

N O R T H W E S T ENERGY NEWS

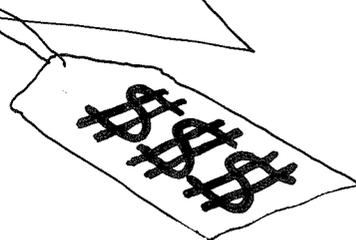
Volume 1, No. 8

Northwest Power Planning Council

December, 1982



THE GREAT ELECTRIC RATE SHOCK



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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's fisheries and a regional electric energy plan, to be carried out by the Bonneville Power Administration, emphasizing cost-effective conservation and renewable resources.

Cover illustration: Fred Hilliard

NOTICES

Update on Council activities

The Northwest Power Planning Council is considering conservation targets and resource targets in early December. The Council will be looking at alternative resource portfolios throughout December. (The resource portfolio is the combination of conservation and electric energy resources that the Council will include in the draft energy plan to be released February 1.) The Council plans to decide the components of the final resource portfolio before the end of the month. The meetings on December 7-8 and December 15-16 will focus on evaluation of the resource portfolio. The Council will decide at its December 15-16 meeting if they will need to hold meetings on December 22-23 and December 29-30 to consider the resource portfolio.

Issue paper distribution

The last two issues of *Northwest Energy News* included a form to be used to request issue papers and other Council documents. Because of the large volume of responses, the distribution of issue papers is proceeding more slowly than expected. Council staff will complete the distribution in the near future. If you requested issue papers but have not yet received them, please be patient.

Fish and wildlife program availability

The Northwest Power Planning Council's final fish and wildlife program is now being typeset and printed. Copies will be available in late December.

Advance word processor copies of the program are now available for review at the Council's central office and at each of the Council's state offices. See addresses on this page.

CALENDAR

December 1-2, Council meeting, 9:00 a.m., Western Forestry Center, Portland.

December 7-8, Council meeting, 9:00 a.m., Hilton Hotel, Pavilion Room, Portland.

December 10, Resources SSAC, 9:00 a.m., Council offices, Portland.

December 15-16, Council meeting, 9:00 a.m., Hilton Hotel, Ballroom B, Portland.

December 17, Fish and Wildlife SSAC (tentative), Council offices, Portland.

December 20, Forecasting SSAC, 9:00 a.m., Council offices, Portland.

December 22-23, Council meeting (tentative), 9:00 a.m., Federal Building, South Auditorium, Seattle.

December 29-30, Council meeting (tentative), 9:00 a.m., Hilton Hotel, Pavilion Room, Portland.

February 1, Draft energy plan available.

Late February - early March, Hearings on draft energy plan.

April 28, Final energy plan adopted.

For generations it has been a point of conflict — how to balance society's need for electricity with the natural needs of fish that once freely traveled the Columbia and Snake Rivers. But that all changed in November, as the Northwest Power Planning Council adopted its final Fish and Wildlife Program to restore the prized salmon and steelhead runs of the Columbia Basin.

"We have had a generation of fighting between the various interests," said Council Chairman Dan Evans of Washington. "This program represents the first opportunity in a generation to change conflicts to cooperation and to restore the fish runs which once were so plentiful."

The program calls for a number of changes in operation of the hydroelectric dams on the Columbia and Snake Rivers plus a series of physical improvements to help migrating salmon and steelhead get downstream to the ocean and back upstream and to encourage natural propagation. The program includes:

- **Water budget.** To speed up critical downstream travel time, the Council program calls for spring riverflows on the Columbia and Snake Rivers to be accelerated by greater release of reservoir water. This would reduce some winter power production ability while increasing power generation in the spring. The water could be used between April 15 and June 15 and would be controlled by treaty Indian tribes and various fishery agencies.

- **Bypass facilities.** To guide the young fish past the potentially deadly spinning power turbines of the dams, the Council wants to have facilities built at a number of projects to steer the fish around and out of the way of the power turbines. Prototype facilities would be developed by July 15, 1985, with the bypass measures completed by March 20, 1987, or a later date set by the Council.

- **Experimental trucking.** At

Turning conflict to cooperation

Council adopts program to restore Columbia's fish, wildlife



New day for fish: Council members (top picture, from left) Colbo, Evans, Hampson, and Mills will form a new Fish and Wildlife Committee to oversee implementation of the final program by the Council's fish and wildlife staff (bottom) and various federal and state agencies.

Priest Rapids Dam in Central Washington, the Council has authorized a three-phased study of short-haul trucking fish from above the dam to just below. The Council would have to approve the initial study approach before the dam's owner, Grant County Public Utility District, could go ahead. If interim results showed an insufficient number of fish were surviving the trucking, the Council would

seek to have the utility install a bypass facility at the dam.

- **Interim spills.** While the bypass facilities are being designed and tested, the Council wants the mid-Columbia PUDs to spill a certain amount of water to literally flush the fish over the dams and past the turbines.

Beyond efforts to safely guide the fish downstream, the Council also called for a number of measures to im-

prove survival chances for ocean-returning fish headed upstream to spawn. These include better ocean harvest management, improvement to existing fishways, adequate streamflows to help the fish, and a permanent solution to the chronic breakdown of pumps at various fish ladders.

In addition to aiding the fish in their down and upstream journeys, the Council's program also calls for various efforts to rebuild wild and natural spawning runs of the prized Northwest salmon and steelhead, augmenting those runs with possible additional fish hatcheries scattered throughout the region.

The program will also launch efforts to improve runs of inland trout and wildlife which have been damaged by the dams on the Columbia River System.

To protect fish from further damage, the Council wants to review all applications for new hydro projects to make sure they are consistent with the program.

The Council also established a Fish and Wildlife Committee of the Council members to oversee implementation of the program by various federal and state agencies and local utilities and to coordinate long-term research efforts. Named to the committee were Evans, Larry Mills of Idaho, Keith Colbo of Montana, and Al Hampson of Oregon.

The program goes into effect immediately, with some of the program measures happening as early as next year. The program will be funded through the rates of the Bonneville Power Administration and some local utilities. The Council staff estimates it will cost the average ratepayer about \$2 a month.

The program was required under the Northwest Power Act of 1980. Congress directed the Council to come up with a program to "protect, mitigate and enhance" the fish and wildlife of the Columbia Basin which had been harmed by

the hydroelectric dam development while also retaining an economical and reliable power supply.

"There will be a cost (to the program)," said Evans, former three-term Washington governor, "but it will be a modest cost. I would rather categorize it as an investment. For that investment we will be getting a very substantial restoration of an important economic resource which had deteriorated over the years and which we believe very strongly can be rehabilitated."

City Light proposes pilot conservation project

There are a lot of approaches to getting comprehensive conservation, but one of the continuing questions facing power planners and utility officials is simply, what works?

Seattle City Light thinks it might have one answer. The municipally-owned utility, the largest of its type in the region, has asked the Bonneville Power Administration to fund a pilot project using cash rebates and a private energy conservation firm to market electricity-saving measures to businesses, industries and residential consumers.

"This rebate approach provides some of the capital for the conservation investments, and signals to consumers the real value of conservation to the region," says Superintendent Joe Recchi.

Under City Light's proposal, the rebate would be given to a private firm marketing an array of energy-efficiency measures, with the bulk of the rebate being passed on to the consumer. The rebate would be based, in part, on the estimated energy savings from each building. Half of the potential rebate would be paid at the beginning, the rest paid over the next five years.

This way, says Recchi, "the firm has a strong economic in-



Seattle savings: Under a City Light proposal, a private firm would be given rebates to market energy conservation to businesses, industry, and residential consumers.

centive to ensure the long-term performance of the conservation improvements it markets. The firm has a stake in the building's energy performance even after it has made a sale."

Another advantage would be shifting the delivery of the service to the private sector — things like promotion, identifying improvements, installation, financing, quality control, says Recchi. "They can respond more quickly to the need for programmatic changes and to changes in personnel needs," the utility boss added.

Recchi said competitive bidding between firms seeking to market the rebate program could also spur development of new and improved conservation techniques.

City Light would like BPA to fund a three-year demonstration project with the cost to the federal agency of 18.9 mills for each kilowatt-hour saved in the winter and 10.6 mills for each kilowatt-hour saved in the summer. Recchi notes that this is "well below" the 35 mill near-term resource acquisition level BPA has set. City Light would pay 30 percent of the rebated money and provide program administration. The

utility estimates the total program would cost about \$8.5 million.

Recchi says the demonstration project could prove to be an important tool for utilities to nail down conservation.

"By offering the rebate to a private firm, a utility can acquire a substantial block of conservation resources through one source. If the rebate were expanded beyond the demonstration phase, a utility could become a wholesale purchaser of conservation from a number of conservation firms."

The proposal is being presented to BPA this month, and City Light hopes it could begin the demonstration project early next year.

Council takes aim at conservation targets

Conservation in existing and new residences, commercial buildings, agriculture and in-

dustry could "generate" power savings as much as 6,000 megawatts if the Northwest experienced record growth, according to a study by the staff of the Northwest Power Planning Council.

In 1980, the region used slightly more than 3,500 megawatts for space and water heat in existing residences. With simply improved efficiency, Tom Eckman, Council conservation analyst says, by the year 2000 the region "could accommodate at least one-third more residential consumers while using no more electricity than it did in 1980." Under the Council's high economic and demographic assumptions, more than 3.5 million new single-family, multi-family and mobile home units would be built by the year 2000. If built to the Council's proposed efficiency standard, these structures could free up as much as 1,550 megawatts. Naturally, in a lower growth pattern the savings would be proportionately less.

The wholesale levelized cost of the power would be about three cents per kilowatt-hour, Eckman says. The amount of power savings would increase as the cost of the conservation

program increased, he added.

In the commercial sector at three cents (or 30 mills), the savings could be as high as 1,000 megawatts. The industrial sector could add another 460 megawatts with perhaps as much as 325 megawatts coming from efficiency improvements in irrigated agriculture by the year 2000.

But achieving this level of energy savings is not without some constraints, cautions Eckman.

For many residential consumers, it's simply the problem of not having the money available to take conservation measures like insulating the house or installing storm windows. Further, what might be economic to the region as a conservation step might not seem that way to the individual consumer because traditional pricing policies mask the cost of new power resources.

In addition, Eckman says there is also the problem of having enough qualified people to design and install the various efficiency measures properly.

In the commercial and industrial sectors, present tax laws allow for deduction of energy costs, therefore blunting some of the actual impacts of power costs and potentially deterring conservation efforts,



Targeting conservation: Enormous savings are possible through increased energy efficiency, says Council staff.

the Council's analyst adds. Commercial businesses or industries must also weigh where to make their investments, and conservation may not be the most pressing investment requirement when money becomes available.

The potential 6,000 megawatt savings in the high load growth case may represent a conservative assessment because it does not include savings from more efficient household appliances, heat pumps and passive solar heating, says Eckman.

The Council is exploring a number of possible avenues for reaching high penetration

rates for the energy efficiency measures. Eckman said the Council is targeting a 90 percent penetration rate to be achieved over the next 15 years.

He also noted that the staff estimates on conservation aren't comparable to other estimates used in the region.

"The numbers reflect three important differences," says Eckman. "First, the high-case numbers are based on record economic growth in the region. Second, the levels reflect all conservation, whether caused by a program or rising prices. And finally, we're going after much higher pene-

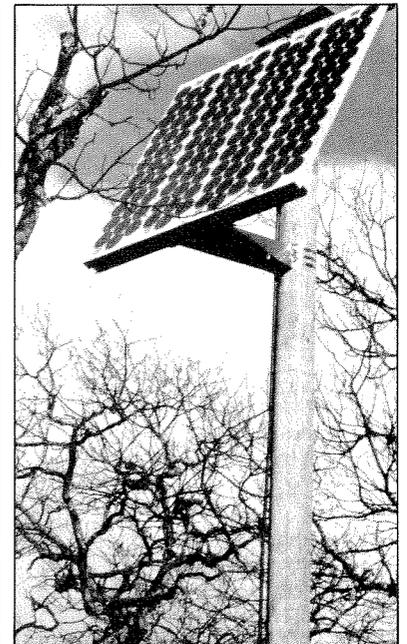
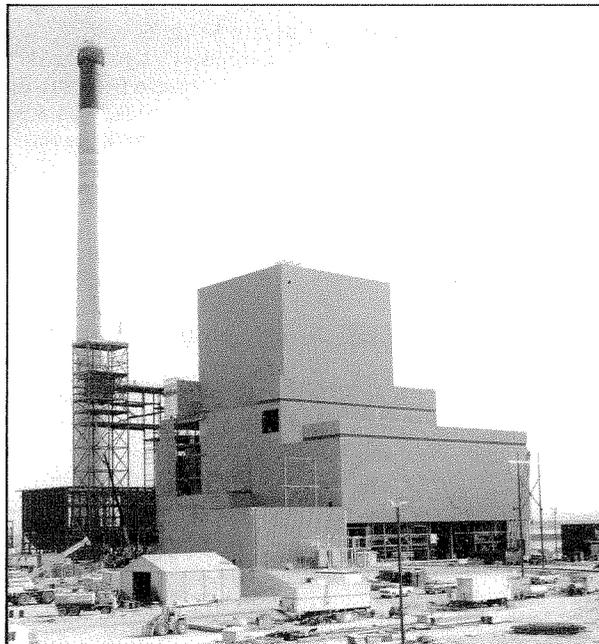
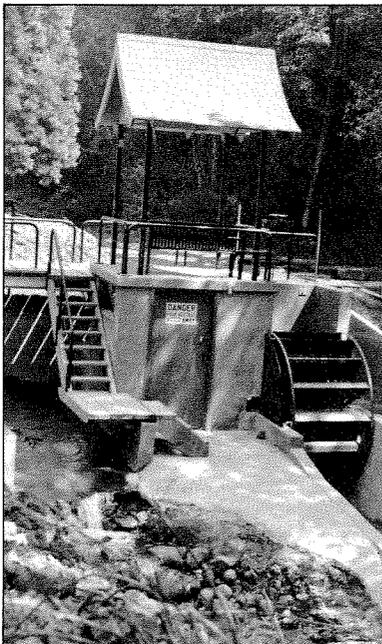
tration rates than anyone in the region has ever done before."

Under the Northwest Power Act of 1980, the Council is required to come up with a long-range energy demand forecast and a plan to meet projected demand, placing top priority on development of cost-effective conservation steps.

Council weighs potential resources

New hydropower could add 1500 megawatts to the region's electricity production at a cost of 50 mills or less, according to studies done by the Northwest Power Planning Council staff and by regional resource experts. But other renewable resources, such as solar-electric, wind, and geothermal, need more research and development before they are ready to produce electricity at a competitive cost. The studies also assessed the technical potential for industrial cogeneration, biomass, coal, nuclear, natural gas, and fuel oil.

Geothermal energy has vast



Resource potential: New hydro and coal could generate more cost-effective conservation than the region needs, while solar photovoltaics are still too costly, according to Council staff studies.

potential, according to Tom Foley, the Council's manager of conservation and resources. Studies show that the resource is large, the technology is mature but site dependent, and the Council and the region could take a number of actions to assure cost-effective development when necessary.

Solar electric generation may eventually be important in the region, but current costs are too high, said Foley. Research and development may be able to bring the cost down to a competitive level. The use of passive and active solar systems for space and water heating are being analyzed as conservation measures.

While the potential for wind power is sizable — more than 2200 megawatts by the year 2000 — more work needs to be done to realize the potential, according to the studies. Problems include reliability of wind turbines, storage of generated electricity and lack of data about wind speed and duration at various locations. Staff recommended regional support for data collection and distribution, and development of large wind machine demonstration projects.

The cogeneration potential depends mostly on the state of industry in the region and the price paid for cogenerated electricity, said Foley. Since industry will not install cogeneration if the market is insecure, staff recommended establishing a regional price that is high enough to encourage industries to install cogeneration when they replace existing boilers.

Coal could provide as much energy as the region needs, according to the report, but siting, financing, and transportation are problems that need to be solved before other coal plants could be brought on line.

The studies concluded that nuclear power faces major problems in terms of public acceptance, uncertainties of costs and lead times, and regulatory constraints.

Staff estimates and recommendations are the result of an extensive process that included research by Battelle Northwest, comments by a number of regional experts on

the potential and problems of the different resources, and task groups organized by the Resources Subcommittee of the Council's Scientific and Statistical Advisory Committee to review each resource in depth.

Ferguson, WPPSS chief, resigns

Robert L. Ferguson, managing director of the troubled Washington Public Power Supply System, resigned November 29, saying he would leave the post next June because of health reasons. Ferguson had undergone complicated heart surgery earlier this year.

Ferguson's departure injects a new uncertainty into the already stormy conditions surrounding the Supply System. In January, WPPSS must make the first payments on money borrowed for terminated Plants 4 and 5. Those plants were cancelled last year and a third project, Plant 1, was placed in mothballs as the consortium wrestled to complete the two remaining nuclear plants.

Ferguson, 50, came to WPPSS two years ago after being director of nuclear programs for the federal Department of Energy. He arrived at the public agency during perhaps its most troubled period to date, as WPPSS par-



Ferguson to depart: WPPSS head to leave post next June has won respect for bringing order to a tough situation.

ticipants were trying to put the multi-billion dollar projects back on the track after years of cost overruns and slack management.

Ferguson made sweeping changes in the Supply System's management, resolved on-going labor disputes, and got work restarted on Plant 2, the project farthest along, after the Nuclear Regulatory Commission had stopped it because of safety problems.

Caught in the tide of changing energy demands, Ferguson finally recommended that the Supply System terminate its last two projects after estimates pegged the cost of completing all five reactors at nearly \$24 billion.

Ferguson's tenure at WPPSS has won praise from oft-times divergent parties. Nick Cain, outgoing chairman of the WPPSS executive board, told the *Seattle Times* that Ferguson

had "done a good job" and successfully tackled the task of righting the Supply System.

Steve Zemke, a leader in Don't Bankrupt Washington, a group which spearheaded Initiative 394 as a means to control WPPSS spending, also praised Ferguson.

"We have a certain respect for him," Zemke told the newspaper. "He is one of the few able to make hard decisions when others want to duck."

Now, with Ferguson set to leave June 1, the Supply System must struggle with its next crisis — whether participants in the two cancelled projects will pay for the billions borrowed for those ill-fated projects.

Comments focus on model standards

A staff proposal for a model energy-efficiency code drew widespread public comment at the November 16 meeting of the Northwest Power Planning Council. The proposal sets performance standards for new residential building levels ranging from 2.0 to 3.2 kilowatt-hours per square foot for space heating. The levels vary according to type of

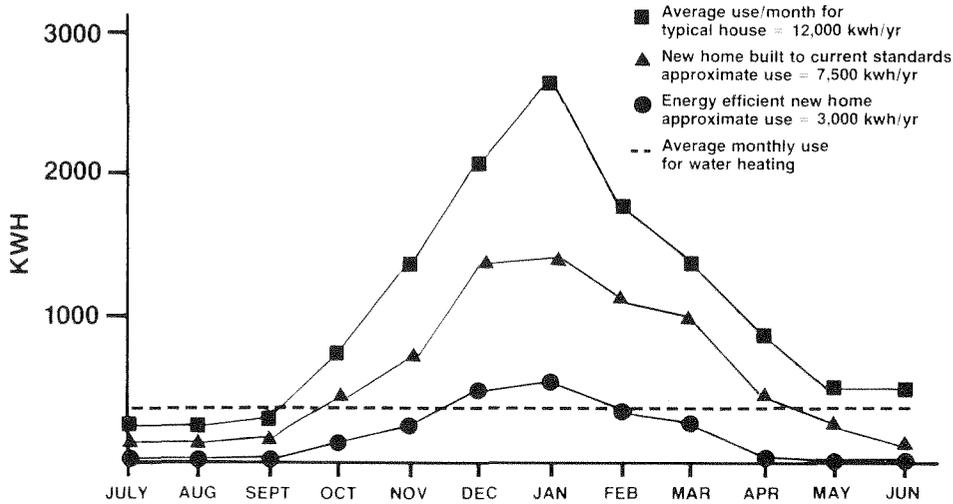
Revised model standards

Annual space heating use, in kwh per square foot

Building Type	Climate Zone		
	1 (West of the Cascades)	2 (E. Wash./E. Ore. & Idaho)	3 (W. Mont.)
Single Family	2.0	2.6	3.2
Multifamily (5-plex or larger)	1.2	2.3	2.8

Average monthly space heating use

Seattle/Portland



building and climate zone.

The proposal also calls for regional financing through BPA of cost-effective conservation in existing buildings, reimbursement of agencies for enforcement costs, and regional financing of efficiency steps in new homes for the first three to five years.

Although reactions to the proposal were generally favorable, specific elements were criticized. Some people questioned the proposal to finance builders for the cost of the new efficiency steps before the new codes are adopted. The Pacific Northwest Homebuilders Association said that if a new, more energy-efficient building code was in fact cost-effective for the consumer, neither builders nor home buyers would need financing to be persuaded of its merits: "The building industry (does not) expect to be bought for the purposes of sweetening the somewhat sour pill of more stringent codes."

A small incentive may be appropriate, said the Northwest Public Power Association, to encourage builders to learn new building techniques necessary for the stricter codes. However, NWPPA was also opposed to full financing.

According to a computer model developed by Council

staff in response to comments, it is very much in the region's interest to provide incentives to builders prior to the adoption of new codes because the region would save much more in energy than it would spend for the incentives. In addition, said Tom Eckman, the Council's conservation analyst, more builders will gain experience in new construction techniques, and the Council will learn more about the cost and performance of the standard if an incentive is paid.

Although some concern was expressed, especially by BPA, that the proposed model standards would not prove to be cost-effective, there was also much support for the stricter standards. According to M. J. Macdonald of Seattle City Light, "codes should be set at least at average cost levels, and (we) might prefer a higher level."

Council staff reevaluated the proposed standards following comments and concluded that using higher cost estimates did not change the levels of the proposed standards. One exception was Montana, where higher cost estimates provided by homebuilders made one measure uneconomic and resulted in raising the standard from 2.4 to 3.2 kwh per square foot for space heat.

BPA raised concerns about

the Council's heat loss methodology. After discussions with BPA staff and comparison of BPA's and the Council's computer models for heat loss, Council staff concluded that their figures were accurate.

The different heat loss methodologies produced the same total result, although they differed on individual measures. The Council's heat loss methodology is consistent with those of the Department of Energy, Lawrence Berkeley Laboratory, and Owens Corning Company.

BPA also questioned the standards in terms of their impact on indoor air quality. As a result of discussions with BPA staff, Council staff decided to recommend installing air-to-air heat exchangers for mechanical ventilation in all three of the region's climate zones. Performance standards were revised upward to ensure adequate ventilation.

The proposal to reimburse code enforcement agencies for the costs of enforcing the new codes was applauded. In addition, according to the City of Eugene, BPA should provide technical support to cities to assist them in implementing the new codes. The City of Tacoma argued for incentives to cities to encourage them to adopt standards stricter than the Council staff proposal.

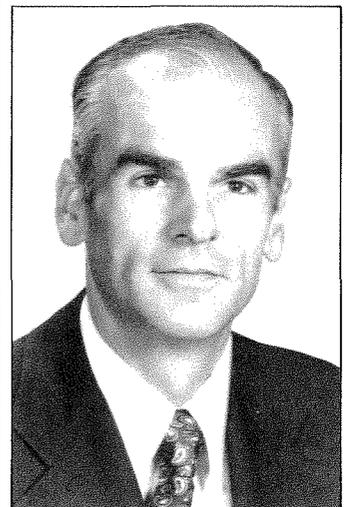
Ex-BPA boss Hodel named energy secretary

Don Hodel, a former Bonneville Power Administration chief, has been placed in the nation's top energy post in the Reagan Administration. Last month, the President nominated the 47-year-old Oregonian as Secretary of Energy to replace the outgoing James Edwards.

The appointment of Hodel, administrator from 1972 to 1977, stirred up some smoldering embers in the environmental community, which characterized his appointment as "the second James Watt" of the Reagan Cabinet. Many Northwest environmentalists remember Hodel for a 1975 Portland City Club speech, in which he blasted some environmentalists as "prophets of shortage."

In response to the nomination, utility officials and veteran BPA staffers described Hodel as a decisive and capable administrator who will bring a unique understanding of the region's present energy problems.

Many of today's troubles were just on the drawing boards when Hodel was BPA boss. Hodel was Administrator as BPA and the region's



DOE head named: Hodel's appointment has drawn mixed reactions.

utilities began to put together Phase II of the Hydro-Thermal Power Plan — the document that served as the foundation for construction of the costly Washington Public Power Supply Systems nuclear projects and other coal and nuclear facilities in the Northwest.

It was Hodel who issued the 1976 Notice of Insufficiency—telling BPA's preference and industrial customers they couldn't be assured of all their power after 1983—which is now being contested in local courts.

Hodel's tenure was also marked by some important milestones for BPA, such as the completion of the Northwest-Southwest Pacific Intertie transmission lines and the construction of the third power house at Grand Coulee Dam.

Hodel left BPA in 1977 to practice law and serve as an energy consultant. Last year, he was appointed as top deputy to Interior Secretary James Watt.

The Northwesterner comes to the Department of Energy just as the Administration is attempting to dismantle it. His predecessor, Edwards, a former South Carolina governor and oral surgeon, had vowed to oversee his department's demise—to no avail. A DOE spokeswoman, Gail Bradshaw, says Hodel will continue Edwards' goal, although it's questionable whether Congress will go along.

In an interesting sidelight, Hodel has named a top BPA official, Earl Gjelde, as his executive assistant during the transition period. Hodel and Gjelde worked together when both were at Bonneville.

Hodel must be confirmed by the Senate, where his nomination is expected to be approved later this month.

Ratepayer candidates win PUD seats

The ratepayers movement shifted from the soapbox to the ballot box last month as Washington voters turned over nearly a dozen incumbent public utility commission positions.

The election results have already shook up the board of the Washington Public Power Supply System and marked the first widespread turnover of utility commission seats in recent times.

The losers included Nick Cain, chairman of the WPPSS executive board, who lost his Okanogan County PUD race to Jim Martin, and Dan Leahy, a Chelan County ratepayer

candidate who narrowly trailed his opponent, Jim Wall, for a position on the Chelan County PUD.

And there were a number of other major changes in PUD boards around Washington State. In Snohomish County, Matt Dillion, a leader in the group Fair Use of Snohomish Energy (FUSE), defeated a utility employee, Dick Wright. Dillion will be taking a seat vacated by Stan Olson, a WPPSS executive board member who decided to retire from the PUD board. There were several other counties where incumbents either chose not to run or were defeated in the primary. In Grays Harbor County, Jack Welch, a former WPPSS board member, opted not to run. In Clallam County, incumbent Art Fletcher was defeated in the primary.

The *Seattle Times* reported that of the 24 commissioners

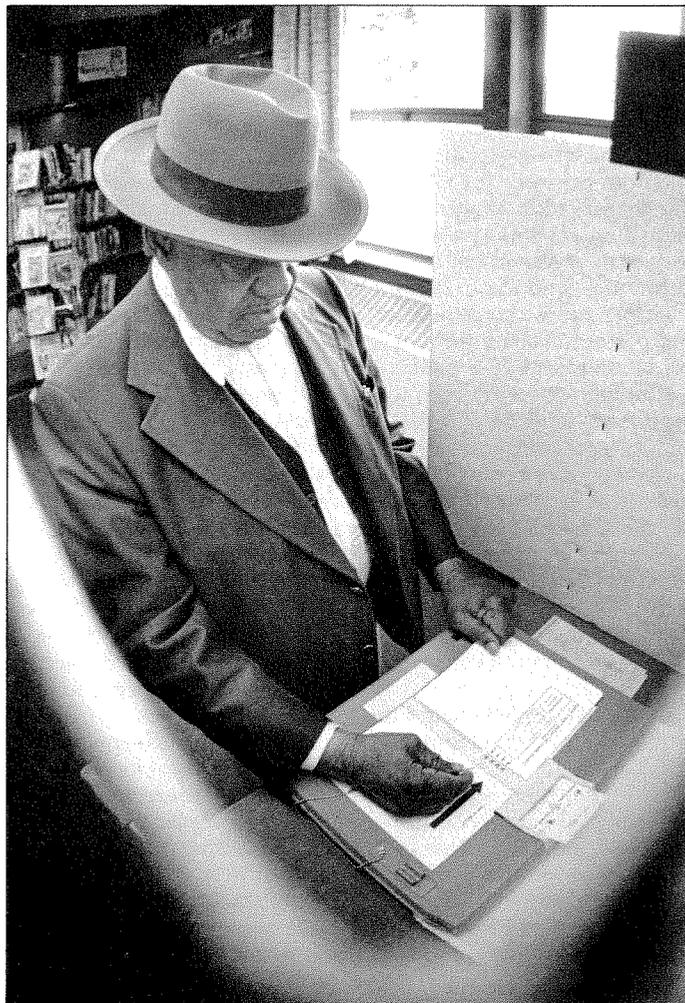
who would have been up for re-election, 11 decided not to run. In other counties, recall efforts are underway as the backlash from the troubled multi-billion dollar WPPSS projects spreads across the state.

Symposium on NW Power Act planned

Planning in the public interest will be the focus of a two-day symposium reviewing the development of the Northwest Power Act and the political, economic, technical and legal implications of policies being devised to implement it. The symposium is scheduled for Friday and Saturday, February 4 and 5, on the Lewis and Clark College campus in Portland.

Sponsored by the L&C Law School's law review *Environmental Law*, the symposium will include presentations by Roy Hemmingway, Oregon member of the Northwest Power Planning Council, members of the Council staff and others closely associated with the history of the Act. Bonneville Power Administrator Peter Johnson will be keynote speaker at 1:30 p.m. on Friday, February 4.

The Law School announced that approval is being sought from bar associations for continuing legal education credits for attorneys attending the symposium. Their registration fee is \$100. The sessions also are designed for engineers, representatives of ratepayer groups and the general public. That registration fee is \$50. Scholarships and group rates are also available. For further information, write *Environmental Law*, 10015 S.W. Terwilliger Blvd., Portland, OR, 97219, or call (503) 244-1181, ext. 700.



Casting the ballot: The recent elections in Washington state brought a widespread turnover in PUD seats.



THE GREAT ELECTRIC RATE SHOCK

*BPA's rates are reaching record levels,
and ratepayers are, at best, perplexed about their utility bills.
Here's a look at what's happening.
And a glimpse at what might.*

A year ago it was a drama played out in town gymnasiums and on television screens. Electric rates were shooting up. Two of the multi-billion dollar Washington Public Power Supply System nuclear plants were cancelled. And

ratepayers, many sporting red-and-white buttons declaring "I'm Irate," hurled angry questions at local utility officials. What was happening with their power bills? they demanded.

(Turn to page 10)

It was a ratepayer revolt. Colliding with economic hard times, the public outcry about rates has created a charged environment as attempts are made to put the region's energy house back in order. It's the makings for what one utility official dubs "The Great Rate Debate."

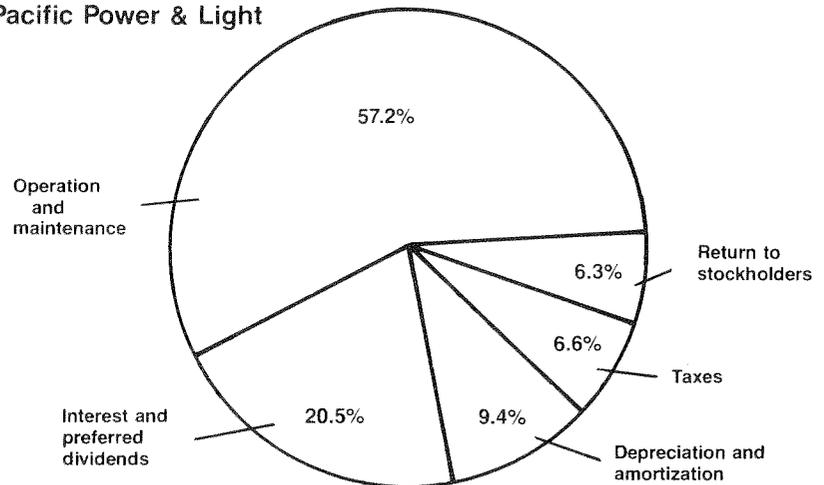
Yet the debate over rates is a relatively recent development in Northwest energy history. For nearly 40 years, the electric power scene was one of tranquility filled with good news. Power was cheap. Rates held steady or, in some cases, even went down. The axiom of the time was "live better electrically."

Today, many of the region's ratepayers wonder if that is such a self-evident truth. The Bonneville Power Administration just raised its wholesale rates 50 to 60 percent. And more big hikes are on the way. Consumers are asking why rates are going up — even when they conserve — where rates are going, and what they can do about them?

The present rate debate comes as the region is trying to implement the Northwest Power Act, passed just two years ago to establish a new order for planning, generating, marketing and pricing electricity sold by BPA. But much of what ratepayers see in today's electric bills reflects the transition from one era to another. And the clamor sets the stage for the next era under the long-range plan of the new Northwest Power Planning Council.

Revenue requirements

Pacific Power & Light



To understand what has happened to electric rates — and what will happen in the near-term — it's important to understand what goes into setting utility rates. For while there is scant information on the billing stub beyond the amount due, the bill is a composite of many things that go into the rate equation.

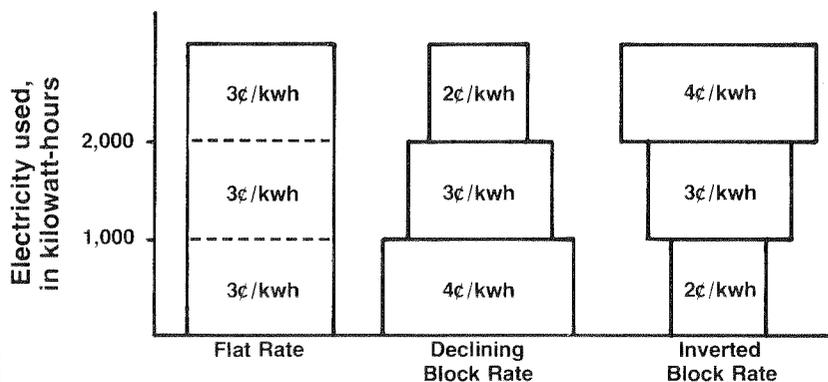
Basically, rates are set to recover the "revenue requirements" of a utility: what it costs to get the electricity from the point where it's generated to your home or bus-

iness. These requirements differ from utility to utility. For example, one utility might generate all its own power and cover a broad service territory. Another might purchase power wholesale, such as from BPA, and service a compact, densely populated urban area. Nevertheless, there are some fairly standard revenue needs:

1. cash expenses for daily operations;
2. repayment on principal and interest on money borrowed for power facilities.
3. fuel costs (except for conservation and renewable resources)
4. taxes, payments in lieu of taxes to local jurisdictions from public utilities and dividend payments to stockholders for private utilities.

Using these cost figures, utilities go through a complex process to set consumers' actual electric rates. In the Northwest, there are three rate-setting methods. At the wholesale level, the Bonneville Power Administration sets its own rates through an elaborate administrative procedure. BPA's rates are subject to final approval by the Federal Energy Regulatory Commission. For public utilities, state laws allow them to set their own local rates. For example, the Seattle City Council sets rates for Seattle City Light. For private, or investor-owned, utilities, rates are established by state utility commissions. Idaho

Electricity Pricing Methods



*Today's electric bills reflect
the transition from one era to another.*



Cheap: Bonneville Dam was the first federal power project built on the Columbia and has produced years of cheap power.

in part, its revenue requirements and marketing goal. A utility with large revenue requirements and sufficient generating resources may want to encourage sales — and, therefore, consumption — and lean toward a declining block or flat rate. A utility facing high costs for new generating resources may favor an inverted rate, which might reduce consumption but also reduce future costs.

These matters — revenue requirements, rate spread and rate design — were once the sole domain of a handful of rate specialists and attorneys within the utility fraternity. Understandably. From 1937 to 1965, BPA's wholesale rate was a flat 2.78 mills, or less than a third of a cent per kilowatt-hour. Between 1965 and 1975, it increased to 3.5 mills, or about 20 percent.

This extended period of rate stability and dirt cheap power marked the Northwest's hydroelectric era. For as the Federal Columbia River Power System was built — starting with Bonneville and Grand Coulee Dams and stretching up and down the Columbia and Snake Rivers — the cost of electricity actually went down in relationship to inflation. With nature providing the fuel, the cost of the dams was basically the original steel and concrete that

Power Company, for example, must file any rate change with the Idaho Public Utilities Commission for final approval.

To recover the needed revenues, utilities and regulators break costs into two categories: "rate spread" between various customer classes (typically residential, commercial and industrial) and "rate structure" or "design" within the particular classes.

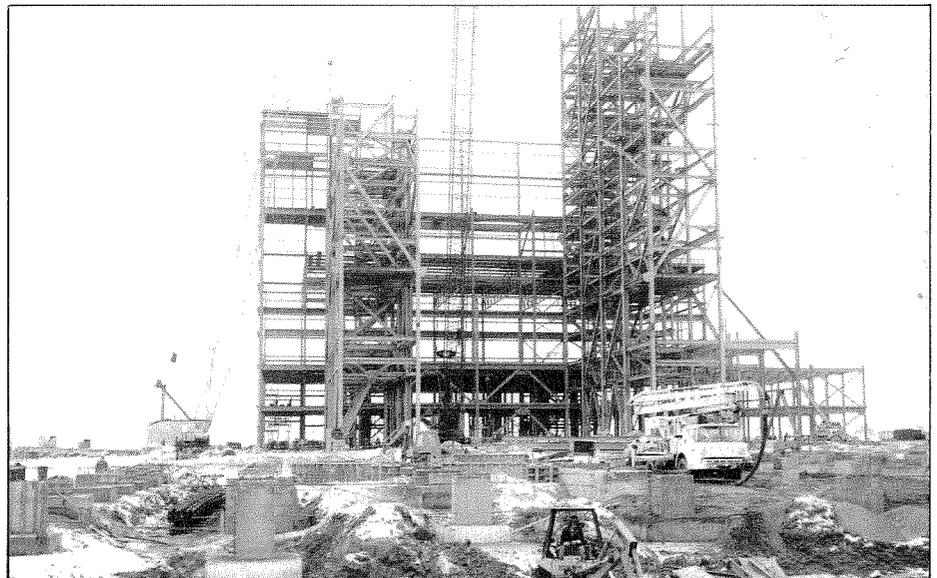
In the first case, the "rate spread" of the overall costs for each class may vary greatly because of the nature of the utility's service territory. Portland General Electric's territory is fairly compact, containing a mix of residential, commercial and industrial loads. Neighboring Pacific Power, on the other hand, is spread out over six Western states, running the gamut of potential customers. The proportions of utility costs for each customer class will be different for each utility.

With "rate design," the utility or regulatory commission is setting a pricing policy for each customer class. Generally, rate design will follow one of three patterns:

- Declining block — under this method, for each additional unit of electricity used (measured in kilowatt-hours), the price per additional unit or block gets smaller.
- Flat rate — you pay the same for each

kilowatt-hour no matter how many used.

- Inverted block — in this case, each added unit or block of electricity gets more expensive.
- The pricing policy a utility picks reflects,



Not-so-cheap: Portland General Electric's Boardman coal plant was part of the region's thermal power period. But Boardman wasn't so cheap. This one coal plant cost \$525 million to complete.

How rates are set – federal, state & local

There are three basic rate setting processes that determine the price of retail and wholesale electricity in the Northwest: local, state and federal. The first two affect the retail prices paid by residential, commercial and industrial users. The third affects the wholesale prices paid by the utility and directly served industrial customers of the Bonneville Power Administration.

Local rate setting process

The first step is a recognition by a municipally owned utility or county public utility district that it needs to increase or adjust its revenues. Most often, this means a rate increase. This is the result of an internal procedure.

In the second step, the utility or PUD develops a rate increase proposal. This process includes allocating costs over customer classes, designing the rate spread. And it includes designing the rates within customer classes, such as deciding how various groups of commercial customers will be charged for power within the commercial rate class.

Citizen rate advisory committees are frequently involved in developing the proposal.

A third step is actually filing the formal rate increase proposal with the governing body, the City Council or PUD Commission.

Fourth, the Council or Commission will undertake a rate review process that includes public hearings.

Fifth, the governing body will decide to accept, change, or reject the increase.

This process, while highly technical, includes public meetings and must follow state laws governing locally operated public utilities.

State rate setting process

State public utility commissions regulate the rates of private or investor-owned utilities. These processes may include an informal exchange of infor-

mation before the formal process is initiated. Using the state of Oregon's process as a model, the process' major steps are as follows:

First, a private utility files for a rate increase.

Second, the public utility commissioner usually decides to suspend the request until both an investigation and a formal public hearing process are completed.

The commission staff then reviews the rate increase request to identify those issues on which it disagrees with the utility.

Fourth, a conference is held before the formal rate hearings begin. This conference gathers all the parties who will participate in the hearing proceedings (utility, staff, public interest groups), they exchange information, and written testimony is prepared.

Fifth, a hearing officer holds formal hearings, witnesses give testimony on the proposed rate increase, and a formal record of all the testimony is kept.

Sixth, the hearing officer prepares recommendations on the basis of the record and presents them to the public utility commissioner for decision.

Seventh, the commissioner reviews the record and hearing officer's recommendations and decides whether to gather more information, including holding further hearings, or to render a decision on the basis of the record presented.

At any time during this process, if the petitioning utility and the state commission staff reach agreement over issues, they can seek approval directly

from the commissioner, thereby short-cutting the procedure. In all, Oregon state law requires this procedure to be completed in no more than nine months.

Federal rate setting process

The Northwest Power Act, Section 7(i), sets forth the process by which BPA wholesale rates must be set.

Step one requires the BPA Administrator to file notice of intent to change rates in the Federal Register.

Second, BPA develops an initial proposal detailing what rates will be changed along with justification for those changes.

Third, formal hearings are held, under the direction of a hearing officer, to hear testimony from BPA, its customers, and other interested parties, and a formal record is prepared. At the same time, a second set of hearings is held around the Northwest region to gather citizen testimony.

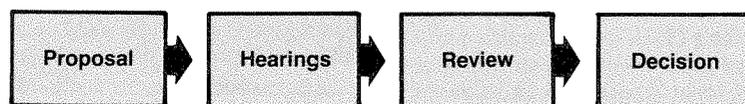
The fourth step occurs once the hearing process is concluded. The BPA Administrator reviews the record and develops a final rate change proposal.

Fifth, this final rate change proposal is filed with the Federal Energy Regulatory Commission.

Sixth, FERC reviews BPA's proposed rate change, looking for evidence that the proposed rates will recover the costs of generating and transmitting power.

FERC does not review the surplus sales rates BPA charges for power sold outside the region.

Rate setting process



(From page 11)

spanned the river. The potential supply of hydro power exceeded the demand. In turn, as more customers were added the construction costs of the project could be spread over more ratepayers, thus lowering the power cost.

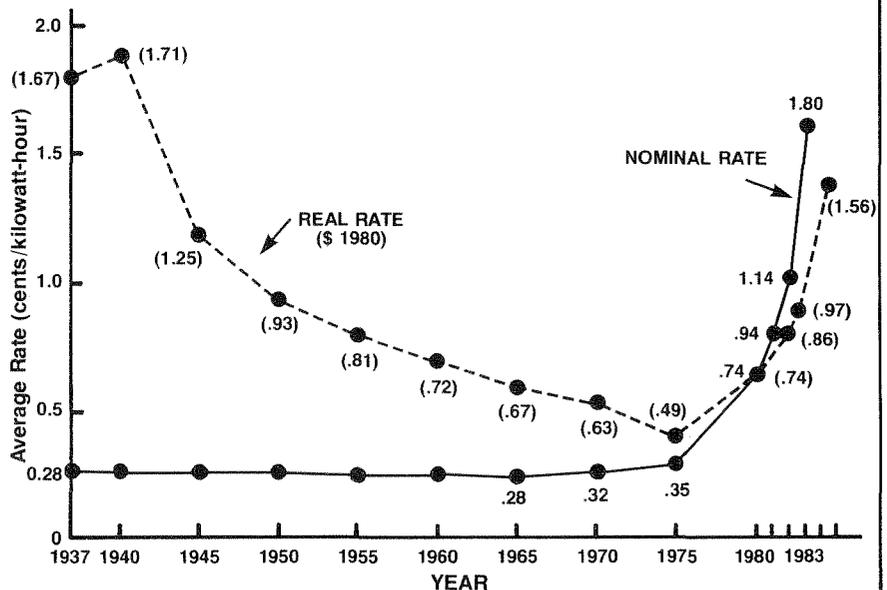
The dams were man-made marvels. The fuel was free, the potential power seemingly limitless. J.D. Ross, BPA's first boss, once described the Columbia River System as a "coal seam that would never thin." Started as part of the New Deal and built with low-cost federal government loans, the dams produced the cheapest electricity in the nation. For years the dams produced enough electricity for the region's numerous public utilities and rural electric cooperatives and the electric-intensive aluminum industry, with the remaining power to private utilities. The region seemed awash in cheap hydro power.

Yet even the mighty Columbia's dams had their limits. In the late 1960s, as most of the large hydro sites were developed and the number of customers grew, utility planners turned to the next era of power generation. It would be a thermal era. Coal. Nuclear. The transition to modern thermal power plants was one that the rest of the nation — not so blessed with a Columbia — had already made. For the Northwest it was encapsulated in the first phase of the Hydro-Thermal Power Plan.



Limitless power: J.D. Ross, BPA's first chief, considered the dams a nearly limitless source of electricity.

BPA power rates, 1937-1983



Wholesale rates for priority firm power. Priority firm serves public utilities and small farm and residential customers of private utilities.

"Real" dollars have been adjusted for inflation. All figures based on 1980 dollars. "Nominal" dollars have not been adjusted for inflation.

The tenet of the time was that the growth in electrical demand would shoot steadily upward, a given so reliable that it could be plotted with reasonable accuracy using a ruler and graph paper. The Hydro-Thermal plan envisioned initially 20 nuclear and two coal plants by the 1990s. They would carry the year round base electrical loads, with the dams — which could be quickly turned on or off like giant spigots — used to meet power demand peaks and seasonal loads. With the hydro system suited physically to meeting sudden power peaks and thermal plants most economically efficient when run full time, planners said the Hydro-Thermal plan was the logical post-hydro era step.

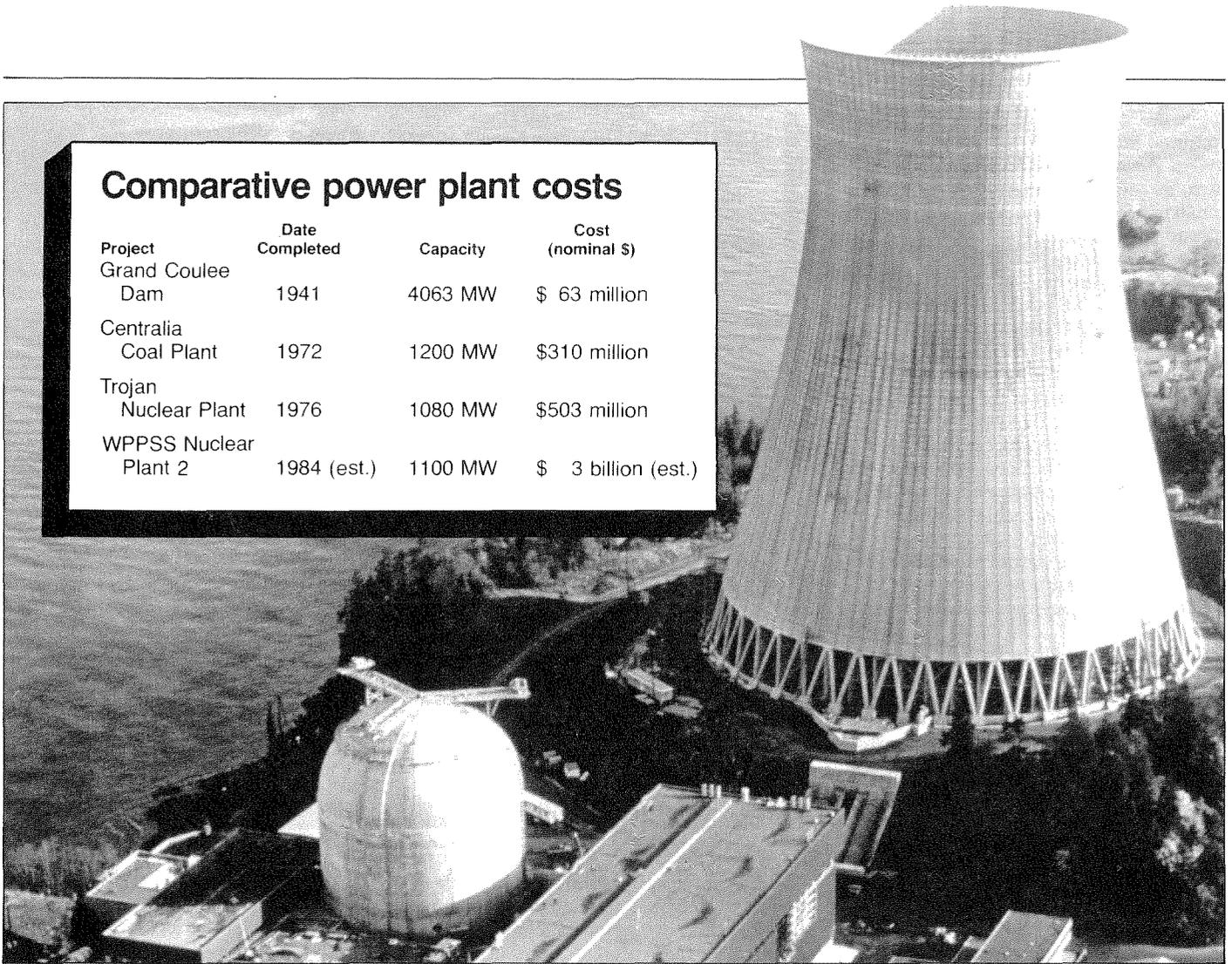
But the step came with a cost. Thermal plants, particularly nuclear reactors, were complicated to design, expensive to build and injected a new cost component into the rate equation, the cost of coal or uranium. The 1970s posed other complications, too. Double-digit inflation pumped up the price tag on new power

plants. Increasing power demand and plant construction delays threatened to throw supplies out of balance. By 1973, BPA stopped all but seasonal surplus sales to the region's private utilities. Cut off from cheap hydro power, the private utilities turned to their own thermal plants: Trojan Nuclear Plant in Oregon, and coal plants in Oregon, Washington and Montana. The new power plants rolled through the rate process, sending private utility electric bills dramatically upward. From 1970 to 1981, PGE's residential rates increased more than 200 percent, to 3.04 cents per kilowatt-hour from 1.09 cents. The rate hikes created a growing disparity between the retail rates of private utilities and public utilities.

Public utilities were not immune to the "thermal rate shock," however. As their part of the Hydro-Thermal Power Plan, the Washington Public Power Supply System embarked on building five giant nuclear plants. Under an elaborate financing mechanism called "net-billing," BPA

Comparative power plant costs

Project	Date Completed	Capacity	Cost (nominal \$)
Grand Coulee Dam	1941	4063 MW	\$ 63 million
Centralia Coal Plant	1972	1200 MW	\$310 million
Trojan Nuclear Plant	1976	1080 MW	\$503 million
WPPSS Nuclear Plant 2	1984 (est.)	1100 MW	\$ 3 billion (est.)



Nuclear first: PGE's Trojan plant was the first commercial nuclear reactor built in the Northwest.

agreed to financially underwrite the first two plants and 70 percent of the third. In turn, BPA would meet this revenue requirement — paying off municipal bonds used to finance the projects — by raising its rates. The arrangement allowed WPPSS to borrow billions to build the projects, using the rate-setting ability of the federal power marketer as a form of collateral. But in 1975 the Treasury Department nixed further use of the net-billing agreements for any other power projects. A year later, 1976, then BPA Administrator Don Hodel (now Secretary of Energy designate) issued “notices of insufficiency” to the agency’s remaining public and industrial wholesale customers. They were legal warnings that BPA

could not assure its customers of meeting all their power needs after 1983.

The notices, combined with the increasing rate disparity and fear of a crippling legal scrap over allocation of the cheap hydro power, sent public and private utilities, large power users and BPA back to Congress for a solution. Four years later the Northwest Power Act emerged — and the next era of power generation for the region.

“**T**he Act is about economics,” says Charles Collins, a Washington member of the Northwest Power Planning Council. “Pure and simple economics. It reflects today’s economic realities.”

And a large part of that reality is the rapid recent increase in BPA’s wholesale rates. In 1979, BPA hiked its rates 88 percent to 7.4 mills for public agency customers. In 1981, 50 percent to 11 mills. And this year, 60 percent to 18.1 mills. Furthermore, BPA anticipates that its rates will go up another 35 percent between now and 1986 before they might plateau. That would take rates from their 1975 level of 3.5 mills to a 1986 level of 24.5 mills — a 700 percent increase in just over a decade.

Behind that record BPA rate hike is primarily the financial impact of the three net-billed WPPSS plants. And a few more numbers illustrate the striking financial difference between old cheap hydro and new — expensive — thermal power.

The Northwest Power Act laid down a new framework for dealing with the question of electricity costs.

Grand Coulee Dam cost initially \$63 million in Depression Era dollars. The three WPPSS projects will cost more than \$10 billion — excluding the \$2.25 billion borrowed for the two projects terminated earlier this year. The net-billed WPPSS plants (the first of which is scheduled on line in early 1984) are in the BPA revenue requirement pipeline. And the flow of the pipeline can't be reversed.

So rates are continuing up, planners are looking at the next era of power development, and consumers are wondering what's happening to their electric rates in the near-term and what they can do about them in the long-term.

Today, with people reeling from record rate hikes throughout the Northwest, the

"Great Rate Debate" increasingly is focusing on a very fundamental economic question: How much is it going to cost?

The Northwest Power Act laid down a new framework for dealing with that question and directed the Northwest Power Planning Council to come up with a cost-effective plan for the region's electric energy future. In drafting its plan, the Council is to follow three criteria. First, is the power needed? Second, is it the most cost-effective resource? And third, does it follow the law's resource priorities of conservation, then renewable resources, then high fuel efficiency or cogeneration and finally conventional thermal power? The questions don't produce easy answers.

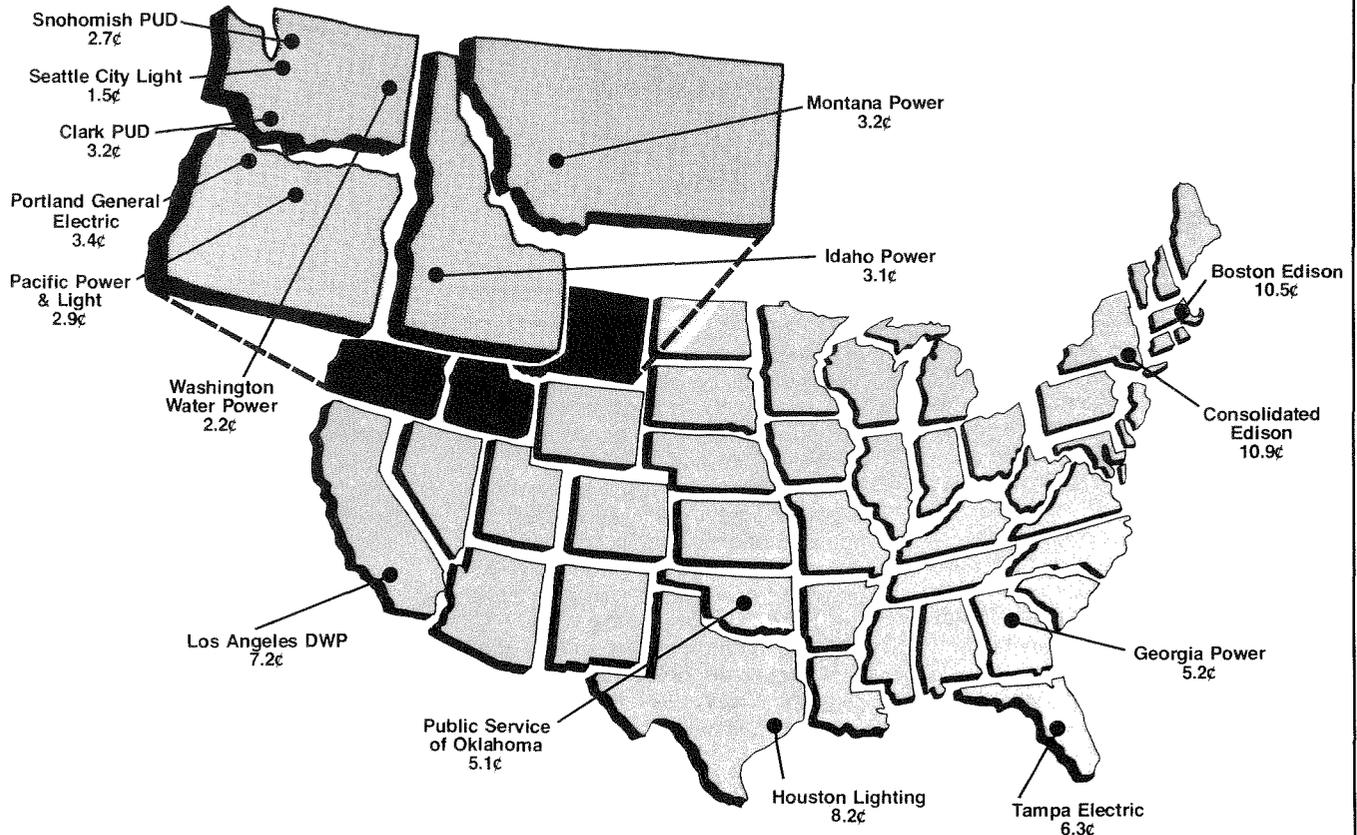
One of the central concerns is what to

do about conservation, especially given projected power surpluses, current power costs and conservation's impact on rates. More than one ratepayer has wondered at a public meeting or in a letter to the local newspaper about why rates go up even when they conserve electricity.

The seeming Catch-22 stems from the unique rate impacts of conservation programs. By promoting greater efficiency, conservation efforts can allow you to perform the same task, from heating your house to smelting an aluminum ingot, with less electricity. But lower overall consumption doesn't necessarily lower a utility's present revenue requirements. The original power plants still must be paid for. In the short term, reduced consump-

United States residential electricity rates

Cents per kwh, 1000 kwh usage, May, 1982



Big bills, slow sales mean BPA cash squeeze

Over the last six months, energy planners have breathed a collective sigh of relief as projections of a power surplus have replaced those of dire deficits. High stream runoffs, rising rates and increased conservation have combined to provide excess power in the region. BPA now estimates that the region will have from 500 to 1,000 average megawatts of firm energy surplus from October, 1983 to October, 1987.

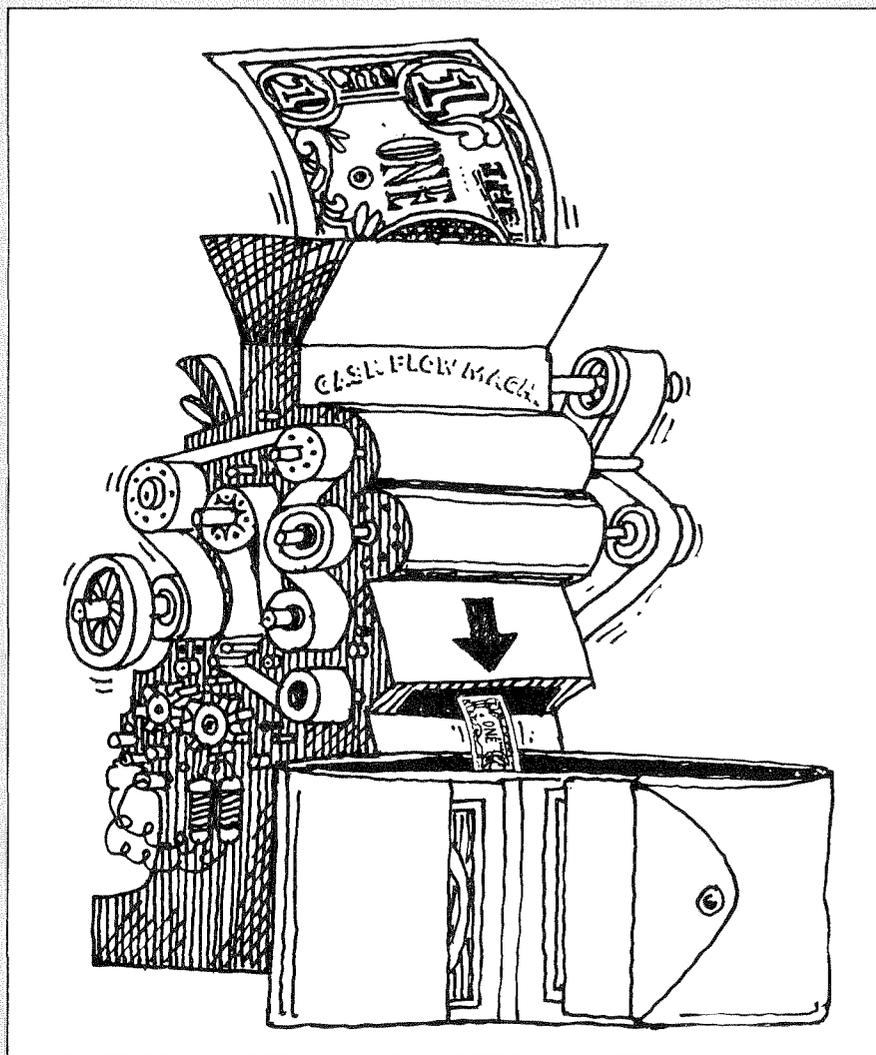
At the same time, the sluggish economy has hit the Northwest with full force. Industries have been forced to cut back production and curtail some operations, dropping the electricity demands on BPA.

This places the federal marketing agency in a sticky quandary — there's plenty of power to sell, but few ready markets outside of the Southwest. California utilities buy the surplus power for as little as half a cent per kilowatt-hour to offset their oil-fired generators which cost as much as 9 cents per kilowatt-hour.

These conditions have affected BPA's revenues from power sales both inside the region and to the Southwest. In October, Bonneville revenues fell \$18 million short of the projected \$155 million, prompting the agency to rethink its planned expenditures for the new fiscal year, including some \$225 million budgeted in the last rate case for Treasury payments on the federal hydroelectric system.

Deferring the Treasury payments in 1983 could cause BPA rates to rise sharply in 1984. Bonneville Administrator Peter Johnson, however, hasn't made a decision to defer the payments which would divert the agency from its current course of repaying the deferrals by 1985, according to Shirley Melton, acting director of BPA's Division of Rates. If the FY83 revenue shortfall continues, BPA may have to reconsider its policy, according to Melton. But she warns that it's too early to predict what revenue collections may be in the coming year.

BPA revenue reduction was triggered by the drop in power bought by big Bonneville customers. In October, BPA's direct service industrial customers purchased about 270 megawatts less than the 2,212 megawatts projected. The agency had hoped to sell about 1,000 megawatts



of firm power surplus outside the region, but sold only 200. Instead, the agency sold about 1,200 megawatts of non-firm power, which brings a lower price than firm power sales.

October's drop in loads is just another barometer of the load reductions due to economic conditions and stepped up conservation efforts — reductions which initially began in 1982. Early BPA estimates show that in FY82, loads from aluminum industrial customers were down about 19 percent from FY81.

This industrial load reduction coincides with an increase in sales of non-firm power to California. In FY81, BPA received around \$71 million from the non-firm sales outside the Northwest, according to Ann Priestley of BPA's Division of Customer Service. Around

\$135 million from non-firm sales was received in FY82, Priestley said.

To compensate for revenue losses, many are now urging Bonneville and the Northwest Power Planning Council to explore ways to "firm up" sales of non-firm surplus to California by establishing long-term contracts for the sale of the power. Others are urging that BPA garner a higher price for the surplus power by marketing it within the region, possibly to irrigators in the spring.

A "major effort" is underway at BPA to offset any revenue shortfalls by selling the available firm surplus power as non-firm power, according to Melton. If BPA can't, the agency will be "hard-pressed not to have shortfalls by the end of the year," she said.

BPA worries about generating surplus power that can't be sold for the cost of production.

(From page 15)

tion means the same revenue requirements must be spread over fewer kilowatt-hours sold. In addition, there is the second cost of the conservation program itself for even energy efficiency isn't free. In the long term, however, lower demand may mean that a utility will not have to invest in new, more expensive power.

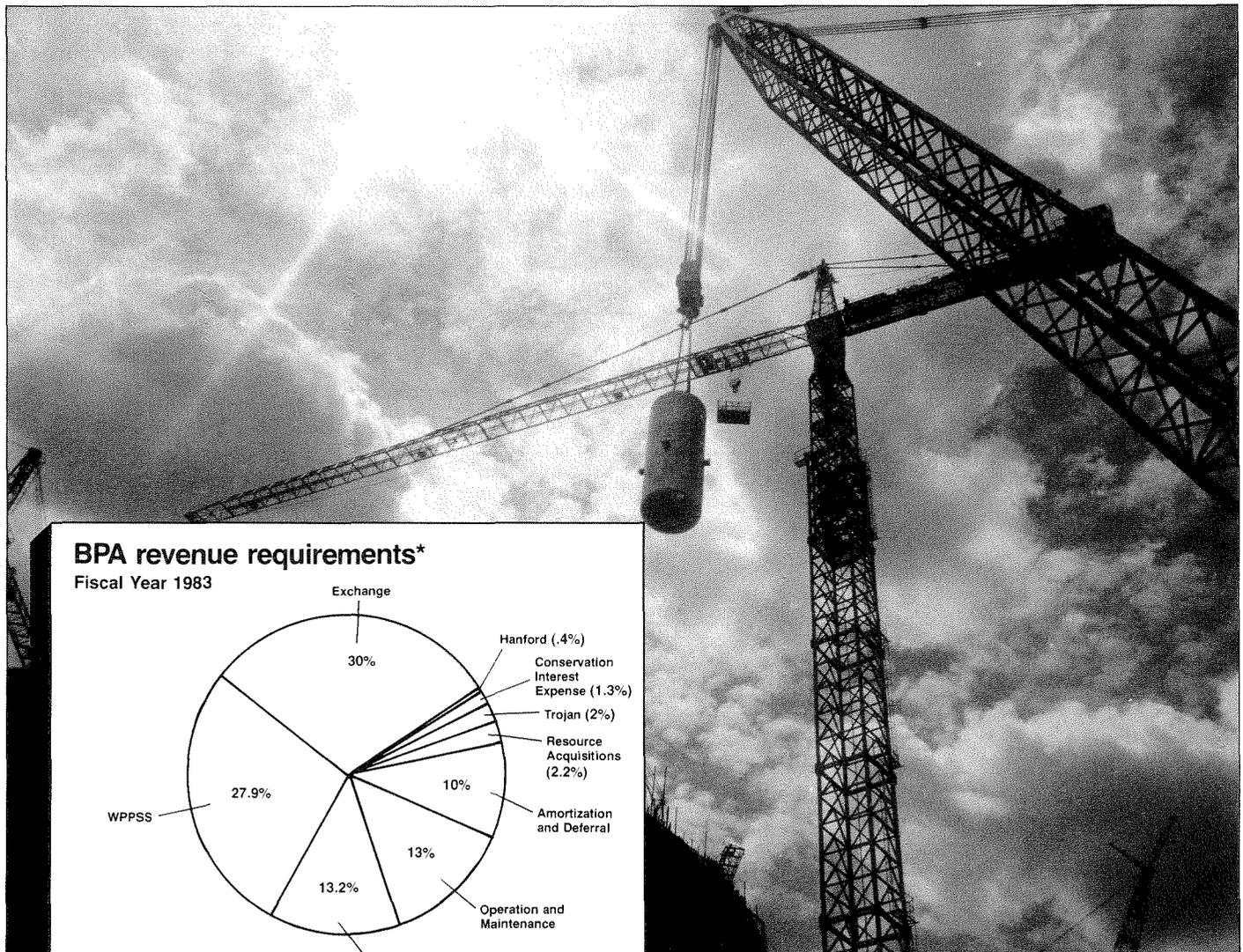
So demand goes down as more people conserve. A consumer who uses fewer kilowatt-hours may pay a lower total electric bill even if the rate per kilowatt-hour

increases. As rates go up, more consumers find it to their economic advantage to take the efficiency steps. So demand goes down again.

The spectre of this downward spiral effect especially concerns BPA. With the bulk of the WPPSS costs rolling through their rates, BPA has a high cash demand but its revenues are coming in lower than anticipated. The twin costs of conservation only complicates matters, says Dennis Metcalf, a BPA rate specialist. BPA worries, say officials, about having expen-

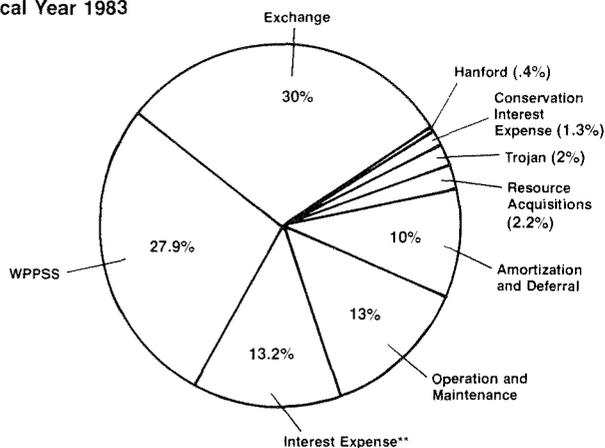
sive nuclear plants come on line generating surplus power, thanks to conservation, that can't be sold for the cost of production. And this situation is only compounded for public utilities involved with the cancelled WPPSS 4 and 5 projects. To some of these utilities, it's a question of whether they will be toppled first by a ratepayers' rebellion or the multi-billion dollar WPPSS debt.

(Turn to page 19)



BPA revenue requirements*

Fiscal Year 1983



*Total revenue requirement is \$2.2252 billion
 **Excludes interest expense for conservation debt.

Hoisting WPPSS costs: As the chart shows, a big part of BPA's cash requirements are for its backing of the first three WPPSS projects, such as Plant 1.

WPPSS photo

Puget Power tries to avert 'negative' credit

A recent request by Puget Sound Power and Light to amend its residential/farm agreement with the Bonneville Power Administration highlights one of the ironies of changing electric rates.

Section 5(c) of the Northwest Power Act allows private utilities to buy a share of low-cost power from federal dams at the same rate as public utilities. The idea behind the provision was to spread the benefits of the federal power system, including the cheap hydropower, to all homeowners, renters and small farms.

The provision works this way: If a private utility offers to sell power to BPA at its average system cost, BPA must buy it. BPA then sells an equal amount of power at its preference customer rate (for public utilities) back to the private utility for resale to its residential and small farm customers.

This works to the consumers' benefit as long as the private utilities' average system cost remains above the BPA preference rate. If the BPA preference rate rises above private utility's average system cost, the utility may ask to

have the agreement set aside until such time as the exchange will again benefit its residential and small farm customers.

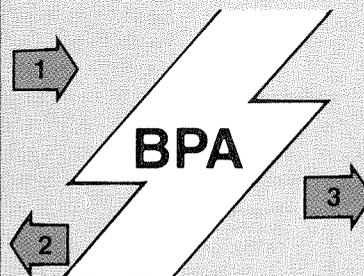
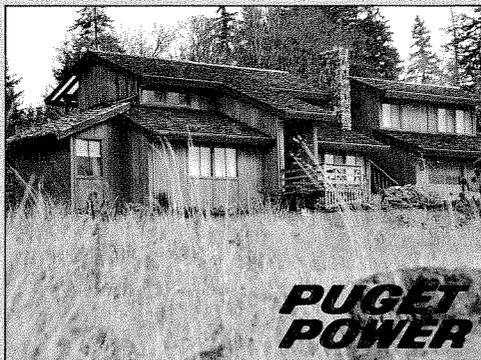
To prevent BPA from losing money in the residential/small farm exchange, crafters of the Act provided that rates charged by BPA to its large direct service industrial customers (mostly aluminum companies) would be raised to cover the exchange sales costs. In the bargain, the DSIs won the right to long-term power sales agreements with BPA, thereby assuring them of a steady, stable supply of power.

Puget Power and BPA signed an exchange sales agreement. But when BPA rates were raised October 1 — thanks largely to the cost of the first three WPPSS plants — they became higher than Puget's average system cost. To avoid being in a "negative benefit" situation, explained Puget Vice President Ron Bailey, the utility asked the Washington State Transportation and Utilities Commission for permission to "zero." This allowed the utility to ask BPA to put the exchange sales agreement on hold until such time as

Puget's average system cost may rise above the BPA preference rate.

The exchange contract anticipates this eventuality, Bailey said, and it also provides for an accounting mechanism to continue working so that if a utility like Puget later wishes to resume the exchange sales arrangement, the net cost to BPA will be zero. A utility can pay cash to reach a zero benefits balance, Bailey said, thereby opening the way to resume the residential/farm sales exchange.

"Yes, I think this provision of the Act is working well," Bailey observed. He said some utilities' average system costs will remain well above the BPA preference rate. So these utilities will continue their residential/farm exchange arrangements without interruption. But, Bailey said, because Puget Power's average system costs is relatively close to the BPA rate, it may from time to time shift into or out of the exchange depending upon which will most benefit its residential and small farm customers.



1) Private utility sells power to BPA at its average system cost.

2) BPA sells power back to private utility at preference rate.

3) The net difference is charged to direct service industrial customers.

One way to avoid future rate shocks could be through a fundamentally different kind of planning.

(From page 17)

Then what can be done to avoid future rate shocks? Collins says while rates will continue up there are several tools in the Northwest Power Act to avoid future shocks.

"Fundamentally, we have to plan differently," says the Council member. "We need to develop a system of risk management. Sure, we're going to make mistakes. But we should do all we can to keep those mistakes in the millions, not the billions."

A key to avoiding billion dollar mistakes is developing more flexible resources, says Collins, ones which can be developed in increments as demand actually appears over the horizon. And in that mix, Collins adds, rates and conservation play an important part.

"We need to get people to operate in their own economic self-interest," he asserts. "We're not talking so much about energy efficiency as we're talking about economic efficiency. Take the price of gasoline. What was economically efficient at 30¢-a-gallon isn't economically efficient at \$1.30-a-gallon.

But one of the region's problems, say some economists, is that today's price of electricity doesn't accurately reflect the cost of generating new power.

"We need to have consumption decisions based upon the cost of electricity," says John Gibson, a Seattle energy econ-



Two tasks: Washington's Charles Collins says the Council has two major planning tasks — get the power needed, and get the cheapest forms of power available.

omist. But Gibson says most ratepayers lack good information on future power costs and how they might be deferred through efficiency improvements. And even with information, Gibson notes, many consumers simply don't have the

money to make conservation investments in their homes or businesses.

The tools of the Northwest Power Act can knock down those barriers, Collins says. The Council has several means of improving the power system's efficiency and slowing the upward rate spiral, he points out. First, it can pursue a series of incentives, such as full financing of improved efficiency measures in new buildings which would be cheaper than building a new power plant years later. Another vehicle is through model retail rates to send consumers a more precise cost signal about the price of new power. And finally, mandatory regulations, such as mandating weatherization of a home at the time of sale.

But Collins says the decision to push ahead on conservation still needs to be weighed on the economic scales.

"The law tells us to do two things," says the Washington Council member. "It says get the power you *need*, and get it the *cheapest* way you can.

"If we succeed at that, we'll have gone a long way towards dealing with future rate problems."

Effect of conservation on electricity bill



Before
January use: 3800 kwh
Monthly bill: \$136



50% rate increase
January use: 2800 kwh
Monthly bill: \$203



After conservation improvements
Capital cost: \$900
January use: 2800 kwh
Monthly bill: \$146

Figures for monthly bill derived from Seattle City Light's winter rates.

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- B1 - Do we need avoided cost?
- B2 - What are conservation savings?
- B3 - Should we acquire conservation during periods of surplus?
- B4 - Rate designs as model conservation standards
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- B10 - Surcharges (if, when, how?)
- B11 - Establishing conservation targets

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