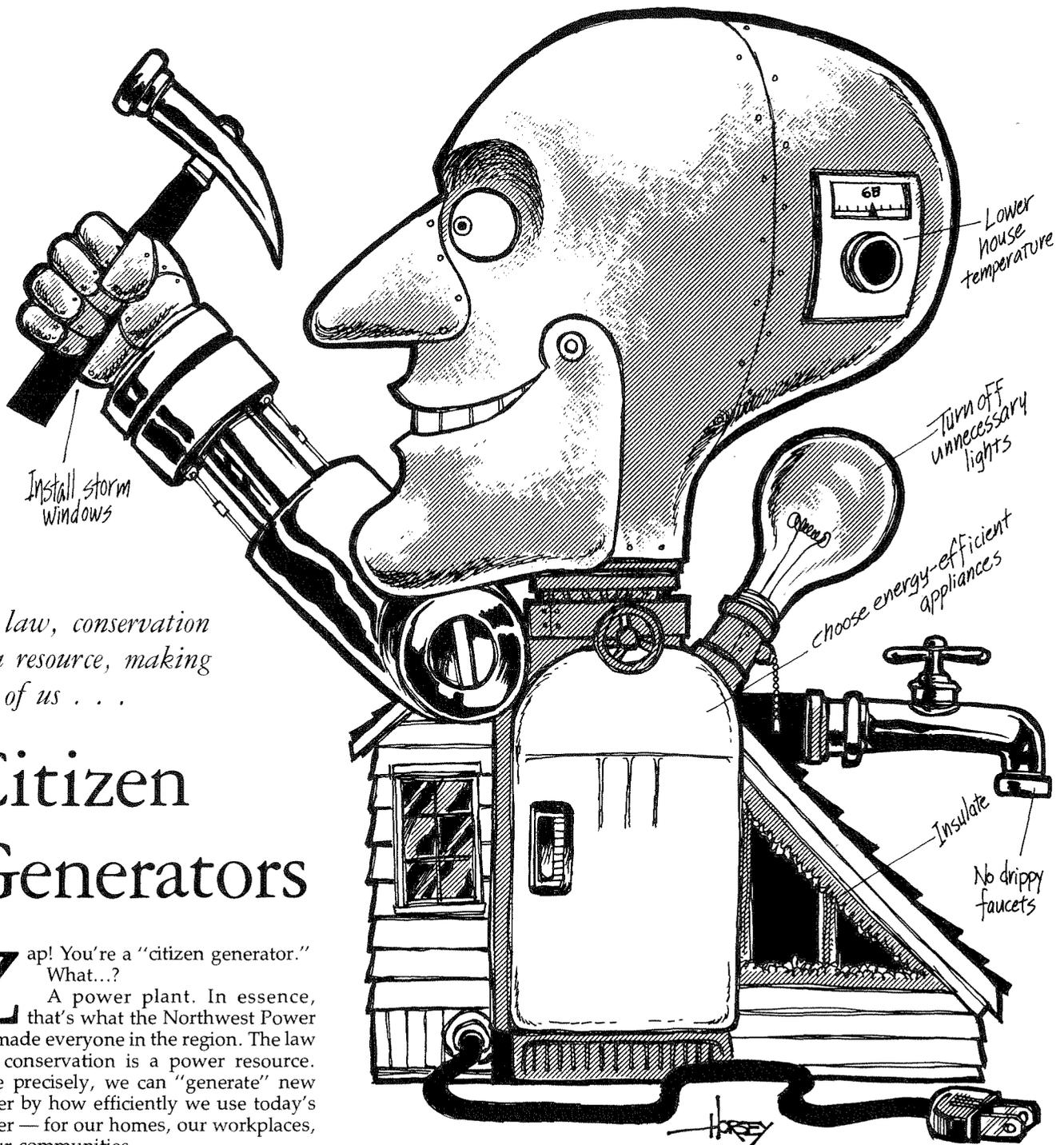


# N O R T H W E S T ENERGY NEWS

Volume 1, No. 4

Northwest Power Planning Council

July, 1982



*By law, conservation is a resource, making all of us . . .*

## Citizen Generators

**Z**ap! You're a "citizen generator." What...?

A power plant. In essence, that's what the Northwest Power Act made everyone in the region. The law said conservation is a power resource. More precisely, we can "generate" new power by how efficiently we use today's power — for our homes, our workplaces, in our communities.

"The Act clearly establishes conserva-  
(Turn to page 7)

## Idaho

Northwest Power Planning Council  
Statehouse Mail  
Towers Building  
450 West State  
Boise, Idaho 83720

Telephone: 208-334-2956

Council Members:  
W. Larry Mills  
Robert Saxvik

## Montana

Northwest Power Planning Council  
Capitol Station  
Helena, Montana 59620

Telephone: 406-449-3952

Council Members:  
Keith Colbo  
Gerald Mueller

## Oregon

Northwest Power Planning Council  
155 Cottage Street NE  
Salem, Oregon 97310

Telephone: 503-378-5487

Council Members:  
Roy Hemmingway  
Alfred Hampson

## Washington

Washington State Energy Office  
400 East Union  
Olympia, Washington 98504

Telephone: 206-754-0701

Council Members:  
Charles Collins  
Daniel Evans

## Central

Northwest Power Planning Council  
United Carriage Building  
700 S.W. Taylor, Suite 200  
Portland, Oregon 97205

Telephone: 503-222-5161

Toll Free: 1-800-547-0134

(Region-wide, except Oregon)

Executive Director:  
Edward Sheets

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

is published monthly by the Northwest Power Planning Council,  
700 S.W. Taylor, Suite 200, Portland, Oregon 97205.

Editor: John Arthur Wilson

Managing Editor: Annette Frahm

Contributors: Sam Sperry, Susan Skog, Torian Donohoe

The Northwest Power Planning Council was established to plan, for the Bonneville Power Administration, the region's electric energy future, emphasizing cost-effective conservation and renewable resources.

# N O T I C E S

## Council announces July 21-22 meeting agenda

The agenda for the Northwest Power Planning Council's July 21-22 meeting will include draft reports on contractor work in forecasting, conservation and resource assessment, model rate design, and quantification of environmental costs and benefits. The meeting will be held at the Hilton Hotel in Portland.

the Pacific Northwest in the last year and details what the Council has been doing to meet the April, 1983 deadline for adoption of its first 20-year forecast and energy plan.

It describes the Council's efforts to develop a fish and wildlife plan, its various contract work related to the energy plan, and its efforts to inform and involve the public in regional energy questions.

Copies of the report may be requested from Beata Teberg at the Council's central office.

## Council seeks comment on annual report

Under the Northwest Power Act, the Northwest Power Planning Council is required to submit an annual report to Congress. The 1982 draft annual report is now available for public review and comment.

The report describes what has happened with electrical energy planning in

## Errata

In the May/June issue of Northwest Energy News, we reported that the Douglas County Public Utility District spends about \$300,000 annually, or two percent of \$15 million revenues, on fisheries measures for the Mid-Columbia dam. Douglas PUD officials say that figure was only for the operation and maintenance of the fish facilities. The PUD officials say the utility actually spends in excess of 10 percent of annual revenues for the debt service on the fish facilities and their operation.

# C A L E N D A R

**July 13**, Conservation Subcommittee Meeting (SSAC), 9:30 a.m., Council Central Office, Portland.

**July 15**, Reserves and Reliability Subcommittee Meeting (SSAC), 9:00 a.m., Council Central Office, Portland.

**July 15**, Resource Assessment Subcommittee Meeting (SSAC), 10:00 a.m., Council Central Office, Portland.

**July 16**, Fish and Wildlife Subcommittee Meeting (SSAC), 8:30 a.m., Council Central Office, Portland.

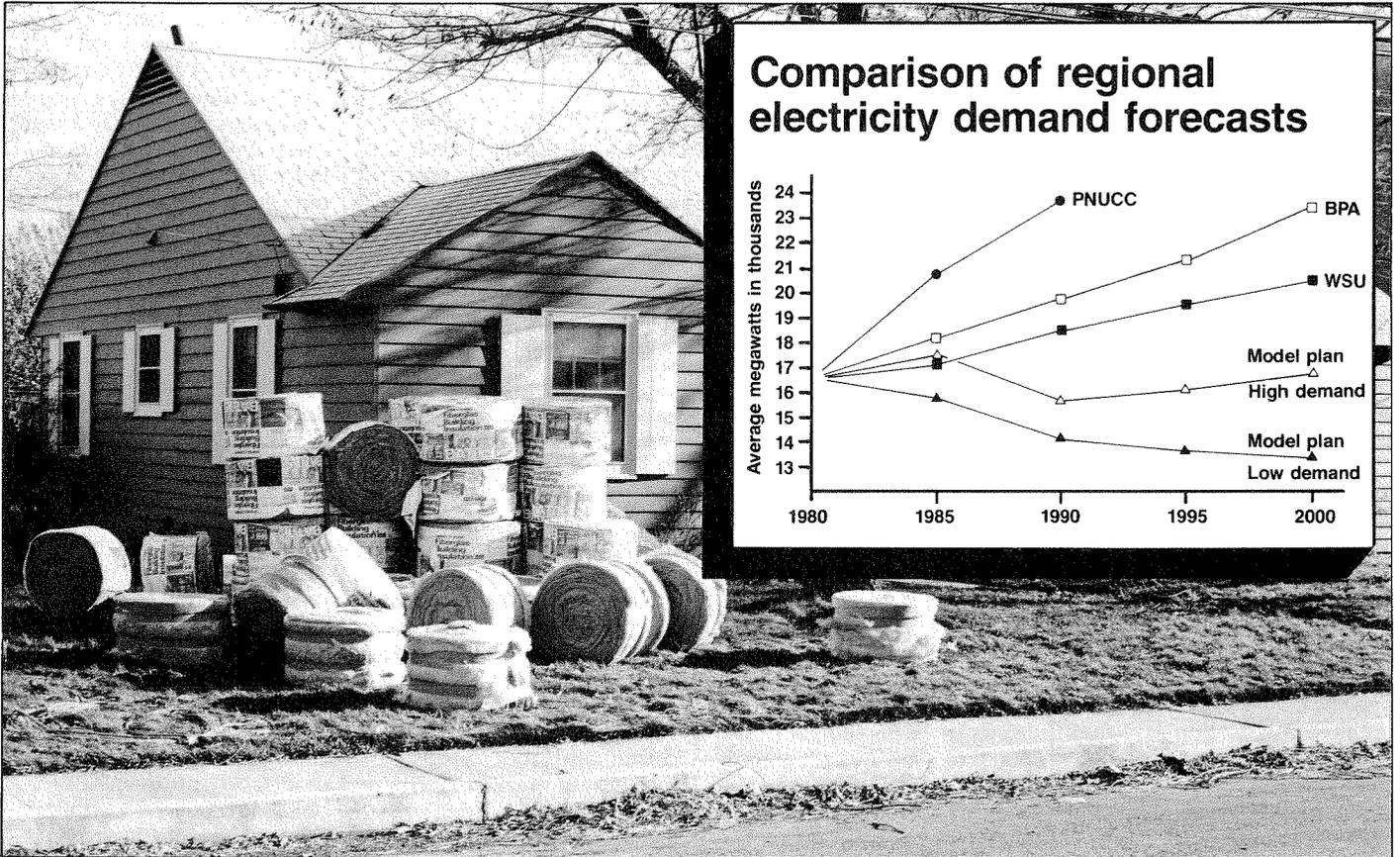
**July 20**, Conservation Subcommittee Meeting (SSAC), 2:00 p.m., Council Central Office, Portland. Optional meeting to hear presentation by Module VI contractor.

**July 21**, Forecasting Subcommittee Meeting (SSAC), 9:00 a.m., Council Central Office, Portland.

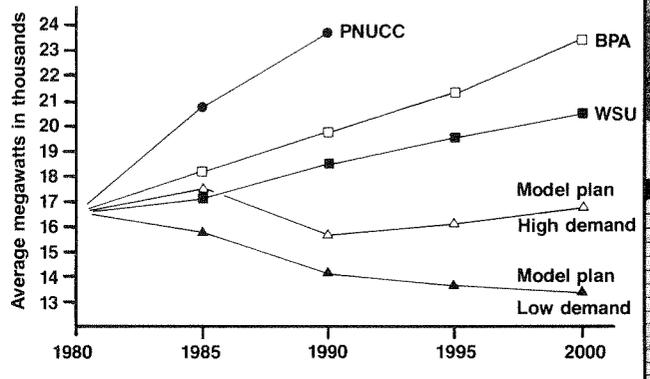
**July 21-22**, Council Meeting, 9:00 a.m., Hilton Hotel, Portland.

## JULY

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**Comparison of regional electricity demand forecasts**



**A fiberglass future:** Under the Northwest Conservation Act Coalition proposal, residential conservation would be a key to providing the region with new energy.

## Coalition pushes for aggressive conservation

*Region could defer new coal, nuclear plants if hydro used efficiently*

Aggressive electric conservation could put thousands of Northwesterners back to work and save the region's consumers the cost of building any additional coal or nuclear plants, according to a proposal by a coalition of citizen groups.

"This is a picture of what the region could do, how aggressive we could be in applying the new authorities and tools of the Northwest Power Act," said Mark Reis, Director of the Northwest Conservation Act Coalition.

"The plan is not a forecast of what the future will be; it

is a blueprint of what the future could be."

The proposed "model" plan, presented to the Northwest Power Planning Council last month, calls for the development of comprehensive conservation packages for the residential, commercial, agricultural, and industrial sectors.

In the residential sector, the Coalition's plan calls for door-to-door energy audits directed toward increasing ceiling, floor, wall, and water heater insulation; sealing air leaks around windows and doors; and adding more effi-

cient heating systems for general space and water heating.

"On average, households participating in the model plan program should realize reductions in electricity needs of about 50 percent. In some instances, savings will exceed 75 percent," said Ralph Cavanagh, one of the principal architects of the plan developed by the Natural Resources Defense Council, a San Francisco-based environmental group.

Cavanagh told the Council that the average cost for the residential sector savings

would be less than 3.5 cents per kilowatt hours. In addition, standards set for new home construction could bring the total annual electric use down to 2 kilowatt hours per square foot, or roughly 3000 kilowatt hours annually for an average 1500 square foot home, Cavanagh added.

Washington Council member Charles Collins, however, cautioned the Coalition that they might be overly optimistic about the savings from conservation.

"The tone to the plan is that there is no uncertainty about conservation," said

Collins. "The results to date are disappointing. We're having shortfalls of up to 50 percent in projected savings from conservation steps."

In response, Cavanagh said most Northwest utility conservation programs have been "modest" to date and that even within the Coalition's "model" plan rather conservative estimates are made about the effectiveness and benefits of conservation.

One way to provide greater certainty about the actual benefits of conservation, Cavanagh said, would be for the federal Bonneville Power Administration to approve a demonstration community conservation program proposed by Pacific Power & Light for Hood River, Oregon. Under the PP&L proposal, the utility would go door-to-door with an aggressive conservation program, designed around some targeted steps to provide a more accurate reading of what are the savings from specific conservation measures. The Coalition says that nearly all the measures it has proposed are included in the PP&L pilot project.

In the commercial sector, Cavanagh suggested that the Council, BPA, and the region's utilities focus on improving lighting, cooling, and space and water heating. "We assume that 15 percent savings can be achieved, on average, through measures that will pay for themselves in reduced electricity bills in two years or less," said Cavanagh.

The industrial sector, once fueled by cheap electricity, could also substantially benefit from energy efficiency efforts, according to the coalition's plan. "The region's industries will cut back on electricity consumption — either through curtailment or through efficiency improvement. The model plan seeks to promote the latter course as the only viable route to expand production and employment in the industrial sector," said Cavanagh.

By increasing efficiency in mechanical drive, production of process heat, electrolysis, and lighting, "the industrial

## Forecasts of regional electricity use

Figures in annual average megawatts

	PNUCC <sup>1</sup>	BPA <sup>2</sup>	WSU <sup>3</sup>	Model Plan: High Demand Scenario	Model Plan: Low Demand Scenario
1985	20,765	18,120	17,120	17,300	15,700
1990	23,834	19,624	18,410	15,600	14,100
1995	not available	21,350	19,510	16,100	13,600
2000	not available	23,333	20,490	16,800	13,400

<sup>1</sup>From Pacific Northwest Utilities Conference Committee, *Northwest Regional Forecast of Power Loads and Resources: July 1981-June 1992*.

<sup>2</sup>From Bonneville Power Administration, *Forecasts of Electricity Consumption in the Pacific Northwest* (April 1982).

<sup>3</sup>From Washington Energy Research Center/Washington State University, *Final Report to the Washington State Legislature, Independent Review of WNP-4 and 5* (1982) (Table A-15) (Projected loads, assuming termination of WPPSS Units 4 and 5, "moderate demand growth," and "moderate conservation and renewables").

sector can maintain the highest 20-year growth rates envisioned in the most optimistic current utility forecast and still reduce total electricity needs by 14 percent compared to 1980 levels," according to the Coalition.

In the agricultural sector, improving the efficiency of water pumping and irrigation could reduce electricity demand by 17 percent while still allowing for expansion in irrigated acreage, Cavanagh said.

With vigorous conservation efforts, said Cavanagh, the region could hold its total demand for power by the year 2000 to nearly the same level, 16,000 average megawatts, as in 1980. In addition, under the Coalition's proposal 13 coal and nuclear plants now under construction or proposed could be deferred indefinitely, leaving the region only to complete Valmy Unit II in Nevada, Colstrip Unit III in Montana and Washington Public Power Supply System Unit II in Washington. Nevertheless, Cavanagh said this would still provide the region with "a generous margin of safety" to ensure adequate electricity supplies for economic growth.

"This future will come about," said Reis, "only if

the region decides to choose its energy future, rather than waiting for that future to befall us."

The Coalition is made up a variety of environmental, citizen, and labor groups throughout the four Northwest states of Washington, Oregon, Idaho, and Montana.

## BPA conservation programs launched; some criticized

Last December, a year after Congress set the Bonneville Power Administration on a new course to pursue conservation, some Congressmen wrote Administrator Peter Johnson to express their frustration with the federal agency's progress.

"Members of the Subcommittee," wrote Chairman Richard Ottinger of New York and Washington's Al Swift and Oregon's Ron Wyden, "believe that BPA's implementation of the conservation and renewable resource acquisition

priorities has been unduly cautious and slow. One cause of the problem appears to be bureaucratic inertia in the face of new responsibilities."

The letter reflected two pivotal things about BPA's operation under the Northwest Power Act of 1980: first, the law had dramatically changed the agency from solely a marketer of electricity to a marketer and conserver of it; second, from Congressmen to various citizen activities, there was concern about the speed with which the federal agency was carrying out the mandates of the Act.

The Northwest Power Act directs BPA to develop all "cost-effective" conservation as the first priority for meeting the region's power needs, giving second priority to the renewable resources of wind, water, and the sun, third priority to co-generation and highly fuel efficient resources, and final priority to conventional resources such as coal and nuclear plants.

BPA's Johnson says the agency has been admittedly cautious; not wanting to waste money on unproven or unneeded resources. Further, Johnson says the agency, given its own forecast which indicates the region may have a power surplus to the end of the decade, needs to be cautious that ratepayers don't end up paying more for electricity than they have to.

In the present fiscal year, which ends September 30, BPA is to spend \$96 million for conservation, with another \$252 million to be spent in fiscal year 1983. The agency's conservation programs are directed toward the residential, commercial, and industrial sectors and toward helping state and local governments with implementation of the law. Contracts have been issued in all but the industrial sector. The programs include:

**Residential weatherization.** This program includes installation of insulation, storm doors, storm windows, and weatherstripping. Forty-five utilities have signed contracts for this program.

Following completion of a home energy audit, the homeowner is offered weath-

erization measures which the audit indicated are cost-effective.

Under the program, utilities have two financing options: 1) no-interest, deferred-payment loans for home owners; or 2) conservation "buy back," which is a one-time cash payment from BPA to the participating utility based on estimated kilowatt hour savings as a result of weatherization. BPA estimates that this program will result in a saving of 174 mw by FY 1987 at an estimated cost of 19.9 mills per kilowatt hour (kwh).

#### Shower flow restrictors.

This program is designed to increase energy savings by more efficient use of hot water for showers. BPA reimburses the 84 utilities participating in this program for distributing the restrictors. As of May 1982, 1,028,311 shower flow restrictors had been mailed. BPA estimates that 12 kwh will be saved in 1982 with a total of 21 mw by 1987 at an estimated cost of 2 mills per kwh.

#### Commercial conservation.

The goal is to increase the electrical efficiency of commercial buildings, which consume about 20 percent of the region's electricity.

This program, offered last September, is designed to reduce the amount of electricity used by commercial institu-

tions for lighting and water heating through installation of shower flow restrictors, water heater wraps, and replacement of fluorescent lamps with a more energy-efficient lamp. Under the program, BPA reimburses the 43 participating utilities for installation of conservation measures. For FY 1982, BPA estimates an energy savings of 9 mw and 32 mw by FY 1987, at an estimated cost of 5.1 mills per kwh.

#### Street and area lighting program.

This program reimburses the 69 participating utilities for replacing existing mercury vapor fluorescent or incandescent systems with energy-efficient high-pressure sodium lights. The program will be expanded to include low-pressure luminaries. To date, more than 12,000 light conversions have been made at an estimated cost of 2 mills per kwh. BPA estimates that an energy savings of 3 mw will be realized in FY 1982, increasing to 33 mw by 1987.

BPA has approved other programs but no contracts have been offered to utilities. These programs include: industrial technology exchange seminars, institutional buildings programs, utility sector studies to encourage increased energy efficiency in existing utility transmission and distribution systems, and low-

income weatherization.

One of the most controversial of BPA's approved programs is the low-income weatherization program. BPA began soliciting proposals for operation of this program in April 1981. The agency has held a number of meetings with low income groups, community action agencies, and state energy offices. To date, no final program design has been developed. One of the major problems BPA is facing with this program is determining how the program should be delivered, whether through community action agencies, state energy offices, local governments, or utilities. While BPA makes up its mind, frustration increases. On April 27, Oregon Governor Atiyeh wrote to BPA Administrator Peter Johnson expressing his frustration about BPA's failure to implement a low-income weatherization program.

"More than a year ago I wrote to the then Acting Administrator of the Bonneville Power Administration offering the assistance and expertise of the state of Oregon in rapidly achieving cost-effective conservation in homes of low-income Oregonians. . . . Again, Peter, I ask, can I help you? We stand ready to work with you to get a low-income weatherization program in

place by the end of the summer."

There are those who think BPA has done everything possible to expedite conservation programs.

John MacLeod, from Snohomish County PUD and head of the Northwest Public Power Association's Steering Committee which negotiates contracts with BPA, says there is "no validity to the argument that BPA is not expediting implementation of conservation programs. I don't know how BPA could have moved faster."

## BPA cost proposal draws utility fire

A Bonneville Power Administration conservation payment proposal has some Northwest utilities wondering whether it will even be worth getting involved with the federal agency's regional conservation programs.

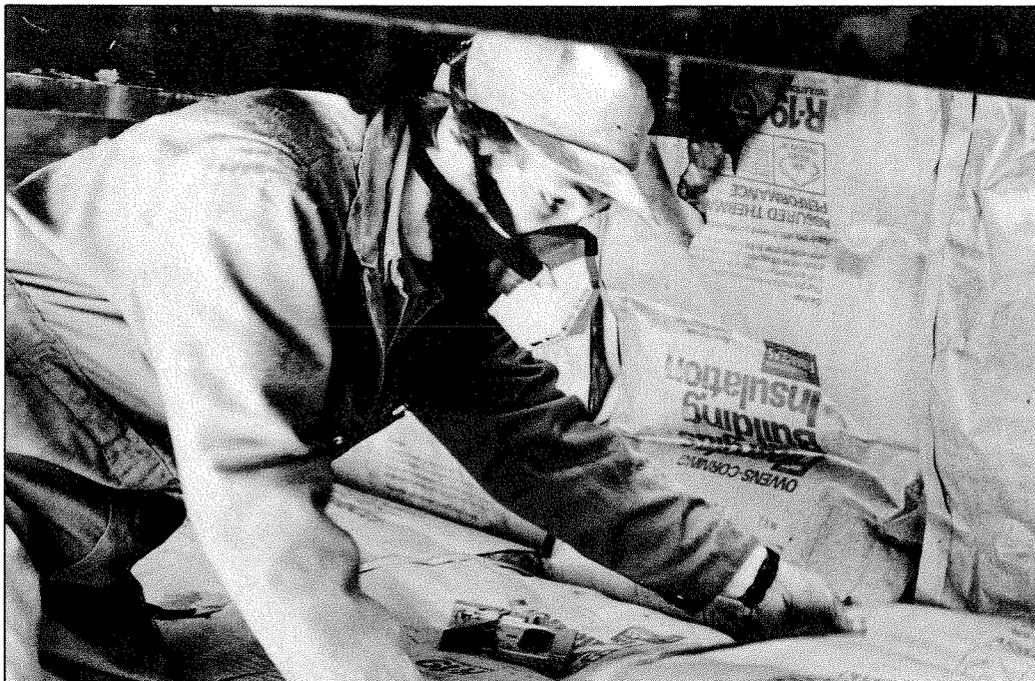
The proposal, included in the present BPA rate case, would place the majority of costs of conservation programs developed for regional benefit solely on those utilities which made the energy saving effort.

The proposal is "fatally flawed" and could work as an actual disincentive to conservation, says Charles Collins, Washington member of the Northwest Power Planning Council.

Under the proposal, if BPA offered a regional conservation program costing 30 mills per kilowatt, utilities using the program would be paid the 30 mill figure, but then charged the cost of the program less 5 mills, or 25 mills.

Because comprehensive conservation programs often reduce the utilities' overall kilowatt sales, some utilities argue that under the BPA proposal they would actually end up losing money because they would have declining sales while shouldering the majority of the costs of any conservation program.

At issue is who will pay for



Tacking down conservation: BPA programs are coming on line — but some say too slowly.

regional conservation programs and whether BPA's cost allocation method may actually thwart regional conservation rather than encourage it. And beyond the conflict between various utilities is the question whether the region's ratepayers will receive the full benefit of regional conservation programs as envisioned by the Northwest Power Act passed by Congress in 1980.

The cost allocation question has cut across a number of traditional utility lines, dividing utilities which generate some or all of their own from those which are totally dependent on the federal power marketing agency.

Utilities which generate most of their own power, such as Seattle City Light and the Eugene Water and Electric Board, have urged BPA to spread the conservation cost evenly to all BPA sales.

Non-generating utilities

argue, however, that without BPA's proposal or a similar one, they pick up a disproportionate share of regional conservation costs.

Under the generating utilities' proposal, a utility which receives all of its power from BPA would pay more in total dollars for BPA conservation than a utility which receives only part of its power from BPA — even though both utilities would pay the same amount per kilowatt hour for the cost of BPA's conservation programs.

Without the BPA proposal, a utility which reduced the amount of power it received from BPA could reach the point where it was paying little or nothing for BPA conservation programs in which it participated.

BPA has argued that without the provision, utilities which don't conserve will be penalized by having to pick up the

tab for those utilities which do.

In recent weeks, various utilities have been meeting privately hoping to work out some type of compromise proposal to offer BPA. The federal agency is presently reviewing the cost allocation scheme, and BPA Administrator Peter Johnson is scheduled to make a decision on it some time later this year.

## Initiative 394 struck down; ruling to be appealed

The fate of the Washington Public Power Supply System's beleaguered nuclear program

took another jarring turn when United States District Judge Jack Tanner ruled June 29 that Washington's Initiative 394 was unconstitutional.

Tanner said the initiative, passed last November, violated the constitutional protection against states passing law which unduly impair existing contracts.

The judge, however, said he would delay the effective date of his ruling until April 15, 1983, thus allowing the initiative to stand and for the various parties in the lawsuit to file appeals.

The lawsuit against the initiative was filed by three banks which serve as bond trustees for WPPSS Plants 1, 2, and 3. The banks are Illinois National Bank and Trust Company of Chicago, Seattle-First National Bank, and Morgan Guaranty Trust Company of New York.

The lawsuit sought to over-  
*(Turn to page 17)*

**Court room victory:** WPPSS bond backers win suit against Initiative 394, but the case is headed for appeal.



Jim Crisman photo

# Citizen Generators...

(From page 1)

tion as the Number 1 priority for new energy. And that is precisely what it is," says Dan Evans, chairman of the Northwest Power Planning Council. "Energy efficiency really is an opportunity to wring out more kilowatts out of what has been already produced.

"Each household, inadequately insulated or wasting energy in a variety of ways, is equivalent to a miniature electric power plant. All we have to do to get more power is to do better insulation or do the kinds of things that wring more power out of that little generating station, and there are millions of them in the Northwest."

Citizen generators. Millions of them. Ready to quickly, and relatively inexpensively, "produce" new power for the region.

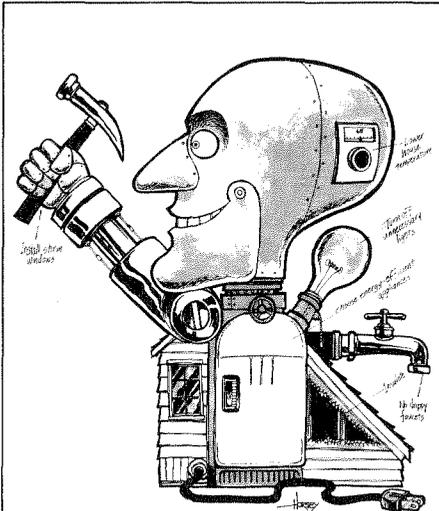
For citizens of Washington, Oregon, Idaho, and Montana, the Northwest Power Act, just as it did for coordinated electric power planning, has heralded a new, perhaps even pioneering, approach to conservation.

"For the first time in the history of the nation, conservation was to be considered as equivalent to a new source of energy," emphasizes Oregon Senator Mark Hatfield, one of the key sponsors of the law, passed in late 1980.

In fact, conservation is, by law, the region's first resource.

The law says the Council will plan for, and the federal Bonneville Power Administration will financially back, all "cost-effective" conservation measures and programs, giving conservation — because of traditionally different payback periods compared to conventional power plants — a 10 percent cost advantage over the next available resource. Under the law, that means BPA could fund a comprehensive conservation effort — such as wrapping water heaters — if it fell within 10 percent of the cost of building a new, conventional power plant, finally giving conservation equal standing with generating facilities.

But if the law says the Northwest must pursue conservation, what exactly is it that must be pursued? What are the benefits of conservation? Why is it important? What are some of the drawbacks, what works, what doesn't? And how do we "build" the power plant of conservation? These are the questions which the region's power planners and the general public —



## About the cover

Several months ago, Seattle Deputy Mayor Bob Royer was talking about how to communicate the concept of conservation as a resource. "People are citizen generators," Royer mused, able to "generate" power by how efficiently they use power. But how can you illustrate the concept? We asked Dave Horsey, the highly acclaimed cartoonist-writer of *The Seattle Post-Intelligencer*, to put pen to paper. This month's *Northwest Energy News* unveils his comical characterization of the region's new power resource, the Citizen Generator.

which is an essential element and a potential resource — must address in the months ahead.

Everyone seems to have a definition of what conservation is. To some, it's the next best thing to motherhood and the All-American apple pie; to others it's just another Orwellian example of big government creeping into the lives of average citizens. The rhetoric aside, Daniel Yergin, co-author of the Harvard Business School's best seller, *Energy Future*, says conservation falls into basically three categories:

Curtailment — It might be best de-

scribed as simply doing without. Curtailment usually comes in response to some sudden, unforeseen interruption of energy supplies (such as the 1973 Arab oil embargo) and is carried out through a variety of measures from turning down your thermostat to rolling blackouts in your business or community. The Northwest has seen the effects of electric curtailment, perhaps most graphically in 1977 when an unseasonably low snowpack dropped the amount of water in the Columbia River for hydroelectric power production.

Social overhaul — This would encompass radically changing lifestyles to reduce energy consumption. It could come from, for example, laws forbidding construction of new single-family dwellings designed to force people to live in consolidated, supposedly more energy efficient settings.

Productive conservation — Instead of doing without or radically changing lifestyles, Yergin says there is a third form of conservation, and that is simply increasing the efficiency with which we use energy — getting more work out of each unit of energy. By increasing the level of efficiency, Yergin says, the nation could cut its use of energy (all forms) by 30 to 40 percent and "still enjoy the same or an even higher standard of living."

This third form, says Yergin, can come from a myriad of methods, methods often substantially cheaper for the amount of power "produced" than it would cost to generate power in a more conventional manner.

For households, it can include increasing insulation in your floors, walls, and ceilings and caulking windows to reduce heat loss, turning down water heaters, replacing old appliances with new, more efficient ones, or even something as simple as shutting drapes at night to keep heat inside. In the commercial sector, substantial savings can come from, for example, reprogramming a building's computer-operated air conditioning and heating system to run more efficiently. In *Energy Future*, Yergin notes one auto parts manufacturer who invested \$50,000 in energy savings measures and saved \$1.2 million annually in energy costs.

While productive conservation can score savings like this, its advocates say conservation is often taken to mean only

(Turn to page 8)

*'Electricity in the Northwest is getting expensive. Yesterday's cheap hydro is reaching its limits and being mixed with expensive new power from coal and nuclear plants.'*

curtailment and receives too little attention regarding its potential in stretching present energy supplies.

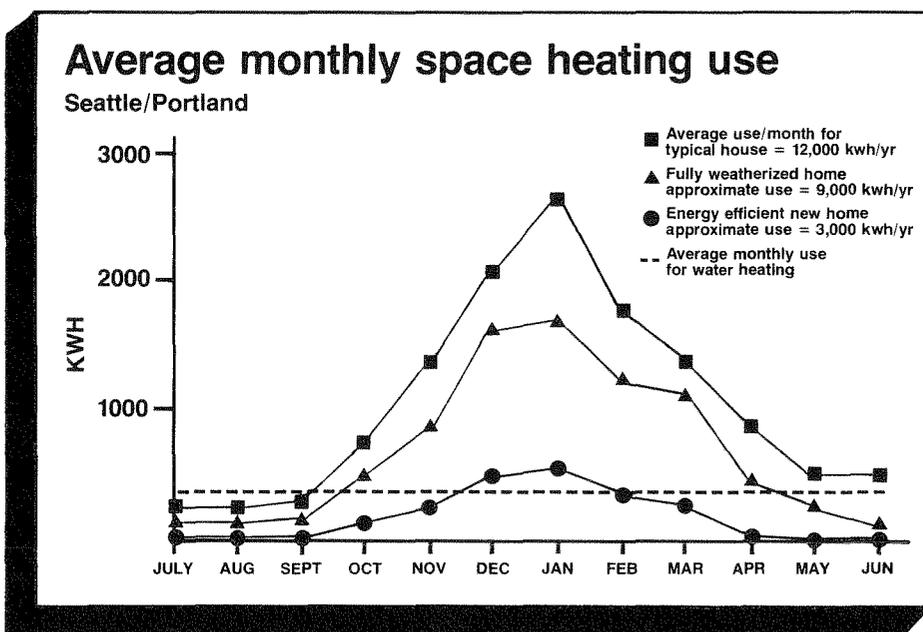
Regardless of past attention, conservation is bound, under the Northwest Power Act, to play an important role in the region's power future. And several factors bolster conservation's growing importance.

Perhaps the foremost is also the simplest: price. Electricity in the Pacific Northwest is getting expensive. Yesterday's cheap hydro, which has lit and warmed this region for decades, is reaching its limits, and is being mixed with expensive new power from coal and nuclear plants. If BPA's latest rate increase is approved, the federal agency's wholesale power cost will have jumped to nearly six times the 1979 level — from 0.3 cents a kilowatt to 1.8 cents.

The region has crossed, says Seattle Mayor Charles Royer, the thermal threshold. And that transition — from a cheap, largely hydro-based system to one using the river in combination with coal and nuclear power — has proven to be a costly change, driving retail rates upwards and causing consumers to rethink the value and importance of conservation.

In this land of cheap hydropower, the price of the new energy realities was felt first by the region's private utilities. Bumped off the BPA system because of legal preference given to public utilities, the private utilities turned to coal and nuclear in the inflation-driven 1970s, building new coal facilities in Washington, Oregon, and Montana, and the region's only commercial nuclear reactor, Trojan, in Oregon. Electric bills jumped; consumers responded. Some did the little things, like rope caulk around the windows; some did more extensive weatherization; and others decided to switch, heating their homes by wood stoves or other ways.

The region's public utilities were not immune to spiraling costs. The ballooning costs of the various Washington Public Power Supply System projects, some integrated into BPA's rates and others left with the individual utilities, started to show in the rates by 1979. That year alone the BPA rate to public utilities jumped 88 percent. And more double-digit increases



were on the way.

Yet, as inflation was sending power plant costs and rates skyward like a plume from Mount St. Helens, conservation was taking on another price-related dimension.

At less than a half cent a kilowatt, electricity from the Columbia's dams had been literally too cheap to save. Thanks to economies of scale and technological advancements, each new power plant had brought electricity on line cheaper than the previous one. To build more was to pay less. But the equation changed in the 1970s.

Each new power plant, whether hydro, coal, or nuclear, costs more than the previous one. Increasingly, utilities found it could be cheaper to find ways to stretch today's kilowatt to meet the needs of tomorrow's customer than to build another power plant. In California, for example, state energy officials pushed for standards to increase the efficiency of new water heaters because the value of the electricity saved was more than the cost of the new water tank.

So the price of power spurred consumers to save themselves money and encouraged utilities to wring more use out of existing kilowatts before building new — expensive — ones.

But the '70s saw another facet of conser-

vation's importance come forward.

The 1970s were unsettling times for utilities: the 1973 Arab oil embargo stamped "null and void" on all the industry's past rules. Where growth in electrical demand had once been a given — something you could plot on a piece of graph paper with a ruler — it became erratic, unpredictable. The balance between demand and supply teeter-tottered. This rocking sensation seemed to send more than one utility planner for the Roloids. Billions of dollars were at stake.

With inflation pushing the cost of new projects upward, higher costs meant higher rates, and higher rates meant people redoubled their efforts to squeeze more use out of each kilowatt. Environmental and safety-related regulatory changes meant the plants took longer to complete — up to 12 years from inception to completion — and the longer it took, thanks to inflation, the more it cost. It became a cycle. Higher costs. Higher rates. More conservation. Supplies fell out of balance with demand.

With so many plants delayed and over their original costs, utilities were racing to find some bridge between their present supplies and their projected needs.

Enter conservation. Conservation was something the utilities could develop quickly, in many cases at relatively low

cost, and reap immediate benefits. For consumers, low- or no-interest loan programs began to offer a chance to use some of the utility's money to save some of their own.

Conservation was on the road to becoming a resource, one which was flexible and could be developed incrementally as a hedge against a rapidly changing future.

Today, regional power planners are renewing interest in conservation.

"I think we are entering a period of great uncertainty," says the Council's Evans.

"To respond to these uncertainties, I think we have to prepare ourselves with a greater variety of resources." This variety should include conservation by more efficient use of electricity, says Evans. Where appropriate, we may want to consider switching to different energy sources, such as solar or natural gas for heating water, he says.

"These all represent resources because in each case it frees up kilowatts to be used for new needs," adds Evans.

**W**hile conservation might be able to ease some of the looming planning uncertainties, it is not without its share of problems.

Some of the problems are technical, such as indoor air pollution from a tightly sealed house or how to precisely measure how much energy will be saved from a particular measure.

Yet many of the surrounding problems are institutional and public policy questions about how to develop comprehensive energy savings programs.

One difficulty is getting utilities and the public to focus on conservation, says Yergin. In an age of flashing multi-color video games with speeding space ships, most conservation steps — things like wrapping water heaters or weatherstripping a window — lack a certain technological pizzazz. Solving indoor air quality problems doesn't seem to hold the same challenge as designing a nuclear reactor. And the legions of utility engineers are more often trained to deal with the technical complexities of power generation than to tackle problems of power conservation.

And if utilities have a natural leaning towards generation, the public may have a natural aversion to the context in which conservation is often presented. Energy efficiency measures tend to be marketed in a negative context, says Tom McGrath of the Seattle-King County Home Builders, noting the nickle-sized device commonly called a shower flow restrictor. Why not market the same device as a "high efficiency" shower head insert, McGrath suggests.

Another perception problem is the relationship of conservation to rates. Consumers often complain that even though they conserve electricity their power rates still go up. So why conserve? It's a dilemma facing many utilities, which have certain fixed costs (such as paying off loans for completed power plants) that must be covered no matter how many kilowatts are sold. If fewer kilowatts are sold, then the costs are spread over a smaller base. Nevertheless, conservation may still be cheaper than building a new — and expensive — power facility, which those who don't conserve and do conserve will pay for equally.

(Turn to page 12)

## Puget Power pushes commercial conservation grant program

Puget Sound Power & Light Company, in a commercial conservation financing program which is the first of its kind in the region, says many businesses seem anxious to find ways to save electricity — and save money.

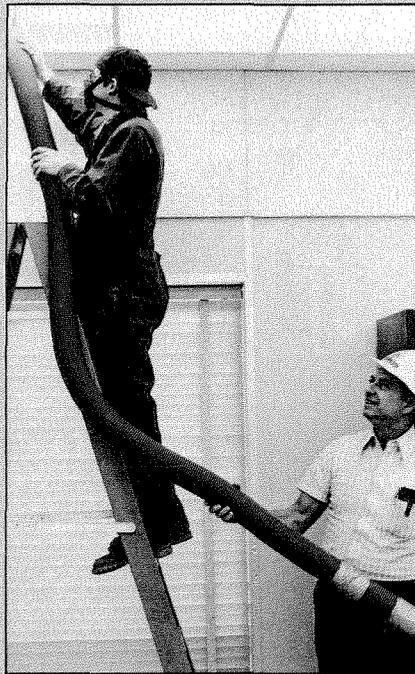
Puget officials say 800 customers have already applied for the commercial financing program, with 250 jobs completed and another 300 underway.

Bob Bannister of Puget Power estimates that the 250 jobs completed so far have saved the utility 13 million kilowatt hours.

The potential of the program, now in its second year, is enormous, says Puget's Jerry Lehenbauer. He estimates that each of Puget's 55,000 commercial and industrial customers can save between 20 and 40 percent of the energy they now use.

Puget offers two types of financing for commercial conservation: a cash grant, which pays about 70 percent of costs at the time of installation; and a no-interest, 10-year deferred payment loan. Work is performed by contractors based on a Puget energy audit and financial proposal. Work can include weatherization, improved controls for heating and cooling equipment, and changes to indoor and outdoor lighting systems. Puget engineers inspect the completed job before issuing payment.

"There aren't answers for a lot of conservation questions," says Lehen-

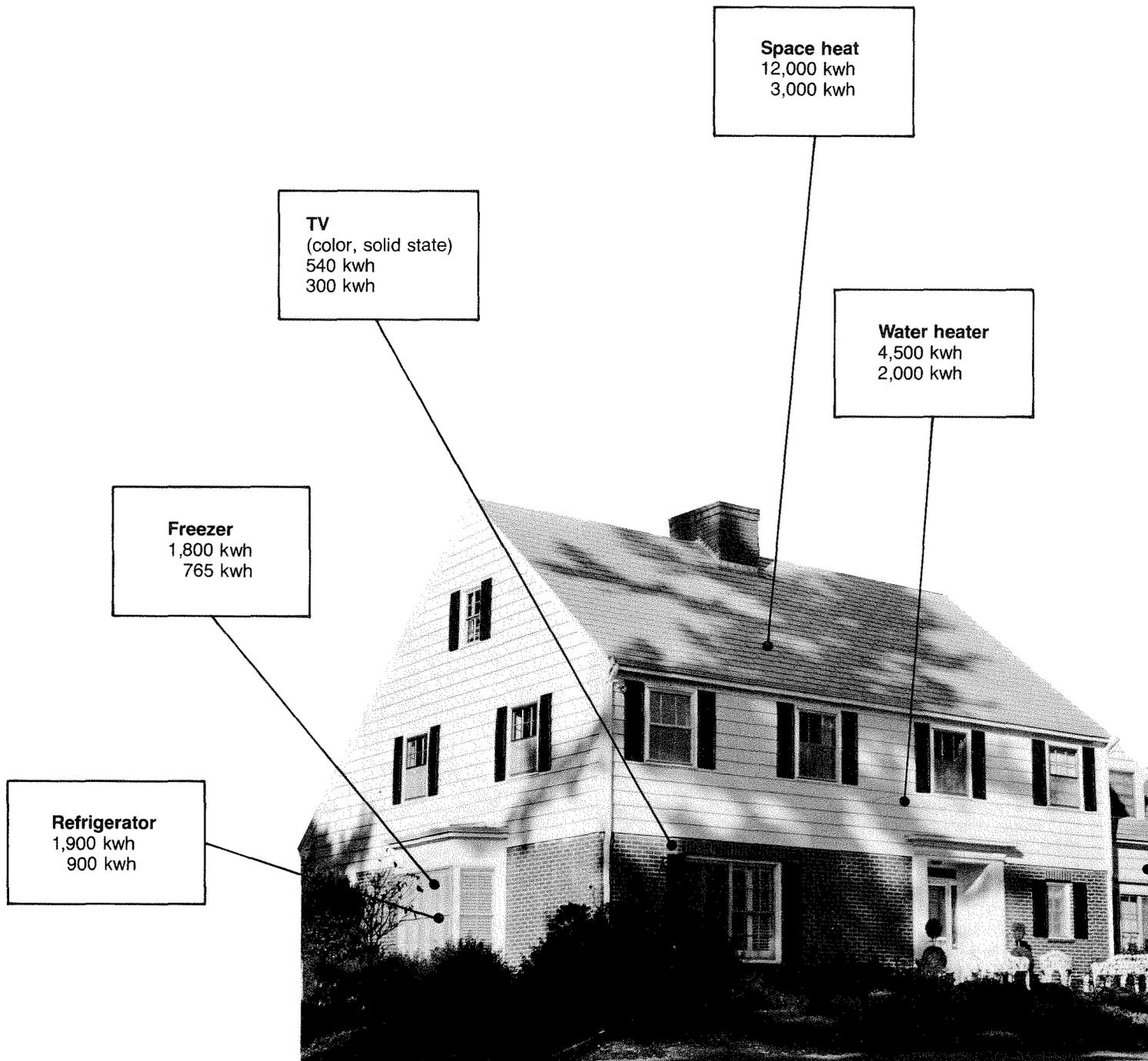


**Going commercial:** Puget offers a program to encourage businesses to increase their electricity efficiency.

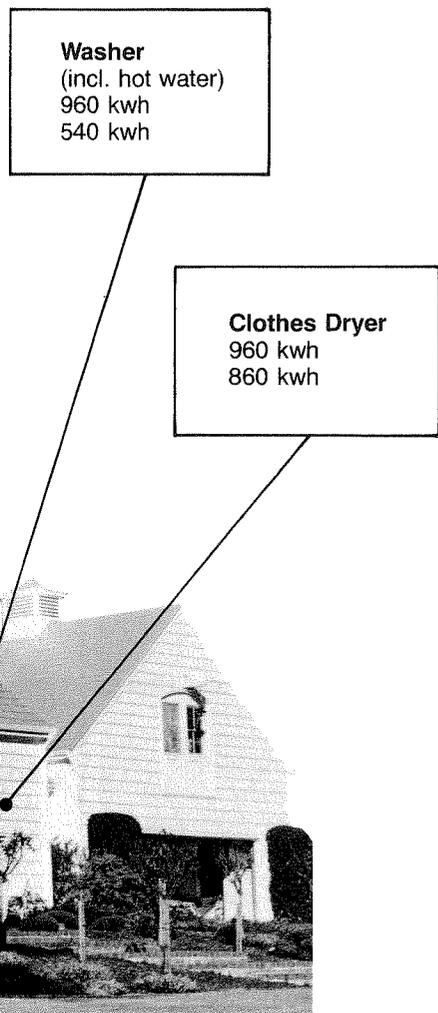
bauer. "Puget has been rather brave and decided to go ahead and see what happens. We're getting signals that we're doing good things and doing them right."

# Efficiency at home

How typical household appliances compare to most e



# Energy efficient ones



Does energy conservation mean one has to reduce one's standard of living, accept a lower-level lifestyle?

It doesn't have to, judging by energy-efficient products presently available to Northwest residents. In fact, people can cut their use of electricity 20 to over 50 percent and still enjoy the same level of convenience.

A good weatherization program that includes insulation, storm windows, and caulking and weatherstripping, for example, can cut the electric baseboard heat bill in a 1,500 square-foot home nearly one third. That could mean a saving of, say, \$16 per month, if that home cost about \$50 a month to heat.

If that home were built brand new according to established energy efficiency standards, the electric baseboard heat bill could be cut by up to 75 percent — down to \$12.50 a month from the current \$50.

Further savings are available in the form of new energy-efficient appliances. Super-efficient appliances are now available at most of the region's appliance dealers. The typical Pacific Northwest electric water heater today uses an average of 4,500 kilowatt hours of electricity a year. New electric water heaters now on the market, however, can use about 3,250 kwh a year, or about 30 percent less. An electric heat-pump water heater or a solar water heater can further reduce consumption down to 2,000 kwh per year.

Just as cars are getting more efficient, so are many typical appliances. Below are figures for appliances found in most homes.

The space heat figures are for a 1,500 square foot home with baseboard heat and a typical mix of appliances. Column one gives figures for the *average* number of kilowatt hours now consumed in the Northwest region. Column two shows reductions based upon an *average* of available energy efficient homes and appliances. Column three shows the *most efficient* home and appliances available.

## Consumption in kilowatt hours per year

End Use	Current Regional Average <sup>1</sup>	Retrofit & Replacement Average <sup>2</sup>	Most Efficient Available <sup>3</sup>
Space heat	12,000	8,400	3,000
Water heater	4,500	3,250	2,000
Refrigerator	1,900	1,330	900
Freezer	1,800	1,140	765
Cooking	1,200	975	750
Washer (incl. hot water)	960	720	540
Clothes Dryer	960	860	860
Dishwasher (incl. hot water)	1,000	1,000	800
TV (color, solid state)	540	360	300
Lighting	1,000	1,000	800
Other	1,000	1,000	1,000
<b>TOTALS</b>	<b>26,860</b>	<b>20,035</b>	<b>11,715</b>

Note: Federal Trade Commission regulations require manufacturers to show rates of energy consumption (commonly in kwh) on appliances and in catalogs listing appliances. The "other" category above includes smaller, miscellaneous appliances such as toasters, hair dryers, and vacuum cleaners.

<sup>1</sup>Source: Bonneville Power Administration, Pacific Power & Light, Portland General Electric.

<sup>2</sup>Source: Space heat and water heater figures from Puget Sound Power & Light and Seattle City Light. Appliance use figures from California Energy Commission and most recent Sears & Roebuck catalog.

<sup>3</sup>Source: Space heating use figure from Eugene Water & Electric Board. Other use figures from California Energy Commission and most recent Sears & Roebuck catalog.

*'There are basically three approaches to developing conservation: a marketplace approach, a regulatory approach and a mixed approach. Each has its advantages – and its drawbacks.'*

**B**eyond these barriers, however, is a heightening debate over how to develop "cost-effective" regional conservation programs as envisioned in the Northwest Power Act. Basically, there are three approaches.

The first might best be described as a pure marketplace approach: price electricity, whether it comes from a dam built in the '40s or a nuclear plant built in the '80s, at the cost to produce a new kilowatt from a new power plant, whatever the type. In utility circles, this is called "marginal" or "incremental" cost pricing. It sends consumers an accurate marketplace signal about exactly what that new kilowatt of power will cost. Under this type of approach, consumers decide individually how to respond to the cost of electricity. Some may choose to increase the weatherization of their homes; other might switch, for example, to natural gas for heat and hot water. Others might settle for donning a sweater.

The marketplace approach, its advocates argue, leaves the decision on conservation with the individual, avoiding the creation of a cumbersome bureaucracy and encyclopedic books of regulations, and allowing inherent economic efficiencies of the marketplace to "pick" the appropriate level of conservation.

The market approach also has its problems, critics say. Some people may simply not have the money available to respond to the escalating power costs. A market approach doesn't address economic equity questions of the poor and the elderly. The approach also raises questions about how much conservation planners can count on; how many people will take a conservation step? How much electricity might be saved from these?

A second way to nail down regional conservation is through regulations. Regulations can spell out detailed steps to be taken, including levels of insulation, operating efficiencies of different appliances, building designs, or even specific industrial processes to be used to increase efficiency. Regulations provide a certainty: this amount of electricity will be saved from each house that meets this standard. They also provide a uniformity of compliance — if increased energy efficiency can provide more power for the region, then everyone should pass the same test.



## **Irrigation savings gain import down on the region's farms**

Conservation programs are also reaping benefits for farming communities.

Depending on the crop grown, there are wide variations in soil types, electrical requirements, sprinkler system designs, and the amount of water required. But conservation is indeed taking place in rural farming communities.

"Surviving and making a living — that's what conservation used to be called," says Idaho Power Company's Agricultural Engineer Bill Berry, who has been helping farmers with irrigation problems for 30 years.

In 1980, Idaho Power began testing the energy efficiency of pump irrigation systems, checking more than 200 systems in southern Idaho. The company takes a "holistic approach" to irrigation monitoring, testing motors, pumps, valves, water flow, and sprinkler lines to determine the efficiency of the total system.

On the average, Idaho Power found the irrigation systems operating at 65 percent efficiency, which is very good, according to Berry. An inefficient system, for example, 50 percent on a 100

horsepower unit, could be costing the irrigator as much as \$2000 a year.

This year, the company intends to test at least 500 irrigation systems. The service is available to all irrigator customers.

Farmers are usually receptive to conservation suggestions, Berry said, though they are often skeptical that they are wasting as much energy as Idaho Power tests indicate. Once convinced of the kilowatt hour and monetary savings they could realize, "they are tickled pink," he adds.

Berry feels that part of the key to the success of the utility's irrigation program has been that consumers are charged for a portion of the Idaho Power service. The company charges \$50 to check each pump and \$100 a day for large multiple pump systems. This induces the farmer to get involved since he has a direct financial stake in the conservation effort, Berry says.

"It's not hard to convince farmers to conserve if your word is believable," Berry says. "They want to save money."

But regulations have their drawbacks. Strict regulations, by their nature, are ordering someone to do something, and risk raising public ire over things like "mandatory conservation." Regulations can put conservation in a negative context. In addition, regulations necessitate enforcement — and that means new government inspectors to make sure everyone is complying with the regulations. Inspectors create paperwork, and inspectors and paperwork cost money — money which might be better spent on measures that actually save energy.

A third approach is mixing the advantages of both the marketplace and regulatory strategies while attempting to cut down the disadvantages.

The first step might be to price electricity closer to what it actually costs to produce a new kilowatt, such as an "inverted" rate, where the more electricity you use the more per kilowatt you pay. This provides consumers with the marketplace message.

The second component could be some regulations, but regulations designed to set efficiency targets instead of reams of rules on insulation thickness, rope caulk

type, and other details. This would set predictable standards while allowing flexibility in meeting them and encouraging marketplace forces to find the cheapest way of meeting them.

The third facet, bringing together the marketplace and the regulations, might be simply marketing. Pacific Power & Light, a Portland-based private utility, has proposed such a test marketing program for the community of Hood River, Oregon. Under the proposal, PP&L would develop model conservation packages for homes

*(Turn to page 15)*

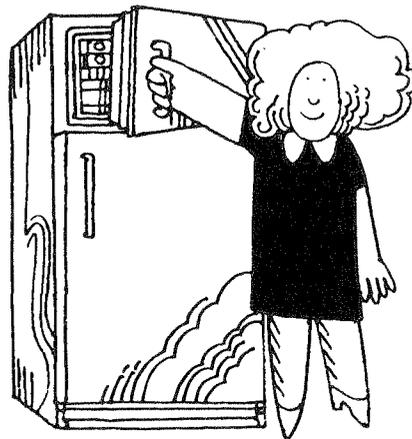
## California standards aimed at appliance efficiency

California's Building and Appliance Standards are among the nation's most aggressive and successful in promoting energy efficiency.

In 1976, the California Energy Commission established an energy code for new buildings. Those code provisions governing residences have been revised recently, and on June 13 tough new standards took effect. According to Bill Huston, manager of the Commission's Technical Analysis Section for Appliance Standards Development, the new residential efficiency standards will result in homes that consume 50 percent less energy than those built before 1975.

The standards are tailored to 16 separate climate zones which divide California with a general energy performance standard set for each zone. Huston said the Fresno zone — with hot summers and relatively cold winters — offers a useful example. There, a home may not use more than 12.4K BTU per square foot per year for heating, 23K BTU per square foot per year for cooling, and no more than 20,400K BTU per housing unit for hot water.

To meet these standards, a builder or designer may choose one of three methods for compliance: a certified computer calculation of the design, adhering to detailed standards (includ-



ing specifications for passive solar, super insulation, and domestic hot water), or a point system. The point system assigns both positive and negative points for design, types of equipment, and their efficiency.

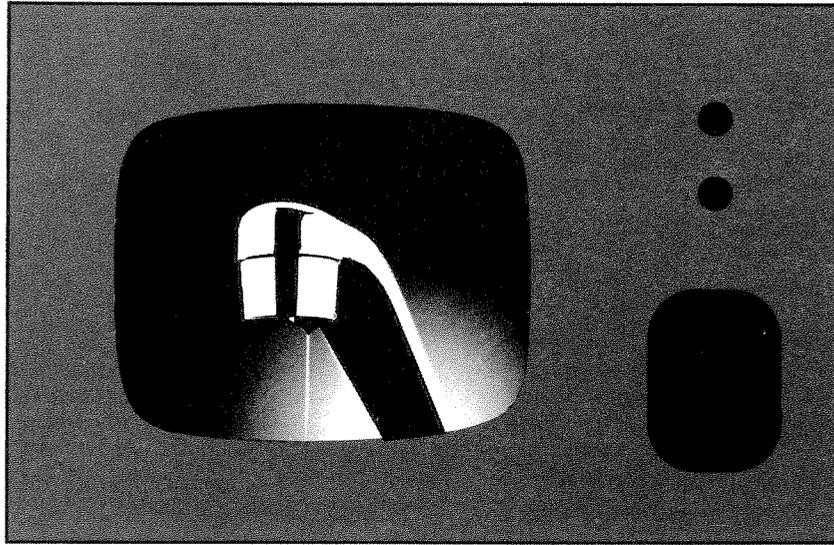
Huston said the commission's first energy code for non-residential buildings, set in 1978, aimed to clean up the most common inefficiencies in building shells and mechanical systems. This code is being updated. In two years, the first non-residential energy code revisions for four of 21 building types

will take effect. These will include tighter "U" values restricting the escape of heat through walls, prescriptive efficiency and size values for heating, ventilating, and air conditioning (HVAC) systems, and new lighting and light-switching standards.

The commission also has tough residential appliance standards for room air conditioners, central air conditioners, furnaces, insulation, electric water heaters, refrigerator-freezers, and shower heads.

Huston said a new electric water heater, under the new California energy efficiency standards, will save 780 kilowatt hours (kwh) a year. At 9 cents a kwh, that will mean a saving of \$702 over its 10-year life. A new refrigerator-freezer under the standard will save 300 kwh a year, and about \$400 over its 15-year life, based upon a rate of 9 cents per kwh.

The U.S. Department of Energy has changed federal policy on requiring appliance manufacturers to set and place energy efficiency ratings on their products. Huston said under draft regulations prepared by the U.S. Department of Energy, states like California would have to obtain a waiver from the federal government in order to continue with their own appliance efficiency standards.



**Little things:** Pacific Power has directed recent efforts towards getting people to take the little conservation steps, such as fixing dripping faucets, and other inexpensive steps (below).

# Selling home conservation

NW utilities find in peddling programs, it's the dollar that counts

As utilities in the Pacific Northwest are finding out, the problems with conservation are often more human than technical. And one of the human problems is simply how you get people to take advantage of the conservation programs that are already available.

Perhaps the most aggressive example of selling conservation comes from the Portland-based private utility, Pacific Power & Light Company.

"We had a strong belief it was cost-effective and, in turn, would have a benefit for our customers," says Jack Vogel, Director of Communications for PP&L. In the early '70s, Pacific Power, responding to the energy shock of the 1973 OPEC oil embargo, began retooling itself to more aggressively pursue conservation throughout its service area in six western states.

One of the keys to Pacific's pursuit of conservation was a stepped-up advertising program developed by The Pihas, Schmidt, Westerdahl Company which recently won a national award for excellence.

"We geared the ads toward the cus-

tomers," says Vogel. "In every ad the customer had to do something," such as ask for an energy audit or pick up a free pamphlet describing the steps consumers could take. One pamphlet, for example, outlines 20 things consumers can do for under \$20 to save energy in their homes.

Jerry Parks, an advertising executive with PSW, said research done by the firm showed most people had done the major weatherization tasks — such as

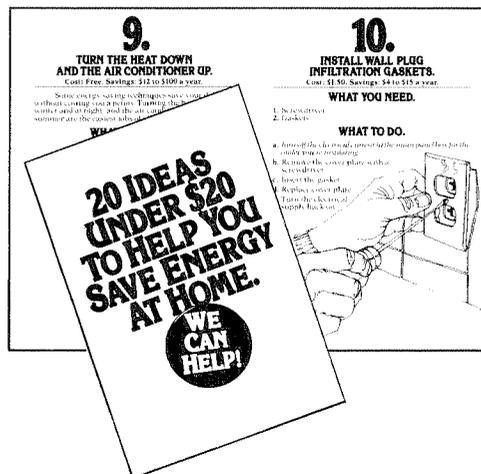
installing added insulation or storm windows. Most folks, however, hadn't done the little things, say Parks.

Armed with that information, PSW designed a campaign for Pacific Power aimed at getting people to fix leaky faucets, wrap water heaters, install new shower heads, and a host of other small tasks.

Some of the advertising was done on television, because of Pacific's widely scattered service area, and other advertising was done in local newspapers, even providing people with hand-drawn instructions on how to take certain conservation steps.

Parks said public response was encouraging. After the campaign ran in Lincoln City, Oregon, the Pacific office there received more requests for energy audit, in four weeks than it had received in the previous year, Parks noted.

The key to getting people to take advantage of utility conservation programs, says Parks, is a very simple self-interested one: Conservation saves money.



*Conservation is going to cost money. Region-wide programs could easily run into the millions. 'We're getting into new programs that aren't really cheap,' says one utility official.*

(From page 13)

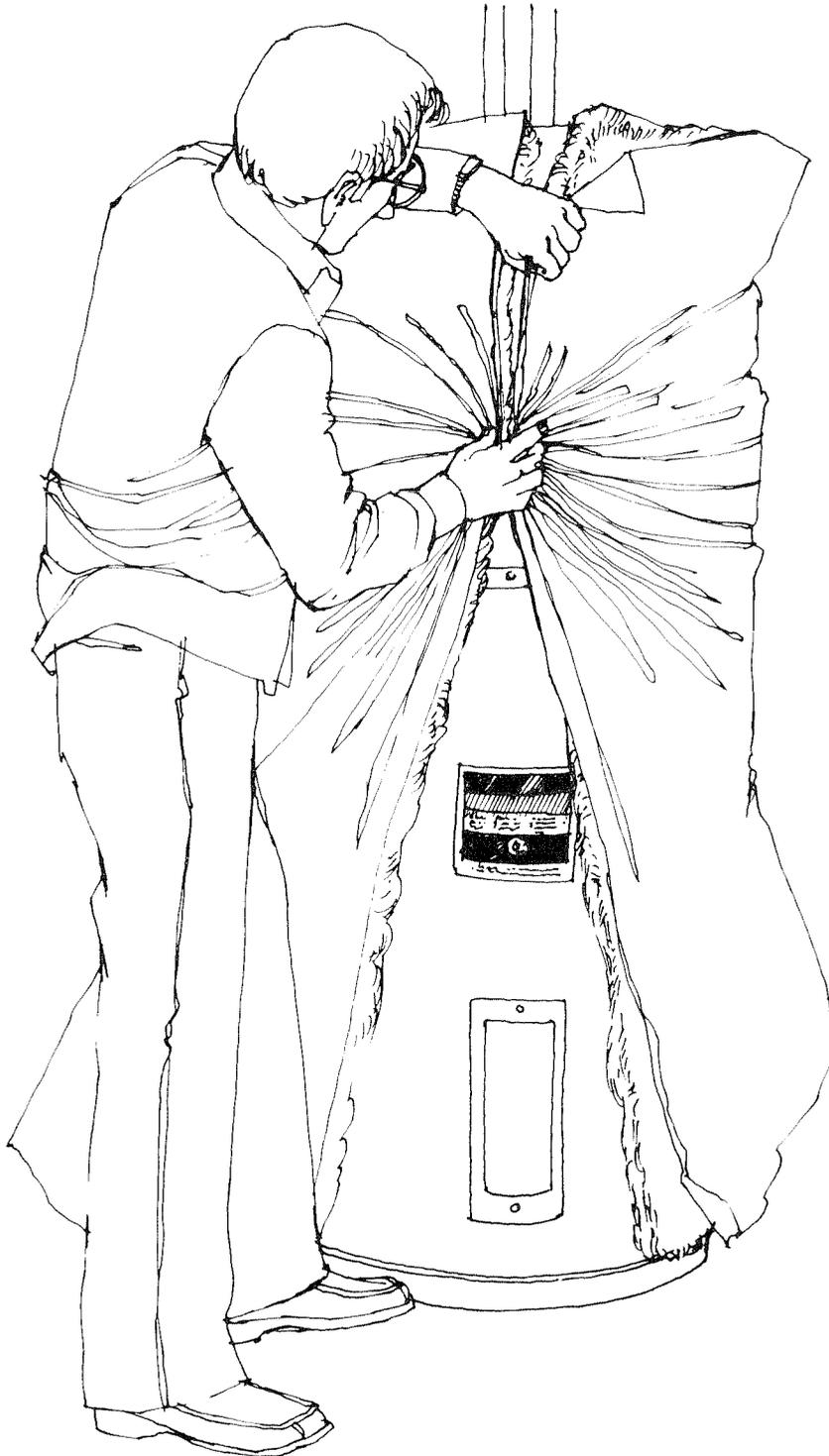
and businesses, designed to get the most "cost-effective" conservation from each, and would go door-to-door, offering the program at no cost, then placing the cost of the program into BPA's wholesale rates — just as if it was a conventional power plant.

The fourth element could be incentives. For example, because of the higher initial cost, a builder might be hesitant to spend money for higher insulation levels and more efficient appliances. The energy-efficient house would risk costing more than the inefficient house. But what if BPA provided an incentive to bring the cost of the energy-efficient house down to the same level as an inefficient home? The region saves because present power supplies are stretched a bit farther, the builder has a more energy-efficient home to sell, and the homebuyer gets a dwelling that uses energy efficiently and saves the homeowner money.

Still, even a mixture of marketplace and regulatory approaches isn't a panacea to the region's energy woes and the problems of conservation.

Conservation, if to be developed as a resource, is going to cost money. Region-wide programs could easily run into the millions.

"We're getting into



new programs that aren't really cheap," says Ed Holt, a conservation planner with Seattle City Light. In turn, says Holt, the city's massive municipally-owned utility is looking at what it has done and how to tailor programs for the next generation of conservation efforts.

Some utility officials say projected energy savings are coming in lower — in some cases, 50 percent lower — than originally estimated, changing equations about what conservation measures are cost-effective and what aren't.

In addition, power agencies — from the federal BPA to the smallest rural cooperative — are wrestling with the ramifications of conservation: its effects on revenues to pay the bills, its role in rapidly changing energy forecasts, its relationship to operations of the hydroelectric system, and its political acceptance in a period when some forecasts project the region having a power surplus into the late 1980s.

"Some people say conservation is the easiest, simplest, and cheapest way to get power. It isn't easy. It isn't simple. And it isn't cheap," says one energy analyst. "Its just that it is probably easier, simpler, and cheaper than any of the other options we have."



## Initiative 394

(From page 6)

turn the initiative, which requires voter approval of bond sales for large-scale, publicly financed energy projects. Under the ballot measure, approved by 58 percent of the Washington electorate, voters in the service areas of the 23 WPPSS member utilities would have to approve any further bond sales.

Tanner said the initiative's provisions violated Article 1, Section 10 of the United States Constitution, which prohibits states from passing laws which impinge or abridge existing contracts unless it is reasonable and necessary.

Tanner specifically ruled the initiative unconstitutional as it related to the first three WPPSS plants, upon which \$6 billion has been already spent and which are at stages of completion ranging from 90 percent to slightly more than 50 percent.

The judge's delay of his ruling meant the Supply System would still have to continue an initiative-mandated cost-effectiveness study needed before another bond offer could be placed on the ballot in February.

Meanwhile, as the banks, the State of Washington, and the initiative's backers, Don't Bankrupt Washington, sorted out the ramifications of the ruling, they agreed on one thing: Judge Tanner's courtroom wasn't the last courtroom in which Initiative 394 would be argued.

The decision will now be appealed to the U.S. Ninth Circuit Court of Appeals.

## Small hydro earns money for Oregon couple

A retired Oregon couple has turned their concerns over rising electric rates into a profitable business.

Donald and Bessie Ridenour decided that Parsons Creek, which flows the length of their property, had the potential to generate electric energy. They went into business and have become the sixth Pacific Power small farm or residential customer in the Northwest to own and operate their own hydroelectric plant.

Capable of producing a maximum of 9 kilowatts and built at a cost of \$53,000 — plus a few headaches — the plant could earn the Ridenours \$273 a month, depending on stream flow.

Ridenour says recognizing a potential hydroelectric site and deciding to develop it is easy. Paper work, licensing, obtaining all the state and federal water rights and permits to build a dam, and then getting a working design for a turbine

is not. After several attempts to use a simple water wheel ended in failure, they had a small turbine designed and built.

Water diverted by a 20-foot long, six-foot high dam is carried to the powerhouse located downstream of the Ridenours' home by a buried 600-foot long pipe. The Ridenour dam also has a fish ladder to permit fish to pass on upstream.

## Consumer panels submit proposals to Puget Power

Puget Sound Power & Light Company's five Consumer Panels have submitted their 31 recommendations on building codes and conservation standards to the utility for review and response.

The Consumer Panels have been working since February to determine the most appropriate course of action for developing, adopting, and enforcing energy conservation standards and codes for new

and existing structures.

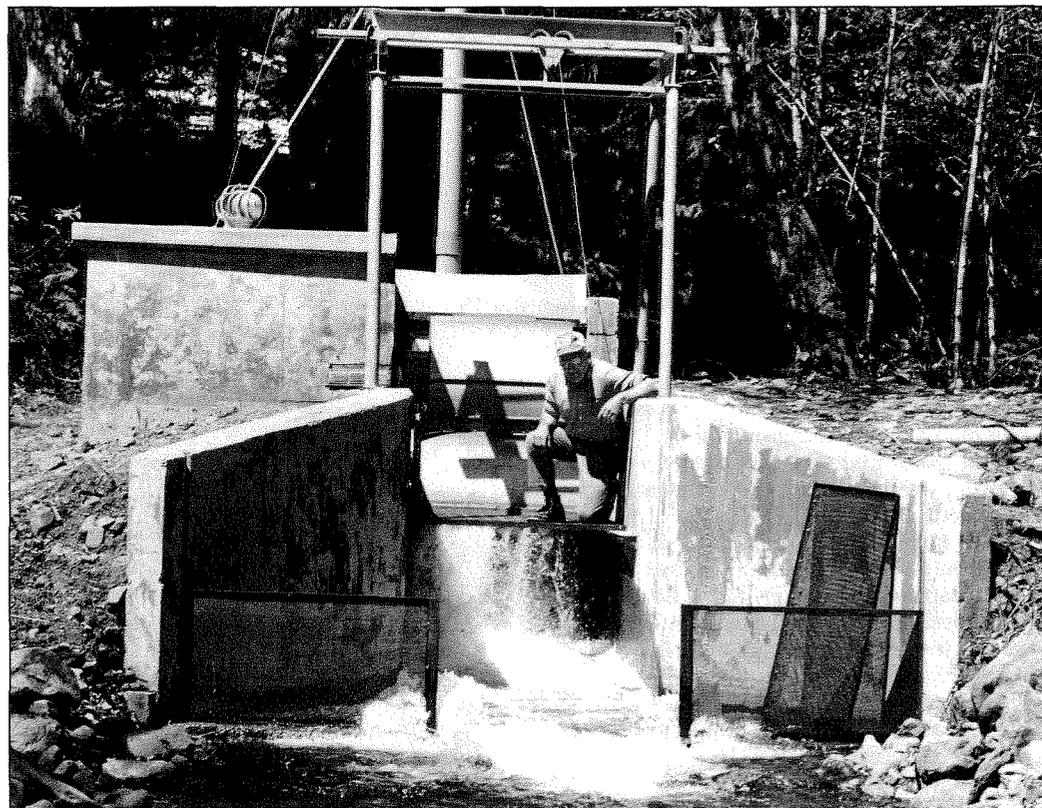
Puget Power President John W. Ellis will review the recommendations with his management team and provide a response later this summer.

"The recommendations will be used as a resource in the preparation of our recommendations to the Regional Power Planning Council," Ellis said.

The Panels' recommendations to Puget Power include:

- Enforcement of the Washington State Energy Code for new residential and commercial buildings and all remodeling portions of existing structures.
- Adoption of an energy conservation code for existing structures.
- Setting rates to control excessive electricity use.
- Rating buildings for their electricity consumption in the same way cars are rated for gasoline mileage.
- Rigid enforcement of any energy codes adopted.

The Consumer Panels consist of 30 to 40 consumers, representing a variety of interests within Puget Power's nine-county service area.



**Small scale hydro:** Parsons Creek project pays dividends to Oregon couple.

# Conservation programs achieve big savings

## *Home, commercial efforts save both dollars and energy*

Energy conservation programs in the Pacific Northwest are beginning to produce some rather impressive numbers. Once viewed with skepticism, cost-effective conservation programs are now off the planning table and on line:

Eighty-five percent of the water heaters in Idaho Power's service area have been wrapped with insulation blankets.

The City of Portland's commercial-industrial program is helping business to confront rising energy costs. One business will save \$20,000 the first year on a \$400 investment.

Seattle City Light is wrapping water heaters using a non-profit vocational rehabilitation firm.

The City of Eugene and its local public utility are working together to initiate a sweeping residential weatherization program.

These are some of the best examples of how the citizens, businesses, and public policy makers are responding to the "new realities" in the Northwest's electric energy scene. They suggest the types of successes available to those who are serious about conserving electricity.

**EUGENE.** Home of the University of Oregon and the state's largest public electric utility, the Eugene Water and Electric Board (EWEB), the City of Eugene kicked off its mandatory residential weatherization program in January. Early returns are impressive: 337 completed and paid for residential weatherization projects, over 3,000 audits with most resulting in weatherization work now in various stages of progress.

The mandatory weatherization program, patterned after one considered in Seattle, was adopted by the Eugene City Council February 9, 1981. The program is voluntary until January 1, 1985. Seven weatherization measures must be satisfied for single-family homes through fourplexes built prior to 1974, when an insulation requirement took effect.

The seven measures are:

1. R-30 attic insulation in buildings not insulated greater than R-11;
2. Attic ventilation;
3. R-19 floor insulation over uninsulated crawl spaces;

4. Six-millimeter vapor barriers on the ground of the crawl space;

5. R-11 insulation/joint sealing of accessible ducts in unheated spaces;

6. R-11 insulation of residential water heaters; and

7. Caulking and weatherstripping of exterior windows/door frames.

Once the work is completed to satisfy these requirements, an inspection paid for by EWEB is made and then the dwelling is certified. Triggering the program during the mandatory period will be changes in utility service. The requirements are embodied in the Eugene Housing Code. Penalty for noncompliance is a maximum fine of \$500.

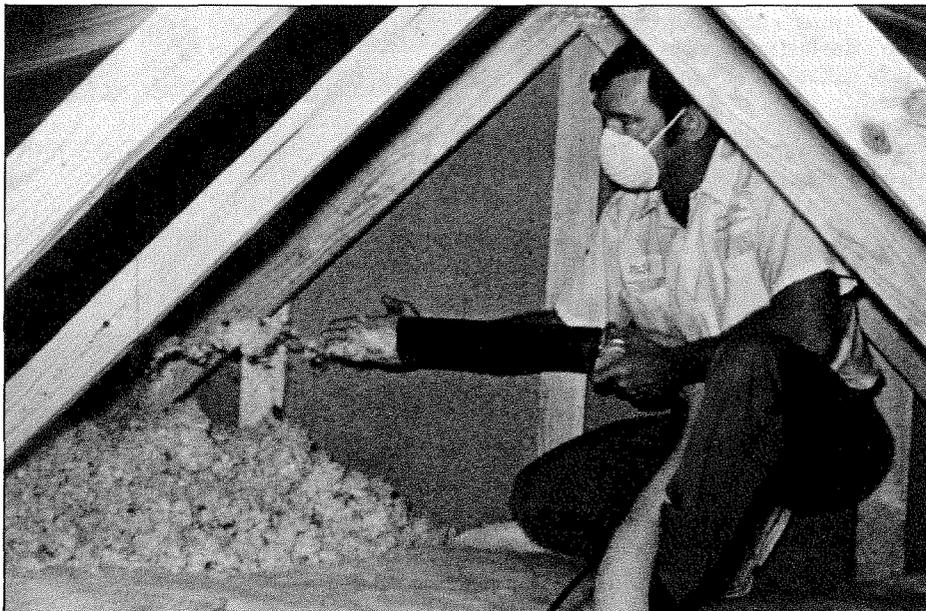
Greg Page, Energy Program Director for the city, said that during 1984, financing, the indoor air quality issue, and the supply and price of energy will be reviewed by the City Council to determine whether to continue or amend the effective date of mandatory enforcement of the program. "Our hope," said Jean Reeder, director of EWEB's energy conservation programs, "is that most people will have followed up on weatherization work so that the mandatory element will not be necessary."

Reeder said City of Eugene residents may gain financing help for weatherization work either through BPA's buy-back program or from EWEB itself. The buy-back program, she said, pays 29.2 cents for each kilowatt hour saved during the first year. This covers about 80 percent of most weatherization costs, she said.

Financing for oil heat and natural gas heat customers can be financed through a State of Oregon loan program.

**IDAHO POWER.** Headquartered in Boise, Idaho Power may hold the Northwest's record for insulating electric water heaters. Close to 142,000 residential and some 11,000 commercial water heaters have been wrapped with insulation blankets. That's about 85 percent of the water heaters in the investor-owned utility's service area. Idaho Power estimates a savings of 600 kwh per wrap, for a total of 91,800,000 kwh, and all since 1980.

Darlene Standahl, an assistant researcher in the IP energy management division, said the program's success had to overcome initial fears by some customers who were concerned about the safety of the water heater insulation blankets. No problems have developed,



**Blowing in savings:** EWEB's residential weatherization program provides audits, financing.

however, she said.

Similar results have been achieved in the company's fledgling residential weatherization program, according to Cal Bowen, Idaho Power's conservation director. Started just last year, the utility provides interest-free loans to finance the installation of weatherization materials. A total of \$6.4 million in loans have been made and 5,800 weatherization jobs completed, yielding a to-date savings of about 22 million kwh.

Bowen attributes the success of the water heater wrap and weatherization programs to use of qualified, private sector contractors.

"When it comes to conservation, you get the job done by utilizing the forces out there in the community that sell the products so they have an economic incentive to go after the prospects," Bowen said. He observed that relatively low electric rates still haven't produced enough independent conservation action. But enthusiasm for conservation is generated by the contractors because they have an incentive to get the business. About 140 contractors are helping Idaho Power carry out its weatherization program, he said.

**PORTLAND.** The citizen-business based Energy Policy Project won City Council approval in August, 1979, and has been going great guns since. The project called for establishment of a



**Tightening up:** Contractor installs storm door as part of Idaho Power's weatherization program.



**Delighted:** Elizabeth Nickerson of the Portland Energy Saving Center awards Stephen Yaw for producing perhaps the most energy-efficient hamburger in the city.

nonprofit public corporation to carry out the project's public sector responsibilities. The result is Portland Energy Conservation, Inc., governed by a five-member board. This body oversees management of The Energy Savings Center.

"We really emphasize the public-private partnership," says Jeanne McCormick, City of Portland Energy Officer. "The center serves as a catalyst for private action."

Key to the city's commercial-industrial energy program is the case-management approach, where energy use is analyzed on a business-by-business basis and recommendations are tailored to each specific application, what McCormick calls a kind of "cradle-to-grave approach."

Using a \$3 million grant from the U.S. Department of Housing and Urban Development, and \$15 million from private lenders, the Center makes one-year, deferred-payment low-cost loans for two types of audits. If the firm audited follows up on all the recommended energy saving investments found cost-effective in the audit, the loan is forgiven.

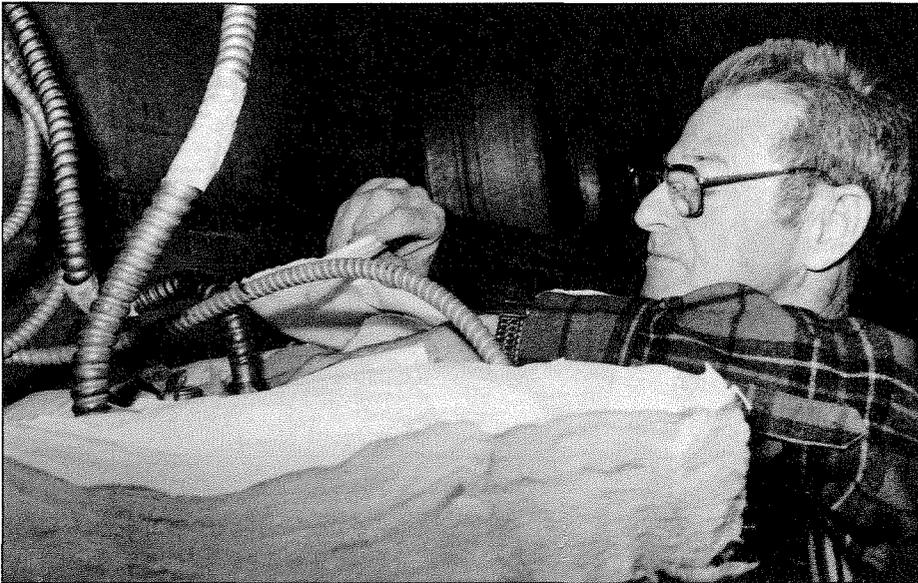
The two types of audits, reports Center manager Mitzi Scott, are a maintenance and operations audit listing savings with a one-year payback and a capital investment audit identifying intermediate and long-term savings. The

center maintains a list of 40 approved private architects and engineers who provide the actual audits. The center's (public/private) funds may only be used for the audits, she said. The cost of the energy saving investments must be made by the business owner. The results can be spectacular.

One Portland businessman parlayed a smallish \$400 investment into an annual \$20,000 saving. Last year, Stephen Yaw, owner of Portland's famous Hollywood neighborhood eatery, asked the Center for help in his attempt to bring down energy costs. Energy costs were about \$60,000 a year with additional boiler maintenance costs nearing \$20,000. From the Center's list of approved auditors, Yaw selected Zanders, Billings & Associates. The firm recommended changes in operation of air-conditioners, boilers and, eventually, replacement of the boilers with a geothermal heat pump to recycle water from a well which now supplies water for the restaurant's air-conditioning system — water the restaurateur now pays \$400 a month to dispose in the Portland sewer system.

The audit cost \$4,100. It will be paid by the Portland Energy Savings Center because Yaw carried through on the recommendations.

Last winter, Yaw told Portland restaurant operators that his annual energy bill had been cut to \$40,000. His January oil bill, typically \$5,000 to \$6,000,



**Dual benefits:** Seattle's water heater wrap program helps both homeowners and needy citizens.

was only \$2,850.

The Energy Saving Center also makes loans to owners of residential property, regardless of the type of fuel used for heat. One important aspect of Portland's energy policy is that it promotes conservation of all forms of energy.

**SEATTLE.** It's called "Blanket Seattle." Its purpose is wrapping 50,000 electric water heaters in a nine-month period, ending in September. They'll make that — and more: help for some 30 adults with severe mental disabilities and training for Asian refugees struggling to adjust to a new country.

"It's going extremely well," said Bill Isabell, Special Projects Director for Conbella, a sheltered (non-profit) workshop for adults with mental disabilities. Isabell led the effort to win a Seattle City Light contract for installation of 37,000 R-10 water heater blankets under a program the utility had

contracted for with BPA. Conbella already did business with the City of Seattle, collecting waste paper for its recycling operation. In the water heater wrap proposal, Isabell suggested using community and civic groups to install the blankets. City Light liked the idea.

Beginning last December, Conbella sought other groups to participate, among them MetroCenter YMCA. "It was a wonderful strategy," says Arliss Stewart, one of the people who contributed to shaping the program. Stewart and MetroCenter got a subcontract to install 9,300 blankets in the West Seattle neighborhood. "We hired students at South Seattle Central Community College and students at Seattle Opportunity Industrial Center," said Stewart. "We felt they needed part-time work and the money to help pay tuition."

MetroCenter, working through the West Seattle Chamber of Commerce,

signed up the West Seattle Kiwanis, the West Seattle Football Association, and the Fautleroy Environmental Association. Ten refugees from Southeast Asia were recruited for training; seven finished and got blanket installation work.

With all these secondary social benefits, will the program save energy and money? Judy Aranda, who manages the project for City Light, provided the following figures: BPA pays City Light \$32 for each blanket installed to BPA specifications. These include wrapping the water heater and setting back the thermostat to 130 degrees. The blanket and set-back service is free to the resident, who will save an estimated \$14 to \$16 a year on the electric bill for heating water.

According to Aranda, the completed Blanket Seattle program will save City Light and BPA 3 megawatts, enough to serve about 1,400 all-electric homes. Aranda said the "saved" electricity will mean a cost avoidance (of investment to produce an equal amount of new electricity) of about \$7 million.

Of the \$32 City Light gets from BPA for each blanket, Conbella is paid \$31.16, including sales tax, to cover its costs and pay the installers. Conbella has been so successful that Isabell has asked Seattle City Light for authority to install an additional 7,500 blankets. If approved, Isabell said they could all be installed by the end of August. "They're well organized and responsive," Aranda said of the Conbella effort. "We've had very good cooperation from City Light," said Isabell.

Everyone wins: City Light and BPA get \$7 million worth of electricity for an investment of \$1.6 million; residents, for free, cut down on their water heating bill; and some nonprofit organizations and needy citizens can earn some money in the process.

Northwest Power Planning Council  
700 S.W. Taylor, Suite 200  
Portland, Oregon 97205