you lay off all these people?'"

Schultz says he favors the indexing plan put forward by some analysts. "We think the appropriate thing is to have a standard rate and then depart from it — going higher or lower, depending on the world price of aluminum." But Schultz says, "We want to determine the proper rate objectively and then discount it. If they need a lower rate, tell us how it was arrived at, why it was needed."

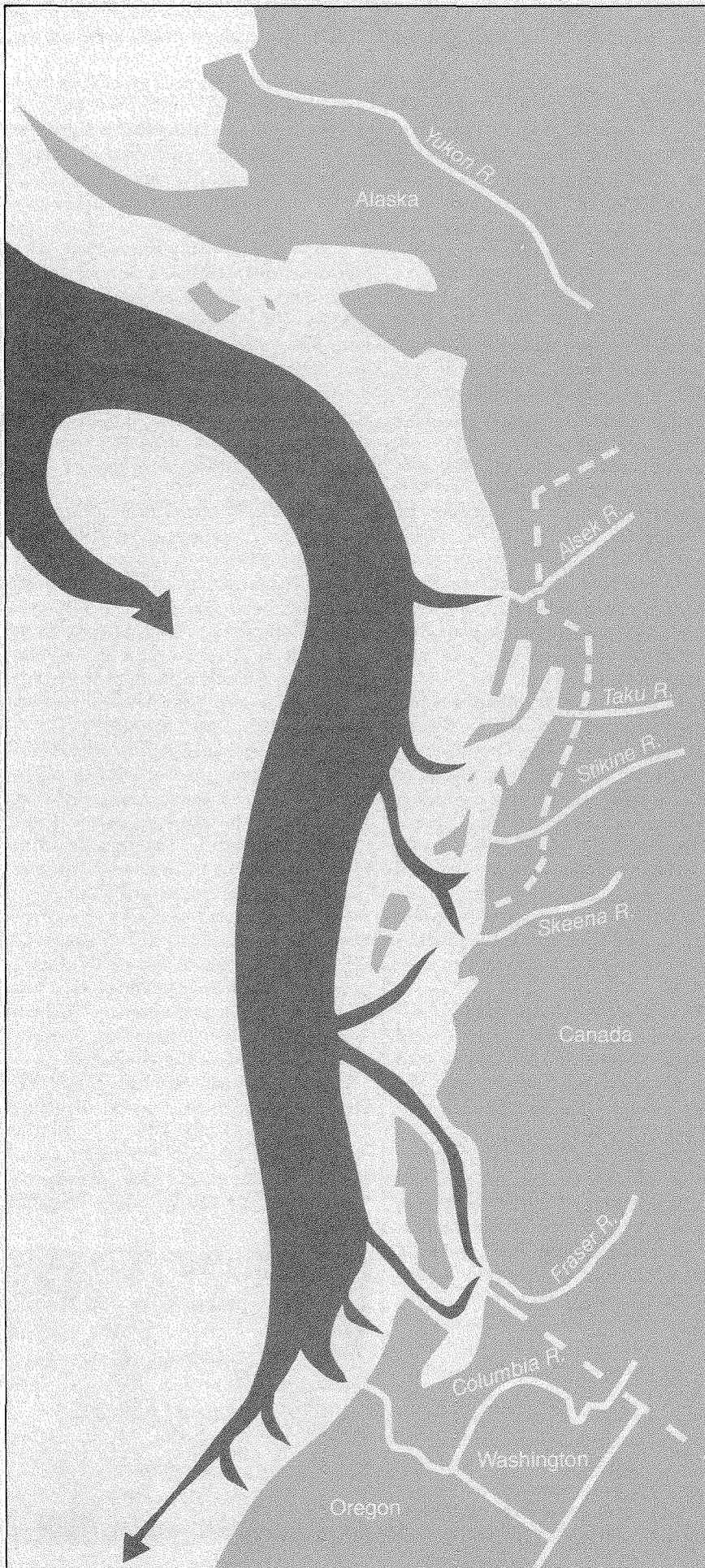
Portland General Electric's Robert McCullough echoes this request for openness. "I believe them when they say they're sick," he observes of the DSIs, "but I find it very frustrating when they refuse to show us the figures that would persuade us just exactly *how* sick."

McCullough also complains that "the aluminum industry has shown great willingness and complete success in seeking political salvation from its contracts. If you had some way to guarantee that the DSIs would keep the agreements they've made, then I could live with a new rate."

Planning Council chairman Chuck Collins agrees that "if any new rate structure is going to work, the DSIs will have to convince a lot of people that they won't look for ways to escape their agreements. There will have to be some ironclad terms." ■



Dudley, Hardin & Yang, Inc. photo



## U.S.-Canada Treaty

# New hope for Pacific Salmon

by Jody Lawrence

*For nearly 20 years the United States and Canada have been trying to negotiate a treaty to resolve the problems posed by the salmon's peripatetic lifestyle.*

*At stake are not only the fishery interests of four states, more than 23 Indian tribes and two nations, but also the very survival of the resource itself.*

Range of Northwest chinook salmon. Some stocks migrate as far north as Alaska. The new treaty, if ratified, will help ensure coordinated coastwide management.

In December, after intensive bargaining, preceded by nearly 20 years of discussion, negotiators for the two countries reached agreement. At the heart of the agreement is a management structure that allows biologists and managers to coordinate fishing regulations throughout the range of the Pacific Coast salmon.

According to Bill Wilkerson, director of the Washington Department of Fisheries, "We couldn't make sense out of management if we didn't get our act together and negotiate a treaty." The reason is that Pacific salmon, originating in hundreds of streams and tributaries from the Columbia to Alaska, migrate great distances in the ocean, crossing state and national borders and a multitude of management jurisdictions.

As a result, conservation measures taken by U.S. managers could be undermined by the harvest allowed by the Canadians and vice versa. With the treaty, long-term fishing and conservation objectives can be agreed to and regulation and enhancement measures coordinated.

"In the short term," Wilkerson said, "the treaty won't mean tremendous increases in runs, but over the long term, we are going to see large increases in returns of chinook and coho."

The Northwest Power Planning Council has supported the negotiation of a treaty with Canada because it believes the treaty is essential to the development of a cost-effective program for restoring salmon to the Columbia River. The treaty will also help ensure a Council priority — that electric ratepayer investment in this restoration project is protected.

Without the treaty, there is no formal way to guarantee enough fish return to the Columbia River Basin to spawn. Without adequate numbers of fish returning to spawn, the Bonneville Power Administration and other investments in habitat and passage improvements and efforts to rebuild declining runs of natural stocks would be frustrated.

The treaty could help give ratepayers in the Columbia River a voice in the management of chinook throughout its migration range. This will help ensure that the substantial investment being made by ratepayers as part of the Council's fish and wildlife program will produce more fish in the basin.

As shown in the pie chart, in the past more than 50 percent of upriver bright fall chinook were caught by Canadian fishermen, about 30 percent were caught by Alaskans and only about 10 percent were caught in Columbia River sport and net fisheries. Large percentages of summer chinook have also been caught in the North Pacific.

This year, increased production of upriver bright fall chinook has alleviated the immediate conservation crisis for brights, and returns to the Columbia River have improved. But returns of summer chinook, once one of the central components of the Columbia River chinook population, remain very low. The escapement\* goal of 85,000 spawners for summer chinook has not been reached since 1969. Last year escapement was only 18,000; this year only 24,000.

The treaty with Canada will help protect these and other endangered Pacific salmon stocks by ensuring international

\*Escapement refers to number of fish that return from the ocean to spawn in rivers. The escapement goal for the Columbia River is set by a compact of Oregon, Idaho and Washington fisheries agencies.

management of stocks that swim through waters of both nations. A Pacific Salmon Commission with equal U.S. and Canadian membership will make recommendations to both nations on the conduct of fisheries.

The Commission will be assisted by three international panels, each responsible for different geographic areas. These panels will review management and enhancement measures in their areas and make recommendations to the commission.

Negotiators for both nations have agreed that the principles underlying the treaty should be to:

- (1) prevent overfishing and provide for optimum production; and,
- (2) provide for each nation to receive benefits equivalent to the production of salmon originating in its waters.

It is the second principle, the issue of international "equity," that proved the biggest hurdle for negotiators. A number of different fisheries and concerns had to be folded into the equation, not all of them related to the Columbia River Basin (see box on next page).

In 1982 a treaty agreement on these basic

policies was successfully negotiated and signed, but was never forwarded from the State Department to the U.S. Senate for ratification. Some believed that the treaty annexes, which outlined specific measures to be taken with regard to the different fisheries, unduly punished their fishing industries.

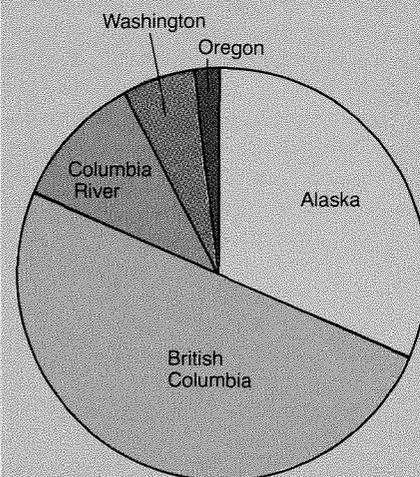
Those that supported the treaty did not have a strong enough voice in Washington to see it through to the Senate.

This year, however, supporters of a U.S./Canada treaty believe the treaty will be ratified. A major reason is an unprecedented spirit of cooperation that has developed among Indian and non-Indian fishermen who are committed to saving the declining runs of chinook salmon.

Mark Cedergreen, past president of the Westport Charter Boat Association, and Phil Anderson, current president, got the momentum going by establishing the Pacific Salmon Treaty Coalition.

The coalition brings together traditionally disparate groups such as charter boat operators, sportfishermen, Indian tribes, trollers and environmentalists. According to Cedergreen, current chair of the coalition, "When politicians see warring factions coming together they get

Distribution of catch of upriver bright fall chinook, a stock that is central to the Council's Fish and Wildlife Program.



## U.S.-Canada Treaty

worried — they pay attention." And it appears that's what's happening this year.

For the first time in the history of the negotiations, high level State Department players cast a watchful eye on the negotiations. Ed Derwinski, at a recent Seattle conference on the treaty, wryly likened the negotiations to the "slightly less complicated arms control negotiations." A longtime Illinois Congressman, Derwinski is now chief counselor to Secretary of State George Shultz. According to Derwinski, a salmon treaty is a top priority of both governments.

Support has also been strong from Senators Dan Evans and Slade Gorton in Washington and Senators Bob Packwood and Mark Hatfield in Oregon.

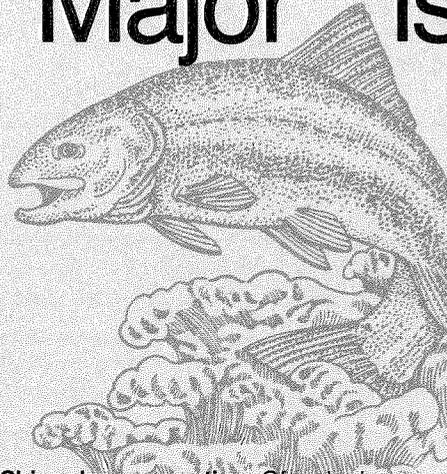
According to Cedergreen, one of the best accomplishments of the coalition has been "to keep the issues in the public eye and to put the whole thing into national perspective."

Intensive work on the negotiations began in November when Ted Kronmiller, the U.S. negotiator, convened the U.S. delegation for intensive intra-delegation negotiations. One participant noted that there may have been more disputes between the southern U.S. delegation and Alaska than there were between the U.S. and Canada. But this is the first year that a comprehensive U.S. position has thoughtfully (albeit sometimes acrimoniously) been hammered out *before* the negotiations began. According to Timothy Wapato of the Columbia River Inter-Tribal Fish Commission, "the key was to get *everyone* to negotiate. And that means *everyone* giving a little on something."

The major issues have been resolved and the final drafting of the treaty and its annexes is going on now. During the same session, the U.S. delegation will begin to draft the implementation legislation that describes how appointments to the commission and panels will be made and how they will be funded. Beyond that, the treaty itself must be ratified by the U.S. Senate. Supporters are hopeful that all these tasks can be completed by March.

"It may be the most important environmental issue that faces the West Coast right now," Bill Wilkerson told a highly charged group of fishermen, Indians and environmentalists. None who watched the animated crowd or followed the ensuing events would disagree. ■

# Major issues



**Chinook conservation.** Of major interest to the Council is the catch of up-river Columbia River salmon in the S.E. Alaskan and Northern British Columbian fisheries. Other U.S. chinook stocks are also caught off the west coast of Vancouver Island and in the Johnstone Strait.

The new treaty would set limits on catches in these areas and rebuild depressed indicator stocks by 1998. Catches of chinook off S.E. Alaska and British Columbia would be reduced from about 290,000 in 1984 to 263,000 in 1985 and 1986. The catch off the west coast of Vancouver Island would be reduced from 503,000 in 1984 to 360,000 in 1985 and 1986, and the catch in the Georgia Strait would be reduced from 541,000 to 275,000.

**Fraser River sockeye and pink catch.** According to a 1930 international convention between the U.S. and Canada, U.S. fishermen are allocated 50 percent of the Fraser River sockeye catch in convention waters. In actuality U.S. fishermen caught an average of 41 percent of the total catch within and outside convention waters between 1952 and 1977 and an annual average of 24 percent between 1978 and 1983. Because the Fraser River is located entirely within Canada, the Canadians wanted to see an increased portion of the benefits of Canadian sockeye and pink salmon returned to Canadian fishermen.

U.S. fishermen, dependent on these stocks for a viable fishery, wanted to be assured of a stable catch.

The new treaty would set new limits on the total allowable U.S. catch of Fraser River sockeye and pink salmon that is equivalent to between 26 and 30 percent of the total catch.

**Transboundary rivers — the Taku, Stikine, and Asek.** Most of these three rivers are in Canada, but they flow through the Alaska Panhandle to the ocean. The Alaskans have long conducted major fisheries on sockeye and pinks from these rivers in the ocean. Canada has recently been developing an inriver fishery on these stocks and wanted the Alaskans to reduce their ocean fishery so more fish would return to the river to spawn.

The new treaty would set the Canadian catch of sockeye to 35 percent of the total allowable catch or 10,000 fish, whichever is greater, on the Stikine and 15 percent on the Taku River. The Asek was put on conservation status and no harvest was designated. The parties would also consider joint enhancement activities.

**Boundary areas.** In the area of the southern boundary between the Alaska Panhandle and Canada, the U.S. and Canada have major ocean fisheries. Stocks from most of the Pacific Coast contribute to the fishery but little is known about the comparative contribution of stocks from different rivers. Major concerns included how to apportion the fisheries and how to set regulations so that harvest of the abundant pinks in the area do not result in excessive harvest of other stocks such as coho and sockeye.

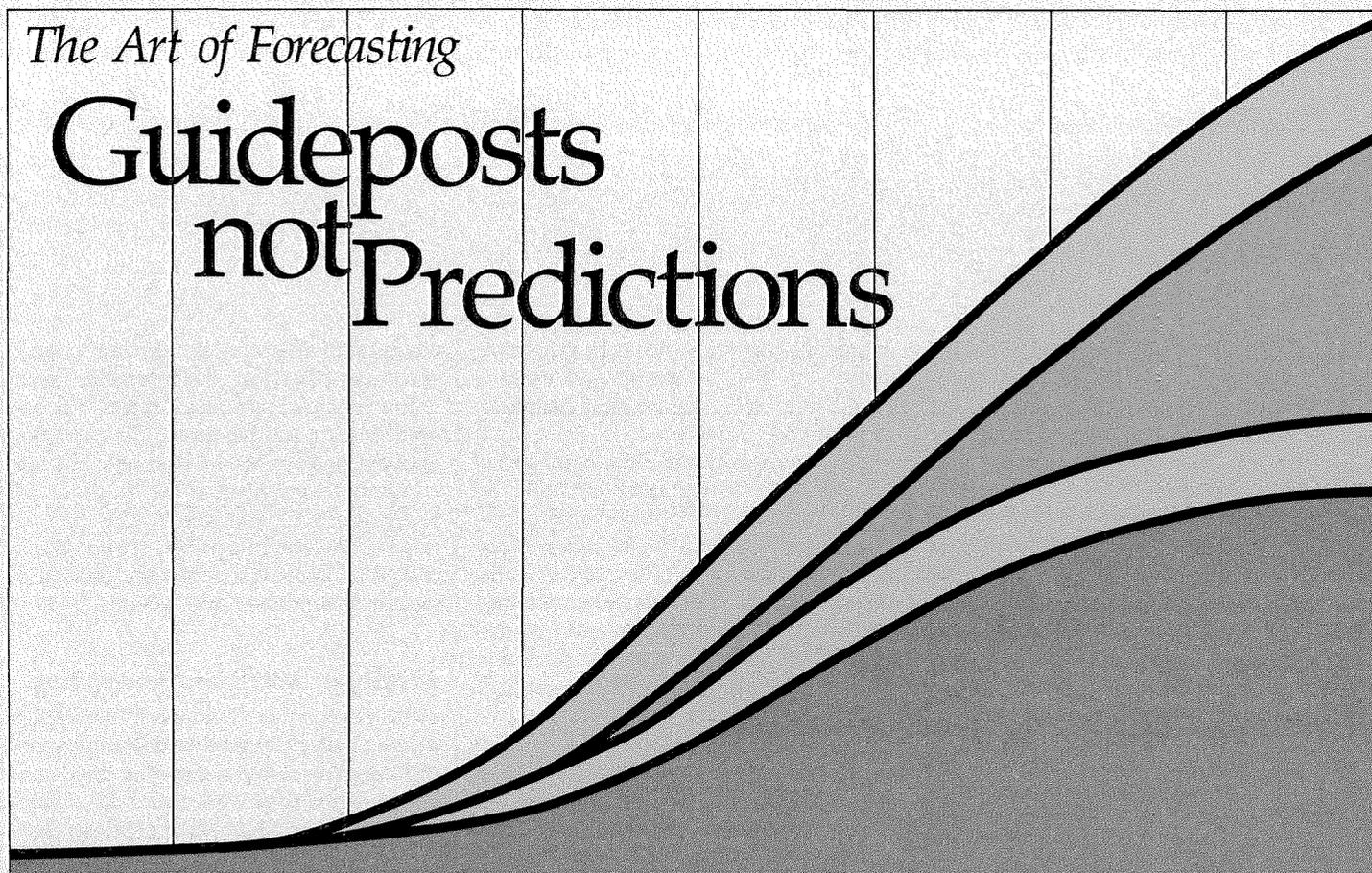
The new treaty calls for limits on the U.S. catch of sockeye and the Canadian catch of pinks. In addition, the negotiators have agreed to continue northern pink salmon tagging to better define interceptions.

**Southern coho and chum.** Some coho and chum stocks around Puget Sound and natural stocks in coastal rivers in British Columbia and Washington are experiencing serious declines. During the past two years Canadian coho harvest off the west coast of Vancouver Island was considerably higher than in the past. Some 85 to 90 percent of the coho the Canadians harvested in this area spawn in U.S. waters.

The new treaty would limit the Canadian catch of coho to 1.75 million in 1985 and 1986. A joint technical committee would review the status of chum stocks and make recommendations for 1985 regulations. ■

*The Art of Forecasting*

# Guideposts not Predictions



by Dulcy Mahar

**T**he future is called 'perhaps,' which is the only possible thing to call the future."

Tennessee Williams  
*Orpheus Descending*

**I**t's not really a forecast in the traditional sense. Instead of predicting the future — as most forecasts attempt — the Northwest Power Planning Council's "forecast" is an admission that the future cannot be predicted. At the time the Council developed its first forecast, that was a revolutionary concept. Now, as the Council begins a new 20-year forecast for its 1985 power plan, the concept of planning on the basis that the future is uncertain is so widely accepted that it is something of a cliché.

"The Council became the first energy planners to state explicitly that the future

was characterized far more by uncertainty than by certainty," according to Oregon Council member Roy Hemmingway.

"The task of power planning was not to refine further the tools for forecasting what the future would look like, but instead to devise tools for dealing explicitly with the inherent uncertainties in the region's future."

The traditional forecast is called a single-line forecast. Such a forecast projects a "best guess" of where energy demand will be at any exact point in time. It is normally displayed as a single line moving across a graph.

The range system, which the Council uses to forecast electrical energy demand in the Northwest for the next 20 years, is just the opposite. The forecasters literally refuse to guess and, instead, acknowledge the future is indeed uncertain — within a range. Planners then must develop a resource portfolio that can serve any eventuality within that range.

Under the range system, the forecasters project two boundaries. The probability that demand will fall outside these boundaries is extremely low. Within those two boundaries — high and low — the Council has projected a narrower band — medium

high and medium low. The likelihood that demand will fall within this narrower range is highest.

When it developed this system, the Council was under some pressure to plan for the mid-point between the medium high and medium low range. "We should resist the recommendations to choose a middle ground," Washington Council member Chuck Collins said at the time. "To plan for the middle is to lose our planning concept." Thus, the Council's forecast is not a prediction of the future, but a guidepost to deal with that future.

### *How a forecast is developed*

To develop a forecast for energy demand, the Council's power planning staff considers a variety of factors likely to affect that demand — the regional and national economy and their relationship, population growth, types and status of industries, per capita income, and fuel prices. Economic and demographic forecasts and fuel price forecasts are developed, and these in turn become the basis for the electrical energy demand forecast.

Many factors have a direct relationship on electrical demand. For example, in the absence of other changes, electrical demand should grow proportionately with economic growth. The influence of such factors is relatively easy to assess. Other factors work in more mysterious ways. One of the more difficult factors to assess is the effect price has on electrical demand.

A key word in forecasting is *assumption*. Based on their research, forecasters must make assumptions that the economy will go in certain directions, that population will grow at a certain rate, and that prices will have a certain effect. It would, however, be inaccurate to characterize these assumptions as mere "guesses." The term "educated guess" would be nearer the mark. The forecaster must collect, record, compare, and analyze masses of data.

The validity of the assumptions depends upon the quality of this research, as well as the ability to spot trends and detect changes. This quality and skill cannot be underestimated since even minor over-

or underestimations in future power demand can cost the region and its rate-payers millions — and possibly billions — of dollars.

The assumptions are an integral part of the economic, demographic and fuel price forecasts. But on the actual demand forecast, there are not a lot of different assumptions, according to Terry Morlan, the Council's manager of demand forecasting. At this point, the computerized models and relationships convert the economic, demographic and fuel price assumptions into demand.

"We try to define uncertainty and the effects of various uncertainties on demand," Morlan said. "It is important to recognize that the future is uncertain, but it is our job to minimize the risks in that future."

### *Forecasting techniques*

There are two major forecasting techniques: econometric and end use analysis. Both have their advantages and disadvantages. The Council uses a combination of both to take advantage of their strengths and minimize their weaknesses.

Econometric forecasting uses mathematical forms to express economic theories. This technique looks at such things as past statistical relationships among variables. For example, it assumes that price has a predictable effect on energy consumption, and it calls this relationship "price elasticity." Statistical analysis is used to set a numerical value to that elasticity. As an illustration, a price elasticity of  $-1$  means that a one percent increase in the price of electricity will result in a one percent drop in demand — if nothing else changes. This means that future rate increases are an important component of a demand forecast.

In end use analysis, the actual uses of electricity are analyzed for possible change, rather than just the gross historical relationships. This technique shows the ways in which demand affects price — as opposed to just being correlations — and estimates potential impacts on that demand. Changes in price can cause

changes in fuel choice, efficiency, and consumer behavior. The forecaster looks at how energy is used in a typical household or a typical business. For example, appliances are one end use. One change currently taking place is the transition to energy-efficient appliances. This has an impact on consumption. Thus, such things as codes or appliance efficiency standards are taken into account.

### *History of Northwest forecasting*

For years, all the talk about forecasting future energy demand and planning resources to meet that demand seemed academic. The Northwest had and always would have an abundance of cheap electrical power. In a region blessed with great natural resources, hydroelectric power was the greatest — and surest — of those resources. And so the region believed.

But then came a series of political events and acts of nature ranging from the 1973 oil embargo, which made this nation conservation conscious, to the Northwest's 1977 unseasonably low snowpack. More than anything else, the oil embargo made the U.S. conscious of the fact that it could never again absolutely depend upon a fuel source.

Council member  
Gerald Mueller  
once said looking  
at the past  
to predict the  
future is like  
driving using  
the rear view  
mirror only.

Prior to the 1980s, Northwest energy planning was largely a one-sided affair — planning to make sure the region had enough electrical power to meet its needs. The emphasis was on growth. The method was trending, that is, looking at what happened in the past to predict what would happen in the future. Montana Council member Gerald Mueller once likened this method to driving using the rear view mirror only.

Trending worked only so long as the conditions which affected energy consumption remained the same. Beginning in the 1960s, however, those conditions began to change dramatically. First, the region exhausted most of its major hydro development potential, which meant it had to move from an almost purely hydro system to a mixed system — hydro and thermal. Second, the costs and time for building thermal plants — particularly nuclear plants — were vastly underestimated. It turned out that it could take from 12 to 16 years to plan, site, and build a plant. This increased the risk in long-term planning.

Nor could the uncertainty of nature itself be discounted. The difference between average water conditions and critical (historical low) water conditions is approximately 3000 megawatts — the equivalent of four large nuclear plants.

As the Council began its original plan in 1981 a (then) novel concept took root. While a number of people contributed to and cultivated this concept, it was most eloquently articulated as "the path along the ridge," a term coined by Senator Dan Evans, who was then chairman of the Council.

The idea was that there were two sides to energy planning. One was the familiar deficit side in which enough resources had to be built to ensure adequate energy. But the other side of the ridge was equally important — the surplus side. Resources had to be planned so that the region did not overbuild — that is, add resources it did not need and for which it would have to pay a future bill.

The overplanning issue gained particular prominence in the 1980s because the region suddenly found itself with a sur-

plus of power. But another phenomenon also occurred. Prior to the 80s, energy analysts believed that maintaining low rates translated into more and more power plants. They had been working in an era where the next unit of power cost less, and all of a sudden it reversed; the next unit of power cost more.

Today the uncertainties remain — how long the surplus, if it really is one, will last; what will happen to WPPSS nuclear plants 1 and 3, now in mothballs; what is the future of the aluminum companies in the region; what kind of arrangement will be made for out-of-region sales — to name a few. And so, the wisdom of planning for uncertainty remains too. While the new power plan will undoubtedly change many things in the first power plan, one philosophy — articulated in the plan itself — is likely to remain the same.

*"As recent events have shown, there is a high cost in being wrong. The major challenge, therefore, is to reduce the probability and the consequences of being wrong."* ■

The Council's new draft 20-year economic and demographic forecast is generally similar to the forecast developed for the 1983 power plan. However, there are five significant changes. These include:

**Lower fuel prices** — A weak world oil market influences retail prices for oil and natural gas. Lower prices for alternative fuels should lower the demand for electricity.

**Lower aluminum smelter operating rates** — Low aluminum prices combined with high manufacturing costs have made it difficult for some smelters to operate at a profit. The present situation makes the aluminum companies, which use one-fifth of the region's electrical energy, a major planning uncertainty.

**Lower forest products industry employment** — A continuing poor hous-

ing market and loss of market share to competitors clouds the outlook for the region's forest products.

**Increased importance of the non-manufacturing sector** — Resource-based industries continue to decline in importance as employment in non-manufacturing companies increases. The service sector is the fastest growing category.

**The Northwest population is getting older** — The most significant new trend appears to be in demographics. For example, the population aged 45-54 is expected to increase 60 percent in the next 20 years, while the 20-29 age group will decline by 10 percent. The aging of the population is expected to affect consumption patterns and the labor force. ■

## New Forecast Trends

by Debbie Kitchin

# HIGHLIGHTS OF COUNCIL BRIEF

by Bill Cook

**O**n December 20, the Northwest Power Planning Council filed a brief with the U.S. Court of Appeals for the Ninth Circuit in response to a suit brought by the Seattle Master Builders Association. The suit charges that the Council has violated the Northwest Power Act and the U.S. Constitution. The Council's brief alleges that the Master Builders misstated the facts and misread the law.

The Master Builders will file a reply brief this month, and the court is expected to hear oral argument on the case this spring.

A number of agencies filed amicus curiae (friend of the court) briefs on behalf of the Council. These statements, intended to assist the judgment of the court, came from the California Energy Commission; the City of Tacoma; the states of Oregon, Idaho, Washington, and

Montana; the Northwest Conservation Act Coalition, and the National Governors' Association. The bulk of the Master Builders' suit centers on the Council's adoption of model conservation standards for the residential sector. The Council's position, as stated in the brief, can be summarized as follows:

Copies of the Council's brief and the amicus briefs are available on request. See order form on back cover.

■ The Master Builders argue that the "cost-effectiveness" and "economic feasibility" tests must be applied to individual components of the standards such as walls and windows. The Council applied these tests to the standards as a whole because the Northwest Power Act clearly states the standards must be cost effective and economically feasible. The Act makes no mention of nor any reference to individual components.

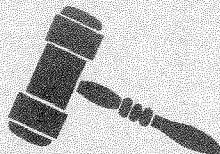
■ The builders' arguments are based on factual misstatements. For example, they say the Council could have completed testing of individual components within the time set by statute for adoption of the plan. However, they use the wrong deadline. They refer to the date for implementation of the standards (January 1986). This is two-and-a-half years after the Council was mandated by Congress to adopt the standards as part of its regional power plan.

■ The builders claim they are asking the court to determine that the Council violated the Northwest Power Act, but instead they quarrel with the Council's factual determinations. Such determinations can be overturned only if they are found "arbitrary or capricious." The Council's decisions were made in a full and open public process and were based on the best information available.

■ The Council did not violate the Act by the method it used to determine the effectiveness of components used to develop the standards because the Act did not require or specify any particular method. The method the Council chose (a computer simulation using ASHRAE\* heat loss coefficients) is widely respected and universally accepted in the scientific and engineering communities. Furthermore, the Council validated its computer simulations by comparison to actual energy use in real homes.

■ The Council maintains that the standards are cost effective for the region. Not only does no individual component exceed 4 cents per kilowatt-hour, but the average cost of all measures in the standards is only 2 cents a kilowatt-hour. This is half the cost of a marginal resource such as a coal plant that would replace the standards. A coal plant was used to establish the cost-effectiveness limit because it is the most likely, similarly reliable and available alternative energy resource.

The builders also claim that the Council's own forecasts show that there is little likelihood that the region will need energy at the cost the Council contends is cost effective. But they ignore or overlook the fact that those forecasts were drawn up to include the availability of energy saved by the standards. This reasoning resembles that of a patient who has just had surgery and concludes he has no need of surgery — but the reason he has no need is because the surgery has just removed that need. Furthermore, the Council's plan does not ignore resources cheaper than the standards, but rather includes all resources the Council determined were cost effective, reliable, and available.



■ The Council maintains the standards are also economically feasible for consumers. Applying the economic feasibility test to the standards as a whole, the average homeowner is better off economically in a home built to the standards. Because the standards will create a benefit rather than a burden for homeowners, there is no need under the Act for financial assistance to render the standards economically feasible. Also, although the builders attempt to substitute their own economic feasibility determination for the one developed by the Council after public review and comment, they err by basing their calculations on inappropriate rate projections.

■ The Council violated no state environmental laws as alleged by the builders. Not only did the builders fail to file any necessary complaint to that effect, but the Washington law they cite applies only to state agencies — not to an interstate compact such as the Council. In any event, the Council's plan is a document equivalent to an environmental impact statement.

■ The Council's creation does not violate the Appointments Clause of the U.S. Constitution, which restricts who can appoint "officers of the United States." The purpose of the Appointments Clause is to prevent undue concentration of both appointing and legislating powers in a single branch of the federal government. There is no violation of this principle when Congress authorizes certain state governors to appoint officials to oversee programs which deeply affect their particular states.

Furthermore, the Council members are not "officers of the United States" who warrant appointment by a federal executive; they are officers of an interstate compact agency. To call Council members federal officers because they exercise authority over a federal agency or programs would be the same as requiring school boards or school officials to be federally appointed because they administer federal funds and programs within their states. The Council represents an important example of federalism and allows the states directly affected by a regional federal agency, whose funds come from regional ratepayers, to have a significant voice in that agency's decisions.

■ Although the builders object to the "rare" and "novel" manner of the Council's creation, they present no reason why this violates the provisions of the Compact Clause of the U.S. Constitution. The Constitution sets no barrier to Congress breaking with tradition by taking the initiative to authorize and define the scope of an interstate compact rather than waiting for the states to approach it with such a proposal. ■

\*American Society of Heating, Refrigeration and Air-conditioning Engineers



# STREAMSIDE STEWARDS

## WORKING TO IMPROVE FISH HABITATS

by Carlotta Collette

Sometimes in the winter, but almost certainly in the spring, the ice and snow in the upper forests on Mount Hood melt, fattening the creeks that feed the rivers that run down off the mountain to the Columbia. When that happens, trickling streams that practically go dry in August turn terrible and tear through their stream beds, hauling down logs and boulders, gravel and silt and, all too often, winter steelhead and ready-to-spawn coho salmon.

When the forests have been recently lumbered-out, or summer residents with their streamside cabins have cleared the creeks of fallen trees and old stumps, the winter torrents can be especially destruc-

tive. Nothing slows the water down. Wild steelhead and late coho salmon pushing to get upstream to spawn have more than the usual difficulty. The rushing water rips by, and the grade is so steep that the fish tire and fall back, washed sometimes as far as the Columbia itself.

The whole Mount Hood National Forest is crisscrossed with these temperamental streams. In the past they supported sizable runs of coho, winter and spring steelhead, spring chinook and some sea-run cutthroat trout. Degradation of the runs throughout the Columbia River Basin, and specific damage from timber harvest practices and downstream dams, culverts and other passage barriers have left only a

remnant of the native Mount Hood drainage salmonids.

Most fisheries biologists consider it essential to retain wild fish stocks in order to assure the long-term survival of Columbia River salmon and steelhead. Propagation of these stocks forms a significant part of the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program, in both its original and recently amended versions.

"The ability of Columbia Basin fish populations to adapt to environmental change depends on their genetic diversity," the Program states. "Fish that spawn naturally," it goes on, "are subjected to constant selective pressures, re-

sulting in an evolution toward strong, resilient, and diverse stocks. Since each stream or drainage offers a different environment which influences the natural selection process, the fish stocks originating there will be genetically unique to that drainage."

The narrow gene base of hatchery fish promotes the kind of vulnerability often seen in modern agricultural practices. Fields planted to only one crop can be wiped out by a single disease or predator. The same is true for fish species. Without a broad genetic pool to draw on, the whole species is more fragile.

Unfortunately, much of the wild fish spawning and rearing habitat in the Columbia River Basin has been lost to hydroelectric development. Few natural spawning areas remain on the Columbia River itself. The Grand Coulee, Hells Canyon and Dworshak dams blocked passage for migrating fish, cutting off thousands of square miles of habitat, resulting in the extinction of certain salmonid stocks — including the famous river giants, the "June Hogs."

Many remaining areas that are suitable for spawning and rearing native stocks or naturally reproducing hatchery stocks (hatchery fish outplanted into tributaries of the Columbia that return to these surrogate streams to spawn) are also damaged or partially blocked. This is the case with three subbasins in the Mount Hood National Forest: the Sandy River Basin, the Hood River Basin, and the basin of Fifteenmile Creek. ▼

creek, coordination among the agencies was necessary.

In 1982, the participating organizations released their *Multi-Year Anadromous Fish Habitat Enhancement Plan*. It identified each stretch of creek, barriers to sea-run fish existing there, and opportunities for recovering wild fish habitats. It located culverts through which fish could not pass, dams that blocked upstream travel, and streams that had been scoured clean by winter floods and would no longer provide resting and rearing areas for salmon and steelhead.

The restoration is expected to take from 10 to 20 years to complete. Federally appropriated funds will cover some of the expenses, and volunteers help to keep costs down. Where private utilities have hydroelectric dams that are a part of the problem, the utilities are cooperating with funding for fish passage at the dams. (Portland General Electric, for example, spent more than \$1 million to improve fish passage at their Marmot Dam on the Sandy River.)

Now, under auspices of the Council's Fish and Wildlife Program, the Bonneville Power Administration will contribute funds toward the three basins' repair work. The total bill for opening access and improving the spawning and rearing capabilities of these upstream habitats is expected to run about \$5 million over the next 20 years. The work is part of the compensation for spawning and rearing habitat that cannot be restored in other parts of the Columbia Basin.

## Hood River Basin

From high in the meadows near the peak of Mount Hood, the many sources of the Hood River begin their tumble down the beautiful valley that carries the river's name. Speeding rills spill into the East, West and Middle Forks of the river that has a total run of more than 160 miles. The Hood River drains about half the land surrounding Mount Hood. Its headwaters flow from as far west as Lost Lake near the Devil's Pulpit, and as far around the mountain as the southern meadows.

The river provides irrigation water for the valley's famous fruit crops and power at Powerdale Dam just up the hill from the town of Hood River. With the planned habitat restoration, more than 20 miles of prime chinook, steelhead and sea-run cutthroat trout spawning and rearing habitat will be opened. The Forest Service expects an additional 35,000 wild and naturally spawning smolts from the project.

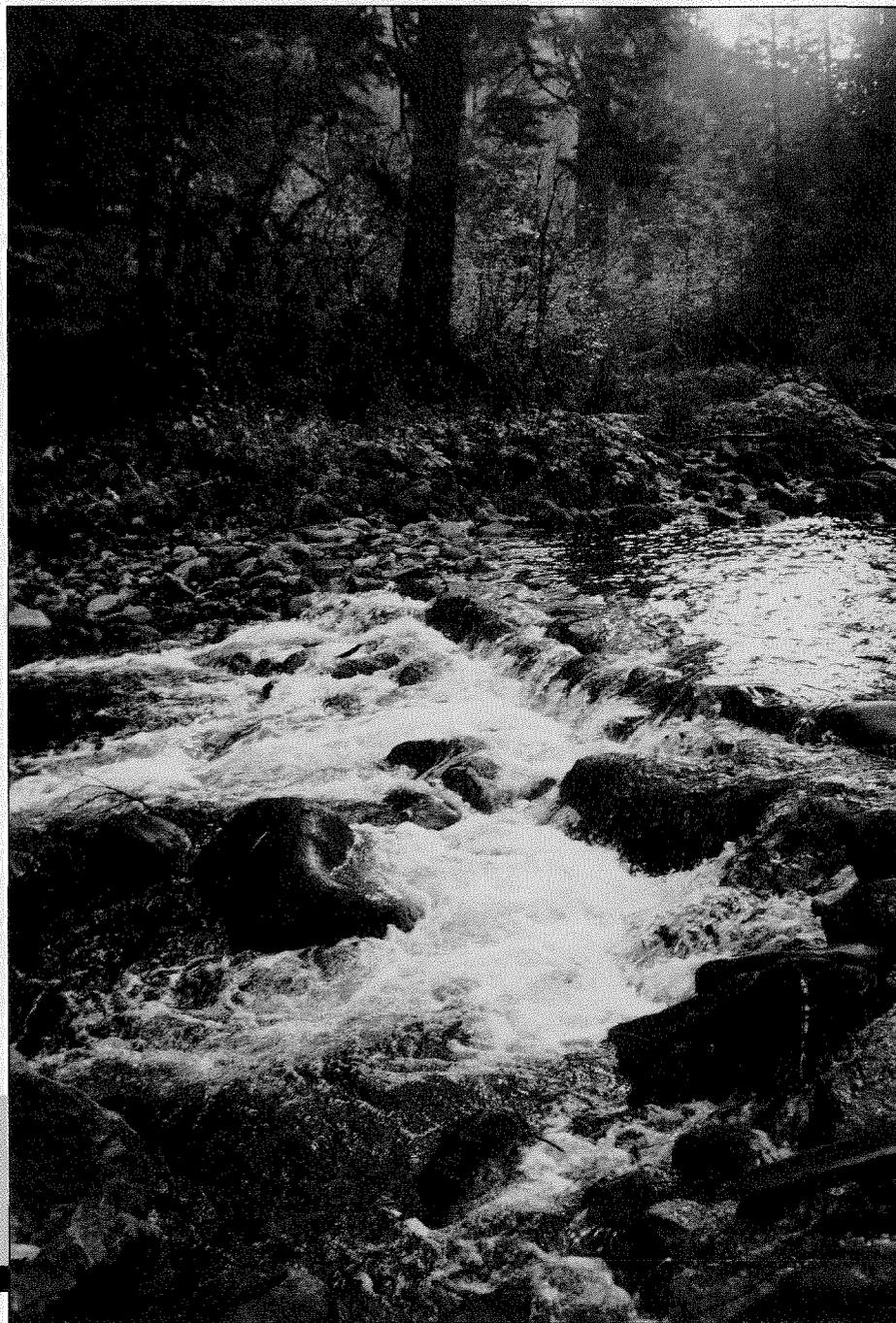
The Lake Branch of the Hood River beginning north and west of the mountain-top is already receiving attention. In 1983, USFS biologists Ken MacDonald and Rick Ragan built boulder berms and rock-filled wire baskets known as gabions to keep good sized spawning gravel from being washed downstream, and to create deep

USFS's Dave Heller (left) and Rick Ragan (right) examine a log weir (dam) they constructed in the Lake Branch of Hood River.

**In** recent years, the Oregon Department of Fish and Wildlife (ODFW) has worked with the United States Forest Service (USFS) and representatives of the Warm Springs Tribes (the eastern half of Mount Hood National Forest lies within their ceded territory) to develop a comprehensive plan identifying anadromous fish habitat needing rehabilitation in the forest. By working together they were able to cover both federal and nonfederal lands. In subbasins like that of Fifteenmile Creek, more than 80 percent of the riparian\* habitat is privately or municipally owned. To improve the full run of the

\*Riparian refers to the area along the banks of a river.





flow into the Sandy, along with dozens of smaller creeks. The Sandy Basin provides drinking water and electricity for the city of Portland. Spread out along the tendrils of the Sandy are some of the finest wild fish habitats in the Northwest. But dams like the city of Portland's Bull Run Diversion, just six miles from the confluence of the Bull Run and Sandy Rivers, have locked the fish out. Portland recently agreed to double the hatchery fish supplied to the Sandy system as a means of compensating for the fish loss, but that leaves many miles of wild fish habitat above Bull Run and the Marmot Dam to be addressed.

Because the area is still the site of timber harvests, money set aside from timber sales contracts (called Knutson-Vandenberg or KV funds after the legislators who authored the program) is being used to recover the riversides. The KV allotments are limited, however, and, according to USFS biologist Dave Heller who is coordinating habitat improvements in the Mount Hood National Forest, "Unless you want to only make improvements within harvest areas, you can't do much with KV money. If you want to take a basinwide approach you can't be limited by property lines or timber sale boundaries."

So, Heller submitted an amendment to the Columbia Basin Fish and Wildlife Program to include the Sandy system in its Natural Propagation — Section 700 measures. "The Fish and Wildlife Program,"

Boulders, downed logs and handmade resting pools slow Still Creek and provide wintering-over areas for salmon and steelhead.

pools for rearing young winter steelhead. (Young steelhead stay in their natal streams for up to two years before heading down the river to the ocean.)

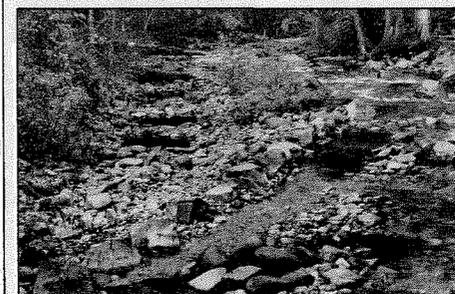
In 1984, the work on Lake Branch continued. Because of eccentric flow conditions on the river caused by the high gradient and the impressive 130 inches of annual rainfall at Lost Lake itself, the Lake Branch was widening its streambed and hauling almost everything along its banks down the mountain. As a working model, MacDonald and Ragan played Mother Nature by cutting a meandering side channel to the main stream and anchoring huge boulders and partially buried logs and stumps to slow the forceful water down.

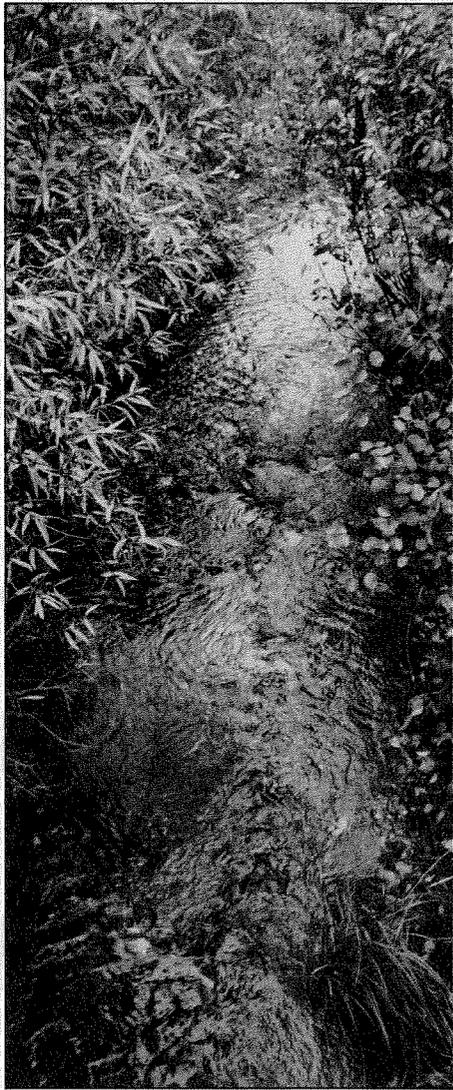
"We ran some calculations to see how big our boulders and trees needed to be to resist the stream's pull," Ragan explained. "But, finally we resorted to observing the river. We saw which rocks seemed to be stable over several years, and matched that size." If this summer's work proves successful, Lake Branch restoration will be replicated in other reaches of the Hood.

## Sandy River Basin

Most of the western flank of Mount Hood is drained by the Sandy River. The Bull Run, Salmon and Zig Zag rivers all

Heller reasoned, "provides an umbrella for broad scale planning and programming. With the Planning Council we have a group that shares our responsibility for the fisheries. The Council and its Program can add credibility to our work and ongoing funding for the 10 or 20 years some of these projects might take."





Streamside plantings and a culvert fitted with baffles improve passage and water conditions for winter steelhead on Fifteenmile Creek.



Still Creek is one of the feeder streams that enters the Sandy via the Zig Zag River. Its flow is considered moderate most of the year, but in the winter, Still Creek can kick up and cut a mean chute down the hill. This erratic behavior has long worried summer residents of leased cabins along its reach. In the past, the river's banks were protected against washouts by huge stones heaped over whole riparian stretches. This bulwark, called riprapping, stabilized the waterways but sped up the creek by confining it between what are essentially stone walls. Spawning gravels and resting areas within the river were destroyed. A favored approach is to plant trees along the riverside and, as on Lake Branch, anchor boulders and tree stumps within the river itself to temper its course.

Forest Service biologist Jeff Ueble did just that along Still Creek. He also worked with the summer residents to encourage them to leave downed trees and other natural flotsam in the creek, rather than clean it out as if it was someone's kitchen.

## *Fifteenmile Creek*

A whole series of almost parallel creeks shoot toward central Oregon dropping into the Fifteenmile Creek that enters the Columbia near The Dalles. Fifteenmile Creek supports the easternmost run of wild winter steelhead trout in the state of Oregon, but the fish have had much to contend with in their effort to survive.

There are passage problems near its mouth — poachers who regularly cull fish halted at Seufert Falls a few miles up, severe stream channel and riparian zone damages, and adverse water quality conditions including very high sediment loads and lethal summer water temperatures through much of its basin.

All of these factors combined to strain the viability of the wild run. Only about 20 to 30 miles of good habitat in the upper forests on Mount Hood are sustaining the winter steelhead. Project coordinators estimate that passage improvements and the restoration of over 100 miles of available habitat along Fifteenmile Creek are likely to increase annual smolt production from a current limit of about 17,000 to as many as 120,000.

In the upper reaches of Ramsey Creek (a

tributary of Fifteenmile) the work has centered around getting the fish over a diversion dam and past two culverts. Volunteers modified the diversion dam so that fish can now traverse it. One of the culverts was removed so fish could get through. The remaining culvert was retrofitted with steel plate baffles that transformed it from a slick impassable tunnel into a short series of riffles.

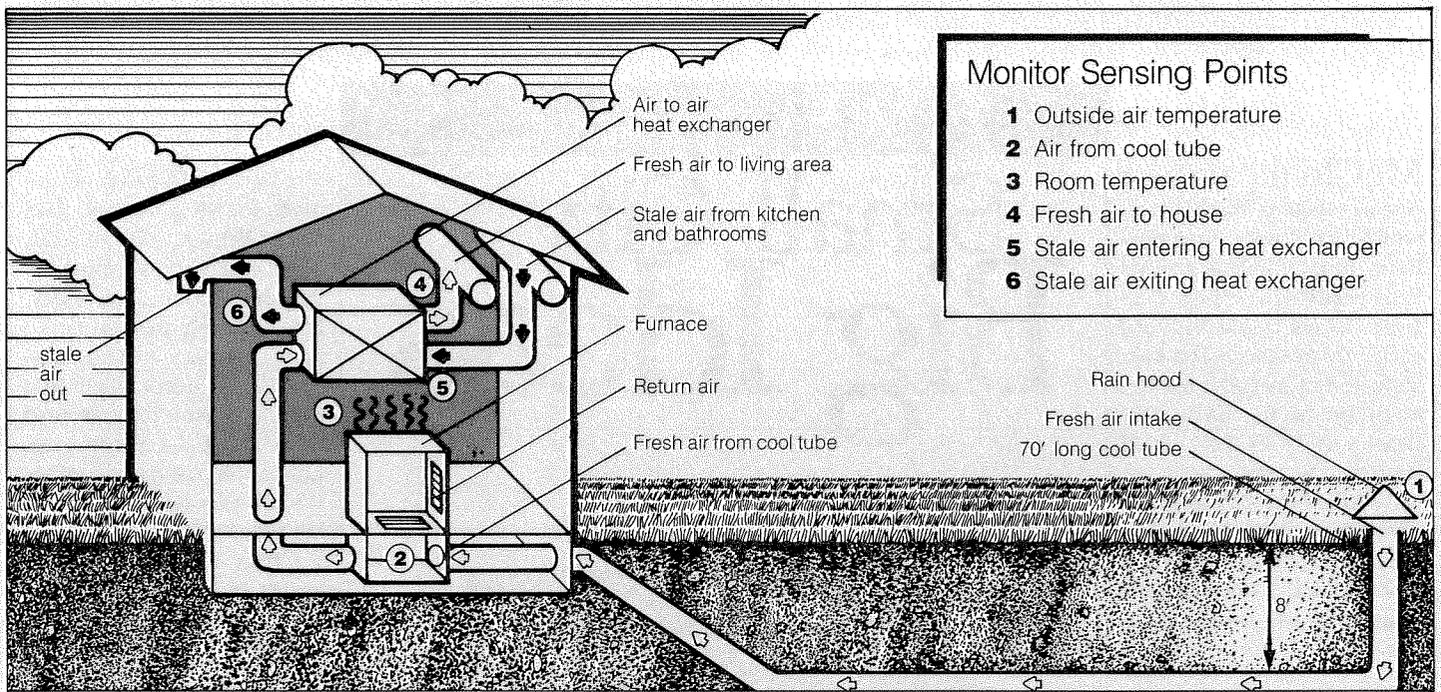
Lower on Ramsey Creek and on Fifteenmile Creek itself where the water flows through private land, Oregon Department of Fish and Wildlife biologists worked with local farmers and ranchers to replant riparian zones that had been damaged by cattle and bad weather. The newly covered streambanks are protected from erosion and shaded from hot sunlight by tenacious and fast-growing willows and other adaptable plant matter. Fencing keeps the cattle out of the creek so the plants can take hold.

Seufert Falls, near the creek's dip into The Dalles, required special handling. ODFW biologist Tim Unterwagner remembers watching winter steelhead, confused by high water that sent the overflowing creek over a stone ledge rather than down its normal bed, jump repeatedly on the ledge in their futile attempt to negotiate the falls. "In one afternoon I saw more than 90 fish batter themselves against the rocks," he said.

A simple fish ladder was considered to grade the steep chute, making it more passable. The proposed design and construction budget came to over \$60,000, but ODFW pulled together a community effort and built the ladder for only \$1,800.

The work going on in the Mount Hood National Forest and surrounding areas is a good example of the kind of "experimental probes of the natural system" spoken of in the amended Columbia River Basin Fish and Wildlife Program. As little as necessary is done, it is as inconspicuous as possible, and it is studied to see how effective it is and how much it can be imitated in other parts of the basin.

USFS's Dave Heller outlined the dilemma such quiet work in nature presents, as well as an answer to that dilemma. "We try to improve streams and yet have them look as though no one has tinkered with them. But a lot of people like to see the evidence of their doodling with nature. They don't recognize anything unless it's clearly visible to them. The Program lets us do our work. It is affirmed by other work throughout the whole basin, and the fish will benefit for it. The Program helps to legitimize our efforts." ■



## Applying creativity to energy efficiency

# COOL TUBES

by Mickey Riley

**H**omeowner Howard Rider has come up with a new application of an existing technology that improves the efficiency of his Thermabilt home in Yakima.

Rider's 1,466-square-foot home, built by Bill Rehfield of Yakima, is one of 230 homes being constructed as part of Washington state's Thermabilt program. The homes are being built to the Northwest Power Planning Council's model conservation standards.

Like all homes built as part of the program, this home enjoys the benefits of an air-to-air heat exchanger. Rider has incorporated the use of a 70-foot long "cool tube," buried eight feet in the ground, as a vehicle for bringing fresh air into the heat exchanger.

While the system is designed primarily for summer cooling, incoming air in the winter is prewarmed by absorbing heat from the earth. The day the author visited this home, the outside temperature was 26 degrees F., yet the air entering the system had risen to 52 degrees after moving

through the cool tube. From that entry point, the 52-degree air traveled through the home's heat exchanger. There, it absorbed heat from the home's exiting air and climbed to 65 degrees.

By pre-warming the fresh air through the cool tube system, Rider calculates that he has improved the heat exchanger's efficiency to 85 percent. "I was really pleased recently," says Rider, "when the outside temperature was 0 degrees, yet the cool tube temperature never went below 40 degrees."

Rider refers to his innovation as "an application of an old idea to an existing technology. Cool tubes have been around for a while," says Rider, "and have been used as a sort of poor man's air conditioning system. I got the idea from an article in *Mother Earth News*, and thought if the ground temperature is the same year round, why wouldn't it work in conjunction with a heat exchanger."

The system was designed by Rider, who spent 25 years working with heating, air conditioning and refrigeration systems.

Before retiring, Rider worked for Pacific Northwest Bell redesigning and retrofitting controls and mechanical systems.

Costs for the cool tube were kept relatively low since Rider did much of the labor himself: cutting and gluing the joints and supervising the trench work which was done in conjunction with septic tank trenching. Rider used regular 12-inch, low pressure irrigation pipe manufactured by Simpson Plastic of Sunnyside, Washington. Total cost for the system was \$954, which includes installation and sales tax. "The next house Bill builds, we'll try a recirculating cool tube underneath the crawl space, in an effort to further reduce costs," says Rider.

The Riders have been living in their new home since November 15 and "... overall, we are really pleased with how well it's performing. Moisture is definitely not a problem. And, last week, when the highest temperature of the day was 20 degrees, our home got up to 76 degrees just from the solar gain. The furnace never even came on!" ■

MCS early adopter

# Small City Big Ideas

by Steve Engel



Bearing McCleary's conservation message to the region, Wally Croshaw (left) and Chris Brown lean on the counter at Mabel's Cafe.

McCleary is a small city in western Washington which, until now, was perhaps most famous for its Bear Festival. The Bear Festival draws 5,000 visitors each July to sample the bear stew and attracts the annual attention of the Save Our Bears society (SOBs), which protests the stew.

By all reports, there was no protest on November 14, 1984, when the five-member city council voted unanimously for early adoption of the model conservation standards (MCS). McCleary may be smaller than some cities — its municipal utility serves 843 customers at last count, with 550 of those customers heating their homes electrically — but it sees large advantages in the standards.

"We have a lot to gain," utility superintendent Wally Croshaw said, "certainly from local adoption but especially from regionwide use of the standards."

"We're a full requirement customer of Bonneville Power," Croshaw said, "so

any new resources Bonneville has to build, we have to pay for. And that money doesn't stay in this community, you understand. We ship it to Portland. So regionwide enforcement of the standards would be of benefit to the ratepayers of McCleary, and to the businesses here."

Besides, this city 20 miles west of Olympia is home of the Simpson Timber Company, which makes wooden doors. "We wanted to make the point that MCS homes can use these kinds of doors," Croshaw said. "People who only look at the 'prescriptive path' approach think you need a metal door with a foam core. But that's not true. The 'energy budgets' approach provides for a little extra energy efficiency in places like the insulation of the water heater, and then these doors do a fine job helping a home to meet the standards."

Croshaw added that "adopting early also gives us time to go through our learning curve, so that by January 1986 we'll

have it pretty well down — how to build these homes. We also get more assistance than if we waited until the rush is on."

The surcharge (on utilities serving jurisdictions that don't adopt the standards or comparable measures) "wasn't stressed much in city council discussions," Croshaw said. "I think the conservation standards can stand on their own merits without the threat of a surcharge. And all the council members here have had their homes weatherized so they know how it feels to live in that kind of home. And they know what it does for their heating bills. We also learned from our residential weatherization program that you can't get the same energy savings if you retrofit. And it costs you more so you don't save as much money."

There were five new housing permits taken out in McCleary during 1984. "We've had outstanding cooperation from our local builder and from our building official," Croshaw said. "The builder has

already delivered some plans for MCS houses. And Chris Brown, our official, has been very supportive, very helpful. In some areas, the building people don't want to change. They say, 'Aww, we don't need that kind of insulation around here.' Well, let those guys fight about it if they want to. We'll know what we're doing when the time comes."

Chris Brown, who inspects buildings on a contract basis, is preparing McCleary's grant application for the Bonneville Power Administration financial assistance. He has a choice between a self-certification program, with spot inspections coming from Bonneville, or enforcement based on local inspection. Brown has heard that some inspectors in bigger cities think Bonneville's local enforcement compensation of \$125 per home is too low. Brown thinks it's fine. "It's adequate for the shorter distances we have here," he said.

Brown also thinks self-certification won't work. "It'll result in lower compliance and lower effectiveness of the standards. So the savings will be lower, too."

And savings are the point for McCleary. "Every dollar we can keep in the community helps our economic development," Brown said.

About that Bear Festival, by the way. It started as a Second Growth Festival many years ago, back when the Simpson Timber Company was the Henry McCleary Mill. To protect the newly replanted seedling firs, residents would head out into the knee-high woods with their rifles and shoot any bears they could find in the vicinity. *Waste not, want not* must be an old McCleary imperative — the bears went into a stew and the stew went into the locals.

How much bear goes into the modern stew, only the festival cooks know. And neither they nor the fine wooden bear atop the McCleary city hall are telling. ■

# PUBLIC UTILITY COMMISSIONERS

## SPEAK OUT ON REGIONAL PLANNING

*Council Chairman Chuck Collins said of the meeting, "The only thing unusual about it is that it hasn't happened before."*

*Eleven of the region's 12 public utility commissioners met with the Northwest Power Planning Council last December and urged the Council to take a stronger policy and planning role.*

*The commissioners, who set rates for the investor-owned utilities in their states, originally sought such a meeting to discuss sale of Northwest surplus power to California. In the course of a wide-ranging public discussion, several of them said they had no quarrel with Bonneville's interim intertie policy and looked forward to its adoption. Others expressed some doubts about that policy. The "intertie" is the transmission system for moving power from the Northwest to the Southwest.*

*While the commissioners discussed out-of-region sales, including pricing and marketing methods, they also touched on such issues as cogeneration, average system costs, renewable resources, conservation and the impact of the direct service industries on the regional power picture. Excerpts from the commissioners' comments appear below.*

*Present from the Idaho Public Utility Commission were Conley Ward, president; Perry Swisher and Richard High. Representing the Montana Public Service Commission were Tom Schneider, chairman; Clyde Jarvis, Howard Ellis and John Driscoll. The Oregon Public Utility Commission has one commissioner, Gene Maudlin, who attended. From the Washington Utilities and Transportation Committee came Robert Bratton, chairman; A.J. "Bud" Pardini and Mary D. Hall.*

by Steve Engel and Ruth Curtis



### **ROBERT BRATTON**, chairman *Washington Utilities and Transportation Committee*

We're here because, individually and collectively, we believe that the Northwest Regional Power Act established the Power Council as the planning body to forecast electrical loads and to develop the best and least-cost resource strategy to meet those loads . . . We're here because the average system cost methodology essentially eliminated or seriously degraded the benefits to the residential and small farm ratepayers under the energy exchange credit . . . The Power Planning Council is the single entity in the region with regionwide perspective and the one best able to develop the intertie access policy and ensure its implementation.

Carlotta Conlette photos

# PUBLIC UTILITY COMMISSIONERS

## **CONLEY WARD, president** *Idaho Public Utility Commission*

As we all know, with an intertie the size of the one that connects the Southwest and the Northwest, the disposition of resources along that intertie will drive planning decisions and, indeed, drive all resource decisions. These are policy matters that affect every person in the Northwest and for that matter in the Southwest. They do not affect only Bonneville Power and its customers.

... The federal policymakers have to recognize that Bonneville is a business. It is a utility and must run its own house in its own interest. The region must run the public policy decision-making apparatus in its interest and the collective interest of all the citizens in the region.

We wish to have the Regional Council, as the only body we know that represents all the citizens in the region, that is responsive to the public process and elected officials, undertake the setting of key regional policy decisions. But more importantly than who is to decide, is how the decisions are to be made. We want a fair process.

We want due process with all the attendant trappings or as many as the decision maker can put in place, realistically ... We want a public process. In the absence of that, we all agree that the regional effort, as a regional effort, will die. We will be a region by geography. We will be a region by some other factors, but we will not be a region for energy matters.

## **GENE MAUDLIN** *Oregon's Public Utility Commissioner*



Out-of-region sales are part of regional power planning and therefore, BPA should pay special attention to what the regional Power Council has to say on that subject ... One of the issues is intertie access policy, and the regional Council should take an active and dominant role in its development. But I want to act in it, too. Because a regional solution, in which all of the utilities are looked at as a whole, may not be the best solution [from] an Oregon point of view. A policy that denies or sharply restricts opportunities for long-term, out-of-region sales might comfort a Northwest utility that says there are imminent power supply shortages. It will not comfort an Oregon utility, like Portland General Electric, which has a long-term surplus and is able to make long-term firm sales.

... On cogeneration and small power production, you only have to look at who is buying the output of cogenerators and small power producers to know that something is wrong here. The buyers are the investor-owned utilities. They alone are being saddled with new financial burdens at a time when [they are] already in surplus. ... All I'm saying is that we should not expect the IOU customers to pay more for it (cogeneration) than anybody else pays for it.

... If you and I are going to talk to Bonneville about intertie access, then we should also talk about conservation contracts, small power production, average system cost, and anything else in which some or all of us have a stake. It seems to me that if we do not begin seeing decisions made cooperatively and rationally, then it might be best for each of us to go our own way.



## **TOM SCHNEIDER, chairman** *Montana Public Service Commission*

The Council has a statutory role to develop the policy, it has public legitimacy, it has resources, and it has the opportunity for public accountability that certainly does not rest with Bonneville. The Council then has to challenge, it has the opportunity to play that role aggressively ... I am here today, our commissions are here today, collectively, to urge you as vehemently as we can to pursue that role with all the vigor and dedication that you've shown in the plan. But it's going to take guts.

... Somebody at the regional level needs to determine a standard methodology for pricing energy. We need to get our technical people together that understand the mathematics of inflation and discount, nominal and real, [and] come up with a standard methodology that we can all — whether or not we agree that it's the right one — we agree on a methodology. So that when energy is sold on a long-term basis, we can compute it in that standardized method.

# PUBLIC UTILITY COMMISSIONERS



**MARY D. HALL**  
*Washington Utilities and  
Transportation Committee*

If the process does not become more democratic, you will find the Northwest Regional Power Council frustrating the state regulators [as others have] . . . But you have, because of the way you went about developing the plan itself, a history that says you understand negotiation, you understand how to use data and analyze it, and you are a body which makes public policy decisions in the open. We are looking for that, and we are asking that you provide leadership in that arena . . . what we're looking for is a process which can deal with the multiple, varied, and sometimes warring interests, that have to do with the power and how it's used in this region.

**A. J. "BUD" PARDINI**  
*Washington Utilities and Transportation Committee*

. . . It appears to me that in the last two years, the direct service industries of the Northwest have had significant fluctuations in their use of power. It further appears to me that this type of fluctuation will continue in the immediate future and into the long-range future, and that . . . any type of reasonable forecasting of needed energy, as well as the resources to supply that energy are going to be uncertain until some stability is brought to this major component of usage . . . In essence, what it may boil down to is this — that the continued rising cost of electric power may well force the aluminum industry from the Northwest, a position which I

don't think we should advocate, but one which we have to face up to.

. . . One of the things we have talked about, on a very limited basis, is resource acquisition. We dealt very slightly on whether the intertie should be built or not. Perhaps rather than thinking of a long-range . . . new thermal plant, maybe what we need to think of is additional intertie capacity which could tie us into other grids in the event some of these things don't happen. We don't always have to be talking about a resource being a plant. It could just be the portability of energy from some other area.

**RICHARD HIGH**  
*Idaho Public Utility Commission*

Under the PURPA\* law, our four main electric utilities are all complying with PURPA and commission orders. . . . The fact that Bonneville is out of the picture means simply this, that a cogeneration or small power producer who is in the Bonneville service area has . . . no alternative . . . but to move that power to the nearest investor-owned utility and to receive whatever the posted avoided cost rates are for the power it delivers. We as a commission have been supporting that, but we're beginning to have second thoughts.

\*Public Utility Regulatory Policies Act

**PERRY SWISHER**  
*Idaho Public Utility Commission*

The real options say that we can take the resource and market that resource in such a fashion that it's no different from the grain that moves out of the Port of Portland — in that you can no longer distinguish whether that bushel of wheat came from Tom Schneider's ranch or from my ranch. In other words, the approach with energy should be the approach that says we have energy to market and it's a melded sale. So that the identification that begins back here with a specific turbine does not follow all the way down to San Diego. That's a very simple precept of marketing, and it's terribly important in

that what we do is what Sunkist or Diamond Brand walnuts do. You just put the Northwest label on it, and the hell with whose ranch it came off of.

. . . We don't look to you to be the seat of all wisdom. We want to be able to sue you once in awhile, that's what we've got lawyers for. We want to be able to discuss things. Most of all, we need a working process, not one that gives us once again an all powerful seat of authority, but a working process for the region. If we get that, we'll be healthy and we'll be happy.

## 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 will be sent to you as soon as they are.)

- Columbia River Basin Fish and Wildlife Program (1984 revised edition)  
Those who received the draft will automatically receive a copy.
- Brief of Respondent, Northwest Power Planning Council filed before the U.S. Court of Appeals for the Ninth Circuit in the Seattle Master Builders Association et. al. suit
- Transcript of Council Hearing with Public Utility Commissioners on December 11, 1984
- Issue Paper on Washington Nuclear Plants 1 and 3 Planning Assumptions
- Status Report on the Hood River, Elmhurst, and ELCAP (End Use Load and Conservation Assessment) Projects
- Issue Paper on Conservation Supply Curves for all Sectors
- Issue Paper on Financial Assumptions
- Issue Paper on Environmental Criteria for Resource Acquisition
- Status Report on Industrial Conservation Survey

*Note: Please do not order the following reports if you work for a fish and wildlife agency or Indian Tribe in the Columbia River Basin. The authors of the reports have been asked to send copies directly to your agency.*

- Annual reports on Mainstem Passage from the U.S. Army Corps of Engineers, and the Mid-Columbia Public Utility Districts.

Annual Columbia River Basin Fish and Wildlife Program work plans from the following agencies:

- U.S. Army Corps of Engineers
- U.S. Bureau of Reclamation
- Bonneville Power Administration

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