BPA ELECTRIC POWER RESOURCES ACQUISITION

OVERSIGHT HEARING

BEFORE THE

TASK FORCE ON
BONNEVILLE POWER ADMINISTRATION

OF THE

COMMITTEE ON
NATURAL RESOURCES
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

ON

BONNEVILLE POWER ADMINISTRATION
ELECTRIC POWER RESOURCES ACQUISITION

HEARING HELD IN PORTLAND, OR
JULY 12, 1993

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BPA ELECTRIC POWER RESOURCES ACQUISITION

MONDAY, JULY 12, 1993

HOUSE OF REPRESENTATIVES,
TASK FORCE ON BONNEVILLE POWER ADMINISTRATION,
COMMITTEE ON NATURAL RESOURCES,
Washington, DC.

The task force met, pursuant to notice, at 9:45 a.m., in Council Chambers, Portland City Hall, Portland, Oregon, the Honorable Peter DeFazio (chairman of the task force) presiding.

STATEMENT OF HON. PETER DeFAZIO

Mr. DEFAZIO. I want to call the Task Force on the Bonneville Power Administration of the Natural Resources Committee to order.

By way of explanation, Congressman LaRocco had intended to be here today, but due to a sudden family emergency, I just heard from him yesterday, he couldn't make it. So he will not be in attendance. Congressman Smith will give us as much time as he can, but he has some other obligations.

All testimony given today will be in the record and we're going to leave the written record open for a month for amendments to or answers to questions raised during the hearing. So we'll move along as expeditiously as possible so Bob can have the benefit of as much of the testimony as possible.

Today the Task Force on the Bonneville Power Administration holds its first of three field hearings in the Pacific Northwest. We've accommodated as many witnesses as we can. We have an extraordinary number of witnesses with a very wide range of interests and viewpoints represented. It was interesting to read the testimony which I received ahead of time and to note the diversity of viewpoints. I hope to have some lively interchange between some of the panel participants as we move through the hearing today.

As you know, the Northwest Power Act directs the Administrator of the BPA to acquire resources to meet the region's firm power needs. Priority is given to conservation and renewable energy resources under the Act.

Today's hearing will examine BPA's resource acquisition programs, with a particular focus on Bonneville's performance as a direct and indirect purchaser of energy and conservation resources, both through its energy resources programs and through indirect means such as third-party financing and billing credits.

We'll look at Bonneville's proposal to purchase the output of the Tenaska natural gas combustion turbine generating facility. In

general, we will seek to identify BPA's strengths and weaknesses as a direct purchaser of energy resources.

The task force's next hearing will consider ways to make BPA more competitive and responsive, while retaining the benefits of regional coordination and planning.

Included among the subjects the task force will review during its upcoming hearing are the potential benefits of tiered wholesale electric rates, the effect that unbundling services may have on Bonneville's different customer groups, and the merits of the variable and discounted rates enjoyed by certain of BPA's customers.

In effect, today we're looking at BPA as it is; in the next hearing we'll look at a range of significant changes BPA might make to better provide for the region's energy needs. We'll also consider whether any authorizing changes or other action is required by Congress to get us to that future for BPA; the term is overused a bit today, but the reinvented BPA. Taken together, I really am hopeful that the task force will help chart a new course for BPA as it seeks to meet the challenge of its next 50 years.

With that, I'd turn to my colleague, Bob Smith, and recognize him for any opening statement he might have.

STATEMENT OF HON. ROBERT F. SMITH

Mr. SMITH of Oregon. Thank you, Mr. Chairman. I want to thank you for holding these hearings I think at a very pernicious time in the future of the Pacific Northwest and, of course, BPA and the many industries and jobs that are dependent upon the success of the Bonneville Power Administration.

You know it's been a bad week when the best news you've had is that Bonneville Power Administration rates will only go up 15 percent, that on top of the President's new forest plan which will reduce the harvest of timber in the Northwest by 75 percent, probably cost us 70,000 jobs; then, of course, the undisclosed health care plan right around the corner that may cost $80–$100 billion; the unknown tax plan that is surely coming that may hopefully move away from the btu tax, which would have been disastrous for us, to another gasoline tax; then take into consideration that there will be an Oregon sales tax on the ballot this fall; in addition to that, another gasoline tax for the State of Oregon. I sometimes wonder what the people in the Northwest think.

I know what they're thinking. They're thinking we're getting, maybe for the first time, more government than we seem to be paying for.

But it's important that we do discuss Bonneville Power Adminstration, so important to us in the Northwest. I'm delighted by the action of Randy Hardy and his group because we knew that these rates could have gone up 24 or 25 percent. Although no one likes increases, I think he's done a great job in holding this increase to 15 percent.

The question is, What are the needs for our future by the year 2000 and the turn of the century? What are we going to be interested in discussing? It occurs to me, however, from my point of view and where I live in the State, that we might want to take a look at Saltkay's hydroelectric project. That's 10 percent of the need right there of the thousand.

We might want to look at Elk Creek, put a power generation on it that's half completed. Neither one of these are embraced, it seems, by the leadership in Oregon, but they are certainly alternatives, and I suggest they are a hell of a lot cheaper than wind power. So maybe we ought to look around the State a little bit and not be so myopic.

The other part of my opening statement just lingers around the question of representation. It seems as though all my lifetime living on the eastern side of the State that at least representation has been an argument we've always had with the rest of the State; not so different with the Northwest Power Council.

There was a bill that went through the legislature recently, you may have seen it, passed by a vote of 50–9, which provided that the Northwest Power Planning Council have one representative living east of the Cascade range, representing views that maybe others haven't heard about.

We do have another State over there. The Oregonians said so this morning. So that's how I know. But it does seem to me that representation on the Northwest Power Planning Council is important to the eastern part of the State. I noticed that the Governor was going to veto that bill, and I understand that bill is blocked in the Senate. That doesn't demean the fact that it's important and necessary.

With that, Mr. Chairman, thank you for allowing me to be here and to visit with these witnesses and to attempt to help you in drafting a formula for the next 20 years which will assist the Northwest in our energy needs.

[Prepared statement of Mr. Smith follows:]

STATEMENT OF CONGRESSMAN ROBERT F. (BOB) SMITH
BONNEVILLE POWER ADMINISTRATION TASK FORCE
FIELD HEARING ON BPA RESOURCE ACQUISITION
JULY 12, 1993

Mr. Chairman,

I want to thank you for scheduling this hearing today on the Bonneville Power Administration's resource acquisition program. BPA has some interesting resource programs in my district with geothermal and wind energy. I'm looking forward to learning more about their entire resource program today.

You know it's been a bad week when the best news you've heard about the Northwest economy is that Bonneville is only raising their rates 15%.

As the Chairman is painfully aware, President Clinton unveiled a plan recently that will virtually dismantle the Northwest's timber economy. This indecent proposal is going to cost the fragile Northwest economy tens of thousands of jobs, even though the Administration has the audacity to claim that it will create jobs.

I'm hopeful that Mr. Hardy will not make such a claim. He knows that basic industry in the Northwest is linked to his agency, whether it's Northwest Aluminum just down the road in The Dalles or Boeing in the Puget Sound.

That is why I'm pleased that BPA's rate increase did not end up at 24% as some had feared. Our whole manufacturing and agricultural sector could have been vanquished in a single week. A lot of the credit should go to Randy Hardy for his austerity program that kept this increase in check.

Don't get me wrong, a 14% or 15% increase is going to take it's toll on our economy, but it could have been worse. Mr. Hardy knows that BPA will have to make fundamental changes if the agency is going to compete. But change is a relative term. The last time Oregon went for change, boy, we sure got change.

I don't believe change should mean sending aluminum companies and the 10,000 jobs that go with them to Canada or anywhere else, or shutting down the irrigators who make their living from the Columbia.

Knowing that the role of the Northwest Power Planning Council will be discussed today, I just have a few comments about certain Members lack of sensitivity to eastern Oregonians.

I wasn't really surprised to read that certain members of the Northwest Power Planning Council thought the rate increase should be higher to create more revenue for fish and wildlife programs. That's certainly not the view of the people I represent.

It would be constructive to have a voice on the Power Council from eastern Oregon. However, the fact that the Governor said she would veto a bill in the Oregon Legislature to require a member from eastern Oregon, tells us that when her Administration hears eastern Oregon, they think we're talking about Gresham.

Mr. Chairman, I look forward to this testimony we will hear today, and am hopeful that it will shed some light on how BPA can improve their conservation and resource acquisition programs.

Thank you.

Mr. DEFAZIO. I thank the gentleman. I, too, read the article. I was interested to see that the measure of civilization was espresso coffee in Lakeview. I can just see the tourist boom down there.

Mr. SMITH of Oregon. It's really coming.

Mr. DEFAZIO. With that, we'll move along to testimony. I assume everybody submitted written testimony. What I would urge you to do is use your time as allocated and since we have about 20 witnesses—and we have questions—we're going to try and keep people to the ten minutes pretty strictly.

So summarize, make your most cogent points, however you wish to use that ten minutes, and watch for the little lights there. The yellow light will go on with one minute left and then the red light when you're done, and I'll let you finish then. It's when you're done and that's about it, because we've really got to move along if we're going to hear from everybody.

The staff kept saying too many people, you can't have more people, and I kept saying, well, there's a lot of views to be heard here and I want to hear a lot of different views. So we have a very ambitious schedule.

I assume we'll just take people in the order of the witness list. So we'll then start with Mr. Randy Hardy, Administrator of BPA, and Ms. Sue Hickey, Assistant Administrator for Energy Resources; however you wish to use your time.

PANEL CONSISTING OF RANDALL W. HARDY, ADMINISTRATOR, BONNEVILLE POWER ADMINISTRATION, DEPARTMENT OF ENERGY, PORTLAND, OR, ACCOMPANIED BY SUE HICKEY, ASSISTANT ADMINISTRATOR FOR ENERGY RESOURCES; STAN GRACE, CHAIRMAN, NORTHWEST POWER PLANNING COUNCIL, PORTLAND, OR, ACCOMPANIED BY ANGUS DUNCAN, COUNCIL MEMBER; AND CHRISTINE ERVIN, DIRECTOR, OREGON DEPARTMENT OF ENERGY

STATEMENT OF RANDALL W. HARDY

Mr. HARDY. Thank you, Mr. Chairman. I'm delighted to be here this morning to talk about our resource acquisition program. I'll make a few general comments and then have Sue Hickey, Assistant Administrator for Energy Resources, follow up on some of the specifics that we have in our testimony and that speak to some of the issues that were raised in others' testimony.

Bonneville has a good track record in resource acquisitions over the last 12 years or 13 years since the passage of the Power Act, and particularly in conservation. You will hear a lot of testimony today, some of it supportive, some of it critical.

We can certainly improve. We've spent a little over a billion dollars on conservation acquisitions in the last 12 years. We've acquired nearly 400 megawatts of conservation in a time of surplus. We've received awards from some of the environmental organizations who will speak to you today and they will urge us to do more.

But, in fact, I think we have a fairly good track record and we can build on that when seeking to improve ourselves in the days ahead.

Although it's principally the subject of your next hearing, Mr. Chairman, one of the other factors that we're trying to deal with

is the changing electric utility industry. This industry is changing in a way structurally that the airlines, the phone companies, and the gas companies changed in the 1980s.

That portends some very significant impacts, not just on Bonneville, but on virtually every other electric utility in the United States. We have initiated a competitiveness project to deal with those kinds of uncertainties, both in terms of unbundling our services and in terms of becoming more efficient. That has a definite impact on our resource acquisition program. We need to keep that in mind, and we'll speak to some of those changes as we move forward today.

Probably the first issue that is of some significance is the cost of new generating resource acquisitions and our priority firm rate as it affects and impacts our competitiveness. There's been a lot of speculation about Bonneville pricing itself out of the market. We're concerned about that, but I'd like to put that in perspective. The graph on your right, which you have a copy of and is an attachment to my testimony, is an effort to do that.

It essentially displays a range of costs for a baseload Combustion Turbine (CT). The bounds of the gray area are a high and a low kind of gas price forecast and the two dotted lines in the middle represent—the upper one represents a median base load and the other represents median prices, but with displacement.

The significance of this graph is that there is no crossover point even with low gas prices on the Priority Firm (PF) rate until well after the turn of the century. There are conversions, and that is cause for some concern. In fact, we don't think conversions will occur until sometime in the next several years, if at all.

Now, there may be a golden resource opportunity out there that we haven't heard about, but in fact, most of the resources that have been discussed in the region and are potentially being acquired by others have already been proposed to us. We've either moved to acquire them, as in the case of the Tenaska project, or they haven't been as competitive, and therefore, we have rejected them.

The other thing I probably should point out about this graph is the value of displacement, which is a unique advantage that Bonneville can take advantage of. The difference between the two dotted lines represents 50 percent displacement of an existing turbine resource.

That's about 5 to 7 mills over the lifetime of the resource. We have the hydro capability to displace a resource, be it the Tenaska turbine or other turbine, with surplus hydro when that's available, and that results in a significant cost savings. By and large, other utilities do not have that advantage or they only have it when they can get surplus hydro from us.

So that's a significant price advantage and operating advantage that we have in acquiring these resources that does not necessarily accrue to others.

All that being said, there are legitimate reasons why other utilities can, and probably should, develop some of their own resources.

We have uncertainties associated with our rate structure in the form of Endangered Species Act obligations, nuclear plant decommissioning costs, repayment reform, and other kinds of uncertainties that do not exist for other retail utilities.

So, there may well be good reason for a utility to engage in its own resource development activity as a hedge against those uncertainties. We will actively work with our customers who want to try to facilitate resource acquisitions. We just want them to do it for the right reasons and not do it out of some panic that Bonneville rates or costs are out of control, and that 2 or 3 years down the line, there's going to be a crossover between the cost of a resource that we may acquire and the PF rate. Not so.

Our resource plan essentially sketches the need for some 1,500 megawatts in resource acquisitions over the next 10 years. It breaks down roughly this way, and Sue Hickey will get into more detail about the breakdown. Roughly, 660 megawatts of that is conservation. From 100–200 megawatts are seasonal energy exchanges. The balance or some 400–500 megawatts are a mixture of resources including the Tenaska turbine, our wind and geothermal demonstration projects, and a variety of billing credit resources, principally small hydro from our customers. In all, it is a pretty balanced resource portfolio.

You will hear a lot today about the Council's conservation goal and our fulfillment of that goal or lack of fulfillment of that goal. The Council set a goal of 1,500 megawatts of region-wide conservation acquisition over the next 10 years.

We determined and the Council concurred that our share of that goal for the Bonneville service territory was roughly 660 megawatts. That is the target we are using for resource acquisitions for conservation. It is not a cap. It is not a floor. It is a target. If it goes up and we can acquire more cost-effective conservation, that is what we will do.

There's been an awful lot of reading of the tea leaves of how Bonneville is viewing that 660 megawatt number. It is a good mid-range planning estimate and that's all it is. It's good guidance for now. It's what we're making decisions on. As we acquire the conservation resource, we will undoubtedly adjust it. If we can acquire more conservation cost effectively, we will do that.

Also, there has been a lot of concern about the recent budget cuts that Congressman Smith alluded to to get the size of the rate increase down. Part of those budget cuts were conservation cuts. I think those are probably the most sensitive. I would only observe that our conservation budget cuts were roughly 12 percent of those previously budgeted expenditures for Fiscal Years 1994 and 1995.

Our generation program was cut by 30 percent. The transmission program was cut by 28 percent. So I don't think conservation was cut out of proportion to anything else. In addition, we cut roughly $65 million out of the 1993 to 1995 rate period. We did that because we needed to be competitive.

But I would observe that our conservation budget still nearly doubles between Fiscal Years 1992 and 1995. We go from a level of $120 million last year to a level of about $226 million in Fiscal Year 1995. So even with the budget cuts, you're almost doubling that expenditure. And we're going to spend in 1993 through 1995 over $600 million post-budget cuts on conservation.

So I still think we've got an adequate amount of money budgeted to achieve the conservation goals. In addition, and even though we'll discuss this principally in the next hearing, we're moving to-

wards a tiered-rates system. This is something that some of our customers and certainly our public interest group constituents have been advocating for some time. We're fully confident that the tier-grade structure, combined with the amount of money that we're devoting to conservation, will achieve our intended goal.

The rest of our programs are a mix of programs designed to obtain that kind of balanced portfolio. We offer billing credits, whereby we credit customers for developing their own resources. We exercise our competitive bid process, out of which we've selected the Tenaska project and two or three other smaller projects on the generating side. We're still negotiating with some on the conservation side.

We have just completed our Resource Contingency Plan, whereby we are trying to pilot the Council's options concept and put it into operational form. In this process we can acquire resources, pay preconstruction expenses, get the permitting out of the way, and have these resources readily available when needed. So, instead of taking 4 to 6 years to build a new generating resource, we can in fact do it in 2 years and take it off the shelf, because all the permitting and other associated activity has been completed.

We think that those processes present a pretty balanced picture of resource development. We think it is the lowest cost, the lowest risk, and the lowest environmental impact portfolio of resources that we could acquire, and we hope that it will stand the test of scrutiny of this task force as well as the test of time in terms of how we acquire those resources.

With that, I'd like to turn it over to Sue and then return to make a couple concluding remarks.

Ms. HICKEY. In the interest of time, I'm going to speak briefly about some of our accomplishments in our plans in both the conservation and generation areas. In the interest of time, I'm going to stick with the charts that everyone has copies of.

The chart that's coming up now shows you a snapshot of the past 3 years and the next 3 years. I wanted to use that chart for context because it really shows you a snapshot of an acquisition effort in transition.

During the 1980s, we were principally building capability because we had a surplus. We ran programs in every end-use and every sector trying to experiment and had very low levels of acquisition—about the 13 megawatts, in the 10–15 megawatt range—throughout the 1980s.

In our 1990 resource program, we saw a need to accelerate. So you see that beginning to happen aggressively in 1992. During that period, we decentralized our efforts and we also tried a whole series of new things, including billing credits, targeted acquisition programs, and competitive bid programs. And as you will hear today, some of these things worked, some of them didn't, and we're still sorting out whether or not they are mechanisms that we're going to use in the future.

In fact, it's probably worth pointing out that that's been one of the most difficult things in this conservation effort. Bonneville implements its programs through over 120 different customer utilities and quite often, with hindsight, I'd probably indicate that we've not always been as effective as we'd like to be when we're making a

change in our objectives or in the way that we're trying to approach the programs.

Most recently, in 1993, given the financial situation as well as larger long-term concerns about competitiveness, we've begun to think not just about acceleration, but also competitive acceleration. As Randy has just said, we're really not interested at all in backing away from the commitment to acquire all cost-effective conservation. We just feel we need to be doing that more effectively, efficiently, and at a lower cost.

In summary, in terms of megawatts, we've acquired 375 megawatts through 1992 at a cost of a little over $1 billion. We have plans to purchase all cost-effective conservation, some 670–700 megawatts over the next 10 years, and that doesn't count code savings that are in the range of 150–200 megawatts.

The cost of the next 10 years looks like it might be on the order of $2 billion—about double what we spent over the last decade. At this point, we feel we are successfully accelerating. We've tripled the megawatts acquired in 1990, and we're on target this year for quadrupling those 1990 megawatts. So we feel we are successfully accelerating at this point.

We've worked closely with the Council. We feel we are definitely consistent with the Council plan. In addition, we're extremely proud of what we consider to be our national leadership; not just in the levels of accomplishment that we're showing here, but in the innovative programs that we have designed and run, and in our verification of these savings as reliable savings.

I wanted to say a few more words about how we're going to make that competitiveness transition, but I'll save that and go to the next chart.

I want to talk a little bit about costs for a moment. Bonneville has been actively tracking its own costs over the ten-year period of doing conservation, and very recently, as a part of Bonneville's competitiveness project, we have started something that is called "benchmarking" in the business and trying to track our costs against the costs of other utilities.

Before getting into the chart, I want to indicate there are a couple of caveats here. This comparison is really in its infancy. There are not many in the business, the conservation part of the utility business, at this point who have participated for more than a year or two in benchmarking. So we're really struggling to figure out what are the right benchmarks to use.

If you choose one versus another, you get very different results. So the struggle really matters. We're just basically trying to figure out what's the right data, what's the right benchmark.

What I'm showing you here is Bonneville compared to three other large utilities; one East Coast, two West Coast. All of them have long time experience in conservation and run substantial programs. What the results show you is that Bonneville is 33 percent of Utility A. So we're substantially lower cost. We are the same as Utility B and about 10 to 15 percent higher than Utility C.

What I would point out is that this is a particular cost mechanism, real long-term levelized cost, that looks at how well the utility is doing in capturing low-cost savings over the long-term. With

respect to this objective which Bonneville has been pursuing, we're doing quite well.

If you looked at a cost factor that compared us more on a short-term basis, we don't do nearly as well. We're still less than half the cost of Utility A, but we're about 30 to 35 percent higher than Utilities B and C.

Basically what we learned from this is that if you measure us according to the objectives that we've had, this long-term least-cost resource development, we think we're doing quite well. If you introduce new measures, which we think might be necessary as we look to a more competitive future, we think that we have got a ways to go.

In addition, when you look at our staffing costs, they're 1½–2 times as high as these utilities when you look at both the utilities that deliver, Bonneville programs, and Bonneville's costs.

Basically, with conservation, given the savings that I've gone over and the costs, we think that we have a good track record. We think we've done a good job. Some of the things that we've tried haven't worked. We've often not done as good a job as we might have done with our 120-plus deliverers, but we feel that we have a good foundation for continuous improvement.

Let me turn now to generation. As Randy mentioned, conservation, even if we purchase all the cost-effective conservation, is not going to cover the kinds of deficits that we see after the year 2000. So, we're essentially planning to purchase about 750 megawatts of generation.

We have about 70 megawatts of pilot projects for geothermal and wind, and we intend to purchase about 800–1,000 megawatts of options. What I've tried to summarize on this chart is essentially the projects which I would call purchase at this point, and I use the word loosely. We have projects that are anywhere from being in negotiation, signed contracts, under construction, with some projects actually on-line.

Of the 592 megawatts that are in purchase status, all of it comes from a series of processes we've run—either an unsolicited proposal, a billing credit, the competitive bid process, and we now have a new billing credit process on the street.

The pie chart on the left shows what resources we've bought on the basis of megawatts. In terms of megawatts, almost a quarter of what we're intending to purchase of the 750 is exchanges. Some are energy or capacity exchanges basically with California utilities, some inland southwest as well.

Another quarter of the projects are renewables, and we attempted to make this all in blue so you could group that roughly in your mind. A little over 10 percent is cogeneration and about 40 percent is the one large combustion turbine project.

If you look at this group of projects purchased in a different way, on a project basis, and you leave out the exchanges here, talking about new generating projects that we've purchased, there are 18 projects total. Half of these projects are hydro. There's still a very active small hydro development going on in the region. There are 2 each of wind, geothermal, biomass and cogen, and there's 1 large combustion turbine project.

In summary, in generation, I think it will be pretty clear after today that we've had process difficulties. We've been in the generation business for only 2 years. We probably got out a bit ahead of ourselves with some of the experiments we were running.

We feel we've learned substantially from each process to the point that we think our current billing credit process is a model for the way we might want to do things in the future. We're pleased with the results that we've achieved. We have a good portfolio of resources by type, by size, by location, as well as by the customer sponsorship of proposals.

Our prices are 10–15 percent below what we anticipated they would be when we entered the market. So we're extremely pleased with the prices. We're on target to purchase the megawatts that we committed to purchase. In fact, we might be a little bit ahead.

We think we've been advantaged considerably by what's going on both with gas turbine technology, as well as gas prices in the market. It's helping us create a real competitive atmosphere both for conservation and generation, and the gas resources, as Randy pointed out earlier, add substantial advantages in being dispatchable, which is an excellent fit with the hydro system.

Finally, in going through the 6(c) review with the Council on our large CT project, we're feeling that this portfolio is substantially consistent with the Council plan.

Mr. HARDY. I'd just like to finish by making three points in conclusion. First, we are absolutely committed to the 660 megawatt conservation goal and to go beyond that if, in fact, there is more cost-effective conservation out there to be achieved.

I would make one point relative not just to conservation acquisition, but to almost all of our programs, and you'll probably hear more about this in the competitive hearing next month. For most of the 1980s, the measure of effectiveness for our conservation programs was amount of money spent. That is no longer a valid measure of effectiveness, in and of itself.

The valid measure of effectiveness for conservation or any other resource acquisition program ought to be number of cost-effective megawatts acquired. It's not the amount of money you throw at the problem. It's the results you get that determine your success.

We're focused on the results and there is probably no better indicator of that than what our expenditure levels are versus what effect tiered rates might have relative to a megawatt acquisition target.

Finally, I'd just make the point we think our generation program is a balanced mix of resources that optimizes both the cost and the reliability and the risk associated with the system and we think that, too, is the best way to go about acquiring the resources.

Thank you, Mr. Chairman.

[Prepared statement of Mr. Hardy follows:]

STATEMENT OF RANDALL W. HARDY

BONNEVILLE POWER ADMINISTRATION

UNITED STATES DEPARTMENT OF ENERGY

BEFORE THE

COMMITTEE ON NATURAL RESOURCES

TASK FORCE ON THE BONNEVILLE POWER ADMINISTRATION

U.S. HOUSE OF REPRESENTATIVES

JULY 12, 1993

PORTLAND, OREGON



Statement of Randall W. Hardy, Administrator

Bonneville Power Administration

July 12, 1993

Chairman DeFazio, it is again my pleasure to appear before the Bonneville Power Administration Task Force. Since the last hearing, we have appreciated the close working relationship we are developing with your staff, and the productive discussions we have held on the challenges facing Bonneville today and in the future. We look forward to continuing this dialogue over the next several months.

My testimony today will focus on the important role of Bonneville's energy resource acquisitions. We have gone through decades of change ranging from the nuclear acquisitions of the seventies to the conservation focus of the eighties to the balanced and focused approaches of the nineties. These last few years have been especially important, as we have moved from a time of resource surplus to projected deficits.

Today I am prepared to discuss the fundamental ways in which the electric industry is changing, and the variety of planning and acquisition strategies we have designed to respond to changing needs in the region.

The Electric Industry is Changing

Fundamental changes are occurring in the electric utility business. These changes are largely driven by new technologies, on both the demand side and the supply side, and increased competition. New efficiency technologies are rapidly entering the marketplace, creating greater awareness of energy alternatives and increasing the sophistication of end use consumers.

Simultaneously, efficient new gas generation technologies and lower gas fuel prices are exerting downward pressure on the marginal cost of new resources. In some utilities, these new resource costs are less than the embedded costs of existing resources. Finally, the institutional changes on the transmission side of utility operations are creating opportunities for more transactions of mutual benefit - further increasing the market orientation of electric utilities.

Bonneville is experiencing all of these changes. At the same time, we are experiencing substantial upward pressure on our rates, largely due to the drought, purchase power costs, lower revenues from our aluminum customers, and Endangered Species Act responsibilities. Bonneville price increases will place pressure on the competitive position of our customers. Understandably, they are urging Bonneville to change to meet their needs in this rapidly emerging competitive environment.

These are volatile times for Bonneville and the electric industry. We have taken a hard look at the current Bonneville mission and culture, and we have concluded that we must change to meet the challenges of the future. In recognizing the realities of the future environment, we have launched a Competitiveness Project to "reinvent" Bonneville.

We understand that a future hearing will focus entirely on Bonneville's competitiveness. However, the 10-Year Power and Resources Plan, that is now being developed, must be understood in the context of the competitive environment. Our plan is to become more market-driven, customer-focused, cost-conscious, and results-oriented. While recognizing our unique social responsibilities as a Federal agency, we will apply sound business principles to good government.

To achieve this, we are first looking at ways to become more efficient. We will seek out greater efficiencies in existing processes and programs. We will look for added value from new products and services. And, we are eliminating activities no longer needed.

We've heard our customers and seen the changes needed, so we are serious about moving to a more businesslike posture. It is in this context that I would like to address our most recent accomplishments and challenges in resource acquisition.

Bonneville's Priority Firm Rate is Competitive

I wish to take this opportunity to clarify the costs of acquiring new energy resources.

Recently, there has been much debate about the costs of new resources. After having reviewed over 15,000 megawatts of resource proposals in the last 2 years, we understand the market and are purchasing the resources that represent best value for our customers. When comparing the 20-year projection of the costs of the most competitive new generation resource - a generic gas-fired combustion turbine - with our 20-year rate projections, it's clear that Bonneville rates have a substantial advantage.

For example, a resource that Bonneville reports as costing 35 mills/kWh (in 1993$ real, levelized system costs) reflects all of the known costs and benefits of the resource. That same resource might appear to cost less for another utility, because it may not have factored in the additional system costs. In addition, to compare the costs of a combustion turbine to Priority Firm power, one should factor in the costs of system integration, load shaping, wheeling and backup services.

However, there may be individual cases where a utility perceives a benefit to developing a resource and decreasing its purchases from Bonneville . There are reasons beyond pure economics which might cause utilities to pursue this course. Examples include insulation from future rate increases, operational control, and marketing opportunities.

Customer Uncertainty over Bonneville's Competitiveness

Bonneville's customers are concerned about the uncertainty of future costs. We carry costs that other utilities do not absorb. For example, customers are concerned about the rate impacts of repayment acceleration, nuclear plant decommissioning, and endangered species recovery plans.

Customers are concerned that resource purchases, when melded into existing system costs will drive the Priority Firm rate up. Actually, the impact of the purchase of a single resource to the costs of Bonneville's system is much less than the potential impact of the external factors resulting from a changing industry and changing national legislation.

While Bonneville forecasts show that the Priority Firm rate will remain competitive, including these new resource costs, they do not reflect repayment reform or other substantial policy changes. It is this combination of events that most concerns Bonneville

and its customers. As we noted earlier, we are finding that purchase costs for new resources offered to Bonneville are declining, as shown in lower bid prices for our competitive acquisitions and other programs. These lower bid prices will greatly assist future competitiveness, but do not compensate for the other uncertainties facing Bonneville .

Policy and Program Directions

The status of the regional load and resource balance indicates that the region faces a steadily increasing need for resources, although at a slower pace than had been anticipated in earlier years.

Our forecasts show that under medium growth, the Bonneville system will have a deficit of 465 average megawatts by 1995, and about 1200 average megawatts by 2005. The need to store water for fish and the severe drought in 1993 caused tight operations and led to the purchase of significant amounts of short-term power.

Conservation represents the foundation of our long-term resource acquisition strategy. It remains our resource of choice: it is least cost; it can be acquired in small increments; and it is environmentally preferable. We fully intend to capture all cost-effective conservation, and we are on a path to meet our target of 660 average megawatts by the year 2003.

Bonneville is also working with the sponsors of various cost-effective renewable resources, selected through a competitive process. We have signed letters of intent and are negotiating to purchase the output of several geothermal and wind demonstration projects. We are encouraged by the high level of interest demonstrated by resource

sponsors, and believe that the role of renewable resources will continue to grow in Bonneville's resource mix.

Our efforts to meet regional load growth also include some recent generating resource acquisitions. Through a competitive process, we received many high quality proposals of which we were only able to accept a few at the top of the evaluations. In May, Bonneville determined that the proposal to acquire the output of up to 240 average megawatts of firm energy from Tenaska Washington II, a combined cycle combustion turbine located near Tacoma, Washington, was consistent with the Power Plan of the Northwest Power Planning Council (Council). This is significant because it is the first major resource proposed to be acquired under the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act) since the industrial Conservation/Modernization proposal in 1986, and it is the first time Bonneville has applied its policy on environmental costs when acquiring a new resource. After taking into account all the system integration costs and benefits, I am convinced that our decision will bring a valuable resource to the region, and one which is consistent with the Council's 1991 Power Plan objectives. The Council will make its consistency determination by the end of July.

Fuel choice is another area we are pursuing. As discussed in our 1992 Resource Program, we are reviewing existing programs and policies for unintended or undesirable fuel choice effects, and are working with customers to revise our programs where such effects are found. We also agreed to provide financial assistance for customer-initiated projects that would demonstrate potential benefits from fuel switching and provide information to guide future fuel choice policies. We are also working with regional natural gas utilities, manufacturers, and others to develop a natural gas option in our Manufactured Housing Acquisition Program.

The Role of Conservation in Remaining Competitive

We are transitioning from a posture of maintaining conservation capability in a surplus period to the competitive acquisition of a reliable efficiency resource. We are ready for the transition because of the investments we made in the 1980s in infrastructure, pilot projects, evaluations, and research. It is now possible to cut back on the infrastructure, lower the incentives, fine tune the program cost effectiveness, and still achieve the megawatts that we are aiming for. We are also decentralizing much of the decisionmaking authority to Bonneville's Area Office program managers, to give utilities more flexibility and to respond more effectively.

We are nationally recognized for our innovative conservation programs. But we have incurred costs in being a leader, costs that other utilities may not have experienced, such as start-up costs, marketing and training costs, and research and development investments.

The year 1993 presented us with a financial crisis that highlighted the importance of requiring cost-effectiveness in our acquisitions. Due to drought and other external forces, we faced dismal revenue projections. Bonneville's customers cooperated with us to find immediate short term efficiencies, such as dropping some higher-cost measures, and cutting back on administrative overhead. We were able to cut $65 million from our conservation budget for Fiscal Years 93-95. Over time, these emergency short-term efforts will be absorbed and overtaken by programs ensuring continuous improvement and efficiency. We have embarked on a business efficiency review of each program with our customers, seeking to reduce costs over the long term. We anticipate achieving the target of 52 average megawatts (including 12 average megawatts of savings from Model Conservation Standards) in Fiscal Year 1993, and further acceleration in Fiscal Year's 94 and 95.

As competitive pressures mount, Bonneville conservation acquisitions face increasing scrutiny. We have participated in several benchmarking studies to obtain an understanding of our comparative efficiency and effectiveness in acquiring conservation. One of these studies has been widely quoted as finding Bonneville's FY 1992 cost of conservation to be 60 percent higher than another regional utility. Bonneville staff found that this study only took into account the capacity value (kilowatts) of the conservation. When figures were adjusted to account for the high energy value (kilowatthours) of Bonneville's conservation, our costs in 1992 were about 10 - 15 percent higher than our counterpart.

While our conclusion from these comparisons is that Bonneville is in "the middle of the pack" in terms of our conservation competitiveness, we do not see this as cause for celebration. Bonneville aims to be among the most competitive of all utilities and as such, we are actively pursuing the many opportunities to work with customers to lower costs and achieve savings. Consistent with our Competitiveness Project, we are examining new delivery mechanisms such as tiered rates, energy service charges, and other innovative concepts.

Generation Projects are Actively Underway

Every 2 years, Bonneville reviews its resource needs in a Resource Program, now entitled the 10-Year Power and Resources Plan. At the heart of these Plans are our conservation efforts. As the need for resources, in addition to conservation, became foreseeable at the end of the 1980s, Bonneville began to pursue generation acquisition as well.

In the 1990 Resource Program, we proposed to test several mechanisms for resource acquisitions: billing credits, resource contingency options, competitive acquisitions, and geothermal and wind demonstration programs. The Billing Credits Program is a

mechanism created by the Northwest Power Act, which gives utilities credit on their Bonneville power bills for resources they develop and use to reduce their need to purchase power from Bonneville. The Resource Contingency Program pays developers to site, license and plan a generating facility at approximately five percent of the total cost of the resource. This preparation time typically consumes about 4 of the 6 years required to bring a resource on line. If the preparation is completed in advance of need, Bonneville can then respond to unexpected resource needs in as little as 2 years. Competitive acquisition is a method for acquiring resources by comparing proposals on such categories as price, sponsor qualifications, proposed operations, and environmental impacts. All of these efforts are currently under way.

Although cost-effective conservation is our resource of choice, as we began our 1992 Resource Program, it became clear that conservation couldn't meet all our future needs. The most significant issue affecting the need for power resources is not load growth, but rather the potential loss of resources. The early loss of our 30 percent of Portland General Electric's Trojan Plant, coupled with new constraints on the Columbia River system, particularly for salmon, means that additional generating resources will be needed.

In the 1992 Resource Program, therefore, we decided to acquire an additional 400 average megawatts of generation, to be obtained either through power exchanges with other regions or through new resource development. To date, we are negotiating for the output of a cogeneration project, and we expect about 150 average megawatts to come from exchanges. Bonneville customers recently submitted billing credit proposals to compete for the remaining megawatts needed.

Through the 1990 pilot efforts in billing credits, resource optioning, and competitive bidding, Bonneville has learned a great deal about the resource purchase market. In addition, we have fine-tuned our needs and identified the value of certain resource

characteristics. Two substantial values are dispatchability and displaceability - largely because of increasing constraints on the hydro system. Proposals for gas-fired combustion turbines have demonstrated the greatest flexibility to displace and dispatch resource operations, offering the best match with hydro. So in addition to offering competitive prices, combustion turbines offer hydro-firming benefits.

While much of our attention is focused on today's resources, such as conservation and gas fired combustion-turbines, the agency remains committed to pursuing longer-term alternatives as well.

Renewable resources such as wind and geothermal may play an important part in the region's future energy portfolio. These resources are receiving a boost from our regional effort to expand the supply of reliable, cost-effective power. We are working jointly with utilities and power agencies to help move promising technologies to market more quickly.

We are also working with our two federal agency partners, the Bureau of Reclamation and the Army Corps of Engineers, to implement Section 2406 of the Energy Policy Act of 1992 which authorizes Bonneville to provide direct funding for additions, improvements and replacements at Corps and Bureau projects. Bonneville has a Memorandum of Agreement (MOA) with the Bureau on this subject and has completed, and plan to sign, sub-agreements to cover specific funding requirements at Grand Coulee and Minidoka to replace worn out and malfunctioning equipment. These investments will increase system reliability and add cost-effective generation to the Federal Columbia River Power system.

Bonneville has far more experience in acquiring conservation than in acquiring generating resources. However, the last two or three years have provided invaluable experience. While Bonneville is confident that the resources we have purchased are extremely competitive and best meet our system needs, we also acknowledge that our processes

have not been flawless. But, our most recent billing credit acquisition meets the best industry benchmarks in timeliness and efficiency. As in conservation, Bonneville is well positioned to participate in the competitive generating acquisition environment.

Conclusion

Mr. Chairman, I appreciate the opportunity to discuss Bonneville's resource acquisitions. We are proud of our exciting work in developing programs and processes, and in being considered a national leader in pioneering these efforts. We are facing short-term financial difficulties, and are working closely with our customers towards resolution. Be assured, however, that we will not sacrifice our long-term commitment to conservation and renewable energy. We are also in the midst of major agency evaluation of how we do business in a changing competitive marketplace. We are grateful for the support of the Task Force and the region as we undergo this difficult realignment process towards an even more efficient and responsible government agency.

In our invitation to testify, the Task Force requested that we respond in more detail to some specific points. You will find our responses attached to this testimony.

This concludes my statement. I would be pleased to address your questions.

Responses to Congressman DeFazio's Questions by Letter of June 18, 1993
Bonneville Power Administration (BPA) Task Force

Question 1: What are BPA's strengths and weaknesses in the resource acquisition field? In particular, is the BPA conservation program acquiring all cost-effective efficiency and renewable resources? Is BPA on track to acquire the amount of energy efficiency and renewable resources that the Northwest Power Planning Council has targeted for acquisition by the year 2000? Will near-term budget cuts prevent the region from achieving these goals?

Answer: Bonneville's greatest strength regarding resource acquisition is its long and varied experience in this area. Most of the successful conservation programs used in the Northwest were designed and implemented at Bonneville. Even investor-owned utilities use some of our programs, such as Energy Smart Design for new commercial buildings. Another strength is access to records and information, such as the amount of savings for energy conservation measures which allows for accurate program design.

A program weakness would be the amount of time it takes to draft and implement contracts for resource acquisition. The number of layers involved in the approval process also increases the time involved. However, another of our strengths lies in that we are aware of these weaknesses and are working diligently to streamline our resource acquisition process. Evidence of this is our program efficiency review, the agencywide Function-By-Function Review, and the upcoming Competitiveness Project.

Bonneville is proceeding aggressively to cut program expenses in both the short and the long term. These reductions involve all acquisition programs, including conservation and generation. However, the cuts are intended to make programs

more efficient, not to reduce the capability of reaching our targets over the next ten years. Even though there were some budget difficulties with customers this year, our planned investments over this ten year period are paced to adhere to our targets. We remain committed to our conservation goal of 660 average megawatts saved by the year 2003. In 1992, we exceeded our conservation goal. Results from the first two quarters of this year indicate that we are ahead of schedule on our goal for 1993.

Bonneville is also on track towards acquiring renewable resources. We have negotiated letters of intent for two geothermal demonstration projects. One site is located near Newberry volcano in central Oregon and the other is near Vale, Oregon. Both projects are approximately 30 megawatt capacity. Each field is expected to be able to eventually support at least 100 megawatt capacity. Both projects are expected to become operational in 1996.

Bonneville has issued a solicitation offering to participate in demonstration wind farm development. Two wind demonstration projects have been selected and negotiations with sponsors are under way. Requests for interconnection and shaping services are also under consideration. Bonneville continues to collect wind data at several sites in the region and is supporting the development of model siting standards for wind at the county level.

The near term budget cuts to the conservation programs have been designed to preserve the infrastructure of the programs without affecting the long term ability to achieve savings. The utilities are working with us to identify ways in which they can also reduce program costs. In various programs, the discussions include reducing incentives, changing distribution methods of energy efficient equipment,

and reducing advertising costs. In addition, we are all working together to reduce the administrative costs of verification and increase the efficiency in record keeping and reporting of savings. Utilities and Bonneville alike are looking for ways to reduce staffing expenses to lower the overhead cost of designing and managing programs. These emergency short-term cuts will be overtaken by the steady ramping up of programs.

Question 2: Should BPA proceed with the proposed contract for the output of the Tenaska natural gas combustion turbine? If so, why? If not, why not? BPA has agreed to maintain the confidentiality of certain escalator clauses in the proposed Tenaska contract. Was this confidentiality agreement appropriate? Does BPA have the authority as a federal agency to comply with such an agreement? If so, please cite the relevant statutory authority.

Because of the confidentiality of certain escalator clauses, there is disagreement regarding the long-term costs of the power from the Tenaska project. Please give your assessment of these long-term costs.

Answer: Bonneville is proceeding with an evaluation of the proposed contract for acquiring the output of Tenaska Washington II. That evaluation includes Bonneville's completion of its review pursuant to section 6(c) of the Northwest Power Act and completion of the Environmental Impact Statement (EIS). On May 28, 1993, Bonneville issued a record of decision containing Bonneville's determinations required under section 6(c) of the Northwest Power Act. In that decision, Bonneville found that the proposed acquisition of up to 240 average megawatts from Tenaska Washington II is consistent with the Council's Power Plan because it substantially achieves the goals of the Council's 1991 Power Plan. We found that the resource will be needed, is cost-effective, reliable, risk-resistant, and environmentally sound. These criteria are consistent with the criteria set forth on August 17, 1992, by the Northwest Power Planning Council for a resource not

specifically identified for immediate acquisition in the 1991 Northwest Conservation and Electric Power Plan. Additionally, Bonneville found that the proposed acquisition is consistent with the relevant provisions of the Council's Fish and Wildlife Program.

The Environmental Impact Statement is proceeding on schedule and the draft EIS will be released in the summer of 1993. After the draft is released, Bonneville will hold public meetings around the region. The Final EIS will be available in early 1994, and a Record of Decision should be issued by the spring of 1994.

Bonneville has agreed to treat as exempt from public disclosure certain aspects of the Tenaska power purchase agreement, including the fixed set of prices to be paid during the life of the contract and certain displacement provisions. This information provided by Tenaska is confidential commercial information exempt from disclosure under the Trade Secrets Act, 18 U.S.C. Sec. 1905, and exemptions 4 and 5 of the Freedom of Information Act, 5 U.S.C. Sec. 552 (b). The contract contains no escalator clauses.

Bonneville believes that this treatment as exempt from public disclosure is appropriate. In the first place, Bonneville made sufficient information available to evaluate the cost-effectiveness of the resource proposal. Second, independent power producers and regulated utilities are extremely reluctant to make business sensitive information public. This is especially true of price information for gas combustion turbines, which use a well known technology and have well known construction costs. Competitors can easily calculate gas prices and a project sponsor's competitive edge, if nominal prices are revealed. Therefore, it is standard industry practice in the Pacific Northwest for public utility commissions

to keep such information, including annual nominal prices, exempt from public disclosure. For Bonneville to remain competitive in purchasing new generating resources, it must assure a similar level of confidentiality by exempting such information from public disclosure. Otherwise, there is a significant risk that the most competitive project developers will only bid on investor owned utility projects where disclosure is protected, thereby significantly increasing resource acquisition costs for BPA ratepayers.

In the section 6(c) review process, Bonneville determined that it is not necessary for a third party to know the year-by-year price structure to find that Tenaska Washington II is cost-effective. The real levelized purchase price of Tenaska Washington II is 29 mills/kilowatthour ($1990), which, after adjusting for the various system benefits equals 25 mills/kilowatthour ($1990). Fuel price risks add 2 mills/kilowatthour to the cost for a final risk adjusted system cost of 27 mills/kilowatthour ($1990).

Tenaska Washington II is by definition a low-cost resource because it has a system cost as low as resources identified in the Council's Power Plan for immediate acquisition. The low cost resources identified in the Power Plan include not only efficiency improvements and conservation, but also generating resources.

According to the 1991 Council Power Plan, there would be no cogeneration expected to be achievable in the region at nominal levelized prices of less than 60 mills/kilowatthour, which is equivalent to 30 mills/kilowatthour ($1990) expressed in real levelized terms. Both the real levelized purchase price of Tenaska Washington II and the risk-adjusted system cost are less than 30 mills/kilowatthour ($1990). In addition, the Council's own estimate

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of regional avoided cost, which is the Council's benchmark for determining a resource's cost-effectiveness, is approximately 39 mills/kilowatthour ($1990). The risk adjusted system cost of the project at 27 mills/kilowatthour ($1990) is substantially lower.

Finally, Bonneville has recently submitted to the Council a table with the range of system costs for other resources reviewed in Bonneville's Competitive Acquisition Program. Except for cost-effective conservation, which Bonneville is acquiring, Tenaska Washington II is cheaper than any other resources reviewed in that Program. It is cost-effective because no other available and similarly reliable resource had a lower incremental system cost. (See Attachment 1)

Question 3: In practice, are there significant differences in the processes used by BPA to acquire conservation, renewable and fossil resources? Are procedures, requirements, and administrative demands essentially equivalent for equivalent resources? Are resource acquisition costs and benefits appropriately shared?

Answer: Bonneville has developed several resource acquisition approaches to carry out the objectives of the Northwest Power Act and to implement the guidance of the Council's Plan. We have attempted to apply the principles of this guidance consistently and equitably while tailoring processes to specific resource objectives. We have taken care to assure that procedures, requirements, and administrative demands are substantially equivalent for equivalent resources.

Our most extensive experience is in the area of conservation acquisition. Conservation is the highest priority resource under the Northwest Power Act. We have been designing and operating conservation programs with our utility

customers since the early 1980's, and conduct programs in all sectors including residential construction, agricultural efficiency, and commercial/industrial efficient designs. We are now piloting several approaches to acquiring generating resources in addition to conservation.

The first pilot programs were a 50 megawatt Billing Credits offering in 1990, and a 300 megawatt Competitive Acquisition solicitation in 1991. Billing credits are available only to Bonneville customers; while the Competitive program was open to independent power producers as well as to utilities. Both of these processes solicited conservation, renewable, and fossil fueled resource proposals. Under Billing Credits, customers receive a credit on their power bills for developing resources to serve their own load. The amount of the credit is limited by Bonneville's alternative cost of resources, and other customers are protected by a rate impact test. Under Competitive Acquisition, Bonneville acquires the resources to serve customer loads.

We assure that costs and benefits are appropriately shared through the application of a cost-effectiveness test. Dissimilar resources are evaluated on a common basis through the application of "system cost adjustments." The prices bid by resource sponsors are converted to a real levelized purchase price, then adjusted to reflect the value of individual resource attributes to the power system. Resource attributes reflected in system cost adjustments include: capacity characteristics, seasonality; location; displaceability; environmental cost; interconnection cost; intertie use; on-line date and contract term; and nonfirm output. The result, known as "system cost," is reported for each resource in real levelized mills per kilowatt-hour.

Some selection criteria are applied to all resources under consideration. For example, all resources must meet a cost-effectiveness test, and all resources are required to represent a mature technology and to be reliable and available. Other criteria are applied consistently within generating and conservation resource types, but vary between resource types. For example, conservation receives a 10 percent price preference as required by the Northwest Power Act; the environmental costs of conservation are presumed to be zero; and conservation projects are required to propose verification plans to assure reliability of savings.

Our most recent pilot effort, the Resource Contingency Program, was open only to generating resource proposals. This program, initiated in 1992 and currently in negotiations, solicited 800 megawatts of option resources. By agreeing to pay preconstruction and investigation costs, Bonneville is securing options to acquire generating resources in the future. Through the Resource Contingency Program, we are testing the viability of the options concept proposed by the Northwest Power Planning Council. All of the successful bidders offered gas-fired combined cycle combustion turbines or gas-fired cogeneration. The program will be evaluated both in terms of cost -- whether options can be a part of a least-cost strategy -- and effectiveness -- whether an option can be secured, held, and exercised successfully.

Through these pilot projects we are refining and streamlining our acquisition approaches. We are making revisions both to apply selection criteria more consistently across resources and to tailor processes to meet specific resource acquisition objectives.

Question 4: Is BPA an effective indirect purchaser of regional resources through third-party financing, billing credits, conservation power plants and other indirect means?

Answer: Bonneville is establishing itself in the marketplace as a credible business partner interested in acquiring cost-effective resources for the Pacific Northwest's ratepayers. In the past three years, Bonneville has operated several different acquisition processes. These processes include the first round of billing credits, a pilot effort at an all-sources competitive acquisition for 300 average megawatts, Targeted Acquisition Program for conservation, third-party financing, and conservation power plants initiated by Bonneville's customer utilities. Bonneville's success at each of these efforts has varied, depending on the circumstances, our previous experience, and the degree of flexibility and control Bonneville has over the process. Dealing with a truly competitive marketplace is challenging for a Federal agency. In general, however, the ultimate decisions have been sound business decisions in that Bonneville has acquired cost-effective resources for the region. In addition, from these initial efforts, Bonneville has become more knowledgeable in dealing with the processes involved, and is working to incorporate the opportunities for improvements. Efforts currently underway include are the Function by Function Review, Marketing Plan, and ultimately Bonneville's Competitiveness Project.

Third-Party Financing: Bonneville's efforts at using third-party financing mechanisms for acquiring regional resources have generally been successful and efficient. Several years ago, Bonneville financed the weatherization of several thousand homes in the service territory of Eugene Water and Electric Board by supporting bonds sold by that utility. Bonneville is currently negotiating third-party financing opportunities for a wind demonstration project and for

conservation acquisitions for a consortium of utilities in the state of Washington (Conservation and Renewable Energy System). Bonneville's Office of Financial Management recently developed guidelines for acquisitions for third-party financing to ensure that Bonneville's financial interests are sufficiently protected.

Billing Credits: Bonneville recently completed its first round of billing credit proposals. The agency received 89 proposals and ultimately expects to acquire about 25 average megawatts of cost-effective resources for the region. Bonneville is currently incorporating suggestions for streamlining the process into a second round of billing credits now underway.

Competitive Bidding: As part of the 1990 Resource Program, Bonneville undertook a pilot effort at an all-sources competitive bid for 300 average megawatts. Bonneville has successfully completed memoranda of understanding for 293 average megawatts of generating resources, largely gas-fired, which are now beginning their final environmental and approval processes. Presently, Bonneville is in negotiation with several energy service companies for about 60 average megawatts. We acknowledge the need to improve this type of competitive process, and are seeking improvements, particularly in the negotiation phase.

Conservation Power Plants: Utility-initiated proposals that encompass all conservation acquisitions in a utility's service territory are known as "conservation power plants". The success of this acquisition effort is not yet clear, as these efforts have been more complex than our customers initially expected. For example, we soon expect to sign a contract with Emerald People's Utility District to acquire cost-effective conservation in Emerald's service territory. We regret,

the negotiation process took longer than either party expected and, at this point, we are uncertain about what type of or how many similar power plants are likely to be proposed.

Through the Targeted Acquisition Program, Bonneville recently signed a contract with Tacoma City Light to purchase up to 5 average megawatts of verified energy savings at Ft. Lewis, at a Bonneville cost of 34 mills (real levelized, $1993) that meets the program cost limits established in Bonneville's Energy Conservation Policies. In addition, Bonneville has contracted with Snohomish People's Utility District for a cost-effective commercial retrofit program to acquire about 1.2 average megawatts.

Question 5: What is the potential for cost-effective electricity savings in the Northwest region from fuel switching to natural gas? Do current market conditions create a sufficient incentive for fuel switching? If not, what measures should BPA undertake to encourage fuel switching?

Should BPA prohibit the expenditure of Super Good Cents incentives in areas where natural gas service is currently available?

Answer: Our current analyses indicate that in the region there are about 400 average megawatts of cost effective residential fuel switching achievable by 2010 that will not be delivered by current market forces. About half of this potential is in Bonneville's service territory.

Several other entities have developed estimates of the amount of residential fuel switching indicating a greater potential. This is due to a number of reasons: because their estimates generally include switching that we believe will occur from

market forces without electric utility actions, because they include substantial amounts of switching that we do not think is cost effective, and because they do not adjust for the fact that not all consumers would be willing to switch fuels even if the switching was economic from society's perspective. Our estimate includes only fuel switching that would not be delivered by current market forces and only the amount that we think would be cost effective relative to our resource alternatives.

We do not have comparable estimates of fuel switching potential in the commercial and industrial sectors and we know of no recent estimates by others. There are several reason for this: these sectors pose very difficult technical issues, there are far fewer reliable data presently available, and collecting the needed data is expensive and difficult. The limited information we do have indicates that the fuel switching potential is relatively small, expensive, and difficult to influence with utility actions compared to the residential sector.

Current market conditions are providing sufficient incentives in some market segments but may not be in others. Market incentives are sufficient in the new single-family home market where natural gas is available. A very large fraction (80 percent or more by some gas company estimates) of new single family homes built where gas is available are choosing gas space and water heat. Some smaller, entry-level homes with low annual heating needs and where low initial costs are an important component of housing affordability are being built with electric room heat rather than more expensive ducted central forced-air gas systems. And some homes are being built with electric heat pump systems where the cost of heating and cooling with such systems works out lower than the cost of a comparable gas furnace and central air conditioner. These market results

are not an indicator of market incentive problems but rather the natural and appropriate consequence of the fact that no single fuel or heating system type is best for all situations.

In the new manufactured housing and new multi- family home markets, which account for roughly 25 percent of the total new homes, electricity has been the dominant space and water heating fuel for the last three decades. This continues to be true. In many cases, this makes sense. A large fraction of manufactured housing is sited where gas is not available. And, in many cases, the higher cost of installing gas equipment in multi-family housing is not economic given the low annual heating requirements of these homes.

While we believe current market conditions are generally providing sufficient incentives in these markets, we will be looking at opportunities to improve information and price signals as we review our conservation programs and develop policy options for our 1994 Ten Year Resource Plan.

In the existing homes market, we are currently seeing 1 to 2 percent of the electric heat being converted to natural gas per year. There is also a significant amount of switching to gas water heat, and there has been a dramatic shift away from fuel oil heat to gas, electricity, and wood over the last two decades. So the market does yield switching of fuels in response to price signals. The question is whether the switching is occurring at the best pace for society's welfare.

Although there are undoubtedly isolated exceptions, we believe that markets are generally yielding appropriate fuel decisions in the large commercial and industrial markets. The small commercial building market may potentially have some of the

problems noted above for the residential markets, although the consequences of any such problems will be smaller.

There are two broad approaches to promoting additional cost-effective fuel switching: improving the functioning of markets and directly intervening in markets by mandating or paying money to influence fuel decisions. Bonneville strongly believes that the first approach is where we should focus our efforts. Markets are working, but maybe not as well as they could. We can most efficiently promote cost-effective fuel switching by improving the functioning of markets. Specifically we need to send appropriate price signals and improve the information available to consumers, builders and other decision makers. Appropriate price signals include not only the price of energy, but also might include hookup fees or other charges that reflect the longer-term costs of new construction fuel choice decisions made by builders, developers, or building owners who do not pay the ongoing energy costs.

Parties besides electric utilities also have key roles in contributing to good market outcomes. Natural gas utilities and their regulators in particular may need to reassess and possibly revise their policies and approaches to making natural gas available to consumers so consumers have more fuel choice options.

Specifically, Bonneville is considering adoption of tiered wholesale rates that would better reflect the true costs of developing new electricity resources. This would help our utility customers make good resource decisions and encourage them in turn to provide better price signals to their end use consumers. We are also reviewing our own electricity conservation programs to make sure we are not sending mixed signals or otherwise providing incentives that are counter to good

fuel choice decisions. We are working with the natural gas industry and other parties including state regulators and the Northwest Power Planning Council to help develop better information and policies that will lead to fuel choices that are consistent with least cost provision of energy services to all consumers. Finally we are participating in three fuel choice pilot projects initiated by our customers that will provide real world experience on fuel switching costs, savings, and legal and institutional impediments. We will use what we learn here to identify appropriate follow-on actions and policies that contribute to sound fuel choice decisions.

We are not ruling out consideration of not offering incentives where gas is available, but we do not think this is the best approach to promoting efficient new home construction. We believe that by restructuring the program and reducing incentive payments to builders, we can continue to promote highly efficient electrically heated homes where electricity is chosen, can lower costs and improve program cost effectiveness and can avoid unintended fuel choice effects. This restructuring of incentives and other program revisions is under way now. We will have a revised program in place beginning October 1, 1993.

Question 6: Has the Northwest Power Planning Council adequately exercised its responsibilities under the Act in the resource acquisition field? Please describe the strengths and weaknesses of the Council's activities related to resource acquisition.

Answer: The Northwest Power Act provides limited responsibility to the Northwest Power Planning Council in the field of resource acquisition: section 6(c)(2) gives authority to the Council to review Bonneville's major resource acquisition proposals to determine if a proposal is consistent with the Council's Power Plan.

In 1986, the Council and Bonneville adopted their respective policies for the implementation of section 6(c) through a joint public process. On August 20, 1992, the Council adopted a proposed Process and Criteria to be used in section 6(c) reviews. In that document, the Council describes factors it proposed to use in judging the consistency of a Bonneville major resource proposal with the Power Plan. In March, 1993, the Council and Bonneville adopted amendments to their respective policies to extend the scope of the policies to all measures identified in section 6(c)(1) of the Northwest Power Act. These measures are proposals from Bonneville (1) to acquire a major resource, (2) to implement a conservation measure which will conserve an amount of electric power equivalent to that of a major resource, (3) to pay or reimburse investigation and preconstruction expenses of the sponsors of a major resource, or (4) to grant billing credits or services involving a major resource.

To date, the Council has participated in two section 6(c) reviews, and is currently participating in a third. The first was review of Bonneville's Conservation/Modernization program for aluminum smelters, and the second was review of Bonneville's payment of investigation and preconstruction costs for optioned resources under the Resource Contingency Program. The Council found each proposal to be consistent with the Power Plan in effect at the time the proposal was made. The review in process is of Bonneville's proposal to acquire up to 240 average megawatts of output from Tenaska Washington II. The Council is expected to make a determination on this proposal on July 28.

The Council has also adopted a proactive role for implementation of the Plan. These activities include supporting state advisory committee efforts to identify and remove regulatory barriers to conservation acquisition, promoting successful

conservation acquisitions, working with utilities in relicensing and licensing processes to show how a utility's conservation efforts compare with the Plan, participating in siting initiatives of utilities and resource developers, and providing a forum for exchanging information on the effectiveness of implementation actions. In actions specifically related to Bonneville, the Council is participating in Bonneville's efforts to decentralize and to accelerate the acquisition of conservation, and, in response to Bonneville's budget cuts, is working with Bonneville to find efficiencies and new conservation delivery approaches.

The strengths of the Council's involvement in resource acquisitions and specifically in section 6(c) reviews includes providing the region with a system of checks and balances for major resource acquisitions. This is achieved through a process of competing analysis and creative tension. The dual public processes also provide additional opportunity for public review and comment on Bonneville's major resource proposals. A consistency determination by the Council provides clear public support for an acquisition. The composition of the Council itself also ensures that States' issues and concerns will be reviewed within the regional context In addition to providing a forum to exchange ideas and information, the Council's informal involvement in implementation of the Plan also promotes the value of conservation as a resource and encourages its acquisition by both public and private utilities.

The weaknesses to Council participation in resource acquisitions and specifically in section 6(c) reviews is the duplication of effort and the additional time required to conduct the dual processes. The dual process also provides an opportunity for parties to "end run" Bonneville, by providing controversial testimony in the Council's process after declining to participate in Bonneville's

process. One difficulty is that 6(c) policies require review for consistency with the current Plan. However, some acquisitions have such long lead time that they are initiated under a prior Plan, which may have conflicting guidance.

Question 7: Has BPA adequately accounted for the environmental externalities associated with various energy sources in its resource acquisition process? If not, what specific issues should BPA revisit?

Answer: Bonneville's application of environmental costs to planning and acquisition activities is consistent with the requirements of the Northwest Power Act and the guidelines developed by the Northwest Power Planning Council. Bonneville has focused on effects where there is some meaningful economic cost to society from effects to the environment or risk to Bonneville's ratepayers from future internalization of environmental costs.

Bonneville uses resource-specific environmental costs for its planning activities and uses site-specific environmental costs whenever possible for its acquisition activities. Bonneville has developed values for residual air emissions, specifically nitrogen oxides (NO_X), sulfur dioxide (SO_2), and particulate matter (PM), and for environmental risks to land and water. If a project sponsor can demonstrate that it has purchased sufficient SO_2 allowances under the Clean Air Act amendments, BPA will wave the environmental costs for SO_2. Carbon dioxide emissions are not monetized, but are part of the qualitative assessment Bonneville conducts for each resource evaluated. These values are updated as new information is available.

Bonneville applies its environmental damage costs to all resources evaluated for possible acquisition. For example, in its Competitive Acquisition Program and in

its Resource Contingency Program, Bonneville applied resource-specific environmental costs which were included in the cost-effectiveness tests to which all prospective resources were subjected. In addition, non-price environmental factors are considered during resource selection processes to assure that the full range of environmental effects is taken into account.

Bonneville has focused on the environmental costs associated with plant operations. Our estimates do not reflect the environmental costs associated with the entire fuel cycle. The U.S. Department of Energy is now conducting a study of fuel cycle environmental costs which we hope to rely on to augment our estimates

Attachment 1

Summary

Range of System Costs
(1990 mills/kWh)

Competitive Acquisition Program, 1991

Resource Type	Number of Proposals	Range of System Costs	Range of Purchase Prices
Conservation	41	22 to 46[1]	26 to 43
Renewables	14	35 to 50	31 to 55
Cogeneration[2]	11	33 to 54[3]	34 to 55
Other Gas-Fired[4]	33	27 to 62	29 to 61
Other[5]	4	33 to 47	30 to 38

[1] Does not include 10% advantage to conservation.

[2] Includes all projects with greater than five percent of thermal energy supplied to thermal host.

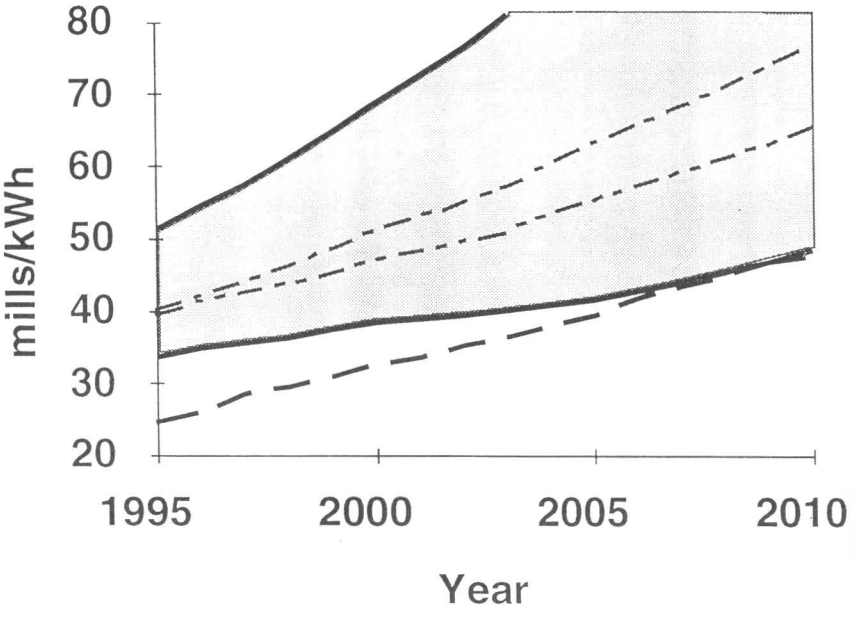
[3] System costs include adjustments for fuel price risk.

[4] Includes stand alone units and projects with less than five percent thermal output supplied to thermal host

[5] Includes coal and system sales. Resources are grouped to preserve confidentiality.

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Gas Combined-Cycle Costs vs. PF Rate



Values Used for Plotting Graph

Gas Combined-Cycle Costs vs. PF Rate

(nominal mills/kWh)

	Gas Combined-Cycle Costs				1/ Effective
	High Gas	*Low Gas*	*Medium Gas*		Medium
Year	Baseload	Baseload	Baseload	50% Displ	PF Rate
1995	51	34	40	40	25
1996	55	35	42	41	26
1997	57	35	44	42	29
1998	61	36	46	44	30
1999	65	37	48	45	31
2000	69	39	51	47	33
2001	73	39	53	48	34
2002	77	39	55	50	35
2003	81	40	58	51	37
2004	86	41	60	53	38
2005	91	42	63	55	39
2006	95	43	66	57	42
2007	98	44	68	59	44
2008	102	45	71	61	45
2009	106	47	74	63	47
2010	111	49	77	65	48

1/ The rate a utility would avoid by building a gas combined-cycle.

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Gas Combined-Cycle Costs vs. PF Rate Graph Assumptions

Gas Combined-Cycle:

- Based on Bonneville supply curves and gas forecasts. Costs generally correlate with Bonneville's acquisition programs experience of the past few years.
- 90% availability (industry experience of 90-97% with this and similar technology).
- Real escalation rates for spot gas prices: High = 5.9%, Medium = 3.4%, Low = 0.0%.
- Displacement alternatives assume plant runs on gas half the time and is displaced, i.e., "runs on water" half the time. Opportunity cost of nonfirm is 15-mills/kWh (1993$).
- Levelized cost (1993$):

High Gas - Baseload:	54-mills
Medium Gas - Baseload:	39-mills
Medium Gas - 50% Displaced:	35-mills
Low Gas - Baseload:	28-mills

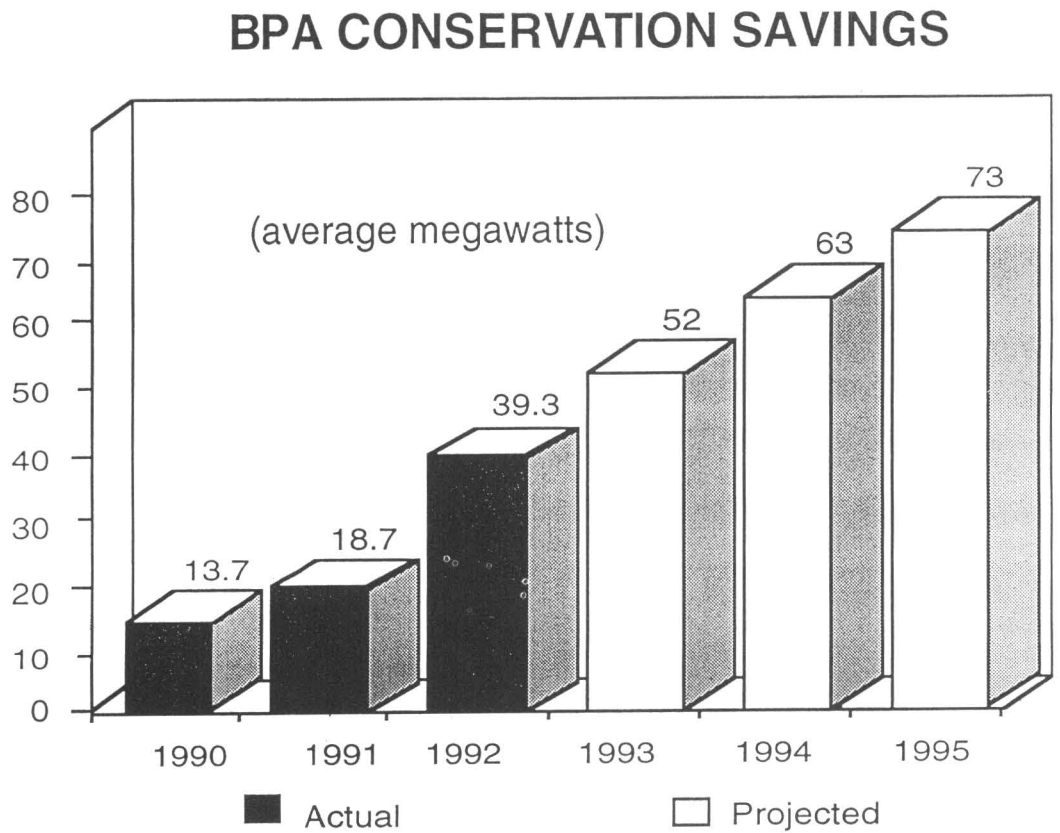
PF Rate Shown in Graph:

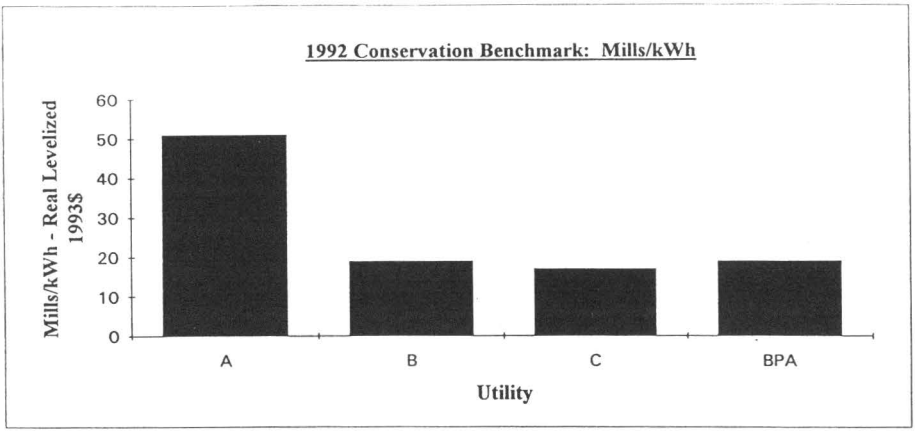
- Based on medium forecast from BPA Wholesale Power and Transmission Rate Projections 1992 - 2013, Nov 1992.
- The effective PF rate depicted in this graph (92% of Bonneville's published average PF forecast) is the rate a utility would avoid by building a new gas CC. It is derived using demand and energy charges applied to a load which is equivalent to the expected availability of a gas CC (90%). The average load factor implicit in the published average PF forecast is much lower than this.
- Levelized cost (1993$): Published PF = 27-mills, Effective PF (graphed) = 25-mills.

Other Assumptions:

- It would be incorrect to infer equivalent reliability between a gas CC and the PF rate. The cost of backup supplies for the gas CC is not included here. Unless a utility has cheap and reliable backup supplies, the system cost for a gas CC of equivalent reliability to the PF rate would be somewhat higher.
- Wheeling costs of a gas CC are not included and could be 0 - 3 mills/kWh.
- General inflation rate is 4%.

Bonneville Power Administration
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BPA CONSERVATION SAVINGS
(average megawatts)
80
70
60
50
40
30
20
10
0
13.7
18.7
39.3
52
63
73
1990
1991
1992
1993
1994
1995
Actual
Projected



Notes:

* Utilities are not identified to protect proprietary information.
* Cost and savings are for 1992, in some cases fiscal 1992 and in others calendar 1992
* Real Levelized 1993 $ at 8.35% finance rate, 3% discount rate, and 4% inflation.
* Costs are utility cost and include direct and indirect costs of conservation acquisitons
* Lifetimes used in levelizing calculation based on utility program distribution of savings
* This is a rough comparison of costs the results of which could be affected by:
  - Differences in cost accounting methods
  - Differences in methodologies for counting conservation savings
  - More detailed comparisons of program savings and acquisitions
  - A longer period of comparison (i.e. over 3 years)
* Source of Data: Information conveyed in communications with utilities, June 1993

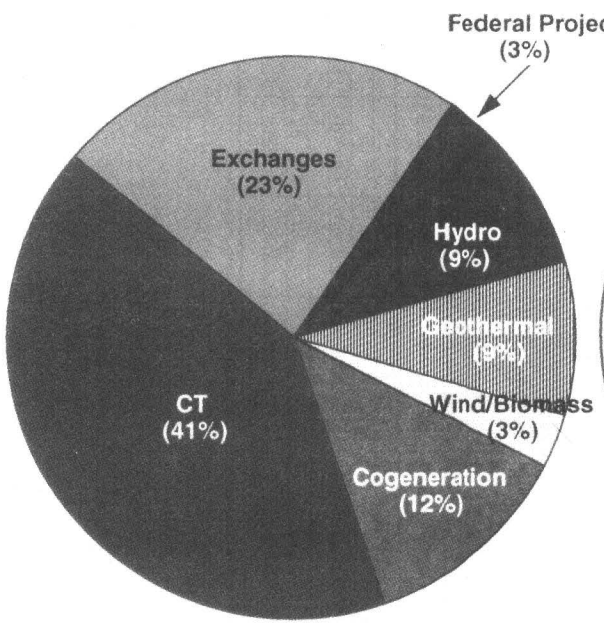
1992 BENCHMARK UTILITY CHARACTERISTICS

	Utility			
	A*	B	C	BPA
% Savings Evaluated	100%	?	?	55%
Years in Conservation	14	16	13	11
Energy or Capacity Constrained?	Capacity	Capacity	Energy	Energy
% Savings From Residential	19%	17%	50%	65%
% Savings From Commercial & Industrial	81%	82%	50%	35%
Net or Gross Savings Reports?	Net	Net	Gross	Net
Total Historical Savings as a % of Load (approx.)	3%	5%	6%	4%

* 60% of utility A's savings are from short-lived lighting measures.

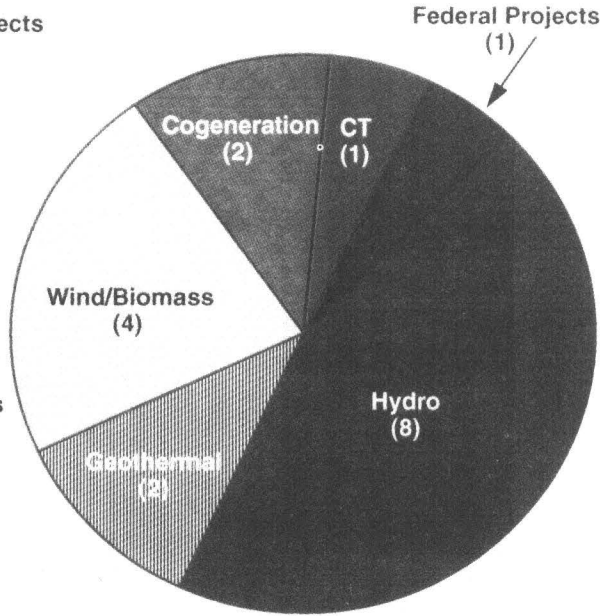
Generating Resource Purchases

Percent of Total aMW by Category



592 aMW

Number of Projects by Category



18 Projects

Mr. DEFAZIO. Thank you. Mr. Grace, I would invite you to speak and divide your time as you wish between yourself and Mr. Duncan or if you're going to make the entire presentation, however you wish.

STATEMENT OF STAN GRACE

Mr. GRACE. Good morning. My name is Stan Grace. I'm Chairman of the Northwest Power Planning Council. With me is Mr. Angus Duncan, an Oregon member of the Council.

I want to thank you, Chairman DeFazio, Congressman Smith and members of your staff for your review of the Bonneville Power Administration and for inviting the Council to testify today.

We appreciate this opportunity to summarize our views on the strengths and weaknesses of Bonneville's resource acquisition program and on whether the program has complied with the mandates of the Northwest Power Act. This inquiry is extremely timely because this region critically needs new resources and because of Bonneville's current financial crisis.

We believe Bonneville and most other parties in the region are committed to carrying out the mandates of the Northwest Power Act and the Council's 1991 power plan. Bonneville has taken several important steps called for in our plan. Bonneville has begun wind and geothermal demonstration projects, has agreed to look at wholesale tiered rates, and has made a commitment to acquiring its full share of our regional conservation goal.

We applaud expressed commitments in these first steps, but we must be realistic about the barriers to delivering on these goals. Is the region, not only Bonneville, but other utilities, State agencies and the Council, making sufficient progress in addressing these barriers?

We're concerned about whether Bonneville will be able to fully exploit its conservation goals, as well as power generation and fish and wildlife goals, given the Administrator's recent rate and budget decisions. And, of course, we are concerned about the underlying vitality of the region's economy.

Let me begin with your question about the Council's strengths and weaknesses. The Northwest Power Act of 1980, which called on Oregon, Idaho, Montana and Washington to create the Northwest Power Planning Council, created a public process for regional electrical power planning that is unique to the Nation.

The Act charged the Council with developing a long-term regional electrical energy plan and developing a program to protect and enhance the fish and wildlife resources in the Columbia River Basin.

The Act also says we must develop a broad public involvement process to help us make these decisions. The Council brought to regional power planning a degree of public involvement that simply never existed before. This is one of the Council's key strengths.

The public has the opportunity to present information and views to the Council before any major decisions are made. The Council must regularly inform the public of our objectives and activities and conduct public hearings in all four States before adopting or amending the power plan or the fish and wildlife program.

Because of the Northwest Power Act, electricity consumers here have direct access to regional energy decision-makers and a public forum in which to participate in decisions about energy and fish and wildlife.

Before the Council was created, involved parties often had to resolve differences in court or take them to Congress. The Act gives the Northwest States, through the Council, a check and balance of Bonneville's authority, albeit a narrow one. If the Council finds that any proposed major resource is not consistent with our power plan, Bonneville must go to you, to Congress, to get the approval for the resource.

On the other hand, most of our authority in the Act to ensure that Bonneville actually acquires resources in the plan is not clearly defined. In fact, we can only encourage Bonneville and the region's utilities to acquire conservation and other cost-effective resources.

Frankly, progress has been slower than Congress probably envisioned. We've included specific examples outlining this situation in our written testimony.

Your second question concerns Bonneville's resource acquisitions. Bonneville has several strengths in acquiring resources. It can integrate resources with its regional power system and can spread the cost and risk of resource development across the region.

Bonneville can also have a big impact on the market for energy efficiency. The manufactured housing acquisition program is an outstanding successful example. By dealing directly with the manufacturers and concentrating the market power of the utilities, Bonneville secured more energy-efficient manufactured homes at a lower price.

Similar opportunities exist with retail chains and franchises which are building new facilities all over the region. Bonneville and its utilities should be working closely with these franchises to ensure that the new facilities use electricity efficiently.

One pilot project for this group has been authorized this year, but more needs to be done to capture these savings. Bonneville is a large bureaucratic organization that avoids risk. Its processes are cumbersome. Its decision-making is relatively slow. Its procurement procedures cause delays and additional cost in the conservation programs.

The size of its staff adds considerable overhead. BPA's present management is working to change all that. Still, Bonneville's budget process forces utility customers to operate on annual conservation budgets. If a utility wants to negotiate a multi-year contract with a large industry, it has no assurance that Bonneville funding will be available the next year.

Some of these problems come with the fact that Bonneville is a public agency, but some of these problems should be alleviated. We are heartened by the Administrator's efforts in this regard.

There will always be differences between the way conservation is acquired and the way generating resources are acquired. Generally, however, the Council believes the process for acquiring conservation should be more like the process Bonneville has used to acquire other generating resources. The result would be a more business-like and lower cost conservation process.

We offer the following suggestions, which are described in more detail in our written testimony.

Bonneville should continue to provide incentives to utilities for cost-efficient performance and acquiring energy efficiency.

Bonneville's oversight of conservation programs should be streamlined.

Bonneville and its utilities should work with chains, franchises and equipment manufacturers to transform the market for energy efficiency.

Bonneville should continue to allow energy service companies to compete with utilities for energy efficiency contracts.

Bonneville should make long-term funding commitments for conservation to its customer utilities. In particular, Bonneville should support multi-year utility financing of conservation.

Bonneville and its utilities should develop agreed-upon protocols to verify conservation performance.

To effect these steps, Bonneville and its customers must work toward a fair and realistic sharing of conservation costs and risks. Bonneville is a world leader in innovative transmission technology. We'd like to see Bonneville exhibit the same level of innovation and leadership in acquiring conservation.

Finally, you asked specifically about the Tenaska, Washington, acquisition process. Because the Council has not voted on this issue, I cannot offer an opinion on whether Bonneville should proceed with the acquisition. However, our staff has reviewed the proposed acquisition and recommends that the Council find the proposal consistent with our power plan.

The staff issue paper concludes that the project is needed, cost-effective and reliable, and that it meets or exceeds all applicable State, Federal and local environmental standards.

As to the question of confidentiality in this process, we believe that the intent of the 6(c) process would be best served by making as much information as possible available to the Council and the public. We understand that Bonneville needs to have effective business relationships with potential developers.

In the Tenaska process, Bonneville included provisions that prohibited any release of confidential information. As a result, Bonneville was unable to provide specific information regarding the terms of Tenaska's gas supply contracts.

Similarly, Bonneville was unable to provide bid price and system cost information for all the other proposed projects in the program, although they later summarized this information for us. The confidentiality provisions hampered the Council in our own analysis. We understand that Bonneville officials agreed that in the future, the confidentiality provisions should be able to be relaxed without adversely affecting Bonneville's progress and that Bonneville intends to change these confidentiality provisions in the future.

The Tenaska review truly was a learning experience for all involved. We intend to examine what was learned from the current process before undertaking another review. There are other important issues facing Bonneville and the region. Many assumptions that underlie the Northwest Power Act have changed. We understand future hearings of this task force will address these issues. We look forward to participating.

Mr. Chairman, this concludes my testimony today. Thank you again for the opportunity to testify. Mr. Duncan and I are available to answer your questions.

[Prepared statement of Mr. Grace follows:]

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Testimony of the Northwest Power Planning Council
before the
Bonneville Power Administration Task Force
Committee on Natural Resources
United States House of Representatives

Portland, Oregon
July 12, 1993

My name is Stan Grace, and I am Chairman of the Northwest Power Planning Council. With me today is Angus Duncan, an Oregon member of the Council.

I want to begin by thanking you, Chairman DeFazio, and members of the task force, for undertaking this important examination of the Bonneville Power Administration and for inviting the Council to testify today.

The Council appreciates this opportunity to present our views on the strengths and weaknesses of Bonneville's resource acquisition program and whether or not the program has complied with the mandates of the Pacific Northwest Electric Power Planning and Conservation Act. This inquiry is extremely timely given the region's critical need for new resources and the financial stresses Bonneville faces as a result of the seven-year drought and depressed aluminum prices.

This is a report to the committee on progress and problems in Bonneville's effort to comply with the Act and the Council's 1991 Northwest Conservation and Electric Power Plan. In general, we believe Bonneville and most other parties in the region are committed to carrying out the mandates of the Act and the Council's 1991 Power Plan. Bonneville has taken several notable initiatives in this regard, undertaking wind and geothermal demonstration projects, agreeing to pursue wholesale tiered rates, and committing to acquire its full share of the Council's regional conservation goal.

We applaud expressed commitments and first steps. At the same time, we must be realistic about barriers to delivery, and whether the region -- not only Bonneville, but other utilities, state agencies and the Council -- are making sufficient progress in addressing these barriers. We are concerned about whether Bonneville will be able to fully exploit its conservation resource, given the Administrator's recent rate and budget decisions, and the difficulties the agency and its customers are having coming to terms on acquiring the resource, and doing so economically. We are concerned about the region's ability to capture commercial and industrial energy efficiencies, to implement adopted energy codes and to prospect for and develop cost-effective, high-efficiency cogeneration resources.

Our testimony will address other issues as well, including resource acquisition, Bonneville's proposed acquisition of the Tenaska gas-fired combustion turbine, the impact of natural gas price and supply on long-term power planning, the question of fuel choice, resource financing options, our relationship with Bonneville and our role in the regional energy planning process.

The Council's role

The Northwest Power Act of 1980, which called on Oregon, Idaho, Montana and Washington to create the Northwest Power Planning Council, created a public process for regional electrical power planning that is unique in the nation.[1] The Act charged the Council with developing a long-term, regional plan for meeting demand for electrical energy, and also with developing a program to protect, mitigate and enhance fish and wildlife resources, and related spawning and rearing habitat. In addition, the Act says the Council must develop a broad-based public involvement process for making these decisions.

The Act gives highest priority to energy conservation as a source of power to meet regional demand in the future. Most efficiency improvements are inexpensive, compared to other sources of electricity, and also are more environmentally benign. In compliance with the Act and the Council's plan, the region's electric utilities and Bonneville accelerated their acquisition of conservation. Electricity efficiency improvements from 1978 to 1991 totaled an estimated 528 annual megawatts,

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[1] A brief history of the Northwest Power Act, the Council and its relationship with Bonneville is attached to this testimony as Appendix A.

approximately enough to serve about a city the size of Portland. Annual conservation acquisition peaked in 1983 at 66.7 megawatts and is now climbing again.

We can point to other accomplishments as the result of regional power planning under the Act, as well, including:

- The Council developed model conservation standards for building codes and utility programs in 1983, at the direction of the Act, and all of the Northwest's utilities now promote efficiency through practical programs and incentives such as Bonneville's Super Good Cents.

- Federal, state and local governments, in cooperation with Bonneville and utilities, have adopted new efficiency standards for new buildings and appliances, standards that will save an estimated 800 megawatts if the region's demand for electricity grows rapidly.

- State governments have implemented energy-efficiency programs that have saved some 200 megawatts of electricity.

- The Northwest has been a leader in the country and the world in integrated, least-cost planning. The Council, Bonneville, utilities and other regional interests have worked together to develop common analytical tools to improve information on energy use, forecasting and new resources.

- Utility regulatory commissions in Idaho, Oregon and Washington now require the investor-owned utilities they regulate to prepare resource plans similar in general outline to the Council's power plan. In addition, a number of public utilities have developed similar plans and participate in the development of Bonneville's resource problem.

- The Council's planning process provides a forum for resolution of disputes.

The Council's current Northwest Conservation and Electric Power Plan, adopted in 1991, calls on the region to acquire at least 1,500 megawatts of new energy efficiency by the year 2000. Based on reports by the region's utilities, we are on our way. In 1991, these utilities acquired an estimated 45 annual megawatts, about double the 1990 amount. It's important to note, however, that while this is a good start, the region will have to greatly accelerate its conservation acquisition in the coming years if we are to meet the target in the power plan.

There is no question that now is the time for our region to act on acquiring new resources to meet the region's growing demand for electricity. In fact, action is the 1991 Power Plan's theme. As we work to see that the plan is implemented, our goal is to build a regional consensus for action.

The plan calls for action in four broad fronts: acquiring all the low-cost resources available, shortening the lead time it takes to acquire and fully develop resources, confirming cost and availability of additional conservation and renewable resources, and removing regulatory barriers to implementation.

We are working to lead the region in promoting and implementing the plan through aggressive oversight of the more than 80 activities it includes. In addition to continuing to work closely with state regulatory agencies, utilities and local governments, we are providing a regional forum for exchanging information on the effectiveness of implementation actions. To this end, in 1992 we instituted a conservation tracking program to monitor progress by the region's utilities and Bonneville, and we publish an annual report on conservation acquisition.

We are involved in all of the integrated resource planning efforts now under way in the region, and we have sponsored conferences to bring together executives of the region's major utilities and regulatory commissioners from the four states to share experiences and expertise. We have noted a spirit of friendly competition at these conferences, as utility executives tout their successes in delivering the benefits of energy efficiency to their customers.

Finally, we are preparing monthly and annual implementation reports, and we welcome congressional oversight of implementation activities and the Council's work.

These successes were possible, in large part, because the Council brought to regional power planning a degree of public involvement that simply never existed before. This is one of the Council's key strengths. The Act provides that the public be given opportunities to present information and views to the Council before any major decisions are made. The Council must regularly inform the public of its objectives, organization and activities and conduct public hearings in Oregon, Idaho, Montana and Washington before adopting or amending the plan or program.

Because of the Council's mandate in the Northwest Power Act, Northwest electricity consumers have direct access to regional energy decision-makers and a

public forum in which to participate in decisions about energy, fish and wildlife. These important decisions no longer are made behind closed doors. Before the Council was created, involved parties often had to resolve differences in court or take them to Congress.

In the 1970s, when the Northwest Power Act was contemplated, long-range energy forecasts by utilities predicted the region would need as many as 27 new power plants. Plants were built well before they were needed and at tremendous cost to the region's power consumers.

Under the Act, Bonneville became responsible for meeting the loads of its customers and managing the regional electrical system to achieve the purposes of the Act relating to fish and wildlife, system reliability, efficiency and research into new sources of electricity. The Act says Bonneville must give priority to cost-effective conservation and renewable resources in meeting the region's demand for power. Bonneville may purchase electricity from new thermal projects -- power plants fired by coal, nuclear energy or natural gas -- but only after determination that they are needed in addition to all cost-effective conservation and renewable resources that can be achieved or developed in a timely manner. Bonneville spreads the benefits, costs and risks of developing new resources among all of its customers through its rates.

In exchange for giving Bonneville greater authority in acquiring new resources, the Act gives the Northwest states -- through the Council -- a check-and-balance role on Bonneville's new authorities. For example, if the Council finds that any proposed major resource acquisition is not consistent with its power plan, Bonneville must secure congressional approval before acquiring the resource.

Under the Act, the Council's principal duties are to prepare and oversee the implementation of the power plan and the fish and wildlife program and to involve the public in those processes. The Act contemplates that Bonneville and other federal agencies will implement the Council's plan and program. However, no part of the Act limits the Council to planning only, and several sections specifically require us to oversee the manner in which the plan or program are implemented.

As a result of the Council's planning and oversight responsibilities, a creative tension has existed between Bonneville and the Council ever since the Council adopted its first power plan in 1983. Our statutory duties in the Northwest Power Act clearly include overseeing implementation of the power plan and fish and wildlife program. Congress never contemplated that the Council would prepare its energy plan and fish

and wildlife program and then play no part in overseeing their implementation. Congress intended that the states, through the Council, would play an active role.

A creative tension probably is what Congress intended by giving the Council specific oversight authority in the Act. Various parts of Section 4 expressly foresee that the Council be involved in implementing its plan, including the authority to oversee actions of the Bonneville administrator "...to determine whether such actions are consistent with the plan and programs," a power that clearly interjects the Council into an implementation activity.

The House Interior Committee summed up its expectation in the following way:

> ... the Council has a continuing and important role under subsections (h) [fish and wildlife program, including the annual report to Congress], (i) [reviewing the actions of the Administrator] and (j) [request to Administrator for specific resource acquisition] in addition to its responsibility to review the plan and consider future changes. The Council is expected to exercise its responsibilities under section 4 carefully and diligently. [H. Report 96-976, Part I, p. 58]

In total, these provisions suggest that Congress intended an active role for the Council in monitoring and promoting implementation of its plan and program.

There are problems regarding the exercise of our authority, however, that go to the heart of this task force's work. In framing the Northwest Power Act, Congress and the Northwest Governors wanted to be sure that our region's long history of reliable, low-cost electric power would continue. In addition, these officials wanted the Act to encourage energy conservation and the other priority resources.

These principles are reflected in the Act, which gives highest priority to energy conservation to meet future demand for electricity. But the Act also gives the Council specific authorities that, while perhaps appropriate at the time the Act was passed, appear heavy-handed today. For example, while the Act allows the Council to establish utility conservation standards, the Act also allows the Council to recommend a surcharge on rates for any of Bonneville's customer utilities that do not undertake conservation programs. Congress and the Northwest governors wanted to insure that the council envisioned by the Act would have authority to disapprove new regional generating plants if it were determined demand for power could be met with plants that cost less or had less impact on the environment. In a related matter, the Act allows the

Council to determine whether a major resource acquisition by Bonneville is consistent with the plan. If the Council determines the resource is inconsistent, Bonneville must seek congressional approval before proceeding.

In contrast, our authority in the Act to insure that Bonneville actually acquires resources in the plan is less clearly defined. In fact, we can only *encourage* Bonneville and the region's utilities to acquire conservation and other cost-effective resources. Frankly, progress has been slower than we envisioned. For example:

- The Council has called for workable conservation programs in all economic sectors since 1983. While the region has made great progress, more work is needed on commercial and industrial programs, and also in acquiring lost-opportunity resources -- those that must be acquired now or lost forever.

- Bonneville's processes are slow, perhaps too slow to acquire needed resources in the timely fashion envisioned by the 1991 Power Plan.

- While Bonneville has committed to acquiring its full share of the Council's regional conservation goal, more progress is needed to provide long-term, stable financial and contractual arrangements so utilities can meet the aggressive goals in the plan.

Bonneville is a world leader in innovative transmission technology, and the agency has had some outstanding successes in resource acquisitions. But we believe Bonneville can -- and must -- do more. We believe Bonneville should bring the same level of innovation to resource acquisitions -- particularly conservation -- as it brings to building and maintaining its world-class transmission system. We have urged Bonneville not to treat its Northwest Power Act obligations as discretionary funding, or as "shock absorbers" in times of financial crisis.

Resource Acquisition

The Council's regional planning process, and its partnership with Bonneville, led the Northwest into an era of energy efficiency. The 1991 Power Plan calls on Bonneville and the region's utilities to aggressively acquire energy conservation. Bonneville, as the major supplier of electricity in the region, has the biggest share of the Council's 1,500-megawatt goal -- 660 megawatts by the year 2003. It is important to note that the Council considers 1,500 megawatts a minimum. Because of Bonneville's

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substantial share of this resource, we are particularly concerned that the agency give high priority to conservation acquisition.

Bonneville has several significant strengths regarding resource acquisition. With respect to efficiency resources, Bonneville represents a significant market for efficiency products and services. This market potential should be large enough to allow Bonneville to bring about market transformations that reduce the cost of efficiency materials and services, particularly if it acts in concert with the region's investor-owned utilities. The outstanding example of success in this regard is the Manufactured Housing Acquisition Program. By concentrating the market power of the region's utilities and dealing directly with the manufacturers, Bonneville was able to secure cost-effective improvements in the efficiency of manufactured housing at a significantly lower price than would otherwise have been the case.

Unfortunately, Bonneville has not made as much progress in pursuing similar opportunities. For example, the Council's plan calls on Bonneville to secure energy savings from retail chains and franchises that have existing or are building new facilities throughout the region. Only one pilot acquisition project of this nature has been authorized for this year.

Another strength is Bonneville's ability to integrate resources with the regional power system. For example, power storage, shaping, transmission and other services that Bonneville provides can make it possible to more effectively utilize intermittent resources such as wind.

A third strength is Bonneville's ability to spread the cost and risk of resource development relatively broadly across the region. This ability will be particularly important if we are successful in developing even modest amounts of new renewable resources that are perceived as somewhat riskier than more conventional resources.

But we have two specific concerns about Bonneville's ability to acquire cost-effective resources in a timely manner.

First, Bonneville is a large, bureaucratic organization. Its processes are cumbersome; decision-making is relatively slow. As an organization, Bonneville avoids risk. Bonneville's procurement procedures cause delays and additional costs in delivering conservation. The size of Bonneville's staff adds considerable overhead to conservation programs.

Second, under current procedures Bonneville's utility customers operate on annual conservation acquisition budgets. If a utility wants to enter into a multiyear contract with its large commercial and/or industrial customers, it has no assurance that Bonneville funding will be available beyond the current contract year. This system increases administrative cost and reduces the ability of both the local utility and its customers to make long range conservation acquisition plans.

Some of these problems come with being a public agency. Bonneville's resource acquisitions are slowed partly by the need to comply with the National Environmental Policy Act and with consistency provisions of the Northwest Power Act. These processes, however, are designed to protect the public interest.

Overall, Bonneville currently is on track to acquire its share of the conservation and renewable resources in the 1991 Power Plan. There is concern, however, that current budget reductions may reduce Bonneville's ability to capture all cost-effective conservation called for in the Power Plan. Council staff attempted -- admittedly, it was an imperfect attempt -- to compare the cost of Bonneville's conservation programs and those of its customer utilities against similar programs run by other utilities. This comparison indicated that it should be possible to achieve the power plan's conservation goals at lower costs. How much lower is not clear. The Council is working with Bonneville to identify opportunities for economies in its programs. We cannot be sure, however, that Bonneville will be successful.

In late April 1993, as Bonneville assessed its costs and programs during the 1993-95 rate case deliberations, the Council urged Administrator Hardy to maintain program spending levels adequate to meet the agency's obligations under the Northwest Power Act. These obligations include a requirement to acquire least-cost resources. Energy efficiency measures have short-term costs.

But we are concerned about the long term, and so we urged Bonneville to use this occasion of budget pressure to move its efficiency programs in directions that may be politically difficult, at the moment, but that will result in conservation resources at lower costs to customers and the region over the long term. For example, we suggested that Bonneville could eliminate promotional activities for new residential electrical space and water heating in areas with available natural gas, and it could streamline its procurement procedures and aggressively seek agreements with chains and franchises. And it could follow through on its stated intent to employ and support customer financing of efficiency programs where it has customers willing and able to provide their own financing. Again, the Council does not consider energy conservation a type

of discretionary spending. We urged Bonneville not to use the current rate case as a vehicle to establish program spending levels that undermine or delay full implementation of the 1991 Power Plan.

The Tenaska project

Bonneville's proposed acquisition of the Tenaska Washington II power plant and proposed payment of preconstruction and investigation expenses come under the purview of Section 6.(c) of the Northwest Power Act, in which the Council reviews proposals by Bonneville related to resources of five years duration or longer and larger than 50 megawatts of capacity. The 6.(c) review of the Tenaska plant is the third such review conducted by the Council, but the first of a generating resource. As such, it offers a useful example of our concerns about this process.

Because the Council has not voted on this issue, I cannot offer an opinion as to whether Bonneville should proceed with the acquisition. Council staff have reviewed the proposed acquisition and payment of preconstruction and investigation expenses and have recommended the Council find the proposals consistent with the power plan. The staff issue paper concludes that the project is needed, cost effective, and reliable and that it meets or exceeds all applicable state, federal and local environmental standards.

Although stand-alone combustion turbines were not specified for immediate acquisition in the power plan, the staff analysis found that performance of the regional power system in terms of cost, risk and environmental impacts was likely to be substantially equivalent with the acquisition of Tenaska Washington II as it would have been with the acquisition of higher-priority resources -- gas-fired cogeneration, for example -- available to Bonneville at the time the decision to acquire the Tenaska project was made.

Some at Bonneville have asserted that the Council should rely solely on the administrator's record of decision in determining whether the Tenaska proposals are consistent with the 1991 Power Plan. The Council's adopted 6.(c) policy is clear that this is not the case. In the policy statement adopted at the conclusion of the five-year review of the 6.(c) policy, in 1991, we said we "may consider the record adopted by the Administrator," and that we would conduct our own analysis and take public comment before making a decision. We consistently said we would participate in Bonneville's review process to gain as much information as possible regarding the project under consideration.

More generally, we believe that the intent of the 6.(c) process would be better served by making as much information available to the Council and the public as possible, consistent with Bonneville's need to have effective business relations with potential developers. In this first resource solicitation, Bonneville included provisions that prohibited any release of confidential information. As a result, Bonneville was unable to provide specific information regarding the terms of the gas supply contracts. Similarly, Bonneville was unable to provide bid price and system cost information for all the projects in the Competitive Acquisition Program, although they subsequently provided this information in summary form. The confidentiality provisions hampered the Council in our analysis.

We understand that Bonneville officials agree that the confidentiality provisions can be relaxed without adversely affecting Bonneville's process. It is our understanding that Bonneville intends to change these provisions in future resource acquisitions. Therefore we expect that this issue will not be a problem in the future. At the same time, the Council will be working on internal policies that will ensure that any confidential information we receive will be protected under the Freedom of Information Act.

Thus, while our staff is confident about its conclusions regarding Tenaska, we are working to improve the accuracy of our future reviews. The Tenaska 6.(c) review truly was a learning experience. We have some concerns about the process, and we intend to examine the current process before undertaking the next 6.(c) review.

Acquisition of other resources

In practice, there are significant differences in the processes used by Bonneville to acquire conservation and generating resources, either renewable resources or those fired by fossil fuels.

Generating resources

In contrast to conservation acquisition, development of generating resources generally is undertaken on the basis of some kind of performance contract -- the developer gets paid for the kilowatt hours produced. The allocation of risk is, to a large extent, the subject of the contract between Bonneville and the developer. Similarly, the purchaser is obligated to pay under the terms of the contract. The purchaser may not reduce purchases for the convenience of budgets, except as provided in the contract.

In purchasing power from a generating resource, the developer has incentive to reduce its costs. Once the terms of a contract are agreed, any cost savings accrue to the benefit of the developer. If that developer is a utility, the utility's customers benefit directly.

Compared to the necessarily gradual, but steady progress in conservation acquisition, Bonneville's progress in developing new generating resources is much more dramatic. Earlier this year we completed a "midcourse review" of implementation of the 1991 Power Plan -- about half way toward the five-year deadline established in the Act for reviewing the plan. In that review, we noted that Bonneville and other utilities in the region have identified resources adequate to meet the medium-growth forecast for power demand. However, few of these resources actually have been sited and licensed. We also noted favorably that the demonstration project elements of the Council's confirmation agenda for wind and geothermal resources is being implemented.

Our review found that the vast majority of generating resources being developed differ from those anticipated in the plan. Natural gas-fired resources predominate, and most of those are cogeneration projects with relatively low levels of thermal utilization compared to the plan's preference for thermally matched cogeneration. If this trend to gas-fired generation continues, the region's new resources will be mostly gas-fired, although the overall resource portfolio will remain relatively diverse.

Conservation resources

Traditionally, Bonneville and, for that matter, most other utilities have used a programmatic approach to developing the conservation resource. Bonneville, however, is unique in that its relationship is typically with the local utility. That utility ultimately is responsible for interacting with the end-use consumer to effect conservation savings. Consequently, the effectiveness of local utilities and the relationships between Bonneville and those utilities are critical to successful conservation implementation.

Historically, some of Bonneville's utility customers viewed conservation as a customer service activity rather than as resource acquisition. As a consequence, some utilities appear to be more concerned about whether they were getting their fair share of Bonneville's conservation budget, rather than acquiring conservation savings. Although the Council's 1983 power plan contained conservation acquisition targets, it wasn't until this year that Bonneville's utilities were asked to establish their own

conservation targets. The Council believes that charging each utility with the responsibility of meeting an annual conservation goal for a set budget will prompt much more efficient resource acquisition than has been the case in the past.

On the other hand, utilities frequently contend that Bonneville focuses entirely too much effort on monitoring and verification -- this requires a comparable effort by the utility in order to comply -- and is unwilling to assume modest levels of risk of non-performance, due to factors outside the utilities' control. The consequence, they say, is more money lost in monitoring and verification than is saved as a result of these efforts. Further, several utilities contend that because Bonneville will not commit funding for these programs for several years in advance, the utilities are forced to accept the risk of hiring staff and the costs of that staff even though funding may not be available in the future. Recent reductions in Bonneville's conservation budgets -- these came after Bonneville's commitment to increase conservation efforts -- made some utilities wary.

A significant characteristic of the programmatic approach to conservation acquisition is that utilities have at best only an indirect incentive to reduce the cost of their acquisition efforts. They cannot be assured that any savings they accomplish will directly benefit their customers. While reducing a utility's cost ultimately will reduce the cost to its customers, this is not a one-to-one correlation. Customer savings will be spread around the region. This represents a serious disincentive to cost-efficient conservation development.

Other conservation acquisition methods

Meanwhile, Bonneville has not been an effective indirect purchaser of regional resources through third party financing, billing credits, conservation power plants and other indirect means. The billing credits program has not been very effective, particularly with respect to conservation resources. Most utilities believe the billing credits formula exposes them to too much risk. Bonneville has recently revised its billing credits program to attempt to address this problem. We will soon see whether they have been successful.

The Action Plan for the 1991 Power Plan calls for a review of the effectiveness of Bonneville's billing credits program in encouraging utility resource development. If billing credits are not effective, then the Action Plan calls for implementation of a multilevel (tiered) priority firm rate. Bonneville has committed to a process to examine tiered rates. Because development of a workable tiered rate will be time-consuming

and difficult, we are initiating analytical work on the issue so that we can participate in Bonneville's process.

Several utilities have tried to develop "conservation power plant" and utility financing proposals with Bonneville. To date, none has been successful. In one instance, negotiations broke down at the last minute. We understand now that Bonneville is close to reaching agreement with Emerald Peoples Utility District in Oregon. We hope the effort is successful. Transaction costs of developing these proposals by Bonneville and the utilities have been much too high. For example, the Emerald Peoples Utility District negotiations have extended over nearly four years at a cost to this small utility of over $150,000.

One of the primary reasons why Bonneville and the utilities have not been able to consummate "conservation power plant" projects is that the parties cannot agree upon an appropriate allocation of risk. The Council believes that one of the explicit purposes of the Regional Act was to allocate the risk of resource development to the widest possible revenue base, so that no individual or small group of utilities would be placed in economic jeopardy when developing a resource to benefit the region. We believe that Bonneville should adhere to this logic when it negotiates for the acquisition of future "conservation power plants." That is, risks which the utility can control, such as whether the energy efficient equipment is installed and operating properly, should be borne by the utility. Bonneville should accept those risks that are beyond the control of the local utility, such as changes in operating hours or production levels due to economic cycles.

Bonneville also should pursue utility financing of conservation programs. This could have the effect of lowering the cost of these programs and also could address Bonneville's concerns about approaching the limit of its Treasury borrowing authority. Additionally, utility financing would demonstrate a long-term commitment to energy conservation.

Efforts to work through energy service companies also were relatively unsuccessful until recently. Bonneville and Tacoma City Light are working together with an energy service company to implement energy efficiency improvements at Fort Lewis, the U.S. Army base near Tacoma. There also are several potential projects with energy service companies being considered in Bonneville's Competitive Acquisition Project.

In some instances, energy service companies may be able to supply the resource more efficiently than utilities. But some utilities object to allowing energy service companies to work with "their" customers, and this has been a barrier to undertaking such projects. Bonneville in its competitive bidding process, at the insistence of some of its customers, required energy service companies submitting bids to secure the consent of the local utility to do business in its service territory. Although the Council supports the need for an energy service company to coordinate its activities with the local utility, it sees no reason to restrict what might be healthy competition between a public utility and the private sector for delivery of conservation savings.

Significant energy savings also are available from building code improvements, but until recently Bonneville has been unwilling to commit to supporting implementation of improvements in state and local codes and has considered reducing its existing support. Energy savings from residential and commercial building codes cost substantially less than savings from utility conservation programs, but enforcing building codes has been difficult. Bonneville has been reluctant to pay for enforcing building codes, but there are some indications that the agency now recognizes the potential cost savings from codes and may be willing to act to secure those savings.

Acquisition policy recommendations

There will always be differences between the way conservation is acquired and the way generating resources are acquired. For example, because conservation generally cannot be directly metered, usually there will be a requirement for some degree of oversight. In general, however, the Council believes it would be preferable to move the conservation acquisition process closer to that of generating resources. The result, we believe, would be a more business-like and lower-cost acquisition of conservation. To accomplish this, the following elements should be given careful consideration by Bonneville and its customers:

- Mechanisms for providing utilities incentives for cost-efficient performance (and possibly disincentives for cost-inefficient performance);
- Streamlining Bonneville's oversight;
- Developing utility and Bonneville collaborations to support projects to transform the market for energy efficiency -- for example, working with chains and franchises and manufacturers of equipment;

- Opportunities for alternative energy-service providers to compete;
- Long-term commitments of conservation funding; and
- Development of agreed-upon protocols for verifying conservation performance.

Underlying all of this must be a willingness on the part of Bonneville and its customers to work toward a fair and realistic sharing of conservation costs and risks.

The Council and others in the region have expressed concern about potential vulnerability to gas price escalation, local air quality problems and possible carbon tax initiatives, and we are examining these issues. In addition, we noted that because the short-term cost of some gas-fired resources compare favorably with some efficiency measures, the region may be lured away from cost-effective, environmentally benign efficiency improvements. As long as conservation remains cost-effective and environmentally benign, we will continue to work toward achieving the efficiency goals of the power plan.

Fuel switching and fuel choice

Lower natural gas prices, apparently adequate supplies and the improving quality and efficiency of combustion turbines have increased the attractiveness of natural gas as a fuel to generate electricity. In the 1991 Power Plan, both natural gas-fired cogeneration and the use of combustion turbines to firm secondary hydroelectricity were found to be cost-effective resources. Today, with lower gas prices and the outlook for price stability, natural gas is competitive with other fuels even for base-load resources. This raises the question of whether it is better to use natural gas directly for appropriate end uses, such as space and water heating, than to burn natural gas to generate electricity to serve end-use energy needs. When applied to existing buildings, or other sectors, this issue has been called fuel switching. When considered for new applications, it has been called fuel choice.

A thermodynamic efficiency argument for the direct use of natural gas has a lot of intuitive appeal. For example, the energy content of electricity produced at a combined-cycle combustion turbine is only 45 percent of the energy content of the gas used to generate the power. In contrast, direct use of natural gas to fire a home furnace generates 80 percent of its original energy content as useful heat for the home. Of course, to be a valid comparison, other factors such as electric energy efficiency, duct

and flue loses, and so on, must be considered. But in general, direct use of natural gas has the greater thermodynamic efficiency.

The Council, however, never has used thermodynamic efficiency as a planning criterion. Our plans are based on economic efficiency, which is a much broader concept that focuses on total costs rather than energy efficiency. In this broader economic efficiency analysis, the advantage of direct use of natural gas is much less clear than the thermodynamic comparison, and is highly dependent on specific housing conditions. The Council has not taken a strong position to encourage particular fuel choices in our past power plans. However, we thoroughly considered the issues of fuel switching and fuel choice in developing our plans.

The Council's concern for the long-term availability and price stability of natural gas is at the root of our policy regarding fuel switching and fuel choice. We neither encourage nor discourage particular fuel uses. We changed this policy slightly in the 1991 Power Plan. In response to falling natural gas prices, the role of gas for electricity generation increased in the plan. This increased use caused us some concern for total energy efficiency. As a result, we expressed a strong preference for "thermally balanced" cogeneration. This is viewed as a high-efficiency resource, whereas cogeneration that is primarily a large generating plant with insignificant thermal loads would raise issues of total fuel efficiency. In recognition of the likelihood of growing reliance on gas-fired generation the Council formed a natural gas policy group to explore the issue of coordination between natural gas and electric industries.

In the last few years, a number of agencies and associations, including the Council, have studied the issues of fuel conversions and fuel choice. A study by the Oregon Energy Conservation Board concluded that life-cycle costs were minimized with the same efficiency measures for zonal electric space heating, forced-air gas and forced-air electric. As result, Oregon adopted a single code for all homes regardless of the energy source used for heating. In contrast, a study by the Washington State Energy Office concluded that the lowest-cost option from the consumer's perspective was natural gas for space and water heating. Unlike the Oregon study, the Washington State Energy Office study assumed current energy prices escalate at the rate of general inflation. Oregon assumed energy prices would increase faster than inflation. Other studies have concluded that fuel conversion is cost-effective from both the consumer's and society's perspectives, but that conversion becomes less cost-effective with declining usage. As a result, energy conservation measures tended to reduce cost-effectiveness.

In short, there is not a precise figure for the cost-effective potential for fuel switching in the region. Very little is known about the potential in multifamily housing and the commercial sector. Even in the case of single-family housing, the potential is uncertain. Nonetheless, Council staff estimates there are from 500 to 900 average megawatts of cost-effective fuel switching opportunities in the single-family market. This is a sizable resource. It is not so large, however, as to negate the need for additional generating resources.

Regarding market considerations, it is generally difficult to establish whether a market is working effectively or not. Both electricity and natural gas distribution are accomplished by regulated, investor-owned companies or through public utilities. Thus, neither the market for electricity nor the market for natural gas could be considered competitive. However, the market for energy, generally, is not a monopoly. Consumers can choose their fuels, and they can affect their energy usage by investing in efficient equipment or buildings. There is a history of lively competition between electricity, natural gas, oil and some other energy sources for residential space and water heating markets. This competition continues today to various degrees throughout the region and, in fact, colors much of the growing interaction between natural gas and electric industries.

All indications are that for new, single-family housing, the market is functioning quite well. Natural gas is capturing something on the order of 90 percent of the market where gas is available. Perhaps the most important factor in increasing the use of natural gas in new housing is revision of line extension policies to make gas more available. This is the province of the state regulatory commissions. Gas historically has not been a major factor in multifamily construction in this region, although it is commonly used in other parts of the country. We don't know why. We do not have reliable information on the use of gas in the commercial sector.

In the case of single-family retrofits, Council staff is currently undertaking an analysis of the effectiveness of the market in bringing about cost-effective fuel switching. It seems clear from the experience of Snohomish County Public Utility District and Washington Natural Gas Company that when both utilities work together, customers are more likely to switch. From the experience of Washington Water Power, an electric and gas utility, incentives accelerate fuel switching. Currently, the Council has not decided to what degree, if any, electric utilities should offer incentives to promote fuel switching. This issue will be considered in the course of our ongoing gas analysis. We believe that electric utility resistance to fuel switching would be reduced -- perhaps overcome -- if cooperative programs could be devised in which gas utilities

support weatherization of homes that are switched to natural gas to the highest levels of efficiency that are cost-effective for gas. By making these homes energy-efficient, homeowners are protected in the event that gas prices rise rapidly. Additionally, the local electric utility is protected against a tide of switching *back* to electricity in the event gas prices rise rapidly.

In keeping with its policy of not influencing the choice of specific fuels, the Council, in its 1986 action plan, called for monitoring of regional efficiency programs to ensure that they were not unduly influencing fuel choice. Bonneville has just completed such an evaluation for its Long-Term Super Good Cents program and found only a modest effect on fuel choice. However, even relatively small effects on fuel choice were found to have a significant effect on the cost effectiveness of the savings acquired through the program.

Bonneville is now considering how the program might be modified to further reduce to possibility that the program might cause some builders to select electric space and water heating where gas is available. It is not yet clear whether Long-Term Super Good Cents incentives should be discontinued in areas where gas is available, or whether some other program modification might better limit the effect on fuel choice while still ensuring that electrically heated homes are built to efficiency levels consistent with the Act and the Council's power plan.

Environmental externalities

The Northwest Power Act requires the Council to include "a methodology for determining quantifiable environmental costs and benefits" in the power plan. This methodology was included in the first power plan in 1983 for use by the administrator to quantify all environmental costs and benefits directly attributable to a measure or resource.

Ten years later, there is not consensus on the most appropriate way to account for environmental externalities in resource acquisition. This is not to say one method is wrong and another is right, but that there are different ways to approach the problem.

The Council's approach reflects a regionwide planning responsibility. We take a broad view of environmental impacts. We concluded that in some instances, we would not make resource acquisiton decisions on the basis of economics alone even though the Northwest Power Act emphasizes cost-effective resources. For example, it may be economical in terms of power costs to build a small dam on a pristine forest stream, but

the environmental costs would be too high. In the late 1980s, after listening to regional concerns about environmental protection, the Council placed some 44,000 miles of streams off limits to future hydropower development. Similarly, the Council decided that no degradation of indoor air quality from conservation measures was acceptable.

Bonneville deals with environmental externalities more specifically, on a site-by-site basis in the context of resource acquisition. The impacts considered include emissions of sulfur dioxide, oxides of nitrogen, particulates and impacts to land and water. Considering that this is an evolving technology, Bonneville's approach to date is adequate.

There have been difficulties. For example, Bonneville proposed accounting for carbon dioxide emissions but was overruled by the Department of Energy. We expect that this decision will be reconsidered as U.S. policy on global climate change is revised.

Finally, since adoption of the 1991 Power Plan in April of that year, the Council staff has been concentrating on improving its understanding of the environmental characteristics of resources in the plan. We are developing the analytical tools to account for these characteristics in the planning process, and we are critically reviewing the various methods for including environmental impacts in planning decisions. This is an evolving area of inquiry that has high levels of uncertainty. The intent is to be able to take environmental impacts into account in a more accurate and systematic way than has been done in the past.

Next Steps

Our testimony focuses on the questions raised by the task force on resource acquisition. There are a number of other important issues facing Bonneville and the region. Many of the assumptions that underlie the Northwest Power Act have changed. For example, the Congress assumed that Bonneville would develop most, if not all, of the new resources for the region. In fact, most of the investor-owned owned utilities, and some of the public utilities are developing their own resources. This has been a challenge for our efforts to realize the coordinated development of resources envisioned in the Act.

The Act gave Bonneville new authority to pool the risk of regional resource development. Today, many utilities see significant risks to Bonneville from potential repayment reform, and lack of access to borrowing authority.

We understand that future hearings of this task force will address these and other issues. We look forward to participating in those hearings.

Mr. Chairman, that concludes my testimony today. On behalf of the Northwest Power Planning Council, I want to thank you again for the opportunity to testify.

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Attachment A
Testimony of the Northwest Power Planning Council
before the
Bonneville Power Administration Task Force
Committee on Natural Resources
United States House of Representatives

Portland, Oregon
July 12, 1993

HISTORY OF REGIONAL POWER SYSTEM

The development of the Columbia River system in the Pacific Northwest began in the 1930s under a program of regional cooperation to meet the needs of electric power production, land reclamation, flood control, navigation, recreation, and other river uses.

From the beginning, the Federal Government has played a major role in the development of one of the largest multiple-use river systems in the world. Thirty multi-purpose dams on the Columbia River and its tributaries were built by the U.S. Army Corps of Engineers and the Bureau of Reclamation. Investor-owned and publicly owned utilities also built a major system of dams and generating facilities. Congress directed the Bonneville Power Administration in the Bonneville Project Act of 1937 to build and operate transmission lines to deliver the power from dams, and to market electricity from Federal generating projects on the river at rates set only high enough to repay the Federal investment over a reasonable period of time.

Canadian Treaty

As demand for power grew, the U.S. and Canadian governments recognized a need for development of dam sites in Canada. The governments of both nations negotiated a treaty in the early 1960s for the cooperative use of dams built by Canada on upper reaches of the river. The three treaty dams, all completed by 1973, provide flood control downstream as well as reservoir storage for production of additional power at the U.S. dams downstream. By 1980, the treaty dams had enabled U.S. downstream dams to generate enough electricity for a city the size of Seattle for 15 years.

Intertie

Also in the 1960s, Congress authorized the construction of three major power lines linking the Columbia River hydro projects with power markets in California and the rest of the Pacific Southwest. The interties benefit the Pacific Northwest in several ways. They allow the sale of hydropower from the Columbia when it is not

needed here and would otherwise be lost in the form of water spilled over dams without generating electricity and to permit this region to buy power from California when it is needed here during shortages and periods of heavy use. In the first instance, sales of surplus Northwest hydropower to California has saved some 200 million barrels of oil. In the second case, California utilities sold power to Pacific Northwest utilities in the drought years of 1973, 1977, 1979 and 1992.

To protect Northwest access to power, Congress passed regional preference provisions in 1964. Bonneville must offer any surplus power to utilities in the Northwest before selling it to California. Sales to California can be called back if the power is needed in the Northwest.

Net Billing Agreements

With the dams developed in Canada as well as the United States, the river system provided virtually all the electricity needed by the region until the early 1970s. But by that time, all dam sites on the mainstem of the Columbia that were economically feasible and environmentally acceptable were either developed or under development, and the region was looking for other ways to meet electric load growth. Bonneville and the region's utilities were predicting shortages of electricity unless thermal generating plants were brought on line in response to increasing demand.

The region's publicly owned utilities and investor-owned utilities turned mainly to coal-fired and nuclear plants to meet growth throughout the Pacific Northwest. Development of such plants was considered the most economic and environmentally acceptable option available at the time. Bonneville helped the utilities respond to these needs by participating in a Hydro-Thermal Power Plan for the continued development of electricity resources in the Pacific Northwest.

Under the plan, Bonneville agreed to acquire electricity by entering into "net billing" agreements with its publicly owned utility customers. These agreements made it possible for the publicly owned utilities, which owned shares, to sell to BPA all or part of the generating capacity of thermal projects. Bonneville credited, and continues to credit, the wholesale power bills of these utilities in amounts sufficient to cover the costs of their shares in these plants. Bonneville then sells the output of these plants, melding the higher costs of this thermal power with the lower costs of hydropower, for the benefit of all customers. The plants were cooperative efforts of both publicly owned and investor-owned utilities, but Bonneville purchased only the shares of generating capacity owned by publicly owned utilities.

Hydro-Thermal Power Program

Under the Hydro-Thermal Power Plan (Phase I), Pacific Power & Light Company and other investor-owned utilities built the Centralia coal-fired plant with the co-ownership of several publicly owned utilities. Portland General Electric Company

built the Trojan nuclear power plant, with 30 percent co-ownership by Eugene Water and Electric Board (EWEB) covered by a net-billing agreement. And the Washington Public Power Supply System (WPPSS), under net-billing agreements, completed one nuclear plant and partially constructed two other nuclear plants in Washington state. The Hanford N-reactor turbine generator, built by WPPSS, also came on line just prior to the formal initiation of the Hydro-Thermal Power Plan, and before its closure in 1987 was considered a part of the overall effort. Bonneville became the agent for integrating these resources so the consumers of the region could benefit from the greatest efficiency and lowest costs from operation of the regional electric system.

In spite of the efforts of utilities and Bonneville to continue developing the region's generating resources in a systematic way, the region continued to lose ground to rapidly growing demands for electricity. The Hydro-Thermal program failed to meet the region's expectations for two basic reasons. A revision of regulations by the Internal Revenue Service denied tax exempt status to bonds sold by publicly owned utilities to finance their plants if power from the facilities was sold to Bonneville, a Federal body. And, Bonneville's financial ability to participate in net-billing agreements reached its limits far sooner than expected because of the climbing costs of new thermal plants.

In 1973, Bonneville and the region's utilities initiated a Hydro-Thermal program, Phase II, in which the utilities would finance their own plants without net-billing participation by Bonneville. Thus, WPPSS nuclear units 4 and 5, now terminated, were not covered by net-billing contracts. Nonetheless, Bonneville expected to provide electric load management and power integration services and to supply peaking power and reserves from Federal facilities in order to bring about the most efficient mix of resources possible. Bonneville's participation in this program was enjoined by a Federal Court, which required that Bonneville complete an environmental impact statement on its role in the region. Delays in the construction of new plants, costs higher than originally expected, and the realization that the Hydro-Thermal Program would not be adequate to meet needs made it evident that Bonneville would not able to sell firm power to investor-owned utilities and still provide first priority to serving "preference customers" as directed by Federal law.

Preference

The Bonneville Project Act of 1937 directed that the co-ops and publicly owned utilities of the region be given first call on available Federal resources. They consequently came to be called "preference customers." Until the 1970s, their legal preference had never been exercised because there had been enough electricity for everyone. In 1973, when Bonneville's firm-power contracts with investor-owned utilities expired, Bonneville could not offer new ones if preference customers were to continue to have first call on Federal resources. So the firm power contracts with the investor-owned utilities were not renewed.

However, Bonneville continues to sell some peaking power to the investor-owned utilities -- power they need to get through periods of heavy use in the winter heating season. Bonneville also sells "non-firm" power to the investor-owned utilities and utilities outside the region when electricity surplus to the needs of the preference customers is available.

In 1976, Bonneville's power demand and supply projections showed that Federal power supplies were running short for preference customers, and that Bonneville would no longer be able to guarantee preference customers that their load growth could be met beyond 1983. Bonneville issued a notice of insufficiency to the utilities in June of 1976.

Rate Disparities

With the investor-owned utilities relying on their own hydro and thermal resources to meet the demand of their customers, and with the prices of federal hydropower much lower than that of new thermal generation, a divisive struggle for access to limited federal resources grew. Sixty percent of the residential and farm customers of the region are served by investor-owned utilities. These customers were paying, on average, twice as much for electricity as customers of publicly owned utilities receiving wholesale power from Bonneville. The City of Portland sued Bonneville, claiming a right to a share of hydropower resources for its citizens. The State of Oregon passed a law authorizing formation of a statewide public utility -- the Domestic and Rural Power Authority -- to seek service as a preference customer from Bonneville so that all residential customers of private utilities could receive the rate benefits of Federal resources. Elected officials of other states talked of forming their own statewide public utilities.

Stimulated by rate disparities, the public power movement also experienced a renaissance. A strong public power move to buy out investor-owned utility service areas by means of elections in accordance with State law was revived in Oregon. All votes to form new PUDs failed in the November 1980 elections, but one long inactive PUD, the Columbia Peoples Utility District west of Portland won voter approval for issuing bonds to buy out utility properties in Columbia County.

Meanwhile, planning for more resources to meet demand was hamstrung by uncertainty over the allocation of low-cost federal power among competing claimants, existing and new. For example, Bonneville's contracts with its direct service industries, which are large industrial firms that purchase power directly from Bonneville, were to expire in the 1980s. The power sold to these industries would have to be sold to public utilities under the preference clause. If they were to survive in the Northwest, these industries needed an assured source of electricity.

Declining salmon runs

Finally, by the late 1970s it became clear that our regional prosperity, which resulted in large measure from inexpensive hydropower from the federal dams, had a price on fish and wildlife in the Columbia River Basin. Just a century earlier, for example, between 10 million and 16 million salmon returned to the Columbia each year. But by the late 1970s, there were only about 2.5 million salmon, and most of those returned to hatcheries. Environmental groups and other advocates for fish and wildlife considered filing petitions to protect dwindling fish populations under the federal Endangered Species Act.

These pressures on our regional electric power supply, which once seemed inexhaustible, caused Pacific Northwest residents to question the institutions governing the development, sale, and distribution of generating resources. Should new preference agencies be formed to replace private companies in given areas? How would the supply needs of new preference customers be met? Should private utilities undertake new generating projects in a hostile atmosphere of rapidly rising rates and the threatened shift to public power? How would large industrial customers in the region be served? How should the public, and their elected representatives, participate in decisions that were critical to the region's economy and environment? Who ultimately would be responsible for planning and acquiring new resources to avoid impending electricity shortages? How would our region protect the fish and wildlife that had been damaged over the years by the construction and operation of hydropower dams?

The region continued to work for a cooperative solution that preserved local options while obtaining regional efficiencies of an integrated electric system. Several alternatives were explored, but no agreement was reached. To avoid a court battle over allocation issues, the region turned to Congress for a solution.

Toward a Congressional Solution

Revisions to the Bonneville Project Act were considered as early as 1975. The legislation was prompted by Bonneville's Notice of Insufficiency in June of 1976, coupled with the threat posed by Oregon's Domestic and Rural Power Authority. However, it was not until 1977 that Bonneville and its customers, through the Pacific Northwest Utilities Conference Committee (PNUCC), drafted legislation to solve the region's energy problems. Senator Jackson introduced the PNUCC bill in September of 1977, but neither that bill, nor a less complex successor drafted a year later, managed to progress very far by the time the 95th Congress adjourned in late 1978.

When the 96th Congress convened in 1979, a coalition of Bonneville customers was solidly behind a legislative solution to the Northwest's power crisis. Neither Bonneville nor its customers wanted an administrative allocation of limited power supplies, although Bonneville did propose an allocation scheme in October of 1979.

Bonneville and its customers, however, maintained that such an allocation would be subjected to protracted litigation. They alleged that Congress could avoid the uncertainties accompanying administrative allocation by devising a legislative allocation scheme and equipping Bonneville with the authority to purchase power from non-federal sources on a long term basis. Supplying Bonneville with purchase authority was, they claimed, the key to implementing any legislative allocation scheme. Congress apparently agreed. The Senate passed the regional legislation on August 3, 1979, the House passed an amended bill on November 17, 1980, which the Senate agreed to two days later. On December 5, 1980, President Carter signed the Pacific Northwest Electric Power Planning and Conservation Act into law as Public Law 96-501.

Northwest Power Act - Major Provisions

After four years of deliberation, Congress devised methods for protecting the preference that existing Federal law gives publicly owned utilities while at the same time providing the benefits of Federal hydropower to residential and small farm customers of private utilities. It should be noted that the Act passed largely because it seemed to benefit all the interest groups that lobbied for it.

Here are some highlights of the Act:

First, rate disparities between consumers served by private utilities and those served by public utilities were minimized by providing investor-owned utilities access to Bonneville lower-cost power. Second, the costs of this increased access were paid for by increased rates charged to industrial customers. Third, in return for paying increased rates, existing industrial customers were promised new long term contracts. Fourth, preference customers were guaranteed that their rates would not increase more than they would have without the Act.

Fifth, Bonneville was given purchase authority to expand the system in order to meet the requirements of its customers, but only pursuant to a number of provisions designed to guard against any abuse of that authority. In particular, in response to state claims of a lack of involvement in major regional energy issues, the Act created a unique interstate planning entity, the Pacific Northwest Electric Power and Conservation Planning Council, to govern Bonneville's acquisition of major resources and promote conservation and renewable resources programs through a regional energy plan. This was the key provision from the perspective of the Northwest states -- Bonneville got new authority to acquire resources in return for a Council appointed by the governors. This Council would develop a regional plan and oversee its implementation.

Sixth, in an effort to minimize rate increases, the Act requires that all acquisitions be "cost-effective," including consideration of environmental costs, and establishes a resource priority scheme favoring conservation and renewable

resources over thermal plants. Seventh, Columbia Basin fish and wildlife damaged by the hydroelectric system are to be preserved and restored through a basin-wide program promulgated by the Council.

Finally, the Act guarantees public involvement in all significant resource decisions.

The Act directs that Bonneville should continue its traditional role of transmitting and marketing power, but also carry out additional responsibilities. Under the Act, BPA must acquire all necessary energy resources to serve utilities who choose to apply to BPA for wholesale power supplies. The Act contains checks and balances to insure that all customers of BPA are treated equitably.

BPA remains accountable to the people of the Pacific Northwest for the actions it takes to meet the needs of residents and industry. By creating a regional planning council consisting of two members from each of the four Northwest states to develop a regional plan, Congress provided a regional decision making system. It emphasizes local control of resource development and power planning.

Here are the major provisions of the Pacific Northwest Electric Power Planning and Conservation Act:

- The Northwest Power Planning Planning council was formed with representation from each of the states. The Act directed the Council to draw up a plan for meeting the electrical needs of the region at the lowest possible cost. The plan must give highest priority to cost-effective conservation, treating it as a resource preferable to all other means of responding to demand for electricity. Renewable sources of energy must be given next highest priority in the region's power planning, to the extent that they are cost-effective ranking ahead of conventional thermal generating resources. Among thermal options, fuel-efficient methods of producing energy, such as cogeneration, must be given priority.

- BPA became responsible for meeting loads of customers and managing the regional electrical system to achieve the purposes of the Act relating to fish, system efficiency, and experimental projects. The plan adopted by the Council, which is amended periodically, is the basis for BPA's actions in meeting loads of its customers. Congress exercises budget review of all proposed BPA expenditures. If BPA decides to acquire resources not consistent with the Council's plan, specific Congressional approval is required prior to any commitment by BPA. BPA must give priority to cost-effective conservation and renewable resources in meeting the region's needs. BPA may also purchase the generating capabilities of new thermal projects, but only after determination that they are required in addition to all cost-effective conservation and renewables that can be achieved or developed in time. Such projects must also be found reliable and

compatible with the regional electric system. BPA must spread the benefits and the costs of resources among all of its customers through its rates.

- The supply preference and resulting price advantage to co-ops and publicly-owned utilities by Federal law was protected and enhanced. BPA was given the responsibility of meeting the full future requirements of preference customers -- something BPA was not previously authorized to do.

- Residential and farm customers of investor-owned utilities received rate relief. The utilities sell to Bonneville, at the average cost of their power, an amount of electric energy equal to their residential and farm loads. Bonneville sells to them, in return, enough energy at BPA standard rates to cover these residential and farm loads. The rate advantages cannot enhance company profits, but must be passed on directly to the customers.

- Direct service industries received new 20-year contracts for power from BPA, but at a higher price than they paid under previous contracts. In effect, they pay the cost of rate relief to residential and small farm customers of investor-owned utilities during the first four years, and a substantial portion thereafter, which they agreed to do in exchange for assurances of long-term supplies.

- BPA sells electricity at a rate that reflects the melded cost of Federal hydropower and more expensive thermal resources, conservation, and renewable sources of energy. The Act contains incentives, as well, to encourage conservation and renewables. BPA may credit utilities for their individual actions to implement conservation and renewables.

- The Council established a program to protect and enhance the fisheries resources of the Columbia River and to mitigate damage already done to anadromous fish. Funding for the program is to come from BPA rate revenue.

- All planning for electric resources and fish protection must involve the public. State and local control of land use and water rights is protected under the Act and the decision to allow construction of new resources is left with utilities and state siting authorities.

- The Council must provide a method for balancing environmental protection and the energy needs of the region. For each new energy resource, the provisions of the National Environmental Policy Act must be complied with.

Mr. DEFAZIO. Thank you. Thank you for staying precisely in the time. The red light just went on. You must have practiced. Christine Ervin, Director of the Oregon Department of Energy, welcome.

STATEMENT OF CHRISTINE ERVIN

Ms. ERVIN. Thank you. Chairman DeFazio, Congressman Smith, I am Christine Ervin, Director of the Oregon Department of Energy.

I do appreciate this opportunity to share Oregon's views on Bonneville's resource acquisition programs. The issues that you are looking at here are clearly important to Oregon and the region.

My written testimony addresses the specific questions that you laid out, the seven questions in your letter. My remarks today I'd like to focus on conservation acquisition in particular, which relates to several of the questions in terms of strengths and weaknesses of Bonneville and potential prospects for meeting the plan.

In the short term, let me say that I agree we certainly are on track for reaching Power Council goals for all resource acquisition and we have made great strides in this region in terms of acquiring conservation, largely due to the leadership and the resources provided by Bonneville.

We also have to remind ourselves that those goals have been relatively modest compared to the goals ahead of us. From the Oregon perspective, if we look at the overall resource least-cost strategy, if Bonneville and the region's utilities are going to stray significantly from that path, it certainly won't be due to a lack of natural gas plants to help diversify our fuel mix. The market is taking care of that.

And it's not going to be for lack of good sound planning because I think our plans in the region are arguably the best in the country. If we stray, it's going to be in the execution of that sound planning, a failure to achieve, at a minimum, the conservation identified in the regional goals.

I think that's where we could be headed without some enhancements to what is basically a good system. My concerns, I might add, mirror some of the concerns that I have with renewable resources and fisheries, but due to time constraints, as I said, I will be focusing on conservation.

Instead, what I will do is focus on what we see as four key elements to an electricity efficiency strategy for Bonneville and the region. The strategy is grounded firmly in Bonneville's new competitive thrust and that's an effort I strongly commend. It's built on the marketing approaches used by successful businesses.

I think that unless Bonneville adopts those market and end-user customer-driven strategies and provides a sustained commitment to those strategies, we won't be able to meet our long-term goals. I'd like to add also that I wholeheartedly agree with Randy Hardy's point that we should measure success not by dollars, per se, or by efforts, but by results. That's the whole basis for the Oregon benchmarks process. I strongly am committed to that approach.

These are the four elements of the strategy, briefly. One, establish wholesale tiered power rates and create other incentives for local utilities to pursue conservation. Two, target the markets with the greatest potential. Three, focus on Bonneville's unique

strengths as a regional catalyst. Four, focus resource acquisition policies, programs and services on the needs of end-user customers.

Regarding the first element, we need to let the market forces work as efficiently as possible. Tiered power rates will be a significant tool for encouraging efficiency. We strongly endorse Bonneville's commitment to establishing tiered rates and we likewise encourage customer-owned utilities to test similar pricing mechanisms.

Tiered rates remove one disincentive to local utilities, but other barriers exist. Some utilities serve slow-growth or no-growth areas and they fear rapid price hikes if loads drop as a result of conservation incentives.

Still other utilities lack the financial and technical resources to fund or operate full-scale conservation projects. Many local utilities can't take on the administrative burdens imposed by Bonneville programs.

We need creative incentives for all local utilities to become willing business partners for conservation. That doesn't mean status quo. It doesn't mean business as usual. It means experimentation, pilot programs, and taking on a little bit more risk.

I might divert for a minute to mention the focus on reinventing government that we're seeing at all levels in government across the country. One tenet of reinventing is sometimes overlooked and that is the need to accept some mistakes from time to time, the need to accept a little bit more risk-taking. Sometimes many of the programs and the processes that we establish are to remove the risk of some fault in some way. We need to accept a little bit more risk to become more competitive.

In addition to tiered rates, we also need to explore simplified, long-term conservation contracts based on savings achieved, cost-per-savings threshold, comprehensive conservation projects offered individually by utilities or utility consortiums, different payment mechanisms, such as lost revenue recovery payments.

The second element of our strategy says to target programs and activities on markets with the greatest conservation potential. Today that market is the commercial industrial sector, particularly in high-growth areas. Targeting markets with the greatest potential in a marketing sense does not simply mean capturing short-term energy savings, however.

We also need to design and run programs in those markets where we can learn a lot more about conservation costs and savings, those market where we can apply promising technologies and test workable financing and delivery schemes. Those markets also help us identify new niches because targeting markets is a dynamic process. It's not static. Market opportunities and niches change.

I don't believe the standard, you might say, cookie-cutter approach that has worked quite well for residential programs is going to apply to the new markets. We need custom-designed incentives for large commercial and industrial customers and targeted industry programs. We need to look for technologies that save energy and minimize waste at the same time.

The third element encourages Bonneville to build on a well-known and highly valued strength, the ability to be a catalyst for common coordinated regional actions. No other entity in the region

has the capability of transforming markets like Bonneville. With Bonneville's support, what was once high-tech energy efficiency has become commonplace, and that's what transforming markets is all about, getting users to install efficient measures on their own without the need for special programs and incentives.

Without Bonneville, we would not be building the most energy-efficient manufactured homes in the Nation, nor do I think would Washington and Oregon be instituting building energy codes among the most, if not the most, energy-efficient in the Nation; again, without Bonneville's Super Good Cents program.

I don't believe we'd be prime to accept the technological leaps in energy-efficient appliances, equipment and computers that we're going to see as a result of Bonneville's coordination. Bonneville should focus on the successful role as a regional catalyst. That may well mean turning to alternative service providers to design and run street-level programs that fit end-use customer needs.

As a catalyst, Bonneville should call on every opportunity to pool efforts. Pooling resources stretches dollars. It increases program effectiveness and improves service to customers. In some cases, that may mean piggybacking on State and utility incentives. In other cases, it may mean calling on others to run programs.

Oregon is in a unique position to help Bonneville blend programs and services. We have two very successful programs in the State, a long-term low-interest loan program and the business energy tax credit program. With those programs, we've helped save or produce electricity worth the annual output of a small coal plant.

We've successfully leveraged those programs with utility and other service provider programs, but we need to go further. Last week, Bonneville and Emerald People's Utility, together with my agency as a partner, signed off on Oregon's first conservation power plant. It's a creative, comprehensive acquisition package.

We're all very excited about it and we think that there are more opportunities just like it in Oregon. The final element of the strategy again takes on or returns to the marketing theme. It encourages Bonneville to tailor programs and services not to meet the needs of the customer utilities, per se, or alone, but to meet the needs of ultimate end-use customers, the millions of households and businesses who buy and use energy.

These are the ultimate customers for conservation services. In Oregon, for example, we're finding that business customers want a full package of energy services geared to their industry and the way they need to do business. Some want advice not just on saving electricity, but saving all fuels.

We believe there should be far more efforts to provide business customers with comprehensive services that cut across fuel types. That also means not just selling them efficiency, but in some instances, persuading them to switch from electricity to natural gas.

We support Bonneville's efforts to modify programs and eliminate features that promote electric space and water heating.

At the beginning of my testimony, I said that our overall question was this, What is required to achieve all cost-effective conservation at the least cost? Let me just say again that the competitiveness challenge is not Bonneville's alone, it's all of ours.

In Oregon, we are exploring a forum for working with Bonneville, the customer-owned utilities, the Power Council and others to answer this question. We want and we need to find ways to capitalize on each other's strengths, to compete fairly and to leverage our respective sources.

We have the plans in place. We just need to find creative ways to implement them. Thank you.

[Prepared statement of Ms. Ervin follows:]

Oregon

DEPARTMENT OF
ENERGY

Statement of

Christine Ervin, Director
Oregon Department of Energy

before the

U.S. House of Representatives
Committee on Natural Resources
Bonneville Power Administration Task Force

Field Hearing
July 12, 1993
Portland, Oregon

Congressman DeFazio, I am Christine Ervin, Director of the Oregon Department of Energy. I appreciate this opportunity to offer Oregon's perspective on Bonneville Power Administration resource acquisition efforts.

I'd like to begin by emphasizing the importance we place on this issue in Oregon and the Northwest. The conclusions your committee reaches could well have long-range consequences on the region's energy policy.

In the short term, we are on track for reaching Northwest Power Planning Council goals. We have made great strides in the pace of conservation acquisition, largely due to the leadership and resources Bonneville has provided. But we must also remind ourselves that our short-term goals for conservation are quite modest compared to the long-term goals ahead of us.

From the Oregon perspective, if Bonneville and the region's utilities stray significantly from a least-cost electricity path over the next decade, it won't be for lack of natural gas power plants to help diversify our fuel mix. The market is taking care of that.

And straying from the path will not be because of the lack of sound planning. Bonneville and utility supply planning is founded on conservation and other least-cost energy.

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If we stray, it will be in the execution of planning -- a failure to achieve, at a minimum, the conservation identified in Bonneville, utility, and regional least-cost plans.

Frankly, I believe that's where we're headed.

My concerns for acquiring least cost conservation mirror my concerns about our long-run course for acquiring all cost-effective renewable resources and for protecting our fisheries. Due to time limits, I will not address these issues. I will focus on what we see as four key elements of an "electricity efficiency" strategy for Bonneville and the region. These elements will help us achieve the realistic goals set forth in our plans.

This efficiency strategy is grounded in Bonneville's new competitive thrust -- an effort I strongly commend. It is built on the marketing approach used by successful businesses. Unless Bonneville adopts market- and end-user customer-driven strategies and provides a sustained commitment to these strategies, I believe we will not meet our long-term targets.

We begin by asking "What is required to achieve all cost-effective conservation at the lowest cost?" But we don't ask that question just of Bonneville. We ask that question of all partners in the region who deliver or have the potential to deliver cost-effective conservation. This question causes us to look beyond our individual missions and outside of our current responsibilities to leverage partners' strengths and make the most of our collective potential.

Our electricity efficiency strategy builds on a cooperative effort necessary to reach our goals. It recognizes the many potential partners in the energy industry. It recognizes the needs of end-user customers. It addresses the strengths and weaknesses of product delivery systems and the effects of pricing strategies. And the strategy recommends some critical changes that, if implemented, will help us achieve our conservation goals.

These are the four elements we see as essential to meeting our long-term targets:

1. Establish wholesale tiered power rates and create other incentives for local utilities to pursue conservation.

2. Target the markets with the greatest conservation potential.

3. Focus on Bonneville strengths, with its main role as a catalyst for achieving low-cost conservation, and

4. Focus resource acquisition policies, programs, and services on the needs of end-user customers.

Back to our first element. To achieve customer conservation, we need to let market forces work as efficiently as possible. Tiered power rates -- rates that better reflect the full costs of new supply -- will be a significant tool for encouraging efficiency. We strongly endorse Bonneville's commitment to establishing tiered rates and we likewise encourage customer-owned utilities to test such pricing mechanisms.

Tiered rates remove one disincentive to local utilities to help their customers invest in saving electricity. But removing this obstacle is not enough.

Other barriers exist: some utilities serve slow-growth or no-growth areas and fear rapid price hikes if loads drop as a result of conservation incentives. Still other utilities lack the financial and technical resources to fund or operate full-scale conservation projects. And many local utilities can't take on the administrative burdens imposed by Bonneville programs.

We need creative incentives for all local utilities to become willing business partners for conservation. This doesn't mean status quo or business as usual. It means experimentation, pilot programs, and taking on a little more risk.

In the midst of a national effort to reinvent public agencies, we must remember that a basic tenet of reinventing is to encourage experimentation and accept some mistakes in the process. The standard approach may be safe in the short run and predictable. But the status quo cannot deliver the results we need.

In addition to tiered rates, we also need to explore:

- simplified long-term conservation contracts, based on savings achieved and a cost per savings threshold.

- comprehensive conservation projects offered individually by utilities or by utility consortiums.

- different payment mechanisms -- such as lost-revenue recovery payments -- to acquire end-use customer conservation in slow- or no-growth service areas.

The second element of our strategy says to target programs and activities on markets with the greatest conservation potential. The regional Conservation Monitor calls it "probing for strategic efficiencies." We call it making the most of limited conservation resources.

Today, that market is the commercial and industrial sector, particularly in high-growth areas.

Targeting markets with the greatest potential does not just mean capturing short term energy savings. We also need to design and run programs in those markets where we can learn more about conservation costs and savings; those markets where we can apply promising technologies and test workable financing and delivery schemes. These markets will help us find promising new niches and identify successful strategies.

It is also important to emphasize that targeting markets is a dynamic process: market opportunities and niches change. Right now, we have a great deal to learn about acquiring conservation in business and industry.

I don't believe the cookie-cutter approach we've used for residential programs will apply here. We need custom-designed incentives for large commercial and industrial customers and targeted industry programs. We need to look for technologies that save energy and minimize waste at the same time. We could try new incentives for equipment replacement. And we should continue efforts to upgrade commercial building codes.

Our third element encourages Bonneville to build on a well-known and highly valued strength: the ability to be a catalyst for common, coordinated, regional actions.

No other entity in the region has the capability of transforming markets like Bonneville. With Bonneville support, what was once "high tech" energy efficiency has become commonplace. Transformed markets mean users install the most efficient measures on their own and special programs and incentives are no longer needed.

Without Bonneville, we would not be building the most energy efficient manufactured homes in the nation. Nor do I think Oregon and Washington building energy codes

would be among the most, if not the most, energy efficient in the nation, without Bonneville's Super Good Cents programs. And I don't believe we would be primed to accept the technological leaps in energy efficient appliances, equipment, and computers that we are about to see as the result of Bonneville coordination.

Bonneville should focus on this successful role as a regional catalyst. It should also look to alternative service providers to design and run street-level programs that fit end-use customer needs.

As a catalyst, Bonneville must also call on every opportunity to pool efforts. Pooling resources stretches dollars, increases program effectiveness, and improves service to customers. In some cases, this may mean piggy-backing state and utility incentives. In other cases, it may mean calling on others to run programs. In still other cases, it may mean dovetailing efforts to reach conservation targets that cross utility service territory boundaries.

Oregon is in a unique position to help Bonneville blend programs and services. We offer two major statewide incentives for business energy conservation and renewable resource development: the Small Scale Energy Loan Program and Business Energy Tax Credit program. To date, these programs have helped save or produce electricity worth the annual output of a small coal-fired plant.

We have successfully leveraged these loan and tax credit programs with utility and other service provider programs, but need to go further. These programs pool resources, cut across utility service territories, and provide tailor-made packages to benefit end-use customers.

For example, Bonneville and my agency are partners with the Emerald People's Utility District in Oregon's first Conservation Power Plant. This is a creative, comprehensive conservation acquisition package. We believe there are far more opportunities in Oregon and the region to blend state, utility, and Bonneville incentives to achieve conservation.

Our final element of the electricity efficiency strategy again takes on a marketing approach. It encourages Bonneville to tailor programs and services not to meet the needs of its customer utilities per se, but to meet the needs of ultimate end-use customers: the millions of households and businesses who buy and use energy. These are the ultimate customers for conservation services.

In Oregon, we're finding that business customers want a full package of energy services geared to their industry and the way they do their business. Some want advice not just on saving electricity, but saving all fuels. We believe there should be far more efforts to provide business customers with comprehensive services that cut across all fuel types.

In another example, we feel that serving the best interests of end-use customers means not just selling them efficiency. It may mean, in some instances, persuading them to switch from electricity to natural gas. We support Bonneville's efforts to modify programs and eliminate features that promote electric space and water heating. We encourage Bonneville, in concert with natural gas and other utilities, to explore programs that help customers evaluate the costs and benefits of switching to gas and programs that would help pay for conversions.

At the beginning of my testimony I said that our overall question today was this: "What is required to achieve all cost-effective conservation at the lowest cost?"

This competitiveness challenge is not Bonneville's alone. It is ours. In Oregon, we are exploring a forum for working with Bonneville, the customer-owned utilities, the Power Council, and others to address the question. We want to find new ways to capitalize on each other's strengths, to compete fairly, and to leverage our respective resources.

We have the plans in place; now we must find creative ways to implement them. If we don't -- if we back off of a sustained commitment to achieving conservation and renewable resources goals and to protecting fish habitat -- we can be assured of higher rates and more environmental damages in the future.

Thank you.

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Oregon

DEPARTMENT OF
ENERGY

Written Comments by the

Oregon Department of Energy

prepared for the

U.S. House of Representatives
Committee on Natural Resources
Bonneville Power Administration Task Force

Field Hearing
July 12, 1993
Portland, Oregon

1a. What are BPA's strengths and weaknesses in the resource acquisition field?

Bonneville has a unique blend of authority, responsibility, scope, and resources at its disposal. Therefore, Bonneville can shape the development of least-cost energy throughout the region and the western United States and Canada. Among other resource activities, Bonneville can serve as a focal point for sharing lowest cost resources region-wide, for making state-of-the-art conservation practices and technology commonplace, and for promoting research and development of new, innovative supply resources. Bonneville's major strengths also include sound resource acquisition planning and technical analysis and a commitment to achieving conservation and other least-cost energy.

Bonneville's overriding weaknesses are those of any large organization: decision-making is slow and rules, regulations, and procurement policies are barriers to results. Further, Bonneville fundamentally sees itself as a wholesale supplier of electricity to its customer utilities, where developing conservation and other cost-effective resources efficiently requires a marketing and end-user orientation.

Bonneville's weaknesses are reflected in a variety of ways. Among them are an emphasis on either Bonneville programs or customer utility programs to achieve conservation and an emphasis on residential conservation.

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1b. Is the BPA conservation program acquiring all cost-effective efficiency and renewable resources? Is BPA on track to acquire the amount of energy efficiency and renewable resources that the Northwest Power Planning Council has targeted for acquisition by 2000?

As a whole, the region achieved the 1991 and 1992 conservation targets set by the Power Council. In addition, the region is poised to acquire more output from renewable resource power plants than was targeted in the Power Council's action plan. Bonneville is responsible, in large part, for both accomplishments.

However, we must recognize that the initial targets are modest compared to later year targets. Our targets demand unprecedented levels of conservation -- they mean we must develop at least twice as much conservation in the region this decade as we did in the last decade.

Second, all targets are provisional. The goal is to achieve all cost-effective conservation: as our population grows and technology advances, that level of cost-effective conservation changes yearly.

Although Northwest suppliers have greatly stepped up programs to promote customer conservation, we are not on track to acquire all cost-effective conservation. We believe that the current pace of developing conservation -- particularly in existing business, industry, and homes -- is too slow. Bonneville, utilities, and others should broaden some of their conservation programs and step up the pace for others. At the same time, we need to upgrade energy efficiency standards for buildings, appliances, and equipment. And, we need to establish pricing mechanisms that reflect full costs.

We are on track to acquire the amount of renewable resources targeted by the Power Council by 2000. However, we must lay the foundation for ensuring we can meet a substantial portion of new demand after 2000 with renewable resources. Only a small fraction of the potential for renewables will be tapped unless we remove barriers to their development and increase industry and public confidence that they are cost-effective, reliable, and environmentally sound.

1c. Will near-term budget cuts prevent the region from achieving those goals?

Administrator Hardy recently announced a 12 percent cut in conservation program spending. We have not examined the budget cuts and their potential impacts in detail. They do not have to derail our long-term acquisition strategy but they could.

From our perspective, we believe cuts in incentive levels would have the least impact on long-term acquisition goals, and in some cases may even help. However, eliminating whole programs or cutting them to the point of ineffectiveness would seriously harm the region's conservation efforts.

2. Should BPA proceed with the proposed contract for the output of the Tenaska natural gas combustion turbine? If so, why? If not, why not? BPA has agreed to maintain the confidentiality of certain escalator clauses in the proposed Tenaska contract. Was this confidentiality agreement appropriate?

Yes, Bonneville should proceed. Even with only moderate growth, Bonneville must acquire 1,500 average megawatts of new resources over the next ten years to meet demand from all their customers. Cost-effective conservation, power purchases and exchanges, and renewable resources can't meet all of that demand. Bonneville's least-cost supply plan rightly specifies that some portion of new supply should come from cost-competitive natural gas-fired power plants, such as the Tenaska project.

The reported levelized cost of the Tenaska project is 3.5 to 4.0 cents per kilowatt-hour. That is in the range of other proposed natural gas-fired projects that we have examined more closely. The ultimate long-run cost of such projects, of course, depends on the future price of natural gas and the specific fuel-price escalators built into the contracts.

We support confidentiality during negotiations. We do not support maintaining the confidentiality of contract provisions once contracts are signed to assure adequate public scrutiny of the contract terms.

3a. In practice, are there significant differences in the processes used by BPA to acquire conservation, renewable, and fossil resources?

Yes. Conservation is largely being achieved through broad-based incentive programs and energy codes and standards; renewables through joint-venture demonstration projects and competitive bids limited to renewable resources; and fossil-fuel generation through open, solicited bids.

Ultimately, Bonneville should seek the mix of acquisition processes and strategies that best fit each resource. The only guideline should be this: use what works. For example, open, competitive bids have yielded significant numbers of proposals for natural gas-fired power plants and cogeneration facilities. In contrast, open bids have yielded few conservation proposals. Further, the U.S. utility experience with conservation bid winners has been mixed. One pitfall has been cream-skimming: contractors doing the "easy" conservation and doing it badly. This is not to say that bidding for conservation resources should not be an option, but that the bid procedures and criteria should be geared to the resource.

3b. Are procedures, requirements, and administrative demands essentially equivalent for equivalent resources?

Essentially yes. On exception is that we need to measure and verify the savings from conservation projects. We can easily measure the output of a power plant; savings from conservation projects is more difficult to identify. Too stringent, intrusive, or redundant verification schemes can undermine conservation efforts by lowering participation in programs or by adding considerably to the cost of conservation. For example, a recent contract the Oregon Department of Energy signed with Bonneville for a proposed 10-year schools and government electricity conservation program says each party will audit buildings to verify that measures were installed and are operating. While electricity savings should be verified, we believe the methods should vary by program and measure, and over time.

Another exception is that generation facilities get long-term contractual commitments. In contrast, for example, the Oregon Department of Energy/Bonneville schools and government contract must be renewed each year. We believe this program and other like comprehensive conservation programs deserve the same long-term commitments enjoyed by generation projects.

Our biggest concern, however, is that administrative procedures, requirements, and demands are too similar for the different resources. Again, use what works. We seek acquisition policies of proven effectiveness for the gamut of resources, from conservation, to small renewables power plants, to 400-megawatt natural gas-fired combustion turbines. That means different procedures, requirements, and demands. High transaction costs -- extensive paperwork, protracted negotiations, lengthy decision-making, and detailed reporting, among others -- can break many worthy conservation and renewable resource projects.

4. Is BPA an effective indirect purchaser of regional resources through third-party financing, billing credits, conservation power plants, and other indirect means?

In some instances it has been. Examples include: 1) Billing credits, although not perfect, spur the development of some innovative projects. For example, the Emerald People's Utility District just completed a biogas plant and plans to expand it soon. The plant burns methane from the Short Mountain landfill near Eugene. 2) Partnerships extend Bonneville's limited resources. For example, Bonneville and the Eugene Water and Electric Board plan to build a 30-megawatt power plant on the Newberry Volcano in central Oregon. 3) Bonneville can serve as a regional catalyst. For example, Bonneville worked with the Power Council, Northwest utilities, the manufactured home industry, state energy offices, and others to design the manufactured home acquisition program. Now the Northwest builds the most energy-efficient manufactured homes in the nation.

On balance, however, we see more opportunities for indirect Bonneville purchases of regional resources through a variety of means: establishing pricing mechanisms that encourage customer conservation; underwriting "conservation power plants" and utility resource development consortiums; supporting utility resource financing, particularly by larger utilities; seeking joint utility, private, and government funding of projects; encouraging unsolicited proposals by any service provider; and seeking out all opportunities to work with others to transform markets.

5a. What is the potential for cost-effective electricity savings in the Northwest region from fuel switching to natural gas? Do current market conditions create a sufficient incentive for fuel switching? If not, what measures should BPA undertake to encourage fuel switching?

Based on our own analysis for Oregon, we believe that the regional potential for cost-effective load reduction from households converting electric water heaters and space heat systems to natural gas may be as much as 850 average megawatts. The potential is in two main areas: 1) replacing worn out electric water heaters in homes already heated with natural gas and 2) replacing home electric forced-air furnaces with natural gas furnaces.

We have not estimated the potential for increasing the use of natural gas for space and water heat in new homes, but we believe the potential is small. Today in Oregon, for example, natural gas space heating systems are installed in more than half of the new single family homes built. For comparison, a decade ago only a quarter of new single family homes were built with gas systems. Natural gas is failing to capture a significant share of the new housing market only where it is generally not the cost-effective choice for space heating fuel, such as in small homes and apartments. Further, the vast majority of new homebuyers who are installing natural gas space heating systems are also installing natural gas water heaters.

We also have not estimated the cost-effective potential for substituting natural gas for electricity to heat commercial buildings and fuel manufacturing processes. There may be some potential, but we suspect it is small and would be difficult to achieve.

Market trends do point to substantially more natural gas and space heating systems in the Northwest. Last year in Oregon, for example, more than 5,500 households converted to natural gas space heat -- many from electric space heat systems. In addition, about 7,800 homes have converted from electric water heaters to natural gas water heaters. We estimate 50,000 to 75,000 Oregon households could cost-effectively convert to natural gas space heat systems; 150,000 to 200,000 homes could cost-effectively convert to natural gas water heaters.

Do current market conditions create a sufficient incentive for fuel switching? Not wholly. We believe barriers to achieving all cost-effective fuel-switching remain. These include: that lack of household information on energy bill-saving opportunities; lack of household funds to convert space water and heating systems; and, electricity conservation program features that promote electricity use over natural gas use.

To that end, we endorse Bonneville's proposed measures to encourage cost-effective fuel-switching. These include:

1. Lower Super Good Cents incentives to homebuilders. A Bonneville study found that 11 percent of Super Good Cents homebuyers would have chosen natural gas for space and water heating if not for the current program.
2. Eliminate Super Good Cents incentive payments for heat pumps.
3. Assess the effect of all other conservation programs on consumer fuel choice. Based on that review, eliminate features that promote electricity use over natural gas use. (For example, we recommend that efficient natural gas appliances be an option for all Super Good Cents homebuyers.)
4. Fund four pilot fuel-switching programs to tell consumers what they might save by switching to natural gas and to pay for conversions.

At the same time, we recommend that Bonneville and the Power Council, in concert with electric and natural gas utilities and others, should craft a long-run strategy and identify other actions warranted to achieve cost-effective fuel-switching. Because we believe that acquiring this resource is not the sole responsibility of Bonneville and electric utilities, the strategy should include actions by natural gas utilities.

5b. Should BPA prohibit the expenditure of Super Good Cents incentives in areas where natural gas service is currently available?

No. The better approach is to eliminate the promotional features of the Super Good Cents program, not the program itself. As discussed in the answer to the last question, this means lowering incentive payments, eliminating heat pump payments, and allowing Super Good Cents homebuyers to choose natural gas appliances.

A revamped Super Good Cents program would have substantially the same effect as suspending the program in eliminating fuel choice biases. At the same time, keeping the program operating helps to ensure that we build the most-efficient electric space heated homes possible.

6. **Has the Northwest Power Planning Council adequately exercised its responsibilities under the Act in the resource acquisition field? Please describe the strengths and weaknesses of the Council's activities related to resource acquisition?**

Within its statutory authority, the Council has adequately exercised its responsibilities. The Council's regional power plan, a centerpiece of its work, has set both the resource development principles and resource acquisition benchmarks that guide all planning and acquisition efforts in the region.

The Council's major strengths are: 1) a regional perspective and a regionwide vision; 2) solid technical and policy analysis; 3) oversight of major Bonneville resource acquisitions (6C review); and 4) a statutory commitment to least-cost energy development.

A weakness of the Council has been an inability to tackle some tough but critical policy issues such as fuel switching and externalities due to the states' political and economic differences. Further, the Council should play a stronger role in implementing its plan.

7. **Has BPA adequately accounted for the environmental externalities associated with various energy sources in its resource acquisition process? If not, what specific issues should BPA revisit?**

No. In particular, Bonneville does not adequately count the costs of carbon dioxide emissions in its resource acquisition plans and policies. Because they fail to include these costs in calculations of total resource cost, fossil fuel electricity-generation, a major source of carbon dioxide emissions, appears cheaper than it is. One of the byproducts of proper environmental cost accounting is that it would boost conservation and renewable resource development.

We recognize that blame does not lie with Bonneville. The Bush administration rejected Bonneville's proposed policy to use dollar estimates of the costs of carbon dioxide emissions to measure the total costs of new electricity resources. We believe that in light of the Clinton administration's goal of stabilizing emissions of greenhouse gases at 1990 levels by 2000, that policy should change.

We recommend the following:

1. Adopt an environmental cost adder of at least $10 per ton of carbon dioxide emissions in calculating the total costs of new supplies. A $10 per ton benchmark translates into a cost adder of a little more than 4 mills per kilowatt-hour for a combustion turbine power plant. For comparison, Bonneville assigned a cost of 2 mills per kilowatt-hour for all financial and environmental risks associated with buying the power output from the Tenaska project.

2. Increase investments in carbon dioxide emission offsets. We support Bonneville's contract provisions that required Tenaska to fund emission offsets and to bear the risk of future carbon dioxide emission limits. In response, the developers are dedicating $1 million for offsets. It is a start, but only that.

A third proposed policy would be to shift all risks of carbon dioxide emission regulations, including future carbon dioxide taxes, onto developers. However, the Tenaska negotiations proved to be a test case for such a policy. Tenaska tried to secure insurance against future taxes, but could not. This shows financial markets are sending a signal to Bonneville and its customers about the risks associated with carbon dioxide-emitting resources.

Mr. DEFAZIO. Thank you. Appreciate it. We'll proceed now to questions. What we'll do on the first round is ten minutes per member and then we'll see on subsequent rounds how we go.

To either Ms. Hickey or to Mr. Hardy, if you could just generally comment briefly. I had this report which I just got last weekend. It's been available longer, but unfortunately, I just got it over the weekend. I've read through it once.

But it was the comments on your resource acquisition and an assessment of the current experience by Peters and Macrae and Serat. We're going to hear a lot of very critical testimony about your acquisition process, both generation and demand side.

Could you comment on a few of the recommendations in this report, what you've done to change and to implement changes, and in particular, perhaps the risk portion, because that goes to the heart of a number of the problems I see with BPA.

Ms. HICKEY. The report you're referring to was actually a process evaluation of this whole period of experimentation that occurred in the 1991–1992 period. So it was something that we commissioned because we went out and had a billing credit solicitation without reviewing a policy that had been longstanding.

We had an agreement with our customers that we'd just try it. So it was the Nike "Just Do It" theme. We went forward with the competitive bid. We purchased an unsolicited proposal and we tried some different things in the conservation arena. So before we solidified what the future was going to be like, we wanted a very hard-hitting, solid evaluation of how we had done.

And even if you've just read the executive summary of that report, you get a strong sense that we didn't do all that brilliantly. In our most recent round of billing credits, I think we've addressed the lion's share of those concerns. They were principally about long timeframes to put together solicitation proposals, to evaluate, and to negotiate.

We've now benchmarked against the best participants in that study and our billing credits negotiations evaluation will be in a 2- to 3-month timeframe, not a 12-month timeframe. We've reduced our team sizes in these negotiations from 10–15 folks to 3–5.

Particularly on the environmental risk side, since you referred to that, we had been unwilling to adopt previous environmental impact statements that were over 5 years old. This time we're offering to the utility that they can accept that risk if they wish and we'll back that environmental document and try to make that succeed, but they realize that we think there's some risk to that.

With respect to the overall question of risk, it's——

Mr. DEFAZIO. My understanding was you had a particular concern, not just about BPA and dealing with NEPA and other acts. You're feeling now that that is adequate if there has been review; if it has been signed off on by the federal agencies, you're not going to feel compelled to go through a whole initial review process and deal with the Department of Energy.

Ms. HICKEY. That's correct. We've been placed on notice by the Department that any environmental impact statement that's older than 5 years old is suspect and if questions are raised——

Mr. DEFAZIO. But if it's less than 5 years old?

Ms. HICKEY. We're also saying in this case we're even willing to take the risk if the customer is because the risk is actually on them when the environmental work is over. If it ends up being defeated as an acceptable environmental document, then that extends the timeframes. But if they're willing to take that risk, we're willing to go forward on that basis.

Mr. DEFAZIO. Because a number of potential contractors have said we feel we have done the work and BPA is rejecting it, requiring an entirely new review.

Ms. HICKEY. Definitely.

Mr. DEFAZIO. So you're going to say to them, okay, here is the disclaimer.

Ms. HICKEY. That's right. In addition, we've drafted contracts already and billing credits that will be essentially standard-offer contracts that take care of a lot of the small resource concerns. Billing credits is not the best example of risk aversion because it's actually a situation where Bonneville has some of the lowest risk.

But we've moved dramatically to take care of the concerns that were raised in that report. It was a very helpful report for us.

Mr. DEFAZIO. I don't know if you had an opportunity, for instance, to read Mr. Berggren's testimony. We'll hear from him later, but he talks about the experiences of EWEB in dealing with BPA and the fact that they had not even yet had a negotiating session. Their proposal has been on the table quite a long period of time; yet, you've acquired Tenaska during that interim period.

He raises the question which I think is implicit in all this. Can we assume there's no risk with Tenaska or that somehow the risks related to Tenaska are of some lesser degree. It seems to me these small projects proposed by individual utilities have inherently less risk than this one massive project with the secret clauses attached, which we'll get into later.

Ms. HICKEY. I think that's definitely the case. We're protecting against very different risks in different cases. Could I try to set sort of a model up for you. Bonneville has viewed itself as a buying agent. We're generally buying from one customer for the benefit of all customers, and we're trying to balance getting benefit for all customers against that one resource developer.

On the generation side, we've principally been concerned about capability-type contracts, the kind of contract we signed for the nuclear plants in the 1970s, where whether or not they ever produce a megawatt of energy, we were paying the cost. So the generating projects we're signing tend to be more output oriented.

On the conservation side, our concern has always been about verification, to assure that we're getting reliable savings. On the competitive bid, I have read Mr. Berggren's testimony and he's bringing up a special instance that is particularly embarrassing.

We went out for a competitive bid and had much more difficulty than a retail utility would have had because we were soliciting for energy service companies to operate within our own customers' service areas. So we had a couple of additional hoops to jump through. But I really would not extend too far trying to make excuses for us. This is actually an area where we just have not done well in responding to the competitive bids for conservation. We're

actively negotiating with five of those contractors now and hope to finish that up within the next several months.

Mr. DEFAZIO. We'll hear from at least one of those later. Do you have any point at which you discriminate between, say, a short-track process—I'm thinking of the PURPA and the fact that when we have projects, that there was sort of a short-form process for review by FERC for smaller megawatts, I can't remember what the cutoff was—and then a more comprehensive review process, higher megawatt.

Have you contemplated anything like that? Because, again, his complaint is that Bonneville does not differentiate the amount of oversight involved with the 1-megawatt demand side residential bid or 220-megawatt combined cycle combustion turbine. Bonneville needs to offer short-term, simplified standard-offer acquisition contracts for small less than 30-average megawatt research acquisitions.

Ms. HICKEY. That's exactly what we're doing in the most recent round of billing credits, and we need to move to do something like that on the conservation side.

Mr. DEFAZIO. Just to follow up a little bit. Just one other question on the smaller negotiating teams. They gave one example where you had a number of negotiating teams who were working in different areas. Then as you moved through the process and, say, certain areas were signed off on, those people get added to the mass. So ultimately we ended up with 40 or 50 negotiators.

What I heard from a lot of the utilities and other providers was it wasn't clear who could make the decision, but there were a lot of people in the room.

Ms. HICKEY. That's right. In addition to lowering the team size——

Mr. DEFAZIO. My colleague used the said example at Congress today.

Ms. HICKEY. And it's interesting to note that it wasn't at all clear that that was what was going on until we had some early information from the report. But we've also changed the decision-making structure. So there are two layers of a four-layer structure that are now gone and it goes straight from the team to the decision-maker. So, yes, we have addressed that problem.

Mr. DEFAZIO. In the Snohomish testimony, I thought there was something interesting. It goes to the question I asked in the last hearing—I just received the answer recently—which was about the whole issue of curtailment.

This is perhaps to the Administrator, but either of you who wish to may address it. I asked the Administrator about this previously—and we got into a discussion of testimony, too—on the issue of the curtailment and the reimbursement to the utilities. Yet, on the other side, Snohomish, part of the problem, I understand, in their negotiations was that BPA would not compensate or discuss compensation of a utility for its lost revenues with successful major conservation measures.

Now, on the one hand, we won't go out and ask people to curtail power and we'll go outside the region and buy very expensive power to supply our demands. That's in the contracts. We do that because otherwise we'd have to reimburse them if they curtailed.

But when someone offers you a long-term manageable resource conservation, you say no, no, we can't pay you for that.

Doesn't it seem contradictory?

Mr. HARDY. I would make two observations, Mr. Chairman. The first is that, in the curtailment situation, we're dealing with an emergency kind of situation where we're literally dealing with a lights-out situation. That I consider fundamentally different from a long-term resource acquisition program.

Mr. DEFAZIO. No. We weren't dealing with lights-out. We were dealing with asking people to ask their customers to curtail. Again, you said to me at the time when I had mentioned the 1970s experience, although in here it was put down to be a minimal impact. I said I think the people in the Northwest are rather unique across the country and would be willing to curtail if told of the problems.

And you said, in fact, that's the problem, they would probably do too much and it would cost too much for us to do that. So we're not talking about lights-out. We're talking about getting Customers to conserve, whether they turn down their thermostats another notch, whether they shut off their advertising lights, like I remember Governor McCall asking people to do, and other things.

Again, I would like to get at the heart of this. Long term, someone offers you conservation, it's going to impact their revenues and we can't offer them any reimbursement, or at least that's what Snohomish alleges. But in a short-term situation, we can't even ask them to voluntarily do that because it would cost us too much, because we are going to pay them.

Mr. HARDY. In the short-term situation, as we discussed briefly at the last hearing, the problem is whether we reimburse them or not, their rates will likely go up more having curtailed than they would as a result of the power purchases we incurred this last winter to literally keep the lights on. That's why we didn't do it.

All you have to do is look at the 1977 experience and what most of the region's utilities went through where precisely that kind of thing happened. Set that aside for a minute. The lost revenue issue for conservation acquisition is a massive cross-subsidy program that we would be getting into. Frankly, I don't think it's justified, and frankly, Snohomish is the principal customer in the region that's asked us to do this.

We're moving forward with acquisitions with most of the rest of our customers without requests for lost revenues, and one of the biggest problems that you have in successfully acquiring conservation is your ability to incur short-term costs for long-term gains.

We'll probably get into a lot of that later today. And paying for lost revenues simply exacerbates that short-term cost problem and makes it less cost-effective. Instead of 660 megawatts, maybe you're looking at 600 or 500 or 400 or some lesser amount of money, because you're pricing yourself out of the market because you're compensating for lost revenues.

That's the dilemma, Congressman, we're trying to avoid.

Mr. DEFAZIO. Okay.

Ms. HICKEY. Randy has answered the big picture. Can I just give a 30-second footnote?

Mr. DEFAZIO. Sure.

Ms. HICKEY. We actually do run a lost revenue compensation program, a minor program that started this year. But when we reviewed the issue, that's actually a barrier for no-growth or declining-load utilities in doing conservation and we wanted to address that barrier. So we do have a very, very small program that we started running this year.

Mr. DEFAZIO. Appreciate that. But, just back to this point from the first hearing. If we're talking about a utility operating on a margin—that's what comes to them versus what they pay you wholesale—and you go out and purchase whole a certain amount of power, and you're saying that to purchase that power, it would cost you less than what it would cost you to reimburse them on the margin for their voluntary curtailment.

Mr. HARDY. I'd say that's the judgment that we made in reaching that contract.

Mr. DEFAZIO. You've just spent $175 million, as I recall, and that was part of your financial difficulty.

Mr. HARDY. That's right. And in fairness, we need to go back and look at that. I can't tell you for the past experience we went through this winter whether that's true or not. That's the calculus. That's the reasoning that went into the share-the-shortage agreement and the revenue compensation that resulted.

That's why we made a decision to try to do that so we could get all the utilities to voluntarily curtail without having to worry about a lost revenue problem.

If we decided not to do that, Congressman, because we made a calculation that, in this instance, it would have cost us more to purchase power then the lost revenue at the retail level would be it. I'm not sure how that would play with our individual utility customers.

We're still faced with a dilemma: When you reach that kind of a situation and there is a significant problem of an actual power shortage that's looming up before you, how do you get everybody to share the burden when you have an interconnected system.

The experience that we had in 1977 was that we did not have that type of an agreement. We went out and curtailed. Some utilities conveniently leaned on the system. So Bonneville bore a disproportionate share of the costs. Others did what they were going to do. With a voluntary system that is interconnected, there is no effective way to police that from happening unless you've got everybody voluntarily going in in the first place, and that's the dilemma.

Mr. DEFAZIO. But I think maybe this is something you can deal with in tiered rates and maybe there will be a special tiered rate for periods of shortage or curtailment, which will be a penalty rate for people who don't voluntarily curtail so that you don't have people leaning on the system and you do get some uniform curtailment through the system, although certainly some utilities are more efficient than others.

Mr. HARDY. That clearly is a possibility and that is probably one of the things we'll——

Mr. DEFAZIO. I still find that provision particularly problematic and I will be asking further questions about that, the statutory authority and what was submitted to me for that sort of agreement.

As I see it, it's contractual, but I don't see that it was mandated by the Act.

Mr. Smith?

Mr. SMITH of Oregon. Mr. Hardy, we discussed earlier in the year your concerns about the drought in Canada and the problems that that would incur in fixing rates with respect to flow, fish and wildlife and other of your responsibilities.

I'd like for you to bring me up to date about the flow that you anticipate, if there's been any changes, and, beyond that, I want to ask you about the percentage risk that you assumed in the repayment, at least the payment of the interest on the debt of Bonneville to the Federal Government, which we discussed, as well.

Mr. HARDY. Yes, sir. I'll answer the second question first. To get the size of the rate increase down to the 15.7 percent level, we took a somewhat greater risk on Treasury payment. Our initial rate case proposal was for a 90 percent probability of repaying Treasury. We reduced that to 85 percent. That made the rate increase 2 percentage points lower, roughly, than it otherwise would have been.

Relative to the water situation, we are continuing to meet the flow targets the National Marine Fisheries Service laid out in a "no-jeopardy" opinion we received at the end of May. Flows are dropping off this month. So we are having to draft more heavily than we had previously anticipated because natural flows aren't as high.

That is imposing some additional costs on us, some of which were anticipated in the rate case decisions that I announced 10 days ago, and some of which weren't. We'll simply have to see how those play out. Right now, it's a day-to-day kind of situation. I anticipate meeting those flow targets, but it will probably be somewhat more expensive than it was even as little as 2 weeks ago.

Mr. SMITH of Oregon. That brings to mind, Mr. Grace, at least the press has reported that Mr. Hallick believes that 15 percent is much too low. I'd like to ask you your opinion of the 15 percent increase and will that, in your mind, take care of at least the immediate needs of Bonneville Power?

Mr. GRACE. Congressman, I think I'm quoted as saying that nobody liked the rate increase. I'm not clairvoyant enough to know whether 15 percent is adequate at this time or not. I'm comfortable with it. I'm comfortable with it because Mr. Hardy is trying to streamline the Bonneville Power. I think if we all work together and do the best we can, I think it is sufficient.

I think it makes it a little tougher for us to set priorities and maybe we'll have to take a little more business-like approach to some of the things we'd like to see done, but I feel pretty comfortable with it.

Mr. SMITH of Oregon. Gee, that would be a tragedy, Mr. Grace, to take a business-like attitude, wouldn't it? I'm interested in the chart and will someone tell me the relative costs, very quickly, of the various energy development programs, cogeneration, wind, geothermal and hydro?

Ms. HICKEY. The generation costs range from about 25 mills per kilowatt hour, and I'm giving you everything, 1993 dollars, real levelized, up to about 50 mills per kilowatt hour.

Mr. SMITH of Oregon. Yes. I want you to separate them for me.

Ms. HICKEY. It's a very hard thing to do.

Mr. SMITH of Oregon. Well, we know hydro is cheaper, but you must know how much hydro costs you.

Ms. HICKEY. Actually, it's not.

Mr. SMITH of Oregon. Okay. Then tell me what it is.

Ms. HICKEY. There are some hydro projects at 30 mills and then the rest are in the low 40s. The cogen projects are generally around the mid-30s. The geothermal projects also vary. There's some 40 up to the high 40s. The combustion turbine project is at 38 mile.

Mr. SMITH of Oregon. So historically, hydro has, at least new purchases, I assume, have increased dramatically. Hydro was much lower than any other form in the past. That has changed, you're telling me.

Ms. HICKEY. That's right.

Mr. SMITH of Oregon. I notice that you all agree, it seems, this panel at least, that we need cost-effective results. We don't want to just throw money at the process. Do you prioritize your purchases with respect to that statement between the selected priorities of hydro and cogeneration and wind? You're not telling me wind biomass is in the 40s, are you?

Ms. HICKEY. No. There are biomass projects——

Mr. SMITH of Oregon. That's got to be kind of off the edge of priorities cost-wise, doesn't it?

Ms. HICKEY. Actually, I answered your former question a bit quickly when you said it now looks like hydro is more expensive than other resources. If you look at the projects we're buying, over half of them are small hydro projects. So that means they're still very competitive projects. They're not the absolute least-cost projects we're buying, but they're still very competitive.

In all of the solicitations that we've run, there have been wind projects that are surprisingly just out of the competitive range, 15 percent higher cost than the hydro projects.

Mr. SMITH of Oregon. I guess you're beginning to see my point. If hydro is still the cheapest alternative and we all agree we need to be cost-effective, why isn't the whole pie chart hydro purchases?

Mr. HARDY. Because there simply isn't that much available, Congressman. The cost-effective hydro means you develop most of the sites that are capable of being developed and various environmental constraints and just constraints. We've got all the cheap stuff and what's left is not a large increment, but mostly of small projects of hydro that's still there.

The second point I'd make to try to get to your question is, you're right. Wind and geothermal are somewhat more expensive than the kind of competitive price ranges that Sue was talking about, although not dramatically so.

We have a 50-megawatt wind solicitation and about 60 megawatts, I think, of geothermal in two projects. What we're acquiring are research-and-development type projects. We've recognized that those are more expensive, but we explicitly want to push the envelope, in part to see if we can get the cost curve to come down farther, especially on the wind projects where we've seen some pretty encouraging developments in the last couple of years.

Mr. SMITH of Oregon. For instance, we've got some great potential in this State. One of them is at Newberg Crater, which you're familiar with. The other one is the Alvord Desert. How do they compare with the wind? You may not know. I understand they're still developing.

Ms. HICKEY. The geothermal projects actually are in the competitive range here. They're in the 40–45 mill range.

Mr. SMITH of Oregon. That's below wind.

Ms. HICKEY. It's a little bit below wind, yes.

Mr. SMITH of Oregon. Then you're prioritizing in steps. If hydro is not available, the next most cost-effective step, which we won't take, is what source?

Ms. HICKEY. Let me try describing this another way. The chart here is showing actual purchases. It's also showing geothermal and wind that are coming from a specific pilot project. What we see occurring is that in terms of megawatts, by far the largest number of megawatts we get are from gas-fired projects, either cogeneration or combustion turbines.

They are generally the least cost and the highest number of megawatts. This is not unusual. If you talk to any electric utility in the country, they're probably going to tell you that. So that makes us nervous about relying too much on gas.

Mr. SMITH of Oregon. You're beginning to make me nervous about getting to the point. Go ahead.

Ms. HICKEY. So we see geothermal and wind as technologies that we really need to look to for the future. We're not going to have that much more hydro. The biomass is quite limited. So when you're talking in the range of 1,000, 2,000, 3,000 megawatts, we feel we can rely on gas, but then we need a bridge to some new technologies, and those look like geothermal and wind.

Mr. SMITH of Oregon. Relying on gas, I know we have a little production miss, but I suppose most of that gas is Canadian gas. Is that right?

Ms. HICKEY. Yes, most of it is.

Mr. SMITH of Oregon. The lion's share of it is, yes. In your priority discussion, do you take into consideration the development of resources in the United States versus the dependency for a foreign source of energy?

Mr. HARDY. No, we did not. We did not use that as a development criterion in the evaluation.

Mr. SMITH of Oregon. If the costs were the same, I would assume both meeting the test of cost-effective, would you lean towards development of this country's resources versus the use of Canadian gas?

Mr. HARDY. I'd say that would probably be one of many factors, the subjective factors. If we had the cost roughly equivalent, having internalized all the other costs that you look at in making subjective evaluations, just like we look at the capability of the resource developer and other kinds of factors right now that we can't put a price tag on. But we do try to evaluate those in kind of a pass-fail sense when we're making a resource evaluation, and that would be another factor.

Mr. SMITH of Oregon. This didn't just first occur to you when I asked you, did it?

Mr. HARDY. No, sir. Let me describe it to you, Congressman. I'm perhaps more comfortable with the Canadian sources than you are. We have an ongoing set of——

Mr. SMITH of Oregon. I haven't said anything about Canadian sources. I'm talking about development of equally cost-effective American resources, that's all.

Mr. HARDY. We have an ongoing relationship with the Canadians. I feel pretty comfortable given our ongoing business relationship, particularly with BC Hydro, that we've got enough interconnectedness. There are a series of issues on the table, but I don't think that anyone would take any action in DC that would disrupt those other commercial arrangements.

Mr. SMITH of Oregon. I'm just making the point that in these days of drastic reduction in job opportunities and a change from the timber industry, evidently, to something else, what we do best in the Northwest is grow trees, which we're not going to be allowed to do, and we also develop energy cheaply.

It seems to me that if we have potential, especially in Oregon and the Northwest, to develop energy at least equally cost-effective with the Canadians, create jobs in communities that are losing jobs, that's where we ought to go. Is that wrong?

Mr. HARDY. No, sir.

Mr. SMITH of Oregon. Thank you.

Mr. DEFAZIO. I thank the gentleman. We'll engage in another round here. Ms. Hickey stated that I guess the levelized computation, and I believe we're using 1993 dollars, is 38 mills for Tenaska.

Mr. HARDY. That's true, 1993 dollars.

Mr. DEFAZIO. That's an overall assertion, but some parts of the information regarding the contracts are confidential. What parts are confidential that relate to the price of gas and so forth?

Ms. HICKEY. In negotiating with the independent power producer, they were seriously concerned that the specifics of their gas prices and the nominal price stream, the year-to-year payment that we would make on a per-kilowatt-hour basis be kept confidential. They felt that if that information would become available, then their competitors could readily assess exactly how they had put together the deal, what kind of gas contracts they had achieved, and their competitiveness would be eroded.

Mr. DEFAZIO. So there are no escalators in your contract for future gas price increases.

Ms. HICKEY. There is a fixed fee of prices year-by-year and there are no escalators with those prices that can vary, no.

Mr. DEFAZIO. So a fixed fee priced year-by-year which comes out to the 38 mills levelized, 1993 dollars.

Ms. HICKEY. That's right.

Mr. DEFAZIO. One other point before I go over to the Council on this. My understanding is that sometime during either the Reagan or Bush years that your proposal to apply externalities, CO_2 or whatever, to the cost of these in making estimates, that BPA made a proposal and it was, shall we say, disapproved and that you attributed, what was it, 1 mill or is it 2 mills to this project?

Ms. HICKEY. Actually, at this point, we were proposing to quantify the damage estimates for carbon dioxide, and through a dia-

logue with the Department, we're convinced that that quantification was so suspect that we shouldn't proceed with it.

So we assessed CO_2 damage on a qualitative basis and entered into an agreement that we would try to negotiate with the developer so that they would take the future CO_2 risk. In this particular case, Tenaska did accept the risk of future control of CO_2. They went out and sought insurance against future CO_2 taxes and were unable to procure it.

So we ended up with an agreement that they would spend a substantial amount of their profits, $1 million, on a sequestration activity for CO_2, and that sequester is, we estimate, up to 50 percent of the CO_2 from the project over its life, and that if there were CO_2 taxes, we would have to open up the agreement and renegotiate the prices and see who would bear them.

Mr. DEFAZIO. How do you assess that risk of Congress passing a tax? Congress likes taxes.

Ms. HICKEY. I have no idea. It's just basically a business situation where we were likely to lose an arrangement and we had tried to negotiate that sort of damage assumption with two different Independent Power Producers and were unsuccessful.

Mr. DEFAZIO. Before I go to the Council, perhaps Ms. Ervin can enlighten me a little bit. I know you're not the PUC, but I think you're fairly familiar with how the PUC operates, just on the question of the confidentiality when one of these regulated utilities brings a proposal for a generating facility to the PUC.

The PUC does receive all the information, does it not, and agrees to hold it confidential so they can make a reasonable assessment.

Ms. ERVIN. Mr. Chair, I believe, that is correct, but this is really outside of my area of expertise.

Mr. DEFAZIO. I know you're not the PUC, but I just thought maybe——

Ms. ERVIN. I believe that is certainly the approach, though.

Mr. HARDY. Mr. Chairman, if I could interject.

Mr. DEFAZIO. Yes.

Mr. HARDY. We did check with all the State PUCs at the staff level and what Christine reflected back was the answer we got from all the State PUCs, which was that was the way they treat the information.

Mr. DEFAZIO. Then my question to Mr. Grace and/or Mr. Duncan would be, Why didn't the Council request all the pertinent data, agreeing to keep the pertinent data confidential? I'm a little puzzled as to how you, as the guardians of the 6(c) process, can make a final determination that this meets all the requirements of the Act and is totally cost-effective without having reviewed everything, including the confidential information.

Would you have provided it, had they asked? Well, let me ask Mr. Grace first, then you can respond.

Mr. GRACE. Mr. DeFazio, I don't think we'd addressed that clearly. We hadn't had the experience to do that. I'll defer to Mr. Duncan. We have since looked at the Act and said we can do this. I don't think at the time we even really as a group looked at it and asked, Can we take in this information and maintain the confidentiality.

Mr. DUNCAN. I think that is true. I believe, through the staff, we did request all of the data surrounding the contract and were told that based on the competitive bidding process and the arrangements with the proposers, that we could not be provided with some of the data, that the agency had assured confidentiality to the proposers, and we weren't included on the list of those who had access to some of that data.

I think our understanding, which Mr. Hardy can confirm or clarify, is that in any subsequent 6(c) process and any subsequent acquisition process that Bonneville undertakes that could come into a 6(c) review, that the confidentiality arrangements would be rearranged, if you will, so that the Council would have access to the data that it felt it needed.

Mr. DEFAZIO. Mr. Hardy or Ms. Hickey?

Ms. HICKEY. There are two different confidentiality issues going on here. One is that we received over 100 proposals in the competitive bid and the Council sought information to assure that Tenaska was, in fact, the least cost.

That one, I believe, we have dealt with effectively by giving out the categories of resources and the range of costs. With the Tenaska contract, we felt that the real levelized costs and the details of as much of the contract as we could give would be sufficient, and we've worked very closely with the Council staff to assure that they have the confidence in making their decisions.

We are concerned about this issue of confidentiality. It came up for the first time in this 6(c) review. So we're very concerned that we're doing something that's state-of-the-art in the industry and not holding things confidential that others don't hold confidential.

We're also, on the other side, seriously concerned about not placing Bonneville's purchases at a competitive disadvantage. And it has been indicated to us that there are a range of developers who, in fact, will not bid, will not make proposals to us, if we're going to release their confidential information.

So this is a current issue for us and we're exploring it to figure out how to best deal with it in the future.

Mr. DEFAZIO. My understanding is there is some legal precedent regarding FOIAs and these sorts of things, so-called trade secrets. But the problem I have here is you have a situation where private utilities are more scrutinized than any public agency's decisions. You have no utility over you.

I guess as a Member of Congress, perhaps I can ask to see these documents or we can subpoena the documents, but I don't feel fully qualified to pass on them. I think the desirable situation would be that you enter into a prospective agreement with the Council regarding confidential information. You designate what people within the Council would be able to see it.

Whether it's members of the Council themselves or staff members or a combination thereof would be subject to negotiations. But it would just increase my level of confidence and everybody else's. You're getting yourselves in trouble perhaps unnecessarily here.

Ms. HICKEY. That was an option that came up in my discussions with the Oregon PUC, Ron Eachos, in particular. They said they have a mechanism called the protective order where there are cer-

tain groups of individuals who can see the data, and that made us feel extremely comfortable and does look like a good option.

Mr. DEFAZIO. So will you undertake to negotiate such a prospective agreement with the Council so that any future acquisitions can be reviewed in that manner?

Mr. HARDY. Yes. I think we can do that, and as Sue remarked, this is a learning process. We got confronted with this issue relatively late in the process of the acquisition and we'll work with the Council to try to reach some mutually satisfactory arrangement of sharing the data that still protects the confidentiality to the extent where we don't put ourselves at a competitive disadvantage.

I would just observe, Mr. Chairman, relative to the comments about the investor-owned utilities, that's precisely what we're worried about. If the PUC allows the IOUs to protect this information and they get all the most competitive bidders, where we have to disclose it all and we get less competitive bidders, that gives me a big problem.

Mr. DEFAZIO. I'm saying just mirror their process. There's a certain amount of information that will be public and a certain amount of information that we're going to have to trust is being properly evaluated by the duly appointed members of the Council. That's why we have a Council to do some of these things.

I see the light is on. I'm going to defer to my colleague again for another round.

Mr. SMITH of Oregon. I just have two more questions. Thank you, Mr. Chairman. Mr. Hardy, has irrigation power use grown over the past 10–15 years, irrigation power from the Columbia River source?

Mr. HARDY. I honestly don't know, Mr. Congressman. I'll have to answer that one for the record.

[The information follows:]

INFORMATION PROVIDED BY MR. HARDY:

Yes, irrigation loads have increased regionwide by 44% since 1983. The load specifically placed on Bonneville by public utilities for irrigation purposes have increased by 38% over the past ten years. We do not collect irrigation load data specific river source such as the Columbia, Snake, or Yakima rivers. However, we are attaching data on irrigation loads broken down by Bonneville's utility customers and the Investor Owned Utilities throughout the region. This data may assist you in determining the increase/decrease in irrigation loads for various areas of the region.

	PUBLIC UTILITY SALES-IRRIGATION											
	BONNEVILLE POWER ADMINISTRATION (END-USE RESEARCH SECTION)											
	7/2/93	Mary Lange		Recompiled for 1983-92 by SDetering (RPCB) July 21, 1993								
						MWHS						
	AREA	STATE	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
SURPRISE VALLEY ELECTRIC CORP.	SR	CA	24.29	4.28	4.97	3.84	4.45	4.83	4.69	5.45	4.72	6.55
CALIFORNIA		Total	**24.29**	**4.28**	**4.97**	**3.84**	**4.45**	**4.83**	**4.69**	**5.45**	**4.72**	**6.55**
BONNERS FERRY, CITY OF	UC	ID	0.04	0.02	0.02	0.02	0.02	0.01	0.02	0.03	0.03	0.01
CLEARWATER POWER CO.	UC	ID	0.00	0.06	0.09	0.10	0.10	0.10	0.07	0.09	0.11	0.16
EAST END MUTUAL ELEC CO LTD	SR	ID	0.60	0.58	0.52	0.47	0.53	0.60	0.60	0.59	0.63	0.68
FALL RIVER ELECTRIC COOP INC	SR	ID	0.03	1.96	3.15	3.29	2.74	4.98	4.10	4.19	3.94	4.56
FARMERS ELECTRIC CO.	SR	ID	0.11	0.03	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01
HEYBURN ELECTRIC DEPT	SR	ID	0.15	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
IDAHO CO L&P COOP ASSN INC	UC	ID	0.86	0.02	0.02	0.01	0.02	0.03	0.02	0.02	0.03	0.04
KOOTENAI ELECTRIC COOP., INC.	UC	ID	0.01	0.73	1.06	1.10	1.05	0.92	0.63	0.46	0.60	0.83
LOST RIVER ELEC COOP INC	SR	ID	0.44	2.34	3.51	2.77	2.91	3.67	3.79	3.69	3.66	4.45
NORTHERN LIGHTS INC	UC	ID	0.16	0.11	0.12	0.12	0.11	0.12	0.07	0.10	0.08	0.10
PRAIRIE POWER COOP INC	SR	ID	11.79	0.28	0.33	0.32	0.33	0.34	0.34	0.34	0.50	0.48
RAFT RIVER ELECTRIC COOP INC	SR	ID	0.79	11.23	14.47	12.17	13.98	15.81	16.12	18.56	15.01	20.68
RIVERSIDE ELECTRIC CO.	SR	ID	1.30	0.13	0.13	0.30	0.30	0.31	0.29	0.34	0.42	0.50
RUPERT ELECTRICAL DEPT	SR	ID	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.08
RURAL ELECTRIC CO.	SR	ID	0.92	1.39	1.61	1.48	1.67	1.82	1.84	1.96	1.75	2.13
SALMON RIVER ELECTRIC COOP INC	SR	ID	1.34	0.91	1.05	1.00	0.97	0.98	1.24	1.25	1.25	1.37
SODA SPRINGS MUNI ELEC L&P DPT	SR	ID	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SOUTH SIDE ELECTRIC LINES INC	SR	ID	4.36	1.36	1.37	1.62	2.04	2.05	1.83	1.85	1.80	1.88
UNITY LIGHT & POWER CO.	SR	ID	0.00	1.32	1.54	1.36	1.81	2.10	2.11	2.16	2.04	2.66
IDAHO		Total	**22.91**	**22.50**	**29.00**	**26.16**	**28.61**	**33.90**	**33.10**	**35.67**	**31.94**	**40.64**
FLATHEAD ELECTRIC COOP INC	UC	MT	11.14	0.65	0.81	0.68	0.70	0.90	0.64	0.52	0.65	0.80
GLACIER ELECTRIC COOP INC	UC	MT	36.13	0.66	0.64	0.49	0.49	0.52	0.26	0.46	0.30	0.38
LINCOLN ELEC COOP INC MONT	UC	MT	6.21	0.13	0.16	0.11	0.12	0.15	0.12	0.07	0.10	0.15
MISSOULA ELECTRIC COOP INC	UC	MT	0.02	0.57	0.69	0.63	0.72	0.87	0.64	0.58	0.67	0.78
RAVALLI ELECTRIC COOP INC	UC	MT	0.13	0.79	0.83	0.75	0.72	0.70	0.63	0.68	0.71	0.79
VIGILANTE ELECTRIC COOP INC	UC	MT	0.13	4.01	4.96	4.60	3.60	4.66	4.22	4.43	4.38	4.40
MONTANA		Total	**53.76**	**6.81**	**8.09**	**7.25**	**6.35**	**7.82**	**6.51**	**6.74**	**6.81**	**7.31**
WELLS RURAL ELECTRIC CO.	SR	NV	0.00	0.64	0.76	0.71	0.74	0.76	0.80	1.03	0.90	1.09
NEVADA		Total	**0.00**	**0.64**	**0.76**	**0.71**	**0.74**	**0.76**	**0.80**	**1.03**	**0.90**	**1.09**

BANDON ELECTRIC DEPT	LC	OR	0.05	0.08	0.10	0.08	0.10	0.08	0.07	0.05	0.08	0.09
BLACHLY-LANE ELEC COOP ELEC AS	LC	OR	0.07	0.08	0.10	0.10	0.11	0.08	0.08	0.08	0.09	0.11
CENTRAL ELECTRIC COOP INC	SR	OR	3.54	4.14	4.53	4.49	4.59	5.17	4.80	4.85	5.45	5.18
COLUMBIA BASIN ELEC COOP INC	SR	OR	0.07	3.51	3.58	2.94	3.39	3.21	3.16	3.72	3.51	3.52
COLUMBIA POWER COOP.	SR	OR	3.11	0.49	0.61	0.56	0.72	0.63	0.48	0.69	0.59	0.74
COLUMBIA RIVER PUD	LC	OR	12.20	0.01	0.03	0.03	0.04	0.03	0.02	0.04	0.04	0.05
CONSUMERS POWER INC.	LC	OR	0.31	0.45	0.66	0.61	0.73	0.65	0.65	0.58	0.66	0.91
COOS-CURRY ELEC COOP INC	LC	OR	0.21	0.30	0.31	0.30	0.42	0.31	0.29	0.26	0.40	0.47
DOUGLAS ELECTRIC COOP INC	LC	OR	0.20	0.22	0.23	0.25	0.30	0.23	0.24	0.23	0.30	0.31
EMERALD PUD	LC	OR	2.59	0.65	0.89	0.82	1.03	0.92	0.97	0.96	1.22	1.18
FOREST GROVE L&P DEPT	LC	OR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
HARNEY ELECTRIC COOP INC	SR	OR	0.01	6.88	8.61	8.41	7.98	9.17	9.13	11.13	10.36	12.83
HOOD RIVER ELECTRIC COOP.	SR	OR	0.03	0.14	0.16	0.17	0.18	0.16	0.16	0.15	0.19	0.21
LANE ELECTRIC COOP INC	LC	OR	0.08	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
MCMINNVILLE WATER & LIGHT	LC	OR	3.45	0.09	0.12	0.10	0.11	0.11	0.13	0.10	0.12	0.15
MIDSTATE ELECTRIC COOP.	SR	OR	0.51	3.94	3.15	3.50	3.13	3.26	3.40	3.69	3.59	4.19
MILTON-FREEWATER L&P DEPT	SR	OR	0.47	0.53	0.70	0.46	0.66	0.83	0.65	0.67	0.62	0.69
NORTHERN WASCO PUD	SR	OR	0.05	0.16	0.18	0.18	0.17	0.14	0.13	0.16	0.15	0.16
OREGON TRAIL ELEC. CONS. COOP.	SR	OR	0.00	0.00	0.00	0.00	0.00	0.07	2.52	3.08	2.80	3.58
UMATILLA ELECTRIC COOP ASSN	SR	OR	1.10	26.73	30.23	27.66	26.91	24.96	27.46	29.81	31.06	30.06
WASCO ELECTRIC COOP INC	SR	OR	0.64	1.01	1.19	1.02	1.00	0.88	0.97	1.00	1.06	1.12
WEST OREGON ELECTRIC COOP INC	LC	OR	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01
OR		**Total**	**28.69**	**49.42**	**55.40**	**51.70**	**51.61**	**50.91**	**55.33**	**61.27**	**62.33**	**65.61**
BENTON CO. PUD #1	SR	WA	21.89	26.71	27.00	26.10	28.71	28.13	29.32	30.83	29.90	28.61
BENTON REA	SR	WA	6.84	7.07	6.95	6.77	7.66	7.40	7.66	8.02	8.65	9.23
BIG BEND ELECTRIC COOP INC	UC	WA	24.78	24.71	28.59	26.06	27.19	26.96	26.35	28.94	27.52	28.96
CHELAN CO. PUD #1	UC	WA	3.28	3.35	3.83	3.87	3.88	4.36	4.15	4.16	4.27	4.62
CLALLAM CO. PUD #1	PS	WA	0.19	0.17	0.17	0.12	0.16	0.14	0.13	0.10	0.12	0.12
COLUMBIA REA INC	SR	WA	0.55	12.25	13.88	13.60	13.69	14.31	15.12	15.94	15.46	16.19
DOUGLAS CO. PUD #1	UC	WA	3.58	3.53	3.92	3.91	4.58	4.89	4.51	4.06	4.62	4.26
FERRY CO. PUD #1	UC	WA	0.49	0.17	0.16	0.20	0.19	0.19	0.15	0.10	0.11	0.17
FRANKLIN CO. PUD #1	SR	WA	0.54	10.74	13.20	12.26	12.60	12.71	12.69	13.32	12.73	12.75
GRANT CO. PUD #2	UC	WA	6.66	35.98	44.37	42.19	44.60	46.38	45.81	49.21	48.77	50.25
INLAND POWER & LIGHT CO.	UC	WA	0.26	0.80	1.02	0.88	0.92	0.97	0.81	0.80	0.83	0.99
KITTITAS CO. PUD #1	UC	WA	1.95	0.33	0.42	0.41	0.43	0.42	0.43	0.60	0.59	0.53
KLICKITAT CO. PUD #1	SR	WA	0.66	1.90	2.47	2.16	2.22	2.27	2.21	2.20	2.22	2.28

LEWIS CO. PUD #1	PS	WA	0.10	0.12	0.19	0.19	0.22	0.15	0.17	0.11	0.13	0.22
LINCOLN ELEC COOP INC WASH	UC	WA	2.57	6.52	7.80	7.81	8.01	8.18	7.61	8.67	7.14	8.11
MODERN ELECTRIC WATER (WWP)	UC	WA	0.63	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
NESPELEM VALLEY ELEC COOP INC	UC	WA	0.10	0.63	0.81	0.82	0.94	1.07	1.00	0.95	1.02	1.02
OHOP MUTUAL	PS	WA	0.18	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.06
OKANOGAN CO. ELECTRIC COOP INC	UC	WA	4.96	0.21	0.19	0.21	0.19	0.19	0.20	0.16	0.19	0.22
OKANOGAN CO. PUD #1	UC	WA	0.09	5.12	5.54	5.71	6.66	5.72	6.06	5.41	6.60	7.11
PACIFIC CO. PUD #2	PS	WA	0.34	0.10	0.11	0.14	0.11	0.12	0.13	0.10	0.11	0.14
RICHLAND ENERGY SERVICES DEPT		WA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69
VERA IRRIGATION DISTRICT	UC	WA	3.88	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
WAHKIAKUM CO. PUD #1	LC	WA	0.90	0.10	0.07	0.07	0.06	0.07	0.07	0.10	0.06	0.00
WASHINGTON		**Total**	**85.40**	**140.59**	**160.78**	**153.55**	**163.10**	**164.71**	**164.66**	**173.85**	**171.12**	**176.54**
LOWER VALLEY P&L INC	SR	WY	0.06	0.41	0.41	0.60	0.40	0.73	0.64	0.68	0.55	0.67
WYOMING		**Total**	**0.06**	**0.41**	**0.41**	**0.60**	**0.40**	**0.73**	**0.64**	**0.68**	**0.55**	**0.67**
		PUB Tota	215.11	224.64	259.41	243.81	255.25	263.65	265.73	284.68	278.38	298.41
PRIVATE UTILITY SALES-IRRIGATION						in Average MegaWatts						
BONNEVILLE POWER ADMINISTRATION (END-USE RESEARCH SECTION)												
6/1/93	Mary Lange											
							aMw					
	AREA	STATE	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
CP NATIONAL	SR	OR	2.15	1.75	2.87	3.05	2.97	2.27	0.00	0.00	0.00	0.00
IDAHO POWER	SR	ID	146.61	147.41	170.41	158.09	173.85	183.75	179.59	192.45	175.80	213.31
IDAHO POWER	SR	OR	6.30	5.82	6.68	5.80	6.13	6.68	6.10	7.44	6.25	8.42
MONTANA POWER	UC	MT	1.98	2.11	2.47	2.24	2.15	2.27	1.96	2.05	2.03	2.20
PACIFIC POWER & LIGHT	LC	ID	0.01	0.01	0.02	0.02	0.01	0.01	60.95	63.15	55.09	67.15
PACIFIC POWER & LIGHT	LC	MT	0.00	0.06	0.29	0.24	0.28	0.29	0.27	0.20	0.22	0.28
PACIFIC POWER & LIGHT	LC	OR	27.49	28.51	30.24	29.53	31.72	28.82	30.87	27.76	36.92	37.23
PACIFIC POWER & LIGHT	LC	WA	14.70	14.86	16.91	14.95	15.88	15.78	15.23	16.69	16.50	18.27
PORTLAND GENERAL ELEC	LC	OR	3.05	4.27	6.45	6.19	7.43	6.62	7.02	6.64	6.95	9.32
UTAH POWER & LIGHT	SR	ID	38.19	34.09	45.88	45.36	45.10	62.57	0.00	0.00	0.00	0.00
WASHINGTON WATER POWER	UC	ID	3.12	3.66	4.04	4.08	4.02	4.17	4.19	4.22	4.11	4.40
WASHINGTON WATER POWER	UC	WA	8.10	9.04	10.41	9.65	9.00	9.69	9.81	9.81	9.81	10.95

			251.70	251.60	296.68	279.20	298.53	322.92	315.99	330.42	313.68	371.52
			251.70	251.60	296.68	279.20	298.53	322.92	315.99	330.42	313.68	371.52
							aMw					
	AREA	STATE	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
IDAHO POWER	SR	ID	146.61	147.41	170.41	158.09	173.85	183.75	179.59	192.45	175.80	213.31
PACIFIC POWER & LIGHT	LC	ID	0.01	0.01	0.02	0.02	0.01	0.01	60.95	63.15	55.09	67.15
PACIFIC POWER & LIGHT	LC	OR	27.49	28.51	30.24	29.53	31.72	28.82	30.87	27.76	36.92	37.23
PACIFIC POWER & LIGHT	LC	WA	14.70	14.86	16.91	14.95	15.88	15.78	15.23	16.69	16.50	18.27
WASHINGTON WATER POWER	UC	WA	8.10	9.04	10.41	9.65	9.00	9.69	9.81	9.81	9.81	10.95
PORTLAND GENERAL ELEC	LC	OR	3.05	4.27	6.45	6.19	7.43	6.62	7.02	6.64	6.95	9.32
IDAHO POWER	SR	OR	6.30	5.82	6.68	5.80	6.13	6.68	6.10	7.44	6.25	8.42
WASHINGTON WATER POWER	UC	ID	3.12	3.66	4.04	4.08	4.02	4.17	4.19	4.22	4.11	4.40
MONTANA POWER	UC	MT	1.98	2.11	2.47	2.24	2.15	2.27	1.96	2.05	2.03	2.20
PACIFIC POWER & LIGHT	LC	MT	0.00	0.06	0.29	0.24	0.28	0.29	0.27	0.20	0.22	0.28
CP NATIONAL	SR	OR	2.15	1.75	2.87	3.05	2.97	2.27	0.00	0.00	0.00	0.00
UTAH POWER & LIGHT	SR	ID	38.19	34.09	45.88	45.36	45.10	62.57	0.00	0.00	0.00	0.00
			251.70	251.60	296.68	279.20	298.53	322.92	315.99	330.42	313.68	371.52

Mr. SMITH of Oregon. The reason I asked the question is I know the answer. It hasn't grown, and the purpose for my question was simply that, in the distribution of blame for the salmon and other problems that we have that need increased flow, from the short-term agreement, there seems to be fingers pointed in every direction, including agriculture. I just wanted to make that point for the record.

My last question is, In making the estimate of 1,500 megawatts needed by the turn of the century, did you, in your planning program, estimate the additional megawatts not coming from the Columbia River hydro program. What the current agreement seems to be saying is that there needs to be more water flowing in the Columbia. Or should we be looking at additional megawatts from alternative sources to relieve what, at least in the short-term, seems to be an end to alleviate the flow or increase the flow, thereby reducing megawatt production in the hydro production on the Columbia River?

Mr. HARDY. The 1,500 megawatts, Mr. Smith, did include I think about 70 or 80 megawatts of loss from the Snake system that did not include what is a much bigger number potentially from the Columbia system, because that wasn't finalized yet.

I think over the next year as we get a long-term recovery plan in place, it will undoubtedly essentially codify a very substantial megawatt loss, probably in the 400–500 megawatt range, maybe larger.

At that point, we will have two choices. One is to incorporate that in firm planning and acquire an additional amount of resources to meet that load. The other is to use what we call operational flexibility to meet it. This means that you do not seek to meet that load with firm resource acquisitions and take a gamble on the spot power market when you need it. This last year has been very instructive in the costs of that kind of a regime.

And there's kind of a third alternative which is to negotiate seasonal power exchanges with the southwest, where you swap power summer to winter. That can mitigate a lot of that kind of cost and maybe make up the balance with some other mixed type of resource portfolio.

But until we know what our ultimate obligation is, by virtue of the long-term recovery plan, we thought it was premature to try to lock into a particular solution.

Mr. SMITH of Oregon. So the 1,500 does not anticipate any mitigation to the salmon.

Mr. HARDY. About 80 megawatts is all. Yes, sir.

Mr. SMITH of Oregon. Mr. Grace, very quickly. We discussed peak power loads and needs. In your opinion, does the 1,500 megawatt estimate, eliminating the salmon issue, get to where we want to be with respect to peaking?

Mr. GRACE. Congressman, I don't believe it will get us there. I have reservations myself. We're in serious trouble about where we're at in peaking and in capacity problems. I don't think we really looked into those as well as we should have.

Mr. SMITH of Oregon. Where should we be?

Mr. GRACE. I couldn't tell the exact point now where we should be, but I think it's something that we need to be very concerned about. Mr. Duncan, do you have a thought on that?

Mr. DUNCAN. Congressman, if I'm clear about the number you're using, the 1,500 megawatts represents that share of what we think we require in the region, which we're planning to meet through conservation. But there's basically another approximately equal increment that we would propose to meet through a variety of hydro and gas-fired and other smaller resources.

So we're talking about somewhere probably around 3,000 megawatts that we are projecting as a Council and I think as Bonneville that we're going to require. But the essence of our planning as a Council and the essence of our planning as a region is that we have a flexible planning acquisition process that will allow us to acquire more than that if necessary on a relatively short-term basis or back off on our acquisitions if necessary by focusing on relatively smaller resources with relatively shorter lead times, by using an options process, which Bonneville has been in the process of implementing and which the Council directed them to do.

So I guess I feel a lot more comfortable about our ability to meet the loads as they vary from year-to-year, as our projections have been varied from year-to-year. I do agree with Mr. Grace, however, that we probably are increasingly going to have to look at capacity as distinguished from energy requirements in the region, especially in the I–5 corridor, as the growth tends to focus there.

Those may be as much transmission capacity issues as there are generation or conservation issues.

Mr. SMITH of Oregon. I'm going to ask you, Mr. Hardy. I'm going to give you a shot and you can hit it over the fence, if you like. It's one of those kinds. The Northwest Power Council, is it a planning agency or is it an implementing agency?

Mr. HARDY. Well, it's a planning agency, but I wouldn't want to confine the Council's role too rigidly. We've had a debate with the Council in the last few weeks about planning versus implementation.

Frankly, it's not useful, from my perspective, to take rigid ideological stands on who is a planner and who is an implementor. They're basically the planners and we're basically the implementors, but there's a lot of room in between.

We need to engage in some short-term planning and even some long-term planning to do our job effectively, that fills in some of the gaps. And, they need to have some oversight responsibility relative to implementation. We don't want to draw two rigid lines in the sand.

I think this is best addressed on kind of a case-by-case basis and it's best addressed in a funding sense where we're not spending duplicate monies for the same kinds of activities. That's something we need to work on.

Mr. SMITH of Oregon. It seems to me, Mr. Chairman, the Congress has this debate with the Supreme Court from time to time.

Mr. DEFAZIO. Just to follow up on Mr. Duncan's comment about the capacity. I'm curious. Having made that statement, how would you weigh the idea of fuel switching versus a Tenaska-type project? Since you say capacity is the critical factor, can't we do more with

capacity than we're going to do with the generation and then have the distribution problems?

Mr. DUNCAN. Well, Mr. Chairman, I'm going to astonish some people in the audience and disappoint others by saying that I don't think this is necessarily an either/or choice, and I think the Council's plan makes it clear that it's not an either/or choice. We are going to have some gas-fired generation in this region.

Having said that, there are any number of studies at this point, including analyses by Bonneville, that indicate that there are anywhere from 300 or 400 to as many as 800 or 1,000 megawatts of, you should pardon the phrase, fuel switching, direct application, gas-fired delivery to loads that are now or will be served by electricity.

Those average megawatts are cost-effective and of benefit to the electric industry, the electric power system in the Pacific Northwest. I think we are haltingly figuring out what part of that the market will drive and what part of it may invite intervention in the same way we intervened to encourage conservation or we intervened to acquire a new power plant.

If it's a cost-effective resource, the region ought to acquire it. Ought to acquire it, Congressman Smith, on a business-like basis. But if it's cost-effective, we ought to figure out how to acquire it. Clearly, there is substantial resource there. It's cost-effective and we need to figure out how to get it.

Mr. DEFAZIO. Thank you. Now, to either you or Chairman Grace. Chairman Grace, first, you listed, I think, a very meritorious list of actions and programmatic changes and improvements by BPA.

What I'm concerned about is the linkage between the recommendations of the Council and actions by the agency. Personally, in the case of Congress, we're doing this for oversight purposes to try and exert more oversight and see how the Act has actually worked for the last dozen years since there was any significant oversight.

But I believe that the ongoing oversight role and the more detailed oversight role lies with the Council. Do you agree with that assessment in terms of implementation?

Mr. GRACE. I didn't get just the last part of that. Do I agree with what?

Mr. DEFAZIO. My point is that there are a lot of very fine reports and plans proposed by the Council. The question is, how do we see about implementation with BPA? What's your relationship with BPA?

You produce a very fine report and you send it over and they say, well, thank you very much, but, actually, we were kind of thinking of doing something else. Now, there is a process by which you can——

Mr. GRACE. I think the language of the Act makes that fairly clear. We don't have any absolute authority there, but anything that the Council brings up that the Council plans for, any plans that we bring about, the Administrator has to either follow the list or he has to make some recommendation or some good reason for not doing that and, in some cases, has to report to Congress why he hasn't followed the plan.

So there is some give and take on it. We don't have the absolute authority. It also forces us to be more credible in what we come up with. Very frankly, in my estimation, if we come up with creditable plans, whether it be in power planning or fish and wildlife, if our plans are credible enough, the sheer weight of that credibility is going to get us through.

Mr. DEFAZIO. Mr. Duncan, would you care to address the linkage between your plans or proposals and BPA's implementation?

Mr. DUNCAN. Sure. I certainly agree with Mr. Grace that our greatest strength is leverage and not direct statutory authority. There are some——

Mr. DEFAZIO. But you are mentioned as having oversight authority in the Act.

Mr. DUNCAN. Oversight authority, and in any number of places in the Act, it is clearly intended that we participate in the implementation of our plan. I doubt, for example, that you will find many electric utilities, including Bonneville, who would have objected to our very active role in bringing about energy-efficient building codes in Oregon and Washington and some equivalent exercises in Idaho and Montana. That's one of many examples.

There are certainly some folks in the utility community who try to construe our authority much more narrowly. There are some folks in the utility community who have argued that we should not undertake a 6(c) review of the proposed Tenaska acquisition, that we are not obliged to undertake that and perhaps we should simply acquiesce and let it proceed.

I think most members of the Council are uncomfortable with that. That is our principal direct statutory authority and I think we are taking very seriously our responsibility to review not just the attributes of Tenaska particularly, but how that fits in the overall implementation of the Council's plan, how Bonneville is proceeding on other elements of that plan.

That is one of our several opportunities to oversee the implementation of our plan and I see no interest on the part of anyone in the Council in foregoing that responsibility, and I would hope that Members of Congress, which gave us our authority, would confirm that that's what they expect of us.

Mr. DEFAZIO. Thank you. Ms. Ervin, you made a number of really good observations, I thought, about where in the future perhaps greatest benefits lie with conservation in terms of the commercial and industrial sector and the targeting and that, and I think those are comments well taken, something that we need to focus a bit more on.

But, also, your comments about the conservation power plant, and I'd just ask your observation as sort of a neutral observer. I had heard over time of the frustrations of EPUD, but was also present at the signing ceremony, which was just last week, of the contract.

Do you see the conservation power plant as done by EPUD—I mean, it's estimated to cost them $150,000 to negotiate. It was a 3- or 4-year process, extraordinarily torturous. But do you think now we have sort of a format and do you see its applicability. Is there a transferability in that agreement or at least a model and

do you see this as something that could be effective with other utilities?

Ms. ERVIN. There are two approaches or ways of looking at that. Certainly, there can be a lot of transferability and I would hope that would be the case. I think all parties involved in that would realize and acknowledge that it's been kind of a long, slow, painful process. So we should have learned a lot from that and we should be able to apply it to others.

On the other hand, I wouldn't want to say unilaterally that we should now use that standard approach that was carved out over that 3- or 4-year-long process and apply it to all others. It gets back to my original theme of really taking more of an end-user customer-oriented approach.

Let's try to be flexible and creative and work with individual alternative service providers and utilities to fashion programs that work for them. I think that the Emerald type of program can be successful elsewhere, but I wouldn't want to limit it exclusively to that approach.

Mr. DEFAZIO. Thank you. Now, finally, to BPA, Tenaska is 38 mills levelized and my understanding of your application of what you perceive as the mandate in the Act is plus 10 percent for conservation resources for a cost-effectiveness comparison.

Are we now or have we obtained all the cost-effective conservation at less than 41.8 mills to date this year? Will we next year? Will we the year after, since these, I assume, are levelized so we can talk about it infinitely? Is that 660 megawatts the amount of conservation?

You're saying that of the conservation out there, 41.8 mills or less, there's 660 megawatts of conservation renewables out there at less than that price and that's it that you can acquire.

Ms. HICKEY. We have a commitment to purchase all the cost-effective conservation by 2003. So if you wanted me to sit here today and tell you we'd purchased everything below 41 mills today, I couldn't do that.

The one thing that we want to assure is that as lost opportunities that are below that cost-effectiveness ceiling come up, we are purchasing them, and we are actively moving constrained budget funds into areas to assure that we're making those purchases.

The 660 megawatts is our best estimate to date. In fact, on the books, we have 680 megawatts that we're purchasing. So, it's somewhere in that range of what constitutes all cost-effective conservation. The measured cost, in fact, goes up to the high 50 mills. So, the 42 mill number you're using is a program average cost and we're including marginal measures that go up to 50–55 mills.

Mr. DEFAZIO. So the answer is as of, say, this year, we are not getting all the cost-effective conservation, but we have a 10-year plan over which time period you are committed to acquiring all cost-effective conservation with a slow startup.

Ms. HICKEY. And on a year-by-year basis, we are producing all the cost-effective lost opportunities.

Mr. DEFAZIO. And lost opportunities being the key word.

Ms. HICKEY. Yes.

Mr. HARDY. Yes.

Mr. DEFAZIO. Lost opportunities meaning if I have some very fine proposals from a particular utility, but they have a shelf life, it's something they could do next year or the year after, they can wait and we instead will go for something that someone offers to us on a transient basis saying I've got a really good deal for you, but you've got to contract for it now or it won't be here, like Tenaska.

Ms. HICKEY. No, not referring to Tenaska. It basically has to do with the manufactured housing program, new homes when they're built, industrial process change, something that will be in place for a long time.

Mr. DEFAZIO. So lost opportunities are long-term fixed capital expenses, essentially.

Ms. HICKEY. That's right.

Mr. DEFAZIO. Mr. Duncan?

Mr. DUNCAN. Mr. Chairman, you have heard several times in this testimony so far that the notion that the 660 megawatts is not a ceiling. It is, I think it would be fair to say, an interim target, but the target and the objective is all cost-effective conservation.

I hope every witness who marches up here says exactly the same thing. I hope that becomes so often heard it becomes cliche, because that's the objective. It is entirely possible, I would say almost inevitable, that that 660 figure is going to change. There are some pressures which will drive it down to some extent—if gas becomes less expensive, as it has since the plan passed, that would tend to drive the numerical target down.

As efficiency technologies improve and their costs decline, and the avoided costs may change and other circumstances, that will tend to drive the amount of all cost-effective conservation up. So it's, to some extent, a moving target and we need to remember that it is that kind of a target.

Mr. Chairman, I think I would agree with Sue and Randy that on the conservation side, while there have been some startup problems and while I think the Council generally is concerned about the impact of the rate decision and budget decisions on our ability to maintain and, if possible, increase the pace of conservation acquisition, there are also some opportunities in these budget-constrained times that will tend to shift Bonneville's focus and other utilities and ours, as far as that goes, we hope onto ways of acquiring the conservation resource more cost-effectively.

You've heard about tiered rates. We are talking code enforcement, shipping emphasis to commercial and industrial resource acquisition. You raised the question of direct application of natural gas, which is not a conservation strategy, but it is a load-shifting strategy that has much the same effect.

I guess if I were to identify what most concerns me about either Bonneville's ability or its customers or ours as a region, our ability to deliver all cost-effective conservation, it is that we have yet to figure out how to treat conservation as a resource as the Act intended.

We still treat it frequently as a program with program costs or we may be treating it as a budget shock absorber. We need to learn to write the kinds of performance contracts—and that's both Bonneville and its customers—that properly allocate risk and reward,

that deal with the lost revenue issue which you raised, but in a way, that recognizes that that's a cost of delivering the resource.

We need to learn to write contracts that go not just to utility customers, but to ESCO and industrial users and chains and franchises. We need to learn to write contracts in a timely manner, as Ms. Ervin observed, and without the kind of excessive verification assurances that basically end up eating up the savings in process costs.

And I think we need to learn to write contracts that extend over the life of the energy conservation power plant, if that's what we're doing, contracts that are not driven by a budget cycle. We are hopeful, and we've certainly had these discussions with Bonneville and with many of the customers, that we will increasingly move to customer-financed performance contracts of the sort that Mr. Berggren has been trying to negotiate with Bonneville for some time, and that those contracts will extend over the life of the conservation power plant, the measures in there, and not be subject to a 2-year budget cycle.

Now, that constrains Bonneville's ability to manage its budget, but it constrains it, I think, in an appropriate way, entirely parallel to the way it acquires a supply side conservation plan.

If nothing else comes out in this hearing for my purposes with respect to how we ought to proceed with conservation, it ought to be that we still haven't figured out how to treat conservation as a resource. We've got a long way to go.

Mr. DEFAZIO. I think that's an observation well taken and I hope that BPA was cogitating on that, because I see not only their budget cycle driving or turning conservation on and off, but our perceptions of power supply. As in the 1980s surplus, I remember when I was first elected to Congress, being a bit critical of Mr. Jura about what I saw as rather laggard conservation efforts. I said the best time to do this stuff is when you've got a surplus because you can afford it.

The thing I would observe is that the price of natural gas is subject to a lot more risk than installed conservation. Now, it may seem cheap today, but as it comes to dominate the market, given a catastrophe or any other unexpected event, it may not be that cost-effective in the future or that available.

So I would just say that that is a much longer-term way to look at it, and the key word used is to look at it as a resource. We're still looking at it as something else that's kind of nice to do as opposed to a resource installed.

Mr. DUNCAN. Mr. Chairman, if I could follow up. When you get to the point of addressing the issue of Bonneville's competitiveness, the key question on which that discussion, it seems to me, ought to turn is the question of long-term competitiveness versus short-term competitiveness, which is an issue that far transcends Bonneville's or this region's predilections.

We tend to be a cashflow-driven society; we need to become increasingly an investment-driven, long-term investment-driven society. But we'll get to that.

Mr. DEFAZIO. We're going to take the same view Congress does. We'll do it short- and long-term. We'll look at their competitiveness

in the next 60 days and their competitiveness over the next 6 months.

Mr. SMITH of Oregon. I need just one more, Mr. Chairman, if I may.

Mr. DEFAZIO. Sure.

Mr. SMITH of Oregon. As I sit here, I'm concerned about the fact that each time there's a rate increase, it means that Bonneville Power Administration has more competition in the field of developing energy from other sources.

So we've loaded them up with the social agenda to protect fish and now we're going to load them up for another social agenda, which you may argue with me about, but it's this conservation question.

We may be loading them up so heavily that they can't compete, and that bothers me a little bit. I want to ask Mr. Hardy in that respect. You had a very ambitious, I thought, program looking at this whole competitiveness issue to reduce your administration's costs by 50 percent. Where are you in that effort?

Mr. HARDY. We've set ourselves a goal, Congressman, of reducing administrative costs by 50 percent just for fiscal year 1993. I don't think we can sustain cuts of that level in 1994–95. We're probably more in the 15–20 percent level, but it's rolled into the program costs then.

That aside, the long-term goal of the competitiveness project is to make ourselves much more efficient, efficient in a structural sense as opposed to kind of a budget-cutting, squeeze-the-grape exercise that we've just been through. I would anticipate significant efficiencies not just in our conservation programs, but across the board. How much I can't say at this time. By about September, we should start to have some pretty good numbers in hand, both relative to staff and relative to overall dollar savings.

One of the things that you have to weigh in conjunction with that is this question. Right now, we are actively working to convert a significant number of our conservation outlays through a third-party financing mechanism where we can do multi-year contracts of just the type that we did with Eugene Water & Electric Board back in the middle 1980's.

But there's a limit to that, and the limit is that 85 percent of our costs are fixed now. In that arena, you take costs from the controllable category and shift more costs into the fixed category. So you've got to balance that against the limitations that that then puts on your ability, frankly, to meet your Treasury payment—against the very kinds of long-term benefits that Angus pointed to.

The dilemma that you have, particularly with the conservation resource, is how many short-term costs for what kind of long-term benefit. You're constantly trying to balance those two. Right now, we think we've got a solution to that, at least in part, by cutting out a lot of our administrative costs—which we've done in the Super Good Cents program and some of these other programs—in the short-term sense and looking at decreasing the delivery costs in the long-term, plus tiered rates. You can get the same megawatt targets for a lower amount of cost, but the longer-term dilemma, what that balance is, is still there.

Mr. SMITH of Oregon. I thank you for that answer. Just a comment that, by the way, in my opinion, that's why this country is $4 trillion in debt. We have taken short-term exercises for long-term benefits. Thank you.

Mr. DEFAZIO. I thank the gentleman. It sounded like we started to talk about entitlements there for a moment. I kind of got off on that sick feeling in the pit of my stomach when we deal with the Federal budget.

Just one last observation in terms of the overhead. That report, again, and Ms. Hickey alluded to this, that the number of staff involved in negotiations is going to be scoped out. But they did say that the number of staff is roughly 4–10 times the number of staff used by other utilities, even after adjusting for size of program and part-time and full-time involvement when they're talking about resource acquisition.

I'm always careful when we're talking about staff because you're talking about people's lives and jobs. On the other hand, if we are going to enter this new era of competitiveness and reinvention, there are going to have to be some changes here.

Ms. HICKEY. That's a focus area for our function-by-function review, which is part of the competitiveness project. We're looking at each of the key functions and identifying opportunity areas where we can become more efficient, both cost-wise and staff-wise. An area that we've targeted for about 50 percent savings is the generation acquisition area, and we think we're well on the road, that we're already very close to there.

So those numbers reflected our early attempts and we've made radical changes since you received those numbers.

Mr. DEFAZIO. Thank you. What I'll do is I'll give one minute for anybody who wants it. This has been a very long panel. Go ahead, Mr. Grace.

Mr. GRACE. I'd just like to make one observation from listening here. There almost seems to be the tone here that you have to do your conservation before you get to do your Tenaska. There's a little of that in the testimony; not in here, but in the testimony I've read.

The 1991 power plan, we didn't preclude any resource that was cost-effective and we didn't say it had to be done in any one order. We said we need at this time to do all of these things at once in order to meet the power demands of the region.

This sometimes gets to be ideologically a little bit like if you don't eat your spinach, you don't get your ice cream, and yet, we need both the spinach and the ice cream for nourishment.

Mr. DEFAZIO. Spinach ice cream. We've got it down in Eugene. It's good. Anybody else? Yes, Sue.

Ms. HICKEY. I'd just like to make a parting comment on conservation as a social agenda versus conservation as a resource. Conservation is definitely treated as a resource at Bonneville. It is our highest priority resource. And Angus' point aside, we have come up with multiple-year deals. We're trying to make some more efforts towards that in the future.

But in every other way, conservation is treated as a resource. That does not at all change the fact that as we move to a more competitive arena, there will be a lot of challenges on the definition

of conservation as a resource. But I don't think we should let one difference between conservation and generation cause this group to leave thinking that that's not the way that it's treated at Bonneville.

Mr. DEFAZIO. Anybody else? Angus?

Mr. DUNCAN. Two quick points. One is that with my comments on how we have to move to acquire conservation I do not intend to lay that load entirely on Bonneville. That is a shared responsibility. And, certainly, there are any number of utilities out there who haven't figured out how to carry their share of the risks along with their share of the reward for making these kinds of conservation investments and undertaking to acquire these resources and sell them to Bonneville.

That is a mixed responsibility, and I think the Council also has a share in trying to make it clear that the intent is for the utilities, the other suppliers of conservation, and Bonneville collectively to move in the direction of treating conservation not just as a resource, but as a resource not at a disadvantage to the way supply side resources are acquired.

Last comment. I can't resist observing, Congressman Smith, that I don't regard conservation as a social agenda any more, I think, than Bonneville does. It is a resource. And I think, further, that we ought to be clear that the agenda of protecting fish is not a social agenda either so much as it is dealing with the environmental consequences of a generating resource.

Just like we deal with the pollutants that come out of the smokestack, managing those is part of the cost of acquiring electricity from that thermal generating plant, and recovering the fish runs is part of the cost of generating electricity from dams.

Mr. SMITH of Oregon. Thank you very much, Professor.

Mr. DEFAZIO. Anyone else?

[No response.]

Mr. DEFAZIO. I want to thank the panel very much. It was a long panel. I thank you for your patience. I expect the other panels may move along a big more quickly. What I'd like to do is of talk about the schedule for a moment. My watch says it's 6 minutes of 12:00. We're going to take a short break till 12:00. At 12:00, we'll bring up the next panel.

Just so people can plan their day, let's say from 1:30 until 2:00, we'll be on lunch break, so you can plan your day. Otherwise, we're just going to go pretty much straight through, with the exception of these occasional 5-minute breaks.

So we're going to convene precisely at 12:00, by my watch, which is 5 minutes from now, with the second panel.

[Recess.]

PANEL CONSISTING OF RALPH CAVANAGH, SENIOR ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL, SAN FRANCISCO, CA; K.C. GOLDEN, EXECUTIVE DIRECTOR, NORTHWEST CONSERVATION ACT COALITION; JOHN D. CARR, EXECUTIVE DIRECTOR, DIRECT SERVICE INDUSTRIES, INC.; AND KENNETH CANON, EXECUTIVE DIRECTOR, INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

Mr. DEFAZIO. We're back in session with panel two and we'll start with Ralph Cavanagh, Senior Attorney, NRDC, from that place to the south of us with which we sometimes seasonally exchange power. Mr. Cavanagh.

STATEMENT OF RALPH CAVANAGH

Mr. CAVANAGH. Thank you, Mr. Chairman, although, of course, I'm here on behalf of NRDC's more than 8,000 Northwest members. What I would want to say at the outset is that after 14 years of involvement in these issues, I'm left with strong optimism that the Pacific Northwest can lead the Nation and the world in the transition to a sustainable energy future that's based on energy efficiency and renewable resources.

We have a long way to go, but with the leadership and assistance of this task force, we're going to solve these problems and we're going to do it right here in the region, emphatically, without the assistance of the Federal Judiciary.

We're going to succeed because there is a remarkably broad consensus on the appropriate direction of regional energy policy and the decision rules for getting there. At least equally important is the mutual respect and sense of common purpose that characterizes most of the participants.

In any other region of the United States, this panel would represent the rhetorical equivalent of a two-on-two tag team match. We're going to be lively, but we're going to do better than that; in part, because we're all acutely aware that we need each other and the institutions that precede and follow us in order to build that sustainable energy future that I spoke of.

Now, Mr. Chairman, in talking about BPA resource acquisition, today is going to be, in large measure, a litany of complaints about the Bonneville Power Administration. That is the Northwest's favorite non contact sport, as you know. And all that I want to emphasize at the outset is that although I won't resist the temptation altogether to join in, none of this, none of what you hear today should change your answer to a very fundamental question about the role of BPA that is posed by any discussion of resource acquisition.

That is the question of whether Bonneville should be restricted to marketing a specified supply of inexpensive power from Federal hydroelectric facilities, whether Bonneville should be a broker of cheap commodities, pure and simple, or whether Bonneville can serve as a catalyst for a least-cost regional energy future by taking the lead role in securing the best mix of conservation and generating resources for a Pacific Northwest region that has outgrown its hydropower base.

Mr. Chairman, we tried the commodity broker model in this region for 40 years, and in 1980, we made the decision to graduate

to the second level when the Regional Power Act was passed. The fundamental insight of the framers of that Act, on both the conservation and the generation sides, was that there were regional interests and regional opportunities that no single utility or consortium of utilities could capture.

We needed a regional acquisition mechanism, a publicly accountable one, operating under rigorous and objective decision rules, and we got one in the partnership that is represented by the Bonneville Power Administration and the Northwest Power Planning Council.

Where we have fallen short in the years since, and we have, it's because we fell short of the model, not because the model itself was flawed, and the task now is to get on course again. We have in our testimony outlined a number of detailed recommendations, some of which are duplicative of what you've already heard.

I'll just make a few brief points here. NRDC feels very strongly that we need to set our sights higher in the Northwest for both conservation and renewable energy. And when we say we, we don't just mean Bonneville and this hearing shouldn't just be about Bonneville. It really is addressed to the utility industry as a whole.

And we need to set our sights higher not because it's somebody's social agenda, but because right now we're missing out on large cost-effective opportunities to add to the region's inventory of conservation and renewable energy, and the price of doing that, the very real price in the near term, is writing big checks to California and Canadian utilities.

And if there's a more unappealing social agenda than that, I don't know what it is. K.C. Golden, who follows me, will address, I think in some detail, our reasons for believing that the region is falling short on conservation acquisition. I think one number helps me put it in perspective.

Last year we hit our all-time record as a region, Bonneville and the utilities combined, in our conservation acquisitions and we got about 90 average megawatts. Mr. Chairman, 90 average megawatts represents less than one- half of one percent of regional electrical consumption, and that is nobody's definition of knocking the cover off the ball, nobody's definition of all cost-effective conservation, the goal that all of us are embracing now.

Even if we were only looking at lost opportunities, and certainly we should be doing more than that at a time when the region is substantially in deficit, we should be doing better. I'll join the earlier witnesses in agreeing that we should be doing better on industrial and commercial, in particular.

My guess is that both John Carr and Ken Canon and their constituents could make very productive use of increased investments right now, that we need to find a way to get to them. Not, again, because it's a social agenda, but for the competitiveness of this region and some of its most critical constituencies.

I don't have to, in any way, at this point, reiterate the issue of the targets for the region being floors and not ceilings. Angus Duncan and Randy Hardy have done that and I welcome it. But I think how short we are right now, less than half a percent of annual consumption, marching as if we were meeting the region's targets or the Council's targets only to about 1 percent of consumption, again

suggests how much more we can do if we can find the resources to do it.

For renewables, I'll just suggest one other benchmark. There are finally some serious negotiations under way to add renewable energy generation to the region in wind and geothermal and we very much welcome that and commend Bonneville for it.

But as a little stimulus, again, in one of those jurisdictions, Mr. Chairman, that you mentioned to the south, we can go to just one utility in a much less favorable renewable energy regime and find some 9,000 wind turbines, not in negotiation, but on-line, generating about 923 megawatts of electricity, not hypothetical, not promised, but real, another reminder, another exhortation for all of us to do more.

In that effort, Mr. Chairman, we hope that you will support Bonneville's efforts to cut costs and delays in the procurement of conservation and renewable energy generation. I'm here to attest that I believe that the effort that Randy Hardy and Sue Hickey described is a serious one and potentially very productive.

And I want to make one point that they really can't make. That is that the Office of Management and Budget and the U.S. Department of Energy are full of able people who want to manage the Bonneville Power Administration. Those agencies have a great deal of talent, but Mr. Chairman, you can't run Bonneville from agencies in the District of Columbia.

And I hope this task force can help Bonneville and its constituents find ways to minimize those unnecessary burdens and really to help unleash Bonneville as the entrepreneurial force that it has to be in order to remain competitive and successfully deliver on the untapped promise of energy efficiency and renewable energy.

A final specific recommendation in our testimony that I will just flag now is for the task force to support Bonneville in efforts to restore full environmental accounting in the resource acquisition process. I say restore full environmental accounting, Mr. Chairman, because Bonneville was on the right track back in 1991 when some of those DC-based agencies intervened.

In particular, Bonneville was trying to do something about the fact that right now all of Bonneville's customers are involuntary and uncompensated insurers of the fossil fuel industry, against the risks of future taxation of carbon dioxide or future regulation of carbon dioxide.

Bonneville tried two approaches back in 1991 or at least got them well under way. One was to assign a dollar cost to those emissions when comparing them with other alternatives in order to give some appropriate weight to that risk of future regulation or taxation. The other was to shift the risk to suppliers of fossil fuel generation.

For reasons that are outlined at length in our testimony, neither of those efforts was successful for reasons that aren't Bonneville's fault. The bottom line is that a fair accounting for carbon dioxide risks would greatly accelerate renewable energy development and diversify the Northwest against what threatens to become a natural gas addiction.

In the spirit, again, and this will be true, I think, of all of the testimony you'll be hearing from the efficiency and renewables com-

munity, we're not asking for a guaranteed win. We're not asking for the government to pick and choose the winners and losers. We're asking for a fair process in which the winners and losers have a chance to emerge on the merits and this is a critical part of ensuring that fair process.

Bonneville was well under way toward delivering it in 1991 and that effort should now go forward again.

I will conclude by simply noting that the first BPA Administrator that I knew used to complain that most people couldn't see the handwriting on the wall until their backs were up against it. This is a room full of individuals who are prepared to spend the months ahead refuting that doleful prediction.

And, Mr. Chairman, I just want to thank you for all you're doing to bring us together and to galvanize this into action. Thank you.

[Prepared statement of Mr. Cavanagh follows:]

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TESTIMONY OF RALPH CAVANAGH
BEFORE THE BONNEVILLE POWER ADMINISTRATION TASK FORCE
OF THE COMMITTEE ON NATURAL RESOURCES

July 12, 1993

This testimony responds to Chairman DeFazio's invitation of June 21, 1993; it represents the views of the Natural Resources Defense Council (NRDC). NRDC is a nonprofit environmental organization with a national membership of some 160,000, of whom more than 8,000 reside in the Pacific Northwest. Although NRDC's agenda is international in scope, we have a longstanding regional presence; I have directed our Northwest Energy Project since 1979. I also serve as a member of the Electric Power Research Institute's Advisory Council and the National Academy of Science's Energy Engineering Board. The subject matter of this hearing has been one of my principal interests for almost fourteen years.

I would like to begin by noting NRDC's appreciation for the leadership shown by the Chairman and eight of his Northwest colleagues in a June 14, 1993 letter to BPA's Administrator. You could hardly have been more timely in urging Administrator Hardy

> to avoid cutting important long term investments in the face of short term rate pressures. Specifically, you should continue making every effort to acquire all cost-effective conservation. A time of increasing rates and increasingly expensive power generation is precisely the wrong time to defer investments in energy efficiency.

Too many who have written lately to Administrator Hardy seem to have had nothing more in mind than staving off rate increases for a few more months, regardless of the cost to the region's long-term economic and environmental health. With his usual disdain for understatement, Cyrus Noe recently characterized this approach as "a picayune, nitpicking, self-obsessed, ungenerous, hyper-competitive, humorless psychology ginned up by remorseless

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lawyers."[1] You have taken a broader view, and a much larger constituency than my membership is very grateful.

The Task Force will hear today from a host of witnesses with little in common except an abiding dissatisfaction with the performance of the Bonneville Power Administration. If you find their complaints persuasive, you have two plausible courses of action: force BPA out of the resource acquisition business, or help it to do a better job. I vote emphatically for the latter course. We need a cost-minimizing regional resource acquisition mechanism in the Pacific Northwest, and we can't afford to give up on BPA.

Some witnesses will tell you that regional salvation lies in relegating BPA to its original hydropower marketing functions, leaving the region's electrical energy future in the hands of 120-odd publicly- and investor-owned utilities. That would mean a return to the status quo prevailing before Congress passed the Regional Act in 1980. This was a period that few now recall with anything approaching nostalgia. Whether acting as atomized units or collective groups, BPA's utility customers did not set a resource acquisition record that inspires confidence. However difficult the 1980s may have been, the past decade created nothing that compares with the 10,000 MW of abandoned generating capacity -- and more than $7 billion in wasted regional investment -- that still burdens every citizen of this region.[2]

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[1]Clearing Up, July 5, 1993, p. 5.

[2]Sunk costs for Pebble Springs Units 1 and 2 and Skagit/Hanford Units 1 and 2 were $293 million and $400-500 million, respectively. Energy Information Administration, U.S. Department of Energy, Nuclear Plant Cancellations: Causes, Costs and Consequences, at pp. xviii, 36 (April 1983). WPPSS Units 1 and 3 absorbed a total of about $4 billion before the mothballs were applied. Battelle Pacific Northwest Laboratories, XIV Assessment of Electric Power Conservation and Supply Resources in the Pacific Northwest: Nuclear, at pp. 4.9 & 4.17 (April 1983). Net construction and termination costs for WPPSS Units 4 & 5 were $2.34 billion. Id. at p. 4.20.

My principal message today is that the core of the Regional Act remains sound. Its integrated resource planning system has served as an international model, and its authors quite literally wrote the book for the rest of North America on energy efficiency as a resource opportunity for utilities. BPA has hardly been free of errors in the administration of the Act, but it has emerged as a national leader in energy efficiency investment and it has decisively outperformed the rest of the federal power establishment, including TVA and WAPA.

On the other hand, I join other witnesses in disclaiming any complacency about BPA's recent performance. The agency can do a great deal better, and this Task Force hearing marks an excellent opportunity to get the reform process moving. The remainder of this testimony is devoted to answering seven specific questions that the Chairman has posed to NRDC.

1. What are BPA's strengths and weaknesses in the resource acquisition field? In particular, is the BPA conservation program acquiring all cost-effective efficiency and renewable resources? Is BPA on track to acquire the amount of energy efficiency and renewable resources that the Northwest Power Planning Council has targeted for acquisition by the year 2000? Will near-term budget cuts prevent the region from achieving these goals?

From the perspective of resource acquisition, BPA's greatest institutional strengths lie in its capacity to take a regionwide perspective on energy needs and resources, its facilities for integrating and transmitting power, and its statutory authority to take the lead in executing least-cost solutions to the region's long-term energy supply and transmission needs. In the conservation arena, BPA is unique in its capacity to create or catalyze initiatives large enough in scale to transform entire markets; examples include the agency's successful building code reform campaigns and its leadership in the national utility consortium to promote efficiency improvements in refrigerators and

other major appliances.[3]

The agency's main weaknesses lie in persistent bureaucratic inefficiencies and a susceptibility to special pleading from short-sighted utility constituencies. On the former point, I think that BPA has launched a sincere and credible effort at reform in its Function by Function Review process (I am a participant). And hearings like this can help ensure that regional interests remain paramount despite all the special pleading.

BPA is not acquiring all cost-effective efficiency and renewable resources. Conservation programs are encountering severe budget constraints -- including another 12 percent cut announced in the last few days[4] -- and although the region currently is on a path to meet the Northwest Power Planning Council's minimum conservation goals, NRDC is concerned that this progress may not be sustained.[5] It is important to recall what the Northwest Power Planning Council said to BPA and the rest of the region in its last regional plan:

> No opportunity for energy conservation should be missed. The successful completion of this action will mean installing cost-effective measures in nearly every residence, commercial enterprise and industrial facility in the Northwest. It means operating programs in the commercial and industrial sectors at levels many times greater than anything attempted to date in this region.[6]

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[3]See, e.g., The Great Refrigerator Race, Business Week, July 5, 1993, at p. 78 (describing $30 million investment by utility consortium, including BPA, that has spurred dramatic product innovation and improved efficiencies for refrigerators).

[4]"[T]he conservation budget for the biennium will be reduced by 55 million, or 12 percent, from the amount projected last fall." Clearing Up, July 5, 1993, at p. 8.

[5]See June 1993 Conservation Monitor, at p. 1 ("Utilities report regional conservation savings totaling 54 average megawatts for 1991 and 94 aMW for 1992, which puts the region slightly ahead of regional conservation targets set for those two years in the Northwest Power Planning Council's 1991 regional plan").

[6]Northwest Power Planning Council, 1991 Northwest Conservation and Electric Power Plan, at pp. 32-33.

We are nowhere near those objectives today. The Task Force will hear much about the Council's objective of achieving 1500 average Megawatts of conservation by the year 2000, and about BPA's 660 Megawatt share of that objective. Administrator Hardy insists that BPA "has not reduced its 10-year target for conservation acquisitions -- approximately 660 [average] megawatts", and I am glad to hear it.[7] But it is important to remind the Administrator that his "target" is all cost-effective conservation, not the number he has chosen; the Council has emphasized repeatedly that the figure that the Administrator cites "is not to be interpreted as a cap."[8]

The Council has recognized that "the actual amount of efficiency improvements could be higher, depending on how well acquisition mechanisms work, how quickly the infrastructure is developed to support this level of acquisition and the rate of development of new conservation measures."[9] I worry that Administrator Hardy is interpreting the Council's goal as a cap, and that his continuing rate-driven budget cuts put even the minimum objective at risk.

Concerns about the pace of regional conservation acquisition should not stop with BPA. I hope the Task Force will register its distress also about the Snohomish PUD's dismantling of one of the region's most productive conservation programs, and about the generally sluggish pace of conservation at most investor-owned utilities by comparison with the acknowledged regional leader, Puget Power.

In 1991 alone, Puget's programs accounted for energy savings equivalent to 65% of those reported for the rest of the Pacific

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[7]BPA Press Release, June 3, 1993 ("Conservation Costs Trimmed, but Not Target Megawatts").

[8]Northwest Power Planning Council, note 6 above, at p. 33.

[9]Id.

Northwest region.[10] Puget delivered more energy savings in that year than the Idaho Power Company, the Montana Power Company, Pacificorp, Portland General Electric, and Washington Water Power combined. In 1992, Puget did even better.[11]

There is no mystery about why Puget leads the pack so decisively. Thanks to the Washington Utilities and Transportation Commission, it is the only utility in the region with robust, performance-based financial incentives to deliver cost-effective conservation. The Regional Act's framers thought they had created a mechanism for generating such incentives throughout the region; that part of their vision has yet to be realized.

I also want to note BPA's unmet opportunities in the acquisition of inefficiently used water to improve hydropower performance. Hydropower production and irrigation involve direct tradeoffs; water removed from a river and evaporated or consumed by crops cannot spin turbines, and often the losses are repeated at multiple dams. Energy lost through new irrigation diversions in Southern Idaho costs more than $60 per acre foot to replace, while many irrigators are paying $7 to $10 for the same quantity of water -- and often producing surplus crops or diverting several times as much water as their crops require. BPA can increase hydropower production and help endangered salmon by buying back some of that inefficiently used water. Yet the agency has made little progress toward getting such a program off the ground.

With regard to renewable energy, my principal complaint is a flawed treatment of environmental costs that BPA was effectively compelled to adopt during the previous Administration. See item 7

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[10]Northwest Power Planning Council, The Green Book: Tracking Pacific Northwest Electric Utility Conservation Achievements 1978-1991 (Feb. 17, 1993), at p. 7. In none of the previous three years did that percentage reach even 20%.

[11] Puget savings for 1992 totalled almost 28 aMW. Statement of Richard Sonstelie before the California Public Utilities Commission, Full Panel Hearing on Demand-Side Management Policy Issues (Feb. 25, 1993).

below.

2. Should BPA proceed with the proposed contract for the output of the Tenaska natural gas combustion turbine? If so, why? If not, why not? BPA has agreed to maintain the confidentiality of certain escalator clauses in the proposed Tenaska contract. Was this confidentiality agreement appropriate?

The Tenaska Washington II project represents a purchase of 248 Megawatts of gas-fired generating capacity; the Northwest Power Planning Council pegs its life-cycle costs at "approximately $1.2 billion if Bonneville purchased the full 240 average megawatt output of the plant over the life of the contract."[12] In my opinion, whether BPA should proceed with this acquisition depends entirely on whether it is part of a balanced portfolio dominated -- as the Regional Act requires -- by less costly energy efficiency and renewable energy. Based on its current performance, I do not believe that BPA can meet this test. The fate of Tenaska should hinge on BPA's demonstrated willingness and capacity to do better in the immediate future.

I am not aware of the basis for confidentiality about escalators in the Tenaska contract; my experience has been that such data are routinely disclosed in other regulatory contexts. Even without all of this information, however, it is clear that the actual out-of-pocket costs associated with the Tenaska purchase will be far above the 27 mills/kWh (1990 dollars) cited in some early BPA reports. BPA recently adjusted the estimate by incorporating escalators and inflation, yielding a robust 41% increase to 38 mills/kWh in levelized 1993 dollars. That figure exceeds the current BPA preference rate by more than 50 percent, and should prove illuminating to those who think that a rate increase on the order of 20-25 percent would destroy BPA's competitiveness.

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[12]Staff Issue Paper, Tenaska Washington II Generating Project: Section 6(c) Review for Consistency with the 1991 Northwest Conservation and Electric Power Plan, at p. 2 (June 1993). The Council adds that "[b]ecause of provisions for displacement, however, it is unlikely that Bonneville will take the full energy output of the plant for the entire contract period."

3. In practice, are there significant differences in the processes used by BPA to acquire conservation, renewable and fossil resources? Are procedures, requirements, and administrative demands essentially equivalent for equivalent resources? Are resource acquisition costs and benefits appropriately shared?

I have several major concerns about the procurement process. The first goes to the treatment of environmental costs and uncertainties in resource procurement, which gives fossil resources an inappropriate advantage over renewables and conservation; item 7 below expands on this point.

Also troubling is the disparity in BPA's willingness to make multi-year commitments across resource categories. A Tenaska-type generating resource can get contractual assurances that may stretch literally for decades; most conservation resources struggle along on a year-to-year basis. Congress should insist on evidence of more symmetrical treatment; we need more durable BPA commitments in order to build a strong conservation infrastructure.

For conservation, BPA also has been handicapped by customers' pressures to spread investments evenly around the region, regardless of the distribution of cost-effective opportunities to save energy. The Regional Act treats conservation as a resource for the region, not a regional social program. Customers need to be reminded that there are no "nonparticipants" in the systemwide benefits flowing from cost-effective savings, regardless of their source.

Also, some utilities have insisted inappropriately on BPA reimbursement for "lost revenues" associated with kilowatt-hours saved in their service territories, which leaves the region paying not only for the cost of the energy savings but also for the hypothetical retail mark-up that the unsold kilowatt-hours would have earned for local utilities. The Regional Act was never intended as a guarantor of utilities' balance sheets, particularly when the revenues at stake are based on wasted energy.

4. Is BPA an effective indirect purchaser of regional resources through third-party financing, billing credits, conservation power plants and other indirect means?

Not yet, although the fault does not lie solely in BPA. For

example, as a close observer of the "conservation power plant" negotiations between BPA and the Snohomish PUD, I think both sides missed repeated opportunities to make a deal that was clearly in the best interests of all concerned. They should try again.

I know from abundant personal experience that BPA is capable of world-class conservation resource acquisition. Both BPA and its customers need to feel strong even-handed pressure from Congress to do better in the future. All sides should take heart from an aggressive internal review process now underway within BPA, driven in part by competitive pressures; these efforts could yield a much more effective delivery system.

5. What is the potential for cost-effective electricity savings in the Northwest region from fuel switching to natural gas? Do current market conditions create a sufficient incentive for fuel switching? If not, what measures should BPA undertake to encourage fuel switching? Should BPA prohibit the expenditure of Super Good Cents incentives in areas where natural gas service is currently available?

I can only answer this question qualitatively; NRDC has not undertaken an independent estimate of the potential for cost-effective fuel substitution. I believe that there are substantial untapped opportunities to save both energy and dollars by substituting high-efficiency natural gas equipment for electrical systems, and vice versa.

Current market conditions will not necessarily capture those opportunities. Natural gas use is up sharply throughout the region -- about 75 percent over the last decade -- but many of the same market barriers that block cost-effective conservation also obstruct cost-reducing fuel substitutions, particularly in older structures.[13] Utilities like Washington Water Power and Snohomish PUD have been leaders in promoting natural-gas measures that save on both resource acquisition costs and customers' bills.

I have seen dramatic changes in attitudes at BPA on fuel substitution over the last several years. I believe that the

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[13]Data on natural gas consumption trends are summarized in Clearing Up, June 28, 1993, at p. 4.

agency is now poised to take on major fuel substitution initiatives; these should focus not simply on promoting gas use, but should incorporate the same life-cycle efficiency tests for gas equipment that are now routine on the electric side. Northwest gas utilities should be part of this process.

Both electric and gas utilities' involvement in such programs would benefit greatly from regulatory reforms that sever the link between their profits and their energy sales. Such reforms are now underway in Washington and should soon emerge in Oregon, for investor-owned utilities.[14] In light of this progress, and a lack of evidence about negative impacts, I would not suspend the Super Good Cents program in areas served by gas; instead, I would encourage gas utilities to introduce their own programs, or to integrate gas equipment choices into the Super Good Cents package.

6. Has the Northwest Power Planning Council adequately exercised its responsibilities under the Act in the resource acquisition field? Please describe the strengths and weaknesses of the Council's activities related to resource acquisition.

The Council's integrated resource acquisition plans are quite simply the best that any agency or company has ever published. However, the Council's capacity to influence actual acquisition has been quite limited in practice, due in part to the cumbersome quality of the enforcement tools provided explicitly in the Regional Act. The Council's moral authority and political pressure are often effective, but more is needed at least intermittently to assert regional interests in least-cost resource acquisition.

In my opinion, vindicating these interests will require creative revisions of BPA's power sales contracts with its utility and industrial customers, and in the attachment of conditions to the valuable transmission and related services that BPA provides regionwide. Obligations to support key elements of the Council's

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[14]"Revenues for Portland General Electric and Pacific Power & Light would no longer be tied strictly to kilowatt-hour sales under "decoupling" plans both utilities submitted this spring to the Oregon Public Utilities Commission." Conservation Monitor, p. 10 (June 1993).

and BPA's regional programs could be built into all of these systems, along with expedited arbitration and enforcement mechanisms. BPA took an important step in this direction by inserting regional environmental safeguards into its Intertie Access Policy;[15] we can do much more.

7. Has BPA adequately accounted for the environmental externalities associated with various energy sources in its resource acquisition process? If not, what specific issues should BPA revisit?

BPA has not accounted adequately for environmental externalities, particularly those associated with fish and wildlife damage and greenhouse gas emissions. The agency has made some progress and is capable of much more; as shown below, part of the problem originated in other quarters. A brief chronology helps clarify these issues.

Fish and Wildlife: A major function of the Regional Act's fish and wildlife provisions was to internalize some of the most important environmental costs associated with the hydropower system. That process is far from complete, and a continuing part of the problem is BPA's failure to budget specific amounts for some initiatives called for in the Council's fish and wildlife program. The oft-repeated excuse for the omissions is that "we are waiting for the Recovery Plan." Yet, as the NMFS Regional Director pointed out at a recent Council meeting, NMFS has consistently called for measures that strengthen the Council's program. Congress should press BPA to incorporate fully in its rates the flow and habitat restoration measures called for in the Council's fish and wildlife program.

Carbon Dioxide Emissions: As BPA prepared to solicit bids for 300 MW of new generating resources in the spring of 1991, the

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[15]BPA's Intertie Access Policy was released in May of 1988; it created rules for the use of the federally-owned transmission system linking the Pacific Northwest and California. Key provisions barred from the system new hydropower facilities built in areas within the Columbia River System designated by the Council as "protected" (§7(a)); and ensured that individual utilities executing long-term export contracts would bear all risks associated with these transactions (§ 4(a)(4)).

agency decided to incorporate environmental costs explicitly in its evaluation of potential new power supply sources. BPA staff devised a detailed accounting system for environmental costs, which included a specific dollar value for emissions of carbon dioxide, nitrogen oxides, sulfur oxides, and total suspended particulates.

On March 28, 1991, a letter demanding withdrawal of the CO2 adjustment was mailed to DOE Secretary Watkins by four Senators acting on behalf of the coal industry, which correctly feared competitive disadvantage.[16] The Natural Resources Defense Council worked with BPA and DOE to devise an alternative way of addressing the potential costs of carbon dioxide.

We settled on a BPA pledge to "seek assurances that [resource] sponsors are prepared to absorb costs should their plants be subject to future regulations on greenhouse gases."[17] As a result, BPA's subsequent agreement to purchase the Tenaska generator's output included requirements to fund carbon-dioxide absorption strategies and to hold the agency harmless against costs of future carbon-dioxide emissions limits.[18]

Agreement with Tenaska on how to treat carbon-dioxide taxes, however, was deferred to negotiations that will be convened promptly after imposition of such levies;[19] attempts by the plant

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[16]The signatories were Quentin Burdick, Kent Conrad, Alan Simpson and Conrad Burns.

[17]Bonneville Power Administration, Department of Energy Information, December 10, 1991, at p. 2.

[18]Power Purchase Agreement executed by Bonneville Power Administration and Tenaska Washington Partners (July 16, 1992), at 7 ("The purchase price shall not be adjusted for any costs of additional equipment or modifications made to the Project required to comply with any future . . . regulation of carbon dioxide emissions"). A Letter of Intent executed by the parties on July 16, 1992 further provides (p. 5) that Tenaska will set aside $1 million to sequester carbon dioxide emissions from the project.

[19]The contract (note 18 above) provides that in the event such taxes are imposed "the Parties will conduct good faith negotiations to determine an adjustment, if any, to the purchase price" (p. 7).

sponsor to procure some form of insurance or indemnity against the tax risk had proved unavailing. That is itself sobering news for those who contemplate long-term commitments to resources with significant CO2 emissions -- and for their regulators and customers.

Ignoring these risks does not eliminate them; at most, it converts BPA customers into involuntary insurers for the fossil fuel industry. A better response is that of California, Wisconsin and Oregon, which use different combinations of explicit risk-shifting and the assignment of costs to greenhouse gas emissions.[20] Particularly apt excerpts from recent regulatory decisions in California and Wisconsin appear below:

> [Utilities] should undertake a long-term purchase [of fossil generation] only if the supplier provides assurances that it alone will bear the cost of meeting any future costs resulting from a carbon tax, acquisition of tradeable emission permits, retrofits, or any other carbon emission control strategy or regulation applicable to the supplier's plant(s).
> -- Cal. PUC, D. 92-04-045, at 28-29 (Apr. 22, 1992)

> A national and international consensus to regulate greenhouse gas emissions is emerging. When the likelihood of future regulation is high, it is reasonable to estimate the cost of compliance to utilities. Ignoring this financial risk would be imprudent.
> -- Wisconsin PSC, Advance Plan 6 Order (Sept. 1992)

BPA's procurement systems incorporate neither of these policies. That should change immediately.

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[20]For a fuller treatment of these issues, see R. Cavanagh et al., Utilities and CO2 Emissions: Who Bears the Risks of Future Regulation, March 1993 Electricity Journal, at pp. 64-75.

Mr. DEFAZIO. Thank you. Mr. Golden.

STATEMENT OF K.C. GOLDEN

Mr. GOLDEN. Thank you, Mr. Chairman. My name is K.C. Golden. I'm the Director of the Northwest Conservation Act Coalition, a region-wide alliance of over 60 public interest groups and progressive utilities.

You have, in the ordering of this panel, forced me to violate my cardinal rule of public speaking, which is going after Ralph Cavanagh, but here goes anyway.

On behalf of all those organizations and their millions of members and consumers, I want to thank you for convening this task force and for inviting us to participate. The coalition's agenda is simply this—the effective implementation of the Northwest Conservation Act of 1980.

Our goals are laid out quite compellingly in the Act's purposes: to promote energy efficiency and renewable resources, to ensure adequate economical energy services, full partnership in regional energy decisions, fair distribution of the system's costs and benefits, and a fighting chance for fish and wildlife.

The Act sets forth a comprehensive regional energy and natural resource planning framework. The Power Council invented least-cost planning and they still lead the world in its practice, and BPA was one of the Nation's foremost conservation pioneers.

We justly deserve to pat ourselves on the back for these accomplishments. But the time has come to stop congratulating ourselves and to rise to a new challenge. Our policy and planning achievements are now being subjected to really the only test that ultimately matters; not can we implement it, because I'm absolutely confident that we can, but will we implement those policies and plans.

We've had enough successes and even some of them as late as this week to indicate that we can, in fact, succeed. But Bonneville, the Council and the region's utilities have not conclusively demonstrated that they are, in fact, determined to succeed.

What's the holdup? I think you'll hear a lot of answers to that question before this day is done, but we would submit that none of them is more important than this. The people who follow the detailed processes that ultimately make or break the implementation of the Act, the people who sit in Bonneville all day designing programs, by and large, don't represent the public interest.

They're primarily interested in securing the largest possible share of the benefits of the regional system and the smallest possible share of its costs on behalf of the utilities and the industries they represent.

I think the punch bowl image is an apt one. As long as regional energy forums are a contest to see who can suck the hardest on the punch bowl, we will, indeed, drain the bowl very quickly. The people at the Lloyd Center think that they're doing their job, but we, the people and the public officials of the region have not made it clear to them that implementing the Act in the broad public interest is, in fact, their job.

They have no reason to think that when they walk out of BPA at the end of the day that there will be a price to pay for failing

to implement the regional policy in the public interest and they certainly have no reason to think they'll be heros if they do get the job done.

It is entirely within our power to fix this problem and you've taken a very important first step in that direction by convening this task force. To your tremendous credit, you have identified the extraordinary pressures that are mounting on the regional energy system before they have mushroomed into a disaster, as they did in the 1970s.

We still have time to look at these pressures as an opportunity to realize the energy policy goals that we set forth in 1980. You've put this effort firmly on the right track by asking questions, both in your written questions and today, that go straight to the heart of the pertinent issues, and I want to respond briefly now to those questions.

You asked for an assessment of Bonneville and the Council's performance in their respective energy resource acquisition roles. Frankly, as Ralph said, I think it will be surprising if you hear any absolutely glowing appraisals today.

In response, you might conclude that we need a radically different approach and I'd urge you to remain open to that conclusion, but not to leap to it too quickly. No one is more deeply frustrated with the pace of conservation efforts today than we are. But as we've suggested, flaws in the mechanism may not be the big problem.

The more formidable obstacle, I think, is the lack of determination to deliver results. Frankly, we don't know yet how well these mechanisms can work, because in a very real sense, they have not yet been tried.

We are acutely aware of the problems with the existing mechanisms and we're ready and eager to discuss new approaches. But while we're having that discussion, I want to send out a note of caution. Some of those who challenge the existing model are focusing exclusively on short-term rates.

We submit that competitiveness, and I know we'll get to this in the next hearing, does not mean minimizing today's rates if doing so dramatically increases tomorrow's costs. Any reform proposal worthy of your serious consideration must have as its primary goal the long-run economic and environmental well-being of the region.

With that as background, I want to briefly address your questions about Bonneville's current resource acquisition efforts. First, you asked whether Bonneville is on track to meet the Council's goals. We've already had a good deal of discussion about what, in fact, the Council's goals are and it's clear that you're keeping your eye on the Council's goals, not Bonneville's interpretation of those goals.

The 10-year Council target of 1,500 megawatts of conservation amounts to about 8 percent of regional electric consumption over the next decade, and as Ralph indicated, we're not on that pace yet. We've presented evidence to the Council suggesting that twice that much conservation is cost-effective and available with today's technology.

The utility's own research arm estimates that about a third of our electric consumption or 4 times the Council's target could be

saved cost-effectively and with no reduction in the quality or quantity of energy services provided.

Acknowledging that its estimates were cautious in 1991, the Council took great pains to note that the 1,500 megawatt figure was a target, not a ceiling. Bonneville has underscored that today. We've been told point blank that all cost-effective conservation will be acquired.

BPA followed this commitment by promising the "cost-effective conservation will not be budget constrained." As anyone who has tried to deliver conservation to Bonneville in the last few years can attest, that promise is being systematically broken. This year, the more ambitious utilities have exhausted their conservation budgets from Bonneville in the first 4 months of the fiscal year, and we understand that there's been some short-term relief from that problem.

But the fact remains that in Seattle and Eugene customers are lined up outside the utility's doors right now waiting to deliver saved energy at well below the price of Tenaska, but those doors are shut or only intermittently opened.

BPA's recent conservation cuts guarantee that this situation will persist for at least the next 2 fiscal years. I want to take a minute to emphasize here that the conservation we're talking about isn't just one more straw in the punch bowl, as the framers of the punch bowl metaphor have implied.

On the contrary, energy efficiency is the cheapest way to refill that bowl. It's as if we went through all the trouble to grow the fruit, to pick it, to slice it, and then squeezed out only half the juice for the punch bowl. Squeezing out the other half is by far the cheapest way to keep the bowl full, the lights on, and the motors humming. And if that's a social agenda, so be it.

Why is BPA struggling as it is on conservation? Are there flaws in its program designs and decision-making processes, as some of your questions suggest? Absolutely. We can and should reexamine Bonneville's methods, but no method will succeed, and we concur with Angus Duncan and others on this, without firm long-term financial commitments to get the job done.

BPA and its customers must be held accountable for their promise and their obligation under the Act to make budget available to acquire all cost-effective conservation. How can we assure that accountability? That brings us to your question about Tenaska and about the Council's role.

Later today, down the street, the Council will consider what I think is its singlemost important formal authority under the Act, and as Stan Grace said, they don't have many formal authorities—its review of Bonneville's major resource acquisitions.

In its review of Tenaska, the Council could establish its firm determination to see its plan implemented or it could simply rubberstamp the project. I think Council staff have already admitted that Tenaska is not the kind of resource that the plan identified for immediate acquisition.

Yet, Council members have already said publicly while the record is still open that they plan to approve the project. As you've noted, basic facts, such as the price of the power and the contractual allocation of fuel price risks, are still secrets to us and to the Council.

The case against Tenaska, on its own weaknesses, I think, is a compelling one, but it's largely beside the point.

No fossil fuel-fired generating resource can be regarded as consistent unless and until Bonneville shows that it's doing everything in its power to acquire higher priority resources. That's not a sequential mandate. They don't have to get all the conservation first, but they have to show that they are willing to use the resources at their disposal to get conservation when it's available, and they're not doing that.

We believe in the Council wholeheartedly and we've supported the plan with every means at our disposal. But if the Council gives a green light to Tenaska now, Bonneville will acquire fossil fuel-fired power while cost-effective conservation goes big. Frankly, as damaging as that will be to the region, I think the greater cost will be the confirmation, in all our minds, that the Council lacks the will to stand up for implementation of its own plan.

Along with our written testimony, you have our comments on fuel conversion that economist Jim Lazarre presented on our behalf to Congressman Wyden last month and we defer to and support the comments of our colleague, Ralph Cavanagh, on the subject of environmental costs.

But before concluding, I want to offer a few final thoughts. We really do have a fateful choice before us now. We can depart with the tradition that makes our power system the envy of the world by betting our future on fossil fuels and by squandering our existing renewable supplies or we can renew our commitment to our winning strategy by squeezing more work out of present supplies and prudently developing renewables, new renewables and efficient cogeneration.

The missing ingredient isn't a good policy, a good plan or good people. We have all of those in abundance. The missing ingredient is our firm determination to see the plan implemented and to insist on results. We're committed to joining you in an unrelenting regional campaign to fulfilling the bright promise of the Regional Act, a promise that we made over a decade ago now and I hope that we're going to embark on a path to firmly fulfill that promise now.

Thank you very much.

[Prepared statement of Mr. Golden follows:]

Testimony of K.C. Golden, Executive Director
on behalf of
the ***Northwest Conservation Act Coalition***
before the

House Committee on Natural Resources
Bonneville Power Administration Task Force

July 12, 1993
Portland City Council Chambers

Thank you Mr. Chairman, members of the Task Force. My name is K.C. Golden; I am the Executive Director of the Northwest Conservation Act Coalition. The Coalition is an alliance of over sixty public interest organizations, utilities, agencies, and businesses from all four Northwest States and British Columbia. The constituency we represent is extraordinarily large and diverse. It includes the League of Women Voters; organizations like the Spokane Neighborhood Action Programs that advocate for low-income citizens; local, state, and national environmental groups; research organizations; consumer advocates; and public utilities including the Salem Electric Cooperative, the Eugene Water and Electric Board, Emerald People's Utility District, and the City of Ashland.

On behalf of all those organizations and their millions of members and consumers, I want to thank you for convening this Task Force and inviting us to testify on these crucial issues. You could not have chosen a more pivotal moment in the region's energy history to undertake this inquiry. And your questions could not be more relevant or more incisive.

Before I answer them, I want to say a bit more about the folks on whose behalf I am answering. You might well be wondering what cause could **possibly** bind together such a diverse set of interests. On what set of issues could Greenpeace and EWEB and OSPIRG and the League and the Yakima Opportunities Industrialization Center speak out with clear and unified determination? Our agenda is simply this: the faithful and expeditious implementation of Federal Law, as embodied in the Northwest Conservation Act of 1980. Our goals are laid out clearly and compellingly in the Act's purposes (and I paraphrase here):

(1)(A) To encourage conservation and efficiency in the use of electric power;

(1)(B) To encourage the development of renewable resources within the Pacific Northwest;

(2) To assure adequate, efficient, economical, and reliable energy services;

(3) To make the public and its state and local and tribal governments full partners in building a regional energy future that emphasizes conservation, renewable resources, and environmental protection;

(4) To distribute the costs and benefits of the regional power system fairly; and

(6) To protect, mitigate, and enhance the fish and wildlife resources of the Columbia River Basin.

Now, you might well wonder, since our goals are federal law, why don't we just declare victory and go home? We considered doing just that in 1983, when the Model Plan that we had written was adopted in significant part as the Power Planning Council's first Regional Plan.

However, as recent events have demonstrated, our decision to stick around for the implementation phase turned out to be a prudent one. If we've learned anything in the last decade, it's that a lot can get lost in the translation from policy and planning to actions on the ground. The Regional Act sets forth the most comprehensive, integrated, and intelligent regional energy and natural resource planning process in the world. The Power Council invented least-cost planning and still leads the known universe in its practice. We justly deserve to pat ourselves on the back for these accomplishments. And that's exactly what we've been doing for the last decade.

The time has now come for us to stop congratulating ourselves and face a new and more urgent challenge. Our policy and planning achievements will now be subjected to the only test that ultimately matters: can they be successfully implemented?

The questions that you have asked us to address can be summarized roughly as follows: How are BPA and the Council doing on this all-important test? Are they rising successfully to the challenges posed by the transition from least-cost planning to least-cost action? Our answer can be summarized as follows: We have had enough successes to indicate that if we are determined to succeed, we will. But BPA and the Council have not demonstrated that they are determined to succeed. Progress has been slow, and repeatedly interrupted by mixed signals, equivocal commitments, and lack of resolve. In short, BPA and the Council **can** do it, but they have not yet convinced anyone that they have **decided** to do it.

What's the problem? I suspect that you will hear a dizzying array of answers to that question before you finish this process. But we submit that none of them is more salient than this: The people who will benefit most from successful implementation of the Act - the citizens of the Pacific Northwest and the public officials who represent them - are generally not paying attention and demanding results. Your presence here today is a welcomed exception and, we hope, the beginning of a lasting trend toward active involvement in the implementation of the region's energy plans.

The people who **are** paying attention - the people who are paid to spend their days following the detailed processes that make or break the implementation of the Act - by and large do not represent the public interest. They are primarily interested in securing the largest possible share of the benefits of the regional system and the smallest possible share of its costs on behalf of the utilities and industries they represent. They are not malicious people. They think they are doing their job. But we - the people and public officials of the region - have not made it clear to them that implementing the Act in the broad public interest **is** their job. They have no reason to believe that when they walk out of the BPA meetings where programs are designed, there will be a price to pay for failing to implement regional policy in the public interest.

This is no small problem. Its solution requires systematic mobilization of the human and political resources of the region. But the encouraging aspect of this analysis of the problem - the thing that makes us hopeful and determined - is that it's entirely within our power to fix it. In convening this Task Force, you have taken a very heartening and important first step in that direction.

You have demonstrated a keen recognition of the importance of implementing the Act and a willingness to commit time and resources to becoming part of the solution. I would venture to say that there is nothing wrong with the institutions that are responsible for implementing the Act that cannot be cured by the continuing interest and determination of public officials like you and public interest organizations like those we represent.

Few things have as much impact on the economic and environmental well-being of the people of this region as the energy decisions that BPA and the Council make. So why aren't people paying attention? Because energy is not something that people generally choose to think about until it occasions some sort of disaster. It is not an end in itself; it is a means to other ends. As long as the lights stay on, the bills stay low, and nobody is building a power plant nearby (or a nuclear plant **anywhere**), most people would rather not be bothered about energy. It's hard to blame them.

People are especially disinclined to grapple with energy problems here in the Northwest, where power is still relatively cheap, and where people are still smarting from the WPPSS default. Remember, the last time utilities proclaimed an energy crisis in the Northwest, they were selling a solution we didn't like (WPPSS) to a problem it turned out we didn't have (energy shortages). People are understandably reluctant to become part of a solution to a problem they don't believe they have.

For the better part of the last decade, that kind of indifference didn't cost us much. Overbuilding in the seventies left us with a huge, expensive regional power surplus, so construction of new plants ceased. The Power Council's plans set the standard for the nation, but the surplus rendered them moot.

Quite suddenly, however, the need for least-cost planning - and, more importantly, least-cost **action** - has become real and urgent. Rapid growth and the failure of existing resources quickly eroded the surplus. Columbia Basin wild salmon stocks, once the world's most prolific, declined precipitously to the brink of extinction. Meanwhile, the region's existing and mothballed nuclear plants proved uneconomic to run, let alone build. And the growing risk of global climate change makes increased reliance on fossil fuels an unappealing and potentially very costly option. Amidst all of this, water conditions have been exceptionally poor and aluminum prices (for which all Northwest energy consumers bear the risk) have bottomed out.

This extraordinary combination of pressures on the regional power system will put our far-sighted regional energy policy to the test. It is, in many ways, the moment of truth for the visionary experiment in cooperative regional energy and natural resource planning that began in 1980.

To your tremendous credit, you have identified that problem before it has become a disaster, as it did in the late 1970s. Because of your foresight, we still have time to look at these pressures as an opportunity, rather than simply a threat. We can still use the decisions before us as a springboard for the decisive and enthusiastic implementation of the Act. We still have a chance to reaffirm our commitment to the Act's vision of an economically and environmentally superior energy program. You have initiated this effort just in the nick of time.

Not only have you initiated the process, but you have put it firmly on the right track by asking a series of questions that go straight to the heart of the salient issues.

I will delay no further in responding to those questions, and I will ask for your indulgence as I take a few liberties in the sequence of my responses.

I want to take up your fourth and sixth questions first, because they set the stage for a more enlightening discussion of all the rest. You asked for an assessment of BPA's and the Council's performance in their respective energy resource acquisition roles. It would be surprising to hear anyone offer glowing evaluations. In response to a unanimously negative appraisal, you might be tempted to conclude that we need fundamentally new mechanisms, a radically different institutional framework for resource planning and acquisition. We would urge you to remain open to such a conclusion, but not to leap to it hastily.

I doubt that anyone is more deeply frustrated with the pace and ineffectiveness of BPA's conservation efforts to date than we are. The mechanisms that BPA is using are clearly not working well. The difficult question is whether they should be fixed or abandoned.

Our member organizations are currently engaged in a heated debate on that subject. We hope to present you with a unified position when you reconvene after the August recess. Personally, as someone who worked at the Tennessee Valley Authority where resource development is undertaken with relatively little planning and no accountability, I am inclined to believe in the basic features of the existing model. And if, as we have suggested, the primary problem is not the mechanism but the lack of determination to make it work, then we do not yet know how well these mechanisms can function. In effect, they haven't been tried.

We are acutely aware of the problems with existing mechanisms and institutions, and we are willing to contemplate entirely new approaches. This Task Force is presiding over a fierce regional debate about whether BPA should continue in its role as the region's resource acquisition nerve center. We will be an active part of that discussion.

But, while we're having that discussion, we want to sound two urgent notes of caution. First, some of those who challenge the existing model are simply trying to protect their share of the benefits of the regional system while shirking their share of the costs of keeping that system healthy. These are the same interests who supported deep cuts in conservation and fish and wildlife investments in the recent rate case. In describing the conservation budget cuts, BPA officials said that the programs would remain intact, but that they would simply "spend the money smarter." To be sure, there are efficiencies to be gained. But a precipitous 20% cut in conservation budgets in the middle of a rate case is **not** "spending smarter." It is caving in to political pressure to minimize short-term rates, pure and simple. "Reform" proposals of this kind are motivated not by a desire to make the system work better, but by a desire to grab the benefits and leave others to shoulder the costs.

For some, "competitiveness" simply means minimizing today's rates. But any BPA reform proposal worthy of serious consideration must have as its primary goal the long-run economic and environmental well-being of the region. It must minimize the **total** costs of operating an efficient, environmentally responsible power system in the broad **public** interest.

Second, if we do succeed in developing a new and better regional resource acquisition model, we will spend a considerable amount of time doing so. Legislative change may be necessary. In the mean time, we still need to develop new energy resources and manage the existing system responsibly. We cannot begin dismantling BPA's resource acquisition apparatus unless and until we have a superior replacement. For instance, BPA has proposed adopting a tiered rate structure and reducing its conservation budgets as a less costly way to deliver conservation. In the recently completed rate case, BPA cut conservation budgets and promised only to **consider** tiered rates. In effect, they began to dismantle the old system well in advance of constructing a new one. The conservation budget cuts saved **less than two hundredths of a cent per kilowatt hour**, while imposing enormous long-term costs by undermining the momentum of the regional energy efficiency campaign. This is not constructive reform. It is short-run rate-minimization. It is, in Council member Ted Bottiger's words, "an example of having future generations pay for the lack of their parents willingness to do so." As you consider alternative resource acquisition mechanisms, we urge you to resist this short-sighted approach, and to continue to support and improve the existing system until something better is in place.

With that as background, we would like to briefly address your first and third questions, concerning BPA's current resource acquisition efforts.

First, you asked whether is BPA is on track to meet the Council's conservation and renewable resource goals. In answering, we want to urge you to focus on the Council's actual goal, not BPA's interpretation of the goal. The Council's goal is to acquire **all cost-effective conservation.** This goal is simple common sense; it says that whenever it is cheaper to save a kilowatt hour than to make a new one, we save it. The Council's ten-year conservation **target** is a conservative one. It amounts to approximately 8% of total regional electric consumption. During the development of the Plan, we presented evidence suggesting that twice that much conservation (approximately 16% of current consumption) was available and cost-effective. Compared to many other experts, even our estimate was conservative.

The Electric Power Research Institute, the utilities' own research arm, has estimated that approximately a third of our electric consumption (or four times the Council's target) could be saved cost-effectively. The Rocky Mountain Institute, widely regarded as the world's leading efficiency expert, estimates that 75% of current consumption could be saved. All of these estimates assume no reduction in the quality or quantity of energy services provided, just a dramatic reduction in the amount of energy used to deliver those services.

Acknowledging the conservatism of its own estimates, the Council took great pains to note that the 1500 megawatt figure was to be interpreted as "a target, not a

ceiling." We were told not to worry about the additional potential, because the Council would insist that any and all cost-effective savings be acquired. BPA followed this commitment by promising that cost-effective conservation would not be budget-constrained. Based on these promises, we were willing to accept the Council's very conservative target.

As anyone who has tried to deliver conservation to BPA can attest, that promise is being systematically broken. In 1993, the more ambitious conservation-oriented utilities had exhausted their BPA conservation budgets four months into the fiscal year. In Seattle and Eugene, for example, customers are lined up outside the utilities' doors waiting to deliver saved energy at costs well below the price of the Tenaska project, but the doors are shut. BPA's recent conservation cuts guarantee that this unacceptable situation will persist through Fiscal Years 1994 and 1995. Earlier, when BPA asked each of its wholesale customers how much conservation they could deliver, the sum of the customers' answers exceeded BPA's 660 megawatt target. The customers were told to **reduce** their targets due to budget constraints. As this hearing is being held, cost-effective conservation is being foregone. We will have to pay more and incur more environmental damage to generate power that we could have saved.

Why is BPA falling so far behind? Are there flaws in its conservation and resource acquisition program designs, as your third question suggests? Surely. Are there problems in BPA's decision-making and contracting structures? Absolutely. But the overwhelming problem, and the obstacle that directly contravenes the Regional Act and Power Plan, is that BPA is pulling the financial rug out from under the conservation providers, after promising repeatedly that cost-effective conservation would not be budget-constrained. We can and should reexamine BPA's resource acquisition methods. But no method will succeed unless and until BPA makes firm, long-term financial agreements to purchase the conservation resource, as it would any other resource. That is unlikely to happen unless the people who bear the costs of failing to acquire conservation - the public and the people who represent them - hold BPA accountable to its promise and its obligation under the Regional Act.

What mechanisms do we have at our disposal to ensure that accountability? That brings us to your second question, about Tenaska, and your sixth question, regarding the Council's role. Later today, a few blocks away, the Council will take testimony on how it should exercise its most important formal authority over resource acquisitions: its review of BPA's major resource acquisitions under Section 6(c) of the Act. The Council's action on Tenaska will provide a definitive answer to your sixth question. In its review of the Tenaska project the Council could establish its firm determination to see its Plan implemented. Or it could simply rubber stamp the project. Some Council members have already stated publicly, while the record is still open, that they plan to do the latter.

We provide a somewhat more detailed explanation of the respects in which Tenaska is inconsistent with the Plan in our comments to the Council, which we have appended to this testimony. As Council staff freely admit, Tenaska is not the type of resource that the Plan identifies for immediate acquisition. BPA's assessment of the project's costs was almost unaffected by the enormous fuel-price risks, carbon risks,

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and environmental impacts to which Northwest consumers will be subjected by this project. If the Council proposes to make an exception for this project, it must subject it to an extraordinarily rigorous review, with the burden of proof squarely on BPA. Yet Council members have already publicly passed judgment, without having heard all the evidence. Basic facts such as the price of the power and the contractual allocation of fuel price risk remain secret.

The case against Tenaska on its own strengths and weaknesses is compelling. But even if Tenaska were risk-free, it would not be consistent with the Plan. No fossil fuel-fired generating resource can be regarded as consistent unless and until BPA has demonstrated that it has done everything in its power to meet the need with higher priority resources. The conservation that BPA is foregoing isn't just hypothetical potential; it consists of real, immediate opportunities that people are waiting to deliver, at less than the cost of power from Tenaska. At its hearing today, the Council will hear a littany of frustration from conservation providers who have tried in good faith to deliver this resource to BPA. Even the Council's staff, in recommending a finding of consistency, admit that BPA's commitment to fund conservation and system efficiencies is "uncertain."

If the Council finds Tenaska consistent, despite overwhelming evidence that BPA is actively resisting higher priority resources, it will squander its most important source of authority. The Council's exceptional planning will be critically undermined if the members fail to use their one statutory means for ensuring that the Plan is implemented.

We believe in the Council. We are fortunate indeed that our power planning is conducted in an open, deliberative public process by Council members who are accountable to the States. We are very concerned about its capacity and its willingness to take the next crucial step by using its authority to ensure that its Plans are faithfully implemented. If the Council gives a green light to Tenaska, BPA will acquire fossil-fueled power while less costly conservation goes begging. But frankly, as damaging as that will be to the region, the greater cost will be the confirmation of the growing perception that the Council has neither the will nor the ability to insist on effective implementation of the Plan.

Before concluding our testimony, we would like to respond briefly to your questions regarding fuel switching and environmental costs.

We are attaching a copy of the comments that we delivered to Congressman Wyden on the subject of fuel conversion. Our essential position is this: All parties agree that substantial, cost-effective fuel conversion potential exists, though the estimates of how much range from hundreds of megawatts to thousands. All parties also agree that large parts of this potential will not be achieved by market forces alone, due to pervasive market barriers. Given those facts, fuel conversion to natural gas (or solar or geothermal heat) should be considered and acquired like any other resource.

In order to acquire this resource, BPA must make some clear choices about who it serves. Thus far, it has chosen to avoid any serious consideration of cost-

effective fuel conversion in order to protect the revenues and market shares of its utility customers. However, energy consumers at large would be more economically served by burning gas directly than by buying electricity that BPA generates with gas to meet the same energy needs. BPA's challenge as a public agency acting in the public interest is to put consumers first. The agency must structure its financial arrangements with its utility customers such that those customers are rewarded for minimizing the cost of providing the best service to retail consumers, not for selling the maximum possible number of kilowatt-hours. Such arrangements are a prerequisite not only for effective fuel conversion programs, but also for conservation programs.

With respect to accounting for environmental costs, BPA has made slow progress. It has put extraordinarily low quantitative values on certain air emissions - a step in the right direction, but a small and grudging step. The glaring omission in BPA's accounting for environmental costs is carbon dioxide. CO2 is the most important emission to account for because, unlike other air pollutants, it remains entirely free and unregulated. All of the costs of carbon dioxide emissions are presently external. The prospect of their internalization should dramatically affect today's financial decisions regarding acquisition of fossil-fueled resources.

Carbon dioxide emissions pose enormous environmental and financial risks. BPA tried to insure itself against those risks by asking Tenaska to be responsible for all financial costs associated with future regulation of carbon emissions. Tenaska was apparently unable to secure insurance against that risk.

It is hardly surprising that the insurance industry reacted as it did. Purchasing the Tenaska project amounts to making a bet that carbon dioxide, the principal cause of what is likely to be the pre-eminent environmental challenge of our lifetimes, will remain totally free and unregulated for the life of this contract. As consumers, we would not make such a bet voluntarily. We are no more anxious to provide this insurance to the fossil fuel industry than the insurance companies are; the difference appears to be that they have a choice in the matter.

In view of this enormous risk, BPA should immediately revisit its policy against accounting quantitatively for the cost of carbon dioxide emissions. BPA tried to make such an accounting several years ago, but scuttled the effort under pressure from Senators representing coal interests who could not sell power to BPA competitively unless BPA transferred this enormous risk from the industry to consumers. Our colleague Ralph Cavanagh from the Natural Resources Defense Council will provide more detailed testimony on this point.

In conclusion, we want to congratulate you and thank you for convening this Task Force and giving these matters the urgent priority they deserve. As we noted earlier, the single most important ingredient for successful implementation of the Plan is the commitment of public policy makers and the public at large to make it work for all of us. In the same breath that we thank you for initiating this process, we want to challenge you and ourselves to join in a concerted and unrelenting campaign to make the bright energy future envisioned by the Act a reality.

None of the problems that we have identified is insurmountable. For many of the same reasons that we have led the world in least-cost planning, we have every hope of being able to lead the world in least-cost action. We start with the distinct advantage of having the nation's most economical and reliable power system, in large part because of our historical reliance on a renewable resource. We now have a fateful choice before us: We can depart with the tradition that makes our power system the envy of the world by betting our energy future on fossil fuels and continuing to use our existing, renewable supplies wastefully. Or we can stay with our winning strategy by squeezing more work out of our existing renewable supplies and prudently developing new renewables as necessary to meet demand and replace old resources.

The latter path is the choice you made over a decade ago, when you passed the Regional Act's resource priorities. But the region's energy institutions have not yet followed through with the dollars and deeds to make that choice stick. Thirteen years after the Act was passed, we have **almost** everything we need in order to move forward. The missing ingredient isn't a good policy, a good plan, or good people. We have all of those in abundance. The missing ingredient is commitment. It's a determination on the part of the public and public officials to actively support effective implementation and insist on results. It's the clear recognition that the energy decisions we make now will have profound and lasting impacts on our economic and environmental well-being for decades to come. It's a commitment to stay focused on the solution even when the problem isn't rearing its head in the form of huge rate increases and WPPSS-like construction fiascoes. Without these things, even the best BPA acquisition mechanisms will fail.

In describing who will be responsible for the solution, we use the subject "**we**" purposefully. It is all too easy and common to cite BPA as the offender when regional energy matters go astray. But Bonneville is no more and no less than what the region has made it. If BPA's performance has been erratic, it is in part because we have sent it too many conflicting messages. If we want BPA to do better, then we - the region's public interest organizations, political leaders, utilities, business leaders,....**all** of us - need to commit ourselves to the solution, rather than using BPA as the convenient scapegoat. We need to gather around the table when regional energy decisions are made not as competitors angling for a bigger slice of a shrinking regional pie, but as collaborators in baking a bigger one. We, the citizens and consumers of the region, will reap the benefits of BPA's success and bear the costs of its failures. Ultimately, we will have only ourselves to congratulate or to blame.

By convening this effort, you have demonstrated your resolve to make Congress an active part of the solution. Your consistent commitment to hold us accountable for the conservation and renewable resource mandates in the Act will make all the difference. We pledge to do our utmost to make the public a full partner in this effort. With your leadership, we can and will mobilize the resources and enthusiasm of the region's public interest organizations and progressive utilities in an enthusiastic, constructive, and determined effort to build a brighter energy future.

Thank you again.

Northwest Conservation Act Coalition

Attachment 1 to NCAC testimony: NCAC letter to Northwest Power Planning Council regarding review of Tenaska project under Section 6(c) of the Regional Act; June 10, 1993

June 10, 1993

Stan Grace, Chairman
Northwest Power Planning Council
851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1337

Re: **Council review of Tenaska Washington II project under Section 6(c); Council issue paper 93-12**

Dear Stan:

The Council is justly famous for its pathbreaking work in least-cost energy planning. But, in your review of the Tenaska project for consistency with the Plan, you face a crucial test: Are you willing to use the relatively modest formal authority you have under the Act to insist upon least-cost **action**?

Your authority under Section 6(c) gives you the power to reject proposals that are inconsistent with the Plan. Clearly, however, the Plan cannot be implemented by process of elimination. You have wisely chosen to interpret your authority in a way that gives you some leverage to effect positive commitments to the Plan by asking, on p. 21 of the issue paper: "Is BPA making reasonable efforts to acquire higher priority resources?" We applaud you for asking the question. But we feel very strongly that staff have arrived at the wrong answer. Before making that case, we want to raise a few questions about the project itself.

First, the competitive bidding process from which this project emerged was shrouded in far more secrecy than legitimate proprietary concerns can justify. Other utilities have successfully used open, self-scoring resource auctions that allow for full public review of the resource selection process. Especially in a region that prides itself on open planning and the consensus it has achieved on energy priorities, we find this secrecy highly inappropriate. To give your blessing to the low bid in a closed competitive bidding process leads folks to question why we bother with the Regional Plan at all.

Second, as nearly as we can tell, the environmental analysis does not seem to account for the fact that the extreme cold weather conditions under which the plant would be most likely to burn oil generally coincide with the worst air quality emergencies in the Puget Sound area. We suspect that air quality authorities might take a dim view of this prospect and encourage utilities to

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exercise interruption rights rather than subjecting dense populations to dangerous air quality conditions.

Third, the project clearly does not qualify as an immediate acquisition candidate under the Plan. One of the arguments that staff use to justify a finding of consistency in spite of this fact is that the project would be used for hydrofirming. We have seen no analysis to indicate that this would be the case; conventional wisdom seems to indicate that BPA has every intention of using the project as a baseload resource.

Fourth, in recognition of the extraordinary risks associated with overdependence on fossil fuels, the Plan put limits on acquisition of gas-fired electric resources. Gas acquisitions are proceeding at a pace that will exceed those limits by a disturbingly wide margin. When gas use is expanding so rapidly, thermodynamic efficiency becomes an urgent priority. Yet BPA has yet to seriously consider the possibility of capitalizing on the enormous potential to encourage cost-effective fuel conversions at costs well below the Tenaska contract. Estimates of that potential range widely, but even BPA has acknowledged that it is at least twice as large as Tenaska's output. Direct application is, as you know, substantially more efficient than Tenaska.

Fifth, the system cost and risk factor adjustments on page 15 are classic examples of why quantitative analysis must complement, rather than supplant, good judgment. The Council made this argument persuasively during its deliberations on the Plan. We have always contended that **any** positive number used to represent environmental externalities would be better than zero. We may have been wrong; an infinitely small positive number may be worse than zero, in that it gives the illusion of action without actually doing anything. A one mill adjustment for environmental costs is patently inadequate and conspicuously out of step with all sincere attempts to quantify these costs. BPA rejected higher priority, renewable generating resources by a very narrow margin - a margin that any legitimate accounting for the environmental costs of fossil fuel emissions would have bridged.

Your stated philosophy is to incorporate externalities by making wise policy judgments. Providing tacit or explicit assent to this adder would constitute a policy judgment on your part that the external environmental costs of a fossil-fueled, fourth priority resource are less than 4% of its internalized costs. That's not wise policy; it's choosing to look the other way. We would make the same argument with respect to the woefully inadequate fuel price risk adjustment of 2 mills.

Finally, and most importantly, the issue paper incorrectly implies that Tenaska's token "carbon sequestration" gesture adequately addresses the enormous financial risk of carbon regulation. That risk is so great that the project sponsors were unable to insure themselves against it. It is hardly surprising that the insurance industry reacted as it did. Are **you** willing to bet that carbon dioxide, the principal cause of what is likely to be the pre-eminent environmental challenge of our lifetimes, will remain totally free and unregulated for the life of this contract? As consumers, we would not make

such a bet voluntarily. We are no more anxious to provide this insurance to the fossil fuel industry than the insurance companies are; the difference appears to be that they have a choice in the matter.

Far more compelling than the deficiencies of this particular project, though, are BPA's wholly inadequate efforts to acquire higher priority resources. On page 22 of the issue paper, staff note that "it is unclear" how some higher priority resource acquisition efforts will be affected by current Bonneville budget cuts.

Unclear indeed. BPA's Assistant Administrator Steve Hickock contributed to that lack of clarity when he announced, at a March 30 public meeting, that BPA would like to be on the least-cost path, but may be unable to afford it for now. In other words, "we can't afford to save money".

One thing is clear, however. Right now, in Seattle, Eugene, and elsewhere, people are lined up outside utilities' doors waiting to deliver cost-effective conservation - most of it well below the cost of Tenaska. Those doors are being slammed shut in their faces because BPA's Fiscal Year '93 conservation budgets have been expended. This despite the fact that BPA promised the Council that "cost-effective conservation will not be budget-constrained." Not only is BPA violating that promise in 1993; they are flaunting it by planning in advance to break it again in each of the next two budget years. How can the Council credibly determine that BPA is "making reasonable efforts to acquire higher priority resources" at the very moment that it is turning away conservation and writing budgets that guarantee that it will continue to do so for at least the next two years?

The staff issue paper suggests that BPA's conservation acquisitions in the past two years have met the Council's goals. We disagree. The Plan calls on BPA to acquire all cost-effective conservation. NCAC and NRDC documented potential conservation savings well in excess of those in the Council's plan, especially in the industrial sector. We were assured that the cost-effective savings not included in the Council's supply curves would be acquired. Yet cost-effective savings are being foregone right now due to budget constraints. This isn't hypothetical, supply curve stuff; these are real deals on the ground that BPA won't make because of rate pressure. We believed them when they promised you that this would not happen.

The whole notion that BPA is preserving the resource by focusing on "lost opportunities" is a relic of the surplus era. As conservation implementers will tell you, **any** time someone is ready to let you harvest the conservation resource in their home, office, or especially in an industrial facility, it's an opportunity. If you fail to take it when you can get it, it's a lost opportunity. Maybe you can come back for it later, maybe not.

When BPA asked its customers how much conservation they could deliver, they arrived at a total substantially greater than BPA's 660 MWa target. The Area Offices were told to pare that number down due to budget pressure. Again, in direct contradiction of its promise that cost-effective conservation will

not be budget-constrained, BPA succumbed to rate pressure and lowered the targets.

No fossil fuel-fired generating resource can be regarded as consistent with the Plan unless and until Bonneville makes firm, long-term commitments to acquire the conservation that end-users are literally waiting to deliver. This is not to imply that the resource priorities of the Act are necessarily sequential, with each tier's acquisitions completed before the next tier's begin. It simply means that if one can choose between generation and conservation resources of comparable cost at any one point in time, one must choose the conservation. Either BPA is in the resource acquisition business or it is not. If it is, then it cannot simultaneously acquire combustion turbines and claim that it can't afford conservation. The Congressional Record on the Act is replete with references that clearly establish Congress' intent to acquire conservation first and foremost. As Representative Dicks said in House debate on HR 8157:

> Thermal plants would be constructed "only if we have used all of the conservation alternatives available in the Pacific Northwest, even though they are 10 percent more expensive and, secondly, if we have used all of the alternative energy sources available in the Pacific Northwest. Those things have to be done first." (Congressional Record, 9/29/80, p. H-9861)

BPA contends that it can achieve the Council's targets while dramatically cutting budgets simply by "spending smarter." To be sure, there are efficiencies to be gained, and the Council has taken the lead in identifying them. (The primary reason that BPA's cost per kilowatt hour saved is too high is that the denominator is too small; it simply isn't saving enough.)

But let's call a spade a spade. This 20% cut isn't a sudden conversion to a more streamlined approach. It is simply caving in to myopic pressure to minimize rates in the short-term at the expense of incurring substantially higher long-term costs. It is, in Vice-Chairman Bottiger's words, "having future generations pay for the lack of their parents willingness to do so."

And what do we gain by cuts of this magnitude? A 20% cut in conservation would save less than **2 hundredths of a cent** per kilowatt hour from BPA's rates. One has to wonder whether those who would substantially increase long-term costs in exchange for such negligible rate relief are really planning to stay in the region for long. One thing is certain; the low-income folks that we represent will still be here to pick up the tab. They may be close to the margin, but they are not so short-sighted as to urge BPA to defer modest investments that minimize costs over time.

In closing, we'd like to make a couple of observations about the 6(c) process. The Plan clearly does not call for immediate acquisition of this project. Your own staff paper acknowledges that BPA's program cuts render its capacity to acquire higher priority resources "uncertain." The Plan itself is being second-guessed and arguably rewritten in forums ranging from the rate case to the Power Sales Contract negotiations. We would guess that no one on the

Council or on your staff would confidently assert that BPA is determined to implement the Plan.

Yet everyone assumes, and Council members have publicly said, that you will find the project consistent. The word on the street is, "the fix is in." To prejudge the case, or for others to perceive that you have done so, is to render much of the Council's authority moot. It is to reduce the Council's one source of binding legal leverage over the region's resource acquisitions to a rubber stamp. An institution with as little power to compel as the Council has can hardly afford to squander its few authorities, especially when its Plan is under fire from every quarter.

We have also been disturbed by the suggestion that our standing in this proceeding is somehow diminished by the fact that we did not intervene in BPA's 6(c) process. Frankly, we are so busy implementing the Plan in other forums that we simply didn't have the wherewithal. We are defending the Plan in the rate case; implementing your decoupling provisions in three states; getting the environmental community squared up to your renewables agenda; working to pass your commercial code in Washington; helping utilities ramp up to your proposed conservation levels; and urging the public to heed the Plan's call for decisive action. When we had to make tough choices, we figured that the one forum in which the Council had formal legal authority might be a forum we could afford to miss.

Truth is, we didn't see a huge percentage in being party to a process in which BPA would predictably justify what it had already chosen to do. The far more interesting venue is the one in which the Council assumes its rightful role as arbiter of what is consistent with the Plan. We assumed that the outcome of BPA's process was predetermined. We assume that the outcome of this process is not. We hope that our assumption does not prove to be naive.

The Council's standing as an effective agent of its own Plan and a force to be reckoned with depends on your willingness to use what little formal authority you have, including 6(c). The Coalition will continue to use every means at our disposal to ensure accountability to the regional energy agenda that you have articulated. We urge you to do likewise.

Sincerely,

K.C. Golden,
Executive Director

cc: Governors
Congressman Peter DeFazio
Council members

Attachment 2 to NCAC testimony: NCAC comments to Subcommittee on Regulation, Business Opportunities, and Technology Committee on Small Business regarding direct application of natural gas; June 3, 1993

Comments of Jim Lazar, Consulting Economist
On Behalf of the Northwest Conservation Act Coalition

Subcommittee on Regulation, Business Opportunities, and Technology
Committee on Small Business
Direct Application of Gas versus Electric Generation
Portland, Oregon June 3, 1993

My name is Jim Lazar, and I am a consulting economist based in Olympia, Washington. My practice focuses on energy efficiency and utility ratemaking. My clients include public utilities, state and federal agencies, and industrial trade associations. For much of the past twelve years, I have been involved, in one way or another, in regional energy policy making. I was a founding board member of the Northwest Conservation Act Coalition (NCAC).

In 1982, I prepared a report for the National Marine Fisheries Service which recommended, among other things, that conversion of electric heating loads to natural gas would enhance the ability of regional hydroelectric system managers to provide sufficient spring and summer flows to facilitate fish migration. Since that time, I have prepared at least ten separate studies or analyses relating to the fuel choice issue. These include:

1987:	Review of Pacific Power electric rate design for Washington Public Counsel;
1989:	Review of Puget Power promotional water heater program for Washington Public Counsel;
1989:	Analysis of fuel choice options for Snohomish PUD;
1990:	Direct Application versus Hydrofirming study for Association of Northwest Gas Utilities;
1990:	Quantification of fuel switching potential for Association of Northwest Gas Utilities;
1990:	Development of cooperative water heater switching program with Washington Natural Gas Company for Snohomish PUD
1991:	Participation in BPA Puget Sound Electric Reliability Project for Northwest Conservation Act Coalition;
1992:	Analysis of Washington Water Power "Fuel Efficiency" program for Washington Public Counsel;
1993:	Examination of Washington Natural Gas utility line extension policy for Washington Public Counsel;
1993:	Examination of rate design and connection charge alternatives to encourage gas fuel choice on Puget Power for Washington Public Counsel.

My analyses have produced one common and consistent result. Where the existing natural gas distribution system is near a residence, conversion from electric resistance space and water heat to natural gas is usually cost-effective. The total cost-effective conversion potential in the region is as much as 1500 average megawatts of energy savings, and up to six thousand megawatts of peak capacity savings. My findings are consistent with those from other studies by other consultants, including Delta Pacific, Pacific Energy, and the Washington State Energy Office.

These figures are much larger than those reported by the Bonneville Power Administration. The differences are really not a dispute over the potential. BPA includes some of these conversions expected to result from price and consumer preference in its forecast; my analyses and the other studies are of technical potential and do not separate out the amount expected to occur without market intervention. BPA excludes any savings from homes with zonal space heat; the others do not. BPA includes only the potential in the service territories of its requirements customers; the other studies include the service territories of generating public utilities and investor-owned utilities. We really do not have any disagreement on how many homes are electrically heated, or on how many of them can be economically reached by gas lines.

Measuring the cost-effectiveness of fuel conversions is not simple. The proper comparison is between the total cost of serving the end-use with gas, versus the total cost of serving that end-use with electricity. BPA and other regional utilities are acquiring new electric generating resources using natural gas as fuel. In a thermodynamic sense, the issue is whether to burn gas at 40% - 50% efficiency in new combined-cycle power plants, or whether to burn it at 60% - 90% efficiency in direct space and water heating applications. In an economic sense, however, it is a more complex issue. The total cost of gas service includes securing new gas supplies, adding gas transmission and distribution capacity, installing service connections, meters, and regulators, and installing and maintaining gas appliances. Under conditions of growing loads, the total cost of continuing to serve the same loads with electricity also includes the cost of new generating resources plus transmission and distribution upgrades. If the total cost of serving loads with gas is lower than the total cost of serving the same loads with new electric resources, then sound public policy dictates that gas should be used.

Since the marginal cost of new gas resources is lower than the marginal cost of new electricity resources, there are cost-effective opportunities for conversions to natural gas. However, since the cost of gas distribution system expansions is not small, there are many possible opportunities which are not cost-effective. The primary situations where conversion is not cost-effective is where the home is a considerable distance – over 1000 feet – from a gas distribution main, in smaller dwelling units where the load to be served is small, and in better insulated newer units where the load to be served is small.

The savings are considerable. The average cost of fuel conversions is about 20% - 40% (1-2 cents/kwh) lower than the average of new electrical resources. At the maximum economic and technical potential of 1500 average megawatts, the savings would equal $100 - $250 million per year for the region.

OBSTACLES TO COST-EFFECTIVE FUEL CHOICE

There are many obstacles to cost-effective fuel choice. Some are technical, some economic, and some political.

The technical obstacles are the least burdensome. Gas appliances are now made which can be vented without a chimney. They cost a bit more than conventional appliances. Gas utilities have limited capital resources, and limited construction

resources. In recent years, with booming construction, these have been directed primarily at the new construction market.

The primary economic obstacles involve inefficient pricing of electricity. The electric utility industry is price controlled from generating plant to meter, with prices based on historical "embedded" cost principles. Gas production is now completely unregulated. While electric rates are generally well below marginal costs, gas rates are very close to marginal cost.

BPA is proposing to buy power from new gas-fired resources, such as the proposed Tenaska generating project. BPA presently sells power at wholesale at a flat, melded rate, rather than one which reflects the high incremental cost of new resources.

Public utilities follow that lead, pricing power at rates far below the cost of new resources. The typical retail rate for a public utility in the Northwest is about 4 cents/kwh, about half of the cost of production, transmission, and distribution for a new electric generating resource. While the public utilities will tell you that they base their rates on the "cost of service," there are many ways of measuring cost of service, and they generally choose methods based on average, historical costs, rather than on new resource costs.

Private utilities in the Northwest generally have more progressive pricing policies, imposed on them by state regulation. All of the major investor-owned utilities in the region have inverted retail rates, with end-block rates for usage over 1000 kwh/month around 5-7 cents/kwh, a level which makes gas conversions very cost-effective. Most of the conversion activity seen to date has been in the service territories of investor-owned electric utilities.

The political obstacles are relatively simple. Many electric utilities do not want to give up market share. They do not want to concede customers to the gas utilities. It seems surprising that consumer-owned utilities would take actions contrary to the interest of consumers, but they do. The reason is partly economic – BPA's flat, melded rate design; it is partly political – a sense that the gas utilities are competitors in the market, rather than colleagues in the energy services field.

ENVIRONMENTAL IMPACTS

My 1990 report to the Association of Northwest Gas Utilities compared the carbon dioxide produced by direct application of gas to space and water heating loads to the use of electric generation to serve these loads. Depending on whether the electricity is produced in cogeneration applications of conventional combined-cycle generation, and on whether the alternative generation is gas-fired or coal-fired, the environmental benefits of direct application range from modest to dramatic.

Lbs./year of CO_2 To Provide Space/Water Heating to One Home

Direct Application of Natural Gas:	7,080
High-Efficiency Cogeneration:	7,682
Combined Cycle Generation:	8,563
Coal Generation:	14,948

The construction of renewable resources will not affect the environmental impact of conversion of electric space and water heat to gas, since the incremental fuel for the west coast will remain a fossil-fired resource. If the Northwest were to develop sufficient wind, geothermal, and solar resources to serve all load growth, we would still be in a position to export power to California and displace fossil-fuel generating plants.

WHAT CAN BPA DO?

The Bonneville Power Administration is in a position to encourage more efficient fuel choice, where it is economic, in many ways. To date, BPA has been timid. One concern is that fuel conversions may not be a "resource" under the Pacific Northwest Electric Power Planning and Conservation Act. I believe that there are many things which BPA can do immediately, under its existing authorities, to encourage more efficient fuel choice:

1) **PURSUE FUEL CONVERSIONS BEFORE GAS-FIRED GENERATION:** BPA is currently aggressively pursuing acquisition of gas-fired generating resources from Bingen Lumber and from Tenaska II. These are less efficient and less economic than fuel conversions, and should be given lower priority.

2) **RATE DESIGN:** A decade ago, NCAC and NPPC urged BPA to implement implement tiered wholesale rate designs which encourage customer utilities not to place demands on BPA unless the incremental power is valued at the cost of new generation. BPA has just begun efforts in this direction.

3) **BILLING CREDITS:** BPA is required to offer billing credits to utilities which implement retail rate designs which encourage conservation and the installation of renewable resources. These same rate designs may also encourage direct application of natural gas. BPA has refused to pay billing credits for savings which result from rate design induced fuel switching.

4) **RESTRUCTURE LOW-DENSITY DISCOUNT:** BPA offers a "low-density" discount to rural utilities. This was intended by the Act to offset the high distribution costs of rural utilities. BPA does so by discounting the kilowatt-hours it sells to these utilities. The result is that these utilities – which often serve some urbanized areas with gas service – have lower rates per kilowatt-hour than the utilities serving the urban centers. If BPA instead provided a direct credit against distribution costs, but priced the

electricity at an economic price, these utilities would have lower distribution charges, but higher energy charges, and fuel conversions would be more cost-effective.

5) **RESTRUCTURE CONSERVATION PROGRAMS:** BPA's new construction program, Super Good Cents, provides cash incentives for builders to choose superinsulated electrically heated homes over gas heat. That program should be terminated, restricted to areas where gas is not available, or the incentives should be fuel-blind. BPA's customer utilities often require customers taking advantage of retrofit weatherization financing to agree not to convert to gas. This makes no sense. NCAC called for fuel-blind incentive program in 1982; to date, BPA has operated conservation programs as load-retention mechanisms. If it is worth paying a customer $2000 to reduce their heating load on the electric system by 30%, through weatherization, why discourage that customer from reducing their heating load by 100% for the same price?

6) **PROVIDE FUNDING TO OFFSET CAPITAL COSTS OF FUEL CONVERSIONS WHERE IT IS COST-EFFECTIVE TO THE ELECTRIC SYSTEM:** BPA pays for conservation measures and generating resources out of rates, but does not contribute towards fuel conversions of any kind. BPA and its customer utilities should provide funding up to the level of avoided transmission and distribution capacity costs to facilitate extension of gas service. Subject to a strict Total Resource Cost test, BPA should provide funding for fuel conversions up to the level of net savings to the region from fuel substitution.

WHAT CAN THE NORTHWEST POWER PLANNING COUNCIL DO?

The authority of the Northwest Power Planning Council (NPPC) is limited, but several steps could be taken to encourage efficiency in general, and fuel choice efficiency in particular.

1) **REJECT THE PROPOSED TENASKA II PROJECT:** The proposed gas-fired generating plant in the Tacoma area is less economic and less thermodynamically efficient than direct application of gas. The potential for cost-effective fuel conversions (even by BPA's assessment) is greater than the potential output of Tenaska. The project should be rejected.

2) **ADOPT RATE DESIGN MODEL CONSERVATION STANDARDS:** A decade ago, NPPC agreed to delay implementation of retail rate design model conservation standards, based on a promise by the public utilities int he region to aggressively pursue energy conservation. The public utilities have not delivered, and the reasons for adopting rate design standards are stronger than ever today.

3) **QUANTIFY THE POTENTIAL SAVINGS FROM FUEL SWITCHING:** The Council is currently studying fuel choice, and the Council is uniquely suited to quantifying the potential savings from conversion of existing homes to gas, and directing new construction to gas. My study for ANGU remains the only study to date which attempted to identify where in the NPPC resource stack fuel conversions would fall.

4) **QUANTIFY THE PEAK DEMAND SAVINGS FROM FUEL SWITCHING:** The NPPC has not yet attempted to quantify peak demand savings of any of the demand-side energy resources they have evaluated. Peak savings are increasing valuable in the Pacific Northwest, and should be quantified.

WHAT CAN THE CONGRESS DO?

There are a few steps which could be taken by the Congress to encourage cost-effective fuel choice in the Pacific Northwest:

1) **DEFINE FUEL CHOICE AS A RESOURCE:** The Act could be amended or otherwise clarified to specifically identify direct application of natural gas as a "resource of high fuel conversion efficiency." This could logically be done by simply removing the word "generating" from the description of Category 3 resources. Direct application of gas should not be considered "conservation" or a "renewable resource" as Priority 1 and Priority 2 of the Act define them.

2) **PRESERVE THE HOUSE-PASSED APPROACH TO THE ENERGY TAX:** The House-passed BTU tax assesses hydropower at the average value of new electric generating resources. This was a compromise below the level originally proposed by the President. Several Northwest utilities have advocated having the BTU tax applied at a lower rate to hydropower. Without entering the debate over whether the non-thermal, renewable nature of hydropower justifies special tax treatment, the effect of special treatment for hydropower would be to discourage economic fuel choice. This is because more than half the electricity in the region is hydro, and favorable treatment will hold down the regional cost of electricity, but all gas will be subjected to the BTU tax. If hydropower is not taxed at the same rate as thermal generation, the effect will be to increase the price of natural gas space and water heat relative to gas space and water heat.

3) **IMPLEMENT THE 1980 BUILDING ENERGY PERFORMANCE STANDARDS (BEPS):** In the 1978 National Energy Act, the Congress directed the Department of Energy to implement a nationwide efficiency code for new construction. The standards were developed in 1980, but never implemented. The BEPS properly recognized that direct application of gas was a more efficient way to heat buildings than electric heat. The building codes for all four northwest states are weaker than the 1980 BEPS for new electrically-heated construction.

4) **AMEND PURPA AND THE CLEAN AIR ACT TO DEFINE FUEL SWITCHING AS A RESOURCE:** Under PURPA, electric utilities are required to purchase cost-effective resources provided by other parties. By defining fuel conversions as a resource eligible for avoided cost or competitive bid pricing under PURPA, and a resource eligible for the sulphur-bank credits provided by the Clean Air Act, the Congress could encourage and require electric utilities to consider fuel conversions along with generating resources.

WHAT CAN THE GAS INDUSTRY DO?

It would be inappropriate to place the entire burden of a more efficient fuel choice strategy on the electric utility industry. The gas industry also has a considerable role to play. The role of the gas industry should be to ensure stable supplies, predictable pricing, and efficient use of its product.

1) **ENSURE THAT APPLIANCES INSTALLED ARE EFFICIENT AND COST-EFFECTIVE:** Fuel conversion means installing new appliances, and gas appliances last a long time. Attention should be given to ensure that furnaces and water heaters are efficient. It is possible to "oversell" efficiency, however -- 90+ efficient furnaces are very cost-effective in large, single-family homes in Missoula, but the cost premium over 85% efficient units may not be justified in small homes in Eugene.

2) **SECURE LONG-TERM GAS CONTRACTS:** One obstacle to conversion is uncertainty about long-run costs for natural gas. By securing long-term contracts, gas utilities can stabilize the price of gas.

3) **REVIEW LINE EXTENSION POLICIES:** Gas line extension policies need to be reviewed to ensure that customers are allowed utility-financed line extensions whenever it is cost-effective. Gas utilities should receive contributions from the electric system associated with the capacity that fuel conversions free up on the electric system.

CONCLUSION

The potential regional savings from more efficient fuel choice are significant. Unless BPA, the region's public utilities, the Power Planning Council, and the gas utilities work together, a tremendous opportunity may be lost. The potential savings -- $100 million to $200 million per year -- will help to strengthen the regional economy. It's time for the territoriality of electric utilities -- and the negativism toward conservation of gas utilities -- to give way to a new era of cooperation and economic savings.

NORTHWEST POWER PLANNING COUNCIL RESOURCE PORTFOLIO
AS PUBLISHED IN NWPPC STAFF REPORTS 90-1 AND 89-47
WITH ELECTRIC TO GAS CONVERSIONS ADDED

	FUEL	RESOURCE	EARLIEST SERVICE	COST	AMOUNT AV MW
	T&D	Conservation Voltage Regulation	1991	1.0	100
	Conservation	New Industrial	1990	2.0	275
	Conservation	Existing Industrial	1990	2.0	265
	Hydro	Generating Plant Efficiency	1994	2.0	110
	Conservation	Irrigation	1990	3.0	65
	Conservation	Freezers	1990	3.0	45
	T&D	Reconductoring	1992	3.2	48
>>	**Gas Direct**	**Water Heater Conversions**	**1990**	**3.6**	**198**
	Hydro	Block 1	1993	3.7	90
	Conservation	Refrigerators	1990	4.0	130
	Conservation	Existing Commercial	1990	4.0	810
	Conservation	New Commercial	1990	4.0	640
	Conservation	Water Heating	1990	4.0	340
	T&D	Transformers	1992	5.0	70
	Coal*	Generating Plant Efficiency	1994	5.0	100
	Conservation	New Multifamily	1990	5.0	45
	Nuclear*	Generating Plant Efficiency	1994	5.0	9
>>	**Gas Direct**	**Space/Water; Homes on Mains**	**1990**	**5.4**	**357**
	Geothermal	Basin and Range Sites	1997	5.5	175
>>	**Gas Direct**	**Space/Water; Homes near Mains**	**1990**	**5.9**	**893**
	Conservation	New Manufactured Housing	1990	6.0	150
	Cogeneration	Nat gas and biomass	1994	6.0	1,100
	Hydro	Block 2	1993	6.3	100
	T&D	Federal Projects	1994	7.0	35
	Nuclear	WNP-1	1997	7.2	818
	Biomass	Municipal Solid Waste	1996	7.6	30
	Coal	Eastern Montana	1999	7.6	1,800
	Nuclear	WNP-3	1997	7.6	868
	Coal	Eastern WA	1997	7.9	750
	Conservation	New Single Family	1990	8.0	275
>>>	Gas/oil	Combustion Turbines	1995	8.5	2,500
	Hydro	Block 3	1993	8.5	130
	Coal	Eastern Oregon	1999	8.9	750
	Conservation	Existing Single Family	1990	9.0	105
	Coal	Northern Nevada	1996	9.0	750
	Coal	Western WA	1997	9.3	750
	Geothermal	Basin and Range Sites	1997	9.7	175
	Conservation	Existing Multifamily	1990	10.0	30
	Hydro	Block 4	1993	10.4	90
	Cogeneration	Nat gas and biomass	1994	12.0	1,100
	Biomass	Agricultural field residue	1994	12.4	40
	Wind	Available projects	1995	13.0	400
	T&D	Reconductoring	1992	14.6	48
		Total Resource Portfolio:			17,558

Mr. DEFAZIO. Thank you. Mr. Carr.

STATEMENT OF JOHN D. CARR

Mr. CARR. Good afternoon, Mr. Chairman. I'm John Carr, executive director of the Direct Service Industries, 11 members of industries who are served directly by the Bonneville Power Administration, consisting of aluminum and titanium, magnesium and chemical producers.

I'm going to step back from some of this discussion and draw an analogy, because I think the basic model we're using here does need to be questioned. Sometimes the best way to do that is just to take a look at another industry. Instead of picking one of the ones that are usually discussed today, let me pick the watch industry.

If you go back to 1968, the Swiss had about 60 percent of the watch market and they had about 85 percent of the profits or somewhere in that range. A fateful event happened to them, though, about 6 months going into 1967. Some of their own engineers—a fact not usually recognized—but a few of their own engineers had come up with a new technology.

Of course, the technology is probably what everyone has on their wrist in this room today. It's quartz movement, digital watches. The watchmakers turned it down, the Swiss watchmakers did, and they had so much hubris about their position that they didn't even protect their own finding.

Of course, later that year, they had an international watch show. Texas Instruments and Seiko walked by, saw the technology, and of course, history was made. Ten years from then, the Swiss didn't even have 1 percent of the watch market.

There are similarities to that and the power industry today. We are going to see massive changes in the power industry, much like telecommunications and others. Right now we can't see what those end results are going to be, but we know some of the forces that are moving it. The transmission deregulation, retail wheeling, open access, construction of new generation resources by non-utilities, the natural gas itself, just that we have relatively cheap natural gas.

The technology is well known. Notwithstanding Bonneville's charts earlier, I think the pressure for Bonneville to stay competitive is going to become larger by the day. We are seeing the same massive restructuring of a market in electricity now and over the next few years, what the watch market has seen or what it experienced in 1968 and the early 1970s.

There is a difference, though, that I'd like to point out today, and that is Bonneville and Randy Hardy and the senior managers are not doing what the Swiss watchmakers did. They are actually recognizing that the fundamental changes are happening and that they're going to have to make the changes to be competitive and, in simple terms, have gotten past the denial stage.

Obviously, by the time the Swiss manufacturers got past the denial stage, it was way too late. I guess from my standpoint, I can't overstate the sense that I think massive changes are going to occur and we need to help Bonneville stay ahead of that game and get to a place in several years where it can stay competitive.

There is a competitiveness project under way at Bonneville. We support that and we have people involved in it and will continue to have people involved in it. But, basically, all elements of Bonneville's business are going to have to be reexamined and I suspect there's going to be massive changes in a lot of things before they're going to become competitive. We'll talk about that more, I suspect, at the next hearing, but let me give a preview just for today.

The three major problems I believe facing the agency are: One, it melds its rates for its products and, basically, masks the cost of new generation, masks the cost of conservation, and masks the cost of transmission development.

A related thing it does is it keeps the products and services it offers pretty much bundled and it's kind of a consequence of the melded rate and doesn't allow each of its goods and services to compete on the margin and see if the prices that it costs to provide those services are actually ones that can be marketed.

The other thing I'd point out that's a problem is the large conservation incentives. These are significant and, in fact, are some of the reason, obviously not all the reason, but some of the reason rates are experiencing pressure.

What are the solutions? Again, this is just a preview, but, one, I'm going to agree with some of the other panel members and say we need to set very ambitious efficiency improvement programs here in the region. I think the 660 megawatts ought to be a floor.

We need to use our products here, our scarce resources, as efficiently as possible. I believe that the Council and Bonneville ought to take the lead on planning to ensure that happens. I think we're going to have to test and challenge. What's happening is that Bonneville doesn't have to pay to ensure we get a good regional result.

I think one of the primary assumptions here is that Bonneville has to pay before we can get a good regional result, and that's just not the case. I think as we move into a more competitive environment, you're going to see things like tiered rates and other things that have been offered as ways to take the payment for many of these programs and push it down much, much closer to the people it benefits. And that's the way it should be.

We have pushed conservation very hard in the early 1980s. My own sense is we've got it kick-started, but we don't have a problem with information. It's a problem of getting the program delivered. We'll need to continue to work on that.

But, again, my goal would be to use electricity as efficiently as possible. But I think we'll have to take a hard look as we move toward this competitive situation ensuring that consumers and utilities that benefit from the programs probably shoulder most of the cost.

Let me make a couple of comments about the future. First, I think in any market where it becomes deregulated or much more competitive you will find the dominant firms shrinking, and I think you'll find the real price of the product going down. Now, the conclusion I draw from that is that Bonneville will be much smaller in the future if it's going to survive.

It's going to be more agile, be much more business-like, but that's what a competitive market is. Again, I would draw you back to the

Swiss example. They just didn't move. Become smaller, adopt a new technology and be competitive.

I think the task force and the Council can help us remove some of the competitive barriers and move to a more competitive environment. Right now, this is just preview, I don't see the necessity of new legislation to make that happen. It may, but I don't see it now.

Finally, this is an exciting time in the utility business. Many things are going to change and I think the trick, the challenge to all of us, is to recognize the changes and come out ahead and get to a place in a couple of years where Bonneville is not only competitive, the region is acquiring cost-effective conservation, but business stays industrious well into the twentieth century.

Thank you.

[Prepared statement of Mr. Carr follows:]

Direct Service Industries, Inc.

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Testimony of

John D. Carr, Executive Director
Direct Service Industries, Inc.
Before the
Committee on Natural Resources
Bonneville Power Administration Task Force

Portland, Oregon
July 12, 1993

Thank you for inviting me today. I am John D. Carr, Executive Director of Direct Service Industries, Inc., an association of 11 members representing aluminum, magnesium, titanium, and chemical producers who purchase electricity directly from the Bonneville Power Administration. I am here today to comment on BPA's resource acquisition program.

CONTEXT

The passage of the Regional Power Act in 1980 was thought to be the beginning of a new era characterized by central planning performed by BPA and the Northwest Power Planning Council, and central funding provided by BPA for new generation resources and conservation investments in the Pacific Northwest. The Act contemplated that BPA would plan to meet its customers' load growth needs with a combination of conservation acquisition and generation resources. The Northwest Power Planning Council was tasked with planning for the region's load growth needs in a broader context to insure that BPA and other utilities would use electricity efficiently and acquire resources which were cost effective and most compatible with the environment.

During the development of the Act many conservation supporters argued that efficiency programs would need kick-starting by providing large incentives to consumers in order to push the region toward a more efficient use of electricity. They further argued that BPA would not only plan, but be a central funding mechanism for conservation programs based on the view that BPA rates could be raised significantly without having to be concerned about competitive pressures.

Dramatic changes have occurred, however, since the passage of the Act. Large, central generation units complimented by the acquisition of cost effective conservation was the blueprint of the future in the late 1970's. By 1983, this view of the future had changed, exemplified best by the decision to mothball Supply System nuclear plants nos. 1 & 3.

By the late 1980's, deregulation of the resource generation market had begun in earnest. Today, over one-half of the new generation developed in the United States is

from non-utility entities. Deregulation of the transmission system is also moving forward rapidly. Retail wheeling and open access are becoming reality.

Natural gas prices are at all time historical lows in real dollars and there appears to be sufficient reserves to last well into the next century. The cost of power from new combined cycle combustion turbines is very competitive with other alternatives, including the price of BPA's preference power as new BPA rate increases become effective.

The electricity market appears much different today than in 1980. Utilities are losing their monopoly power in many of their historic strongholds. This process will accelerate in the future. The wholesale power suppliers, like BPA, and utilities which will survive into the next century will be the ones anticipating the fundamental changes in the marketplace and reinventing themselves to be agile and competitive.

TODAY'S SITUATION

The central question of this hearing is whether BPA's current resource program is working. The simple answer is no, it is not working. That is, the resource program does not reflect the fundamental changes occurring in the energy supply marketplace in the Pacific Northwest. The goods news is that BPA recognizes the situation and is working in partnership with its customers to fix the problem. We support this process strongly, and I will address it in more detail at the next hearing of this Task Force. As a preview, however, BPA is transitioning to become a much more efficient, competitive, businesslike entity that can compete in a decentralized market. I believe this transition can occur without new legislation, but it will need the support of your Task Force to break down existing barriers to change.

PROBLEMS

BPA offers melded rate products to its customers. This practice masks the cost of new conservation programs, new generation resources and transmission development to the customers desiring to purchase these services. This leads customers to request services and products from BPA that they could potentially acquire at lower cost elsewhere, if BPA was not melding the rates the customers face.

BPA continues to pay conservation incentives at levels much higher than those that would keep their power rates neutral compared to the rate impacts of acquiring comparable output from generation resources. This causes BPA rates to rise unnecessarily and does not reflect the fact that 60 percent of BPA sales ultimately go to basic industry, including agriculture. Those industries compete on the basis of price in national and international markets.

SOLUTIONS

The region and BPA's customers need to continue to strive for ambitious conservation goals. The Northwest Power Planning Council and BPA can help assure this occurs on a planning basis. It is very important that the question of who pays for

load growth in the region is uncoupled from the question of adequate planning oversight. The one key point to remember is that BPA does not have to pay for new conservation or generation resources to ensure a good regional result. In fact, in the new competitive environment, BPA should probably pay very little. There are no new resources of Federal importance involved, and there appear to be no compelling reasons remaining for BPA to play a significant funding role in the load growth market in the future.

There is no need to continue kick-starting regional conservation programs by having BPA pay large incentives to utilities. There is already more demand, than funding for existing programs. In addition, the benefactors of conservation programs tend to be the end use consumer and the utility providing electricity to that consumer. Consequently, consumers and utilities should pick up the bulk of the cost of the conservation programs. This would meet one of the fundamental economic efficiency rules: the closer the connection between the person that benefits and the person that pays, the more efficient will be the economic result. Spreading conservation and large resource acquisition costs across the BPA rate base tends to defeat this economic tenet and will lead to inefficient results. The implementation of tiered rates may be an effective solution to this problem.

CONCLUSION

Given the rapidly changing utility environment, market forces need to be relied upon to the maximum extent possible to insure wise decisions are made. We need to give BPA an opportunity to compete on the margin with other entities for the provision of energy efficiency programs and the output of new generation resources. It is important, however, that this competition occur on a level playing field, without masking the costs to potential purchasers of those acquisitions. Under these competitive conditions, it is likely that BPA will have a modest role in meeting the region's load growth needs.

The Northwest Power Planning Council will also need to change their approach to planning. The Council can have a role in the Pacific Northwest's energy picture in the future, but it will be one of leading the region's utilities and decisionmakers towards recognizing the benefits of the decentralized marketplace. Their role will transition from a quasi-regulator, to a role of insuring the region's regulatory bottlenecks are removed which interfere with a business-like environment.

Finally, the future ought to be exciting. The changes underway will lead to a better allocation of scarce resources, more affordable products, and a leaner, competitive BPA.

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Mr. DEFAZIO. Thank you. Mr. Canon.

STATEMENT OF KENNETH CANON

Mr. CANON. Thank you, Mr. Chairman. My name is Ken Canon, executive director of Industrial Customers of Northwest Utilities. That is a trade association that represents 24 Northwest industries that purchase power both from investor-owned utilities and from publicly owned utilities in the Northwest. We have the pulp and paper, aerospace, chemicals, cement, electronics, and wood products firms as part of the association.

I think as we look at this issue and the issue that you and the task force pose, what it comes down to is a question of who develops resources in the future. Essentially, both Bonneville and the utilities have the same resource options. You have conservation, renewables, thermal power resources.

Bonneville does have the advantage of having a large hydro system to be able to do the melding that John mentioned, but that hydro system has also suffered its own constraints. So Bonneville is losing some of that capability.

And there are more options out there for the other utilities to look at developing their own resources. So if you assume that both do have the same resource option, then what's going to be the differentiation in the future?

To us, it seems like it's going to be a question of who can best manage and balance both the short-term and long-term costs of a wide variety of resources. I think that's something that we see all the utilities going through as they go through their least-cost plans. Now we're starting to see Bonneville and we're very encouraged about Bonneville going through it as they go through both their function-by-function review and also their competitiveness project.

It's going to boil down to those two processes, I believe, being BPA's best hope of remaining competitive and, therefore, becoming and essentially retaining its role as a major resource developer as far as an acquirer of resources in this region.

If they fail, then I think we're going to have a much more bulkanized type of system which is not the regional system that we foresaw in 1978 through 1980 as the Regional Act was developed.

Let me spend a few moments talking about something that is specific to the people that I represent, and that's industrial conservation, because there we see a glimmer of hope as far as Bonneville recognizing new ways of doing business and we would like to encourage that.

In the Lower Columbia Region Office, they have developed a program which is called "major plants." They, very smartly, we believe, identified most of their industrial conservation was going to come from about 13 major industrial plants and they formed a major plants program.

It was a program and is a program which has a considerable amount of flexibility. It's premised on a long-term look and interaction between Bonneville, the utility, if they want to become involved, and the industry. So far we've had one plant, the Gardner Plant of International Paper, that has gone through that process.

They have a contract. It extends through 2001 when all the contracts expire, and it sets up essentially a framework where International Paper can bring in individual projects and shorten tremendously the administrative time of getting those accepted and adopted.

Right now they are busily installing their first one megawatt efficiency project. That one megawatt project is made up of 11 different energy conservation measures. The whole process, compared to other conservation resources, is very inexpensive. It's in the 12-to-15 mill per kilowatt range, real levelized, and there's a tremendous administrative savings, as well.

Once you have this framework contract set up, then we're dealing with the area office. We're dealing essentially with one or two people that have a long-term relationship with this mill and understand it. So you don't go through the process of retraining, getting people up to speed. It certainly shortens and reduces the administrative cost of acquiring this type of industrial conservation. So we're very enthusiastic about that.

We hear Bonneville saying we're going to make this shift from the spending on residential weatherization, specifically, to more spending on commercial and industrial.

That's slow in coming. I follow the budgets very closely, especially in the Lower Columbia Area Office, and it's still a 4-to-1, 5-to-1 type of ratio. Nothing wrong with residential weatherization at all. It's a matter of trying to manage the money most efficiently. To us, that means you go for the stuff that is cheap. You go for the least expensive.

A lot of residential weatherization has been funded because it is politically probably the correct thing to do. Those people vote. Industries don't vote. We are well aware of that. We funded through our rates, obviously, a tremendous amount of residential weatherization.

But if you're going to treat it like a resource, then let's get on with it and treat it like a resource. You would think that you would definitely acquire a large box. They're fairly easy to administer and fairly inexpensive, first.

Thank you.

[Prepared statement of Mr. Canon follows:]

INDUSTRIAL
CUSTOMERS OF
NORTHWEST
UTILITIES

KEN CANON
EXECUTIVE DIRECTOR

Testimony of

Ken Canon, Executive Director
Industrial Customers of Northwest Utilities
before the
Committee on Natural Resources
Bonneville Power Administration Task Force

Portland, Oregon
July 12, 1993

Industrial Customers of Northwest Utilities is an association of Northwest industries who purchase electricity from the region's investor-owned and publicly-owned utilities. ICNU's 24 members are in the pulp and paper, chemical, electronic, metals, aerospace, wood products, and cement industries. ICNU was established shortly after the passage of the 1980 Regional Power Act to represent these industries on regional electrical issues before the Power Planning Council, the Bonneville Power Administration and with individual utilities.

THE REGION THEN, VERSUS THE REGION NOW

Many changes have taken place in the 13 years since the passage of the Regional Power Act in 1980. The region has endured significant price hikes for electricity, been through the travails of an over commitment to large central station thermal plants, has made a commitment to addressing the weak wild salmon runs in the Columbia River system, has seen natural gas deregulated with dramatic reductions in price and increases in availability, has witnessed the beginnings of greater transmission access, and the continued development of new resources.

Other changes have also occurred, but these changes are not limited to the utility industry. They are a part of a larger effort of businesses to be leaner and more competitive. Focusing on core competency, total quality and customer satisfaction are all part of an effort to remain competitive.

The combination of these changes results in a different set of challenges. BPA is no longer in the position of being the only entity that can accommodate large thermal plant acquisition by melding the higher new resource costs with abundant, low cost hydro power. Hydro power is not as abundant and now carries with it considerable long term price uncertainty. With smaller, more diverse and cost effective resources available to the region's utilities, some utilities are seeking to become more competitive

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by creating their own power resource future. BPA is not necessarily in the center of this future. To their credit, BPA has recognized these competitive pressures and is actively taking steps to address these concerns. Obviously, one area to examine is BPA's role in resource acquisition in an era considerable different from the era leading to the creation of the 1980 Regional Power Act.

STRENGTHS AND WEAKNESSES - BPA RESOURCE ACQUISITION

In many ways, the strength of BPA's past resource acquisition processes have evolved into weaknesses. Through time, BPA has created a plethora of resource acquisition activities. These activities have covered the full range of resource types (conservation, renewables, thermal) as well as processes (direct acquisition, backing of bonds, billing credits, etc.). This has come at a cost, both financially and organizationally. Some of this cost can be correctly attributed to testing various methods to acquire resources. While this may have been appropriate during the period of surplus in the 1980s, it is no longer true in the resource deficit 1990s.

For BPA to remain a viable resource provider, it must focus on those resources that best balance near term and long term costs. Over the past decade, BPA has followed the lead of the Regional Power Act and the Power Planning Council by investing more funds in conservation than any other new resource. But future spending within the conservation sector must be reexamined. The bulk of conservation funding has occurred in the residential sector. Much of it has been at much higher cost than conservation that is available in the commercial and industrial sector.

The true test of BPA's and the Council's commitment to treating conservation as a resource is whether conservation acquisition funds will be directed to those programs (regardless of sector) that provide the greatest return for the funds spent. For example, it appears BPA has created a belief by some that residential weatherization is an entitlement, even if it is considerably more expensive than other types of conservation. This does not mean that residential weatherization will not be funded, only that the timing of that funding may change. If BPA can acquire conservation megawatts for considerable less through other conservation programs, it should do so. Higher cost programs, even if politically popular, can be funded when lower cost resources have been exhausted.

While the wide range of resource acquisition programs (especially in the conservation sector) has allowed a great amount of program experimentation, it has also created considerable confusion. This leads to concerns regarding BPA as

a viable and predictable business partner. We believe that it also leads to extra program overhead costs. BPA must focus on conservation programs that are simple to understand and operate and that acquire the greatest amounts of conservation for the funds spent. In many cases, this may mean concentrating on a limited number of highly productive and cost effective programs.

We are encouraged by such an effort in the industrial sector. For a number of years, BPA has had a industrial conservation program known as the Energy Savings Plan (ESP). ESP was a good start as an industrial conservation program, but it was a one-size-fits-all program. Several years ago, BPA's Lower Columbia Area office developed the Major Plants Program. The area office determined that the vast majority of the industrial conservation opportunity existed in thirteen large plants. The Major Plants Program allowed BPA personnel the flexibility to take a long-term, comprehensive view of industrial conservation with these thirteen plants. This differed from the project by project approach taken under ESP. Today, BPA has negotiated one Major Plants contract with an industry on the south Oregon coast. A one megawatt efficiency project is now underway, and three other projects are under consideration. The one megawatt project consists of 11 different energy conservation measures. The cost is 15-16 mills/kWh (real levelized).

The advantages of such a program are readily apparent. It is focused - which reduces both BPA's and the industry's administrative overhead. All efficiencies are measured before and after the project to ensure that BPA's funds are acquiring real savings. It has been a very positive experience for the industry. This has led to the desire to find additional efficiency opportunities at this plant site. It is also a low cost resource for BPA.

Unfortunately, BPA's funds for this type of program in the 1994/1995 time frame are limited due to BPA's commitment of conservation funding to other higher-cost conservation programs.

TENASKA

While we would prefer to see gas-fired thermal generation come in the form of industrial cogeneration, we recognize the advantages to BPA of having a low capital cost/ high operating cost resource that can be operated in conjunction with hydro system. This is part of the resource diversity that is important to the region.

We also recognize the desire of the resource developer to keep certain competitive aspects of the acquisition contract confidential. BPA should disclose as much information as possible, without interfering with the justified competitive

interests of the developer. At the least, BPA should disclose the total purchase price and levelized cost of the project under a stated set of operating assumptions.

THE COUNCIL'S ROLE

ICNU has consistently supported the Council's role as the regional planning entity. While the Council has led the region in developing the tools for integrated resource planning, other utilities have adapted and enhanced those tools to their individual circumstances. The Council, however, retains the role of viewing planning from a regional context versus the individual planning done by utilities. Even if the region does not follow the "one utility" concept of resource acquisition and operation, it is important that the Council create the "one region" planning benchmark for comparison purposes. The challenge facing the Council is to incorporate into their planning the competitive pressures facing BPA and the region's utilities. A plan that meets the theoretical test of being "least cost", but that leaves BPA or a utility uncompetitive (short or long term) will find difficulty in finding followers.

Mr. DEFAZIO. Thank you. I would follow up on your testimony. In the earlier panel, we didn't discuss any breakdown in terms of where the potential conservation of 1,500 megawatts lies. What do you see among your participant industries? You talked about this one project, the one megawatt project at Gardner, at an extraordinarily low cost. How much is out there below the numbers we were talking about earlier, the 42 mills?

Mr. CANON. I think there's a considerable amount. Based on this experience, they're looking at three other projects. Two of those total about 2 megawatts. They're looking at what you would call a true cogeneration, small as far as essentially no additional fuel used at all.

Right now they have steam that's at 600 pounds per square inch and they use it at 125 and they pipe it through a large pipe. They have big valves that come through to cut it down. You can spin a turbine with that steam. It's 2–4 megawatts and they're looking at that with some Bonneville help.

There are some good opportunities out there. And it can be transacted in any number of ways. We're transacting it right now through Bonneville because that's the available method. We could transact it through billing credits or, as John mentioned, some of the other types of transacting this conservation either to Bonneville or to the utilities, but it's out there.

Mr. DEFAZIO. How is this being done now? Is BPA paying up front?

Mr. CANON. Yes.

Mr. DEFAZIO. Capital costs.

Mr. CANON. Yes. Yes, it is. And that is all up to negotiation between Bonneville and the industry. It depends on what is needed. Actually, it's not actually paid up front. IP has to expend a certain amount and then there's a progress payment, expend another amount and another progress payment, and then they have to hit a certain level of efficiency before they qualify for the last 20 percent.

We tried to set it up as best we could because IP recognizes that they're a large ratepayer. They want to do something that's good for the region. Obviously, they have a benefit, as well. They don't want to set up a precedent that would allow other people and perhaps competitors to take advantage of the system.

Mr. DEFAZIO. We might just have a discussion among the panel, following up the point raised by Mr. Carr, but it really goes to the heart of what we're talking about here.

How likely do panel members see the fact that BPA's power might become non-competitive and under what conditions or what might prevent BPA's power from becoming non-competitive? Again, it's really hard to divide the subject matter between this hearing and the next hearing, but given the number of people that testify at these hearings and that, I thought this was a very logical division. You can't separate some of these issues very well when you're dealing with the amount of conservation that's out there or other resources.

So maybe everyone could address that briefly.

Mr. CAVANAGH. Mr. Chairman, if I could begin. I don't think that anyone at Bonneville or anyone outside it wants to invite compla-

cency in this area, and I want to preface this with that. There is plenty that Bonneville can do to deliver its services more efficiently and Bonneville knows that.

But I think it's important to emphasize just how competitive Bonneville is as a wholesale supplier and I don't think any of the changes that Mr. Carr described, which I'm quite familiar with also, are going to eliminate the need for wholesale suppliers of electricity.

And if there is an analog to digital for electricity, it hasn't popped up on my radar screen yet. I think we're a society that's going to continue to need electrical energy services.

Within that framework, it's comforting, at least, to recognize that the Tenaska plant is a useful proxy for the kind of competition that John was talking about, where someone basically offers to build a stand-alone generator and let someone bypass Bonneville and hook up to it.

By our calculation, and I think Randy showed you the numbers earlier today, Tenaska is still at least 50 percent higher in life cycle costs than the current increased costs of Bonneville wholesale power after Randy has absorbed the increases that he has just dealt with.

And, remember, that is before you make any accounting at all for the kind of fossil energy taxes that, as you correctly point out, may very well be out there on the horizon. Bonneville is selling a very different kind of product, one in a world increasingly concerned about greenhouse gases, that is the very best kind of product to be selling.

So my own view is John is right to be putting constant pressure on Bonneville to deliver its services better and more efficiently. But the notion that, for example, we're brushing up against, a price level per kilowatt hour that might send Bonneville customers scrambling toward another supplier, I understand why they're saying it.

It is in their competitive interest to do it and it is in their competitive interest to be very convincing, Mr. Chairman, to you and to Bonneville that they're about to drop off. But I step back and look at the objective indices, as indicated, for example, by the Tenaska contract, and I reach a slightly different conclusion.

I also would note that it would be our hope in the renewables and conservation area. I think Ken said something that I absolutely agree with, which is you've got to look at where your areas of comparative advantages are in the modern competitive world in terms of which resources you acquire.

I can see large comparative advantage, rather, for Bonneville in aggregating the regional efficiency acquisitions and regional renewable acquisitions because of the breadth of Bonneville spread through the region and the continuing existence of a hydro-power system, which, while less flexible, and John is right about that, as a result of the fisheries problems, is still a system that allows for integration in renewables.

I think there are real competitive opportunities and comparative advantages there for Bonneville. I must say I see them much less clearly in the area of fossil fuel generation acquisitions.

Mr. DEFAZIO. But just on the point you raised, then, what do you make of the utilities. Let's use the EWEB for an example.

They are going out and engaging in some longer-term power acquisition of their own at costs higher or comparable to those costs of Tenaska. They have a feeling that that doesn't exactly match yours in terms of where BPA is headed. I'm curious about that.

What do you think is their motivation? You don't think this is a prudent business decision on their part?

Mr. CAVANAGH. I think that EWEB and Emerald and a number of other of my friends in public power are hedging at the margins, Mr. Chairman, but I don't think any of them is moving to replace Bonneville as a wholesale supplier or to significantly reduce their absolute purchases.

Mr. DEFAZIO. Well, EWEB does have a goal of significantly reducing its dependence, I think from 70 percent to 50 percent.

Mr. CAVANAGH. Sure. But in aggregate, that says its loads grow over time. I think if you look at the aggregate purchases, you won't find them declining. I submit further that if Bonneville's performance is as I expect it to be over the next couple of decades and if you and your colleagues continue to defer the hobgoblin of the federal repayment reform initiatives, I think people will be coming back to Bonneville.

I think the principal concern folks have right now is the Federal Treasury red and I would submit that the best way to defeat that is to absolutely rebut the claims of those, some of them my own constituents back in Washington, who say that the only way you can encourage efficient use of energy in the Northwest is through punitive price increases.

Part of what we're about here, and I think part of the reason why these programs are so important, is to deliver the strongest possible repudiation to those of my constituents and yours who hold that view. That's part of Bonneville's competitiveness, also.

Mr. DEFAZIO. Thank you. Mr. Golden, do you want to comment on this subject?

Mr. GOLDEN. Yes. I just wanted to note that Ralph talked about the comparative advantage of Bonneville's regional scope. The Council quantifies that comparative advantage in its current plan and it's something to the tune of $2 billion for collective regional resource acquisition.

Mr. DEFAZIO. I saw that in your testimony. Do you want to expand on this? I should have asked the Council about that. Can you expand on that?

Mr. GOLDEN. I think primarily it's due to the fact that if we do acquire resources as a region, we can acquire the least expensive resources, no matter where they are, to meet loads, no matter where they are.

We can acquire energy efficiency that's cheaper than generating resources in parts of the region whose own power demands might not dictate that it was time to acquire that energy efficiency. But because we're coordinated as a region, places where demand is expanding have access to the energy efficiency resource region-wide.

Mr. DEFAZIO. But aren't we beginning to experience east-west transmission problems? Particularly, if you look at the Puget Sound area and others, isn't there some need for something that's

located particularly in those sort of sub-areas? You can't transmit all of your needs and certainly transmission is becoming more and more problematic.

Mr. GOLDEN. Certainly not all of them, but for the very same reason that we're reaching capacity constraints in the Puget Sound area, the Puget Sound area is the richest potential load of conservation savings.

Mr. DEFAZIO. So would you give a higher avoided cost to conservation savings in that area. Rather than just looking at, say, this melded sort of rate, but say, well, since it's got to involve additional transmission or whatever other reasons or environmental concerns, that you give a higher avoided cost there?

Mr. GOLDEN. Sure.

Mr. DEFAZIO. So you don't think we should have one avoided cost for the region, but perhaps look at sub-regions in terms of determining what is the effective conservation to acquire.

Mr. GOLDEN. Right. And I think Bonneville has actually agreed to do that in its response to the Puget Sound transmission capacity constraint problem. It is, in fact, doing that for all west-side resources, generating resources and conservation alike.

Buried in your question I think is also the issue of how much it costs Bonneville to deliver conservation relative to other utilities doing it individually. I guess while I think there are definitely efficiencies to be gained and Bonneville does need to learn how to do what it does in a much more streamlined fashion, I think that some of the recent accounts that suggest that Bonneville's costs are way higher than other utilities are, in part, a bum rap.

I think that Bonneville has shouldered a lot of the costs for building the capability region-wide to set the machine in place for this moment when we need the power. The incremental costs are the costs not of building the conservation machine, as it were, but simply activating it by including program payments.

Over the last decade, Bonneville made a big point out of saying we don't need the power, but we do need to build the capability. That capability-building costs.

Finally, on that point, I would submit that we have focused a lot in the mills-per-kilowatt-hour equation that you saw on the chart that was up there and Bonneville's resource delivery. There are two variables there. There's a numerator and a denominator.

We focused a lot on the numerator, on how much Bonneville is spending. I'd submit that the bigger problem is in the denominator on how many kilowatt hours, as Randy Hardy said, they're delivering. The issue isn't that they're spending too much money. The issue is that they've achieved too little result.

That's partly a function of the fact that for most of the last decade, we didn't need a big result in terms of new power resources and partly, frankly, as I testified earlier, a lack of determination to get the job done.

Mr. DEFAZIO. John.

Mr. CARR. I think there are two answers to or two ways to look at the question of whether Bonneville is competitive or not, or will be competitive. One is the question, Are its customers competitive? The second one is, Is Bonneville itself competitive? The first one really gets to the question of the basic industries that Bonneville

serves. Recall that about 60 percent of Bonneville's sales ultimately go to basic industry, us and folks that Ken represents and some basic agriculture.

We compete in markets on the basis of price and most of the markets we compete in are internationally almost perfectly competitive commodity markets. Prices go up here, we eat it. There is no other alternative. So that's the first test.

The question of how competitive we or other industries are, I think it is a fundamental question we will have to wrestle with as we go out over time. But it's certainly a question and an issue.

The question of whether Bonneville is competitive or not is really a question of what's the alternative cost of providing the same products, and combustion turbines may be a good choice. All I can say there is that I have several members that are actively involved in getting combustion turbine output.

My own sense is that the crossover point between Bonneville's rates and the cost of new combustion turbines is quite a bit closer and I think that it will get closer as the market gets more competitive. How close? It's always going to be a debate, but there's no doubt that it's adding additional competitive pressure.

I guess the last thing I'd say is I'll agree with some comments that were made earlier. The question of whether Bonneville is competitive or not has to be a long-term question. We're not interested in solutions that just push off some of these problems into the future.

We think there's going to have to be significant changes to the agency. Randy Hardy is taking the lead in doing those. We're working with him. If he's successful, I think we'll set the stage for the agency being competitive in the future. But that's the goal, the long-term future.

Mr. DEFAZIO. Okay. Ken.

Mr. CANON. We've spent a lot of time trying to wrestle with this question as far as Bonneville versus the utility. Obviously, buying from utilities, the question is, well, do you want Bonneville to be the resource provider for the region or do you want the utilities to be so.

Again, going back to John's point, which makes us most competitive? It seems to us that the utilities that we see out there are looking at risk. We've heard a lot about Tenaska's risk as far as gas. That's something we're very, very accustomed to dealing with. We have now dealt with it for 4 or 5 years as our plants buy gas on a daily basis in a very deregulated market.

I guess we've internalized that to some extent. At the same time, we know that the utilities are looking at what has happened and is happening with the NIPS recovery team and the hydro capability. That's another risk that they're dealing with.

I don't think we'll really know for a couple years. I think that as some of these things sort out, I think as we see the utilities going out with requests for resources and actually moving ahead, we will know for certain.

Right now I think a lot of people are acting on perception. The perception, perhaps unfairly given, is that Bonneville cannot be competitive. We're not buying into that. We're hopeful that the

process that Randy has ongoing can refute that perception and that Bonneville can remain a competitive power supplier.

Mr. DEFAZIO. Thank you. Mr. Cavanagh, you perhaps heard the earlier discussion regarding the curtailment provisions and making customers whole and kinds of curtailment and I'd be interested in any reflection you have on that and its compatibility with the mandates of the Act and the requirement that we encourage conservation and renewables and/or taking into account the arguments BPA makes that this has nothing to do with conservation, that this is curtailment.

Secondly, there's a statement in your testimony where you say the Regional Act was never intended as a guarantor of the utility's balance sheets, particularly when the revenues at stake are based on wasted energy.

Does that get at this question I've raised about curtailment?

Mr. CAVANAGH. Yes. There were, as I understood, two issues you were getting at. One was the question of whether Bonneville ought to be responsible for lost revenues when it invests in conservation in customer service territories.

Mr. DEFAZIO. Right.

Mr. CAVANAGH. And the other was whether Bonneville should be responsible for lost revenues when it asks for a curtailment at a time of regional need. I, I think, like you, Mr. Chairman, would resolve those issues consistently. That is, I do not believe that Bonneville should be responsible for what is effectively the lost markup on wasted energy, which is what the argument over lost revenues in the conservation context is about.

Similarly, when there's an urgent regional need for a curtailment, because you're having to pay substantially more for outside power purchases than you can get from wholesale transactions, I also would reach the result that Bonneville ought to be able to do that.

Randy is right, by the way, when he says that doing that will drive up some customers' rates. It's true that in a time of curtailment, the purchases Randy is curtailing are at a lower rate than many of his customers' retail rates. So the customers' retail rate is higher than the purchase, even though Randy is losing money on the purchase.

It still seems to me that the curtailment is in the best interest of the customers collectively because it reduces their bills more rapidly than it increases their rates. In my view, lower bills ought to trunk higher rates every time, and that is one context where I would apply that rule.

Mr. DEFAZIO. How about any thoughts you have on negative billing credits?

Mr. CAVANAGH. Actually, I'm remembering, Mr. Chairman, that billing credits became an unwelcome fixture in many of our lives as an alternative to tiered rates back when the Regional Act was passed. It's pretty clear to me, and this hearing has reenforced the view, that we're heading for tiered rates in the reasonably near future.

And I would expect that when we get there, and I don't expect us to get there instantly, that particular issue, which I join you in shrinking from, will be happily moot.

Mr. DEFAZIO. Okay. Does anybody else want to comment?

Mr. GOLDEN. I would just say briefly that, particularly in the context of public power, I'm always a little astonished that we reflexively accept the idea that lost revenues are a problem.

From my perspective as a consumer, lost revenues to the utility look like dollars in my pocket, and that's exactly what we were trying to achieve by getting a least-cost energy program up and running.

Now, having said that, I understand that utilities that actively invest in energy efficiency still have meter readers to pay and lines to keep up and bottom lines to maintain and I think the lost revenue problem is a real problem for them in running their operations, a problem, incidentally and ironically, that we've dealt with more successfully for investor-owned utilities than public utilities.

But I wouldn't, on its face, conclude that because utilities are losing revenues, we're on the wrong path in terms of our energy resource choices.

Mr. CAVANAGH. Mr. Chairman, K.C. is absolutely right to raise it. The same corrective that the investor-owned have applied would work for the publicly owned utilities. That is, they could make small automatic adjustments reflecting fluctuations in sales, which are the basic solution that the investor-owned utilities use, and they can solve their own lost revenue problem that way without trying to push it over to Bonneville.

Mr. DEFAZIO. When we get into either tiered rates or if I were looking at a tiered rate and a point at which the rate begins to apply the next tier, or you're looking at curtailment and a target for curtailment, part of the problem in establishing equity with these issues, to me, is essentially sunk efforts.

That is some utilities have gone a long way towards conservation. So, say, if you took a utility that has done exceedingly well in terms of reducing demand and you said, okay, your last year's December 28 consumption minus 5 percent is your curtailment target, how do you create equity in the situation where you take another utility that's done absolutely nothing on demand side and given essentially the same peak date?

How do you get equity?

Mr. GOLDEN. First of all, I guess I think that it's still early enough in the regional energy conservation campaign that there isn't so much effort sunk on anyone's part, that this is a huge problem. There's a long way to go for all the utilities.

But second of all, I think it would be perfectly possible, in determining the allocation that each utility gets under the first tier of the less costly resources, to take account for past conservation achievements. I would think that would be relatively straightforward.

Mr. DEFAZIO. There's a lot more to discuss about tiered rates and I don't want to get too much into that now. We'll be talking about this in the next hearing. But things that have occurred to me are, for instance, you have an area that's growing versus an area that isn't growing and then, well, you don't want to discover its growth.

If we're going to allow growth, what kind of assumptions do you make about growth or economic development and these sorts of things. I have yet to see a really great tiered-rate model. I'm look-

ing forward to what we might hear in the next hearing, thoughts people have on this idea, to bring into account all these things, past efforts, growth versus non-growth and other concerns.

Staff was making a reflection on Mr. Cavanagh's testimony and also upon some of the earlier statements and other statements made by BPA that we're moving toward tiered rates, hopefully, definitely. There is some assumption that if we're moving toward tiered rates, that we can abandon trying to make some of these other programs that have been a bit problematic work in the interim or even in the longer term; that is, billing credits or other things.

Mr. CAVANAGH. Let me instantly disassociate myself from any such conclusions. Tiered rates, even when we get them, won't be a panacea. They won't remove, in my judgment, the need for regional energy efficiency acquisition. In the interim, and it may be a substantial one, as the problems you've laid out get settled, we're going to need direct acquisition mechanisms.

I think we can find mechanisms that do not share what from the utility's perspective are the unacceptable risk consequences of negative billing credits. As Dick Watson of the Power Council likes to point out, Bonneville, in the Regional Act, was recreated, in part, as a risk aggregation mechanism to remove those kinds of burdens from individual utilities and spread those risks across the region.

Bonneville has direct investment methods available to it that certainly will not require that particular feature. We're going to need all of those mechanisms abundantly deployed over just the next several years, because, again, it's important to remember we're also used to this surplus mentality.

We are now in the deficit that the Regional Act sponsors and creators anticipated. We're several hundred average megawatts deep in it, getting deeper all the time, and the price of screwing up is big checks to California and Canadian utilities. That really does concentrate the mind rather nicely.

Mr. DEFAZIO. Does anyone else on the panel have anything they feel they should enlighten us with?

[No response.]

Mr. DEFAZIO. If not, thank you very much. Thank you for being so patient. It took so long to get to this panel. We'll move on to the next panel, where we have five folks. So probably we'll only get three presentations, but we'll see how quickly it moves.

Panel three, come forward. If there's anyone on this panel who intends to sit through this entire arduous process all day long and they could volunteer to change places with Mr. Wilkerson, who is on panel five, who has a plane to catch earlier, I'd appreciate it. Is there anybody who could volunteer in such a manner? We'll get you a special rate from BPA in the next—no one volunteered. Okay. No special rates.

Well, we'll squeeze Mr. Wilkerson on too. If we get you right up after lunch, Mr. Wilkerson, wherever you are, will that meet your needs?

Mr. WILKERSON. Yes.

PANEL CONSISTING OF JANE VAN DYKE, COMMISSIONER, CLARK PUBLIC UTILITIES, VANCOUVER, WA; RANDY BERGGREN, GENERAL MANAGER, EUGENE WATER AND ELECTRIC BOARD; M. STEVEN ELDRIDGE, GENERAL MANAGER, UMATILLA ELECTRIC COOPERATIVE ASSOCIATION; BUD TRACY, GENERAL MANAGER, RAFT RIVER RURAL ELECTRIC COOPERATIVE, INC., MALTA, ID; AND, BOB OLSEN, COMMISSIONER, MASON COUNTY PUBLIC UTILITY DISTRICT 3, SHELTON, WA

Mr. DEFAZIO. All right. Let's begin, then. Ms. Van Dyke, and I apologize for the misappropriation of your title when they communicated with you. Washington has wierd titles and they thought Secretary was higher than Member of Congress. So they thought by referring to you as Secretary, they were putting you way up there, like my administrative assistant is my top person. But most people back here would think of administrative assistant as something else. So we apologize. Go ahead with your testimony.

STATEMENT OF JANE VAN DYKE

Ms. VAN DYKE. Thank you. There's really no problem because I was on vacation and I didn't see the earlier agenda. I am Jane Van Dyke and I currently am president of the Board of Commissioners at Clark Public Utilities in Vancouver, Washington.

I'm one of three elected Commissioners and I have served on the Board since 1985, about 9 years. Clark Public Utilities serves over 114,000 customers in southwest Washington with power purchased from BPA, making us one of Bonneville's largest public customers.

I appreciate this opportunity to share our thoughts and ideas on Bonneville and its resource acquisition process with you. First, I think we should note that we live in a dynamic and changing world. What was true and made sense 50 years ago may not make sense today, and even what was true and made sense 10 years ago may not make sense today.

In examining Bonneville and its strengths and weaknesses in the resource acquisition process, we should first understand it occupies a unique and strong position in the Northwest. It has control of the power generated by the Federal Base System, a region-wide transmission system, and near monopoly control over the interties between the Pacific Northwest and California and the southwest. Plus, it has the ability to add value to the power supply by providing services such as storage, load factoring and backup power.

Bonneville, of course, has weaknesses in the resource acquisition process in other areas, too. We look at this primarily as inability to act; not only to act decisively, but to simply act at all. Bonneville appears to be more committed at times to the process than to the results. We feel the process from them is sometimes a product and not the result.

Consequently, we believe this leads to Bonneville missing cost-effective resources and conservation opportunities, stifling resource development and conservation programs by its customers and unnecessarily increasing the cost of these resources.

For example, in the area of conservation, BPA insists on running a centrally planned, designed and administered conservation program which attempts to impose a one-size-fits-all approach to our

diverse region. Additionally, as others have pointed out, Bonneville has been unable to reach agreement with major utilities, including Clark, who have proposed conservation power plant programs to them.

Finally, even a simple amendment to our current residential weatherization contract, for example, took over 6 months to complete. Recently BPA revived the concept of third-party financing for conservation programs. We were very interested in this as a way to finance increased programs and measures for our commercial and industrial customers, and especially as a way to get through our more than 5,000 household waiting lists for residential weatherization.

Then came the kicker. BPA insisted that we sign a master financing agreement which required their unilateral approval of our bond issue, our financial advisory, our bond counsel and our refinancing activities. We viewed this as an unnecessarily and unwanted intrusion into what was supposed to be a locally run program.

With regard to the direct use of gas, which was one of your questions and a topic earlier, we believe Bonneville has ignored the increasing gas penetration rates and the potential for fuel switching in the Northwest for far too long.

In Clark County, almost 68 percent of our new single-family homes are heated with gas, yet many of these homes continue to heat their water, hot water, with electricity. Additionally, we estimate that about 20 average megawatts is space heating and 50 average megawatts of water heating load to be cost-effectively switched to natural gas in Clark County.

However, due to the differences in utilities and local gas availability, we do believe that fuel choice issues and programs can best be run at the local utility level. We believe that given a new contractual arrangement with Bonneville, we could, without further involvement on their part or further financing, implement programs that would achieve new services by gas, as well as fuel switching at the above levels.

In 1980 when the Regional Act was passed, the first Regional Council was appointed. What the utility committee envisioned at that time with Bonneville acquiring new resources to serve the ever increasing load of both public and private utilities, as well as the DSIs, is very different from the situation we have today.

Additionally, it appears to us that we are continuing to move even further away from the one-utility, one-system planning operation concepts. We believe the Council's role should be more on the planning on a regional scale, but recognize that implementation will probably take place by individual utilities as well as entities, such as ESCO.

We do believe, though, the Council can play an important part in bringing public and interest group input into our energy decision-making process.

Finally, it's important for the Council to remember that Bonneville must be a competitive provider of electricity, as you talked about earlier this morning, for the future of BPA, the power supplier of choice, and for the future of funding of its programs. We believe that competitiveness is very important.

For that to occur, we, as utilities, must not only receive the proper price signal, but also the burdensome overhead of Bonneville must be reduced or eliminated.

In our dynamic world, characterized by rapid change and introduction of market forces, necessary change and reform at Bonneville cannot be achieved by directives, oversight or statutes.

We believe that Bonneville must fundamentally change how it and its customers conduct business and we've proposed some of the following. We should focus Bonneville on activities it does best—running the river and operating the regional transmission system. Expose BPA to market forces by allocating to the existing customers the current power supply at cost and supply load growth at the actual cost of those new resources; in other words, unmeld the cost of BPA power.

Reduce BPA's role in areas where it has been unsuccessful, such as resource development and acquisition. Stimulate the resource development that's necessary—have it be done by the customers by providing them, as proposed above, the allocation and exposing them to the marginally priced resources for load growth.

Require that BPA provide generation services at a competitive rate. Provide some degree of cost certainty by inserting an independent decision-maker into the Bonneville rate-setting process. Finally, provide a menu of services and future power sales contracts.

BPA could also reduce their administrative costs and unnecessary programs, like the irrigation discounts, research and development and the low density discount.

If and when implemented, we believe these changes would result in a more efficient market-driven and responsive BPA that would act in an economically rational manner to the benefit of the people of the northwest.

Thank you again for this opportunity to share our thoughts and comments.

[Prepared statement of Ms. Van Dyke follows:]

TESTIMONY OF JANE A. VAN DYKE
CLARK PUBLIC UTILITIES

BEFORE THE BONNEVILLE POWER ADMINISTRATION TASK FORCE
HOUSE COMMITTEE ON NATURAL RESOURCES
JULY 12, 1993

INTRODUCTION

I am Jane Van Dyke, and I am an elected Commissioner of Clark Public Utilities. Having served as a commissioner since 1984, I appreciate the opportunity to comment before this task force. Clark Public Utilities services over 114,000 customers with power purchased from Bonneville (BPA), making Clark Public Utilities one of BPA's largest public utilities customers.

RESPONSES TO CONGRESSMAN DEFAZIO'S QUESTIONS

BONNEVILLE POWER ADMINISTRATION (BPA) TASK FORCE

QUESTIONS FROM CONGRESSMAN DEFAZIO

Question 1:

What are BPA's strengths and weaknesses in the resource acquisition field? In particular, is the BPA conservation program acquiring all cost-effective efficiency and renewable resources? Is BPA on track to acquire the amount of energy efficiency and renewable resources that the Northwest Power Planning Council has targeted for acquisition by the year 2000? Will near-term budget cuts prevent the region from achieving these goals?

Answer 1:

BPA occupies a unique position in the Northwest giving it tremendous strengths which include:

- Control over the disposition of power from the Federal generating system, which dwarfs all other generating systems in the Northwest.

• They have the ability to provide transmission of a resource to a load center on their backbone transmission. They have near monopoly control of access to Southwest markets over the Intertie.

• BPA's strengths in resource acquisition lie in their ability to provide services such as load factoring and storage that can enhance the value of a resource. They are able to do so because of the flexibility inherent in the existing hydro system.

These strengths and monopolies enjoyed by BPA largely explain why BPA has been unsuccessful in fostering resource development and in acquiring cost-effective generation and conservation resources.

As far as their weaknesses are concerned, they lie primarily in their inability to make decisions in a timely manner. This is related to a stifling internal bureaucracy, federal procurement procedures, and having too many people involved in the process.

In the area of resource acquisition, BPA is erratic in its resource acquisition decisions, slow and cumbersome in acquiring resources and unresponsive to customer and market forces. BPA appears more interested in the process than the result. They seem to feel that the process is a product. Consequently, BPA is missing cost-effective resource opportunities, stifling resource development by its customers, and unnecessarily increasing the cost of resources ultimately acquired to the detriment of taxpayers and Northwest ratepayers.

For example, in the area of conservation, BPA insists on running a centrally planned, designed and administered conservation program which attempts to impose a one-size-fits-all approval on a diverse region. As a utility, we spent over a year attempting to reach a general consensus on the elements of a comprehensive conservation program. In addition, we spent 6 months concluding a very simple amendment to our current residential weatherization contract.

As to whether or not BPA is on track to acquire the amount of energy efficiency in renewable resources that the Northwest Power Planning Council has targeted for acquisition by the year 2000, we would have to state that they are not. BPA has identified available conservation and divided it up by area office and utility. However, funding continues to be a problem. Our fiscal year 1993 Energy Smart Design funds were completely allocated in two months and we have approximately 5,000 homes on our residential weatherization waiting list. Under the current situation, it makes little economic sense for a utility to fund its own program if they are a full-requirements customer of BPA.

Any concern about near term budget cuts preventing the achievement of BPA's conservation goals, we believe, is misplaced. We believe that if BPA were to cut the budget even more, thus eliminating the excess personnel involved in the process, and they were to change the manner in which they sold power to utilities, the conservation goal would be much more likely to be achieved. By implementing a block sale or tiered

rates, the utilities could do conservation programs independently without BPA's interference.

Question 2:

Should BPA proceed with the proposed contract for the output of the Tenaska natural gas combustion turbine? If so, why? If not, why not? BPA has agreed to maintain the confidentiality of certain escalator clauses in the proposed Tenaska contract. Was this confidentiality agreement appropriate?

Because of the confidentiality of certain escalator clauses, there is disagreement regarding the long-term costs of the power from the Tenaska project. Please give your assessment of these long-term costs.

Answer 2:

We have very little first hand knowledge of the Tenaska project. Representing the customers who will ultimately pay for the project, we are deeply concerned about not knowing the provisions of the price escalators in the fuel contract and the closed bidding process. With fuel related costs making up nearly three-fourths of the total project costs, we believe this confidentiality clause violates good public policy.

Additionally, it appears by funding this project, BPA will not be willing and/or able to acquire some cost-effective conservation and will avoid considering fuel choice issues.

Question 3:

In practice, are there significant differences in the processes used by BPA to acquire conservation, renewable and fossil resources? Are procedures, requirements, and administrative demands essentially equivalent for equivalent resources? Are resource acquisition costs and benefits appropriately shared?

Answer 3:

As BPA is not subject to the discipline of the market, it lacks a constant standard against which to judge its actions. Therefore, BPA makes contradictory and economically irrational decisions driven by short-term, non-economic and frequently shifting considerations. This results in BPA applying significantly different standards and requirements on different resource types, and sometimes on the same type of resource. These inconsistent and unpredictable resource standards and requirements seriously inhibit customer resource development and discourage customers from offering cost-effective resources to BPA.

For example, recently BPA was offered a geothermal project with an expected cost of over 60 mils/kwh and a combustion turbine with an expected cost of about 35 mils/kwh. BPA rejected the combustion turbine but pursued acquisition of the geothermal project. Should ratepayers be asked to pay for research and development on unproven resources

that cost twice the market price of alternative resources? Additionally, BPA refuses to disapprove the WPPSS Plant 1 / 3 budgets to force a decision to terminate these plants. They continue to study the legal and economic conditions, despite clear inability to complete the plants.

Question 4:

Is BPA an effective indirect purchaser of regional resources through third-party financing, billing credits, conservation power plants and other indirect means?

Answer 4:

BPA's efforts to indirectly acquire resources through third-party financing have been even less successful. BPA has taken the area of third-party financing where initiative and creativity are the keys, and crushed it with an overburden of bureaucratic detail.

A classic example is the Financing Agreement proposed by BPA for all conservation projects with third-party financing. In this agreement, BPA demanded unilateral approval of the customers bond issues, financial adviser, bond counsel and refinancing activities. Such intrusion into the business of the customers has stymied third-party financing of conservation. The results of this approach are:

- Billing credits have been in place for nearly 13 years with virtually no resources acquired.
- Four utilities have tried to implement a conservation power plant (including Clark Public Utilities). None has succeeded.
- Substantial fuel switching potential has gone unrealized in spite of support from Representative Wyden.

BPA's approach has held back customers who are ready, willing and able to develop conservation, renewables, fuel switching and conventional generation.

Question 5:

What is the potential for cost-effective electricity savings in the Northwest region from fuel switching to natural gas? Do current market conditions create a sufficient incentive for fuel switching? If not, what measures should BPA undertake to encourage fuel switching?

Should BPA prohibit the expenditure of Super Good Cents incentives in areas where natural gas service is currently available?

Answer 5:

Currently, in our service territory alone, Clark County, Washington, the gas penetration rate for new single family homes is 68%. Additionally, we estimate that there are 20 average megawatts of space heating and 50 average megawatts of water heating load that can be cost effectively switched to natural gas. BPA should not be encouraging electric consumption; however, we are concerned about proposing and supporting any new BPA programs. Given a new contractual arrangement with BPA we could, without any further involvement or financing by BPA, implement a program to achieve fuel switching levels of this magnitude.

Question 6:

Has the Northwest Power Planning Council adequately exercised its responsibilities under the Act in the resource acquisition field? Please describe the strengths and weaknesses of the Council's activities related to resource acquisition.

Answer 6:

The Regional Power Council has, for the last several years, emphasized fish and wildlife mitigation more than resource acquisition activities. It is important for the Council to remember that BPA must be a competitive provider of electricity for the future of BPA and for funding its programs. For that to occur, utilities must not only receive the

proper price signal, but the burdensome overhead of the Bonneville Power Administration must be reduced or eliminated from the process. Merely identifying the resources that must be acquired by a noncompetitive BPA will not be of service to the region.

Question 7:

Has BPA adequately accounted for the environmental externalities associated with various energy sources in its resource acquisition process? If not, what specific issues should BPA revisit?

Answer 7:

BPA has struggled with the difficult question of determining an appropriate cost for environmental externalities. However, the most recent decision in the Tenaska project of one mill to account for environmental costs is not accurate and certainly not reasonable.

Question 8:

Please describe the experiences your utility has had with the BPA resource acquisition process. What type of projects or acquisitions have gone best/worst?

Answer 8:

Our experience over the past 10 years clearly indicates a problem exists. A solution to this problem is not another overlay of statutes and regulations. In a dynamic environment characterized by rapid change and the introduction of market forces, reform cannot be achieved by directives or statutes. The solution is reforming how BPA and their customers conduct business.

The following changes are recommended:

- Focus BPA on activities it does best, running the river to optimize existing Federal resources and operating the regional transmission system.
- Expose BPA to market forces by allocating to existing customers the current power supply at cost and supplying load growth at the actual cost of new resources.
- Reduce BPA's role in areas where it has been unsuccessful: resource development and acquisition.
- Stimulate resource development by customers by providing them an allocation of existing Federal power at cost and exposing them to marginal costs for load growth. Also require BPA to provide generation services at a competitive rate.

- Provide some degree of cost certainty by inserting an independent decision maker into the BPA rate-setting process.
- Provide a menu of services in future power sales contracts.

If implemented, these changes result in a more efficient, market-driven and responsive BPA that would act in an economically rational manner. This would benefit taxpayers and Northwest ratepayers.

CONCLUSION

Thank you for the opportunity to address the Committee on these matters.

Mr. DEFAZIO. Thank you. Mr. Berggren.

STATEMENT OF RANDY BERGGREN

Mr. BERGGREN. Thank you, Mr. Chairman. I'm Randy Berggren. I'm general manager of the Eugene Water and Electric Board, a municipal utility in Eugene, Oregon.

We believe Bonneville has an important role to play in the regional resource acquisition. It centers around coordinated development of conservation and generation resources, which we believe can be enhanced under the existing structure of the Regional Act.

Such coordinated development cannot be enhanced under the existing structure of Bonneville, however. Basic changes in the way that Bonneville does business must occur if we are to capture the conservation and renewable resources envisioned by the Act.

Currently, resource development in the Pacific Northwest appears to be fractured with investor-owned utilities acquiring resources according to their PUC-approved resource plans, public utilities providing resources through BPA billing credit mechanisms, and independent power producers bidding resources to both Bonneville and the region's public and private utilities.

By focusing on the creation of a viable new resource pool providing services to both the region's public and private utilities, BPA can continue to play a significant role in resource acquisition while at the same time allowing the region's public and private utilities to function autonomously in the pursuit of their individual resource plans.

Bonneville's strengths in resource acquisition centers around its ability to regionalize the cost of new resources. This is especially important in the areas of region-wide conservation, acquisition of major resources, and in the research, development and demonstration arena.

BPA's greatest weaknesses are a product of its bureaucratic structure. For instance, the agency's recent program efforts in the area of conservation have been laden with arduous administrative process. Lines of authority over who makes decisions are unclear, thus confusing and discouraging to the applicant. This has resulted, in our opinion, in an unacceptably slow pace for acquiring conservation.

There also seems to be a belief by the agency that it assumes program risks and costs when, in fact, the risks and attendant costs of those risks are allocated throughout the region. Consequently, we feel Bonneville does treat conservation as a program which they administer rather than a resource for acquisition by the region's utilities.

The implications of this have been that Bonneville is excessively cautious in its conservation acquisition practices as compared to acquiring its generation resources.

We believe Bonneville has a history of performing well in acquiring conservation resources, beginning in the early 1980s when their region-wide conservation programs operated through their customer utilities. Bonneville accomplished an impressive startup of conservation acquisition.

Over the last 10 years, they've acquired over 300 average megawatts through their customers. However, in recent years,

something has changed. Bonneville is much more risk adverse than ever before. This preoccupation with identifying possible risks and assigning them to others placed additional pressures on Bonneville's short-term revenue requirements.

BPA deserves continued support in pushing forward this aspect of their renewable resource agenda. Due to budget restrictions, Bonneville may not be acquiring all the cost-effective efficiency and renewable resources. They may, therefore, not be on track in developing the amount of energy efficiency called for in the 1991 power plan.

Our concern is that they will indeed prevent the region from achieving these goals.

Relative to some of your questions on Tenaska, we believe that Bonneville should proceed with the proposed contract for the output of the Tenaska natural gas combustion turbine. The problem for us is not acquiring Tenaska, but rather, that Bonneville continued to be in a position to acquire other significant conservation and renewable resources.

It is appropriate for BPA, in our opinion, to maintain its confidentiality around certain escalation clauses in the proposed Tenaska contract. Bonneville acquired these resources under competitive conditions and disclosure of this information may adversely affect Bonneville and its customers regarding additional resource acquisitions.

The concern over confidentiality of certain escalation clauses focuses on BPA's critical need to ensure the long-term cost of the Tenaska project will be as expected. Bonneville needs to ensure its customers that the fuel cost risks have been adequately addressed.

BPA needs a standard approach to assuming the fuel risks that its customer resource developers can understand and support. Another aspect of this acquisition is that the pricing of the Tenaska project is forming a ceiling above which Bonneville does not appear willing to pay for power from conservation and other renewable resources, regardless of other relevant considerations.

It would be a travesty if, because of uncertain fuel costs, Bonneville ended up paying more for the Tenaska project than expected while, at the same time, holding down the maximum cost it will pay for alternate conservation and renewable acquisitions.

Relative to differences between their processes for acquisition of renewables and supply side resources, we believe there are significant differences in the processes used by Bonneville to acquire conservation as opposed to generation resources which have disadvantaged the acquisition of conservation resources.

Generation resources have been acquired on competitive conditions where the market is indicating a value for this power. Competitive bids are also seen as a way for conservation to be turned from a cost-based purchase to a value-based purchase, with utilities accepting more risk for getting the savings for Bonneville.

Bonneville, however, appears unwilling to pay this value-based amount for conservation and other demand side acquisitions, even through the competitive bidding process or the billing credits for demand side resources. The first and only round of competitive bids closed in June of 1991.

BPA received over 1,500 megawatts of proposals for a 300-megawatt request. Although BPA has signed for a natural gas turbine for over 200 average megawatts, EWEB hasn't had a contract negotiation session yet for our under one-megawatt residential conservation bid, nor have we received any contract offers for our under one-megawatt industrial conservation bid.

BPA's first billing credit solicitation was a test for about 50 megawatts. A few small conservation projects made it to the contract signing stage. However, the majority of contracts were awarded for generation projects. EWEB withdrew 5 conservation proposals due to low alternative costs, negative billing credits, and high cost of verification requirements.

These three factors have proved to be substantial obstacles to establishing a viable conservation acquisition program. BPA's second billing credit solicitation is for 200 megawatts. Revisions were made to the billing credit guidelines. However, they were focused more toward generation acquisition. This may explain why the 14 proposals submitted for about 250 average megawatts, only 2 are for conservation and they account for under one megawatt.

In practice, Bonneville seems to be spending an inordinate amount of time developing and administering acquisition contracts. Bonneville has yet to differentiate the amount of oversight involved with a one-megawatt residential bid or a 220-megawatt combined cycle combustion turbine.

We believe Bonneville needs to offer a short-term, simplified, standard offer acquisition contract for small resource acquisitions. Bonneville has been effective in acquiring conservation in the past, but recent changes in Bonneville's concern over risk assignment and budget limitations has reduced its effectiveness.

Current contract offerings by Bonneville are detailed and complex in their attempts to identify, quantify and assign risks. In addition, the cost of financing the needed levels of conservation has raised concern about Bonneville's borrowing limits.

In 1985, Bonneville and EWEB participated in a conservation bond program in which EWEB sold municipal bonds to fund conservation acquisitions in Eugene. Bonneville paid the cost of the bonding. This program produced levels of conservation activity in Eugene that has not been matched in any of the numerous conservation mechanisms offered by Bonneville since then.

Of EWEB's attempts to solicit a conservation billing credit targeted acquisition contract, competitive bids for conservation contracts or an extension of the current EWEB bond contract, none have yet been accepted.

A renewal of the 1985 third-party financing project between Bonneville and EWEB could work to overcome the current budgeting and complexity problems that plague Bonneville's current conservation programs. Conservation should be treated as a resource, particularly when the risks are shared and utilities assume acquisition management.

A revival of that partnership of the early 1980s in combination with a financing capability of its utility customers could make Bonneville an effective conservation purchaser again. We believe Bonneville has been effective in purchasing generation resources

through the billing credits. They have given their customers an avenue to develop resources, enabling them to offset BPA purchases.

Administratively, the process has become more refined. For instance, Bonneville has waived detailed scrutinizing of costs for very small projects. Alternative costs have been revised and a public process has been taken into consideration.

As a result, EWEB has been successful in securing billing credits contracts for a backpressure turbine at our steam plant, for the Smith Creek hydroelectric facility, and for the Newberry geothermal project. BPA could further simplify its billing credits process by accepting a standard offer format for small resources and by assuring its customers of their billing credit eligibility at the front end of the process so the utility has confidence there is a market for its resource.

Negative billing credits remains an issue. When the wholesale power rate exceeds the alternative cost of the resource, the utility must pay Bonneville the difference until the end of the contract period. The utility can find itself in the position of paying for a negative billing credit so far into the future that the benefits to developing the resource are negated.

BPA should take additional steps to eliminate this disincentive for resource development. I think it's important to recognize on the issue of fuel switching that the electric-to-gas natural fuel switching question is only a part of a broader issue of fuel substitution. Fuel substitution includes three elements: Residential fuel switching from existing electric water and space heating to using natural gas; residential fuel choice decisions about what kinds of equipment to install; and the substitution of natural gas for electricity for natural gas in commercial and industrial applications.

For fuel switching, the market conditions play less of a role because the cost-effectiveness of a conservation decision is dominated more by the actual cost of conversion. In markets where there is a fuel price disparity, gas availability and relative ease of conversion to fuel switching seems to be proceeding.

We need to ask, Is fuel switching a resource or only an interim solution that will come back to haunt utilities in 20 to 25 years when natural gas supplies are exhausted and the cost of fuel is no longer competitive with electricity and are we addressing the potentially gray picture of a gas system which is subscribed to the point of some interruptible contracts with scheduled periods of backup oil?

Without the imposition of barriers to switching back to electricity as a heating fuel sometime in the future, we believe fuel switching is of questionable value as a long-term resource. Fuel substitution in the short-term, however, could be considered a resource, but the priority, regardless of fuel type, is always efficiency of the end use.

We believe that the issue of fuel switching should be fuel blind. Bonneville should not prohibit the expenditure, in our opinion, of Super Good Cents incentives in areas where natural gas is currently available.

We believe that Bonneville has been effective in carrying out the research necessary to evaluate environmental costs. We think Bonneville has taken a deliberate approach to explicitly including only those external costs and benefits that are quantifiable and they

need to open up those considerations to more qualitative considerations.

To list some of those quite briefly, just environmental dispatch of existing and newly acquired resources, a significant non-linearity of environmental impacts, upstream and downstream considerations on the resource, how far you should reach, and the varied environmental costs, how those varied environmental costs are established and their comparability.

I think to close I would just say while I've reflected perhaps our last 3 to 4 years of recent experience and tried to reflect that in the context of your questions, I am also encouraged, as many of the other people that have testified before you today have said, with Bonneville's recent willingness to acknowledge and to embrace some of these issues as a part of their function-by-function review and their competitiveness project.

I believe that there's a lot of hope to be held out for that effort because I think they're authentic and they're doing some good work on that.

Thank you.

[Prepared statement of Mr. Berggren follows:]

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BONNEVILLE POWER ADMINISTRATION
TASK FORCE HEARING
July 12, 1993

Commissioners
Sarah Hendrickson
Susie Smith
Mike Dyer
Dorothy Anderson
Glen Gibbons Jr.
General Manager
Randy L. Berggren

Bonneville has a very important role to play in regional resource acquisition. It centers around the coordinated development of conservation and generation resources which we believe can be enhanced under the existing structure of the Regional Act. Such coordinated development cannot be enhanced under the existing structure at Bonneville, however. Basic changes in the way BPA does business must occur if we are to capture the conservation and renewable resources envisioned by the Act.

Currently, resource development in the Pacific Northwest appears to be fractured, with investor-owned utilities acquiring resources according to their PUC-approved resource plans, public utilities providing resources through the BPA "billing credits" mechanism, and independent power producers bidding resources to both BPA and the region's public and private utilities. By focusing on the creation of a viable "new resource pool" providing services to both the region's public and private utilities, BPA can continue to play a significant role in resource acquisition while at the same time allowing the region's public and private utilities to function autonomously in the pursuit of their individual resource plans.

1. **What are BPA's strengths and weaknesses in the resource acquisition field? In particular, is the BPA conservation program acquiring all cost-effective efficiency and renewable resources? Is BPA on track to acquire the amount of energy efficiency and renewable resource that the Northwest Power Planning Council has targeted for acquisition by the year 2000? Will near-term budget cuts prevent the region from achieving these goals?**

BPA's strengths in resource acquisition center on its ability to "regionalize" the cost of new resources. This is especially important in the areas of regionwide conservation (commercial buildings, etc.), acquisition of major resources (greater than 50 MW), and in the research, development and demonstration arena.

BPA's greatest weaknesses are a product of its bureaucratic structure. For instance, the agency's recent program efforts in the area of conservation have been laden with an arduous administrative process. Lines of authority over who makes decisions are unclear, thus confusing and discouraging the applicant. This has resulted in an unacceptably slow pace for acquiring conservation.

There also seems to be the mistaken belief by the agency that it assumes program risks and costs when, in fact, the risks and attendant costs for those risks are allocated throughout the region. Consequently, BPA treats conservation as a "program" which they administer, rather than a resource for acquisition by the region's utilities. The implications of this have been that BPA is excessively cautious in its conservation acquisition practices as compared to acquiring generation resources.

Conservation

Bonneville has a history of performing well in acquiring conservation resources. Starting in 1982, with their regionwide conservation programs operated through their customer utilities, Bonneville accomplished an impressive startup of conservation acquisition. Over the last 10 years they have acquired over 300 MW through their customers. However, in recent years something has changed. Bonneville is much more risk-adverse than ever before. This preoccupation with identifying the possible risks and assigning them to others,

combined with the recent budget constraints, has caused Bonneville to produce complex and restrictive conservation contracts which take tremendous amounts of BPA and other agency staff time. Such conditions are not conducive to maximizing the acquisition of cost-effective conservation megawatts.

Instead of focusing on the open partnerships with its utility customers that worked so well in the early 1980's, recently Bonneville seems determined to find new ways to define and limit their risk through new and more complex contract mechanisms. In attempts to improve our conservation acquisition partnership with Bonneville, EWEB has tried to participate in Bonneville's conservation Billing Credits Proposal, the Targeted Acquisition Proposal, the Competitive Bid for Conservation Proposal, and our own proposal to fund conservation by selling EWEB bonds that are already authorized by voters for that purpose. None of these alternative mechanisms has yet produced a contract from Bonneville and, none, except for our own proposal, would be needed if we could rediscover the partnership we had in the early 1980's. The near-term budget cuts appear to heighten Bonneville's concern over risk and jeopardize its chances of achieving the Power Planning Council's regional conservation targets for 2000.

Renewable Resources

BPA should be commended for its efforts in encouraging the development of renewable resources through its Pilot Geothermal Program and through its Wind Demonstration Program. Through these programs, Bonneville has brought together a number of regional utilities, both private and public, to facilitate the development of resources which show long-term economic and environmental promise for the Pacific Northwest, yet they do

place additional pressures on BPA's short-term revenue requirements. BPA deserves continued support in pushing forward this aspect of the region's renewable resource agenda.

Due to budget restrictions, Bonneville may not be acquiring all cost-effective efficiency and renewable resources. They may therefore not be on track to develop the amount of energy efficiency called for in the 1991 Power Plan. Our concern is that this will indeed prevent the region from achieving these goals.

2. **Should BPA proceed with the proposed contract for the output of the Tenaska natural gas combustion turbine? If so, why? If not, why not? BPA has agreed to maintain the confidentiality of certain escalated clauses in the proposed Tenaska contract. Was this confidentiality agreement appropriate? Does BPA have the authority as a federal agency to comply with such an agreement? If so, please cite the relevant statutory authority.**

   Because of the confidentiality of certain escalated clauses, there is disagreement regarding the long-term cost of the power from the Tenaska project. Please give your assessment of these long-term costs.

BPA should proceed with the proposed contract for the output of the Tenaska natural gas combustion turbine. The problem is not acquiring Tenaska, but rather that BPA continue to be in a position to acquire significant conservation and renewable resources.

It is appropriate for BPA to maintain the confidentiality of certain escalation clauses in the proposed Tenaska contract. Bonneville acquired this resource under competitive conditions and disclosure of this information may adversely affect BPA and its customers regarding additional resource acquisitions.

The concern over confidentiality of certain escalation clauses focuses on BPA's critical need to ensure that the long-term cost of the Tenaska project will be as expected. Bonneville needs to ensure its customers that fuel cost risks have been adequately addressed. BPA needs

a standard approach to assuming fuel risk that its customer resource developers can understand and support.

Another aspect of this acquisition is that the pricing of the Tenaska project is forming a "ceiling" above which Bonneville does not appear willing to pay for the power from conservation and other renewable resources, regardless of other relevant considerations. It would be a travesty if, because of uncertain fuel costs, Bonneville ended up paying more for the Tenaska project than expected while at the same time holding down the maximum cost it will pay for alternative conservation and renewable acquisitions. BPA should address this through a "diversity" credit applicable to non-gas-fired acquisition and the price structure BPA will pay for new resources.

3. In practice, are there significant differences in the processes used by BPA to acquire conservation, renewable and fossil resources? Are procedures, requirements and administrative demands essentially equivalent for equivalent resources? Are resource acquisition costs and benefits appropriately shared?

Competitive Bids

There are significant differences in the processes used by BPA to acquire conservation as opposed to generation resources, which have disadvantaged acquisition of conservation resources. Generation resources have been acquired on "competitive" conditions where the market is indicating a value for this power. Competitive bids are also seen as a way for conservation to be turned from a "cost"-based purchase to a "value"-based purchase with the utilities accepting more risk for getting the savings for BPA. BPA, however, appears

unwilling to pay this value-based amount for conservation and other demand-side acquisitions even through the competitive bidding process or billing credits for demand-side resources.

The first and only round of competitive bids closed in June of 1991. BPA received over 1,500 MW of proposals for a 300 MW request. Although BPA has signed for a natural gas turbine for over 200 MW, EWEB hasn't had one contract negotiation session for our under 1 MW residential conservation bid, nor have we received a contract offer for our under 1 MW industrial conservation bid.

Billing Credits

BPA's first billing credit solicitation was a test for about 50 MW. A few small conservation projects made it to the contract signing stage, however the majority of the contracts were awarded for generation projects. EWEB withdrew five conservation proposals due to low alternative costs, negative billing credits, and the high cost of verification requirements. These three factors have proved to be substantial obstacles to establishing viable conservation acquisition programs.

BPA's second billing credit solicitation is for 200 MW. Revisions were made to the billing credit guidelines, however they were focused toward generation acquisition. This may explain why, of the 14 proposals submitted for about 250 aMW, only two are for conservation and they account for under 1 MW.

In practice, Bonneville is spending an inordinate amount of time developing and administering acquisition contracts. Bonneville does not differentiate the amount of oversight involved with a 1 MW demand-side residential bid or a 220 MW combined cycle combustion

turbine. Bonneville needs to offer short-term, simplified "standard offer" acquisition contracts for small (less than 30 aMW) resource acquisitions.

4. Is BPA an effective indirect purchaser of regional resources through third party financing, billing credits, conservation power plants, and other indirect means?

Third Party Financing

Bonneville has been effective in acquiring conservation in the past, but recent changes in Bonneville's concern over risk assignment and budget limitations has reduced its effectiveness. Current contract offerings by Bonneville are detailed and complex in their attempt to identify, quantify and assign risks. In addition, the cost of financing the needed levels of conservation has raised concern about Bonneville's borrowing limits. In 1985 Bonneville and EWEB participated in a conservation bond program in which EWEB sold municipal bonds to fund the conservation acquisitions in Eugene. Bonneville paid the cost of the bonding. This program produced a level of conservation activity in Eugene that has not been matched by any of the numerous conservation mechanisms offered by Bonneville since then. Of EWEB's attempts to solicit a conservation billing credit, targeted acquisition contract, competitive bid for conservation contract, or an extension of the current EWEB bond contract, none have yet been accepted.

A renewal of the 1985 third party financing project between Bonneville and EWEB could work to overcome the current budgeting and complexity problems that plague Bonneville's current conservation programs. Conservation should be treated as a resource, particularly when the risks are shared and the utilities assume program management. A

revival of the partnership of the early 1980's, in combination with the financing capability of its utility customers, could make Bonneville an effective conservation purchaser again.

Billing Credits

BPA has been effective in purchasing generation resources through billing credits. They have given their customers an avenue to develop resources, enabling them to offset BPA purchases.

Administratively, the process has become more refined. For instance, BPA has waived detailed scrutinizing of costs for very small projects. Alternative costs have been revised and the public process is taken into consideration.

As a result, EWEB has successfully secured billing credit contracts for a backpressure turbine at our steam plant, the Smith Creek hydroelectric facility, and the Newberry geothermal project.

BPA could further simplify its billing credit process by accepting a "standard offer" format for small resources and by assuring its customers of their billing credit eligibility at the front end of the process so the utility has confidence there is a market for its resource.

Negative billing credits remain an issue. When the wholesale power rate (which continues to go up) exceeds the alternative cost of the resource, the utility must pay Bonneville the difference until the end of the contract period. A utility can find itself in the position of paying for the negative credit so far into the future that the benefits of developing the resource are negated. BPA should take additional steps to eliminate this disincentive for resource development.

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5. **What is the potential for cost-effective electricity savings in the Northwest region from fuel switching to natural gas? Do current market conditions create a sufficient incentive for fuel switching? If not, what measures should BPA undertake to encourage fuel switching?**

   Should BPA prohibit the expenditure of Super Good Cents incentives in areas where natural gas service is currently available?

It is important to recognize the electric-to-natural gas fuel switching question is only a part of the broader issue of fuel substitution. Fuel substitution includes the following three elements:

1. Residential fuel switching from existing electric water and space heating systems to those using natural gas
2. Residential fuel choice decisions about what kinds of equipment to install in new dwellings
3. The substitution of natural gas for electricity or electricity for natural gas in commercial and industrial applications where the substitution provides greater value to the end user

The answer to the cost-effectiveness question varies around the region due to differences in the relative prices of electricity and gas. In addition, there are technical constraints on how much potential there is for gas to serve thermal end loads now being met with electricity. These technical issues range from whether or not an existing home can easily be retrofitted with a gas heating system to issues about indoor air quality.

Thousands of homes in the Northwest use electricity for space and/or water heating. The electric power system could reduce its need for new generation resources by encouraging some of those customers to convert from electric space and water heat to natural gas. A number of studies and pilot programs have identified many cases where it was and is cost-

effective to do so, but the same reports also indicate that there are many cases where the conversions would be either impractical or simply not cost-effective in either the short- or long-term. Accessibility to the natural gas distribution system, the relative prices of electricity and gas, and the technical-structural feasibility of the conversion are all factors that influence the cost-effectiveness.

For example, in EWEB's service area some 80% of the existing dwellings are heated with zonal electric systems (either ceiling, cable or baseboard heaters). In general, these homes could be converted to forced air gas furnace heating only at considerable cost. Because the cost-effectiveness depends on the capital cost of the conversion, the relative prices of electricity and gas, and the size of the heating load, it is unlikely that such fuel conversions would be cost-effective. In other cases, such as homes already having forced air heating, such conversions may be appropriate.

In the case of new single family homes built in areas served by local gas distribution systems, there has been a significant shift toward gas space and water heating over the last five years. The fact that this has occurred even in areas where the relative electric and gas prices are not far apart is an indicator that other market forces are at work such as builder and home buyer preferences. Thus, market conditions and perceptions seem to be enough of an incentive to support fuel "choice" decisions.

For fuel switching, the market conditions play less of a role because the cost-effectiveness of a conversion decision is dominated more by the actual cost of the conversion. In markets where there is fuel price disparity, gas availability and relative ease of conversion, fuel switching seems to be proceeding.

We need to ask, is fuel switching a resource or is it only an interim solution that will come back to haunt utilities in 20-25 years when natural gas supplies are exhausted and the cost of the fuel is no longer competitive with electricity. And, are we addressing the grave picture of a gas system that is subscribed to the point that some interruptible contracts have scheduled periods of backup oil? Without the imposition of regulations that prevent switching back to electricity as a heating fuel at some time in the future, we believe fuel switching is of questionable value as a long-term resource. Fuel substitution in the short term, however, could be considered a resource, but the priority regardless of fuel type is always efficiency of end use.

What Bonneville, the Council, utilities and the natural gas industry need to be doing is more truly integrated resource planning that takes into consideration all fuel options, supply limitations, and demand growth. By encouraging fuel switching now to reduce electric load without studying the long-term natural gas supply and demand pictures, we may simply be dodging one bullet in the electric supply curve now for the next generation to stop when gas supplies are depleted.

If Bonneville would also move toward a marginal costing approach in its wholesale rate structure, more correct price signals could be communicated through their retail customers. This would help to clarify the true market environment in which retail customers make their energy decisions.

Bonneville should not prohibit the expenditure of Super Good Cents incentives in areas where natural gas service is currently available. In utilities where gas is available, Super Good Cents participation as a percentage of all new electric homes was only 11% in 1992. By Bonneville's own estimate, 13% of the 11% (or 1.3% of total electric homes)

chose electricity because of the incentives. There is far more resource going untapped in the 89% of electric homes that are not being built to the LTSGC standards than is being lost as a result of 1.3% of all electric homes that would otherwise have chosen gas.

BPA's incentive levels for the Super Good Cents program should be designed to encouarge highly efficient construction practices among those builders and buyers already choosing to heat with electricity. The level of incentive should not be so high that it would significantly influence the fuel choice decision. Even in areas in which natural gas service is available, payments can be used to partially offset the cost of the upgraded conservation measures without promoting fuel switching. In fact, the program should be run as a fuel blind program with utility investments from both the electric and gas service providers so that all new dwellings could be Super Good Cents efficient.

6. **Has the Northwest Power Planning Council adequately exercised its responsibilities under the Act in the resource acquisition field? Please describe the strengths and weaknesses of the Council's activities related to resource acquisition.**

The Northwest Power Planning Council has adequately exercised its responsibility under the Act in the resource acquisition field. The 1991 Power Plan presents a credible view of resources needed by the region, and has been extremely useful in communicating this need for resources on a regional basis to those outside of the utility community in the Pacific Northwest. The Council has shown a willingness to support cost-effective and environmentally sound resource acquisitions. The Council could play a further role in unifying state regulatory processes applicable to utilities in the Pacific Northwest.

7. **Has BPA adequately accounted for the environmental externalities associated with various energy sources in its resource acquisition process? If not, what specific issues should BPA revisit?**

Bonneville began, over a decade ago, to carry out the research necessary to begin assessing the environmental costs and benefits of energy resource development and operations. Through its own efforts and via its sponsored research, Bonneville has made significant progress in accounting for external environmental impacts in its resource planning and acquisition processes, but there is still far to go in truly crafting an integrated regional resource program.

BPA has taken a deliberate approach of explicitly including only those external costs and benefits that are quantifiable. This focus on quantifiable factors is a result of the requirements in the Northwest Power act as well as the fact that BPA uses the quantified environmental costs in its computer models to develop the projected system costs for proposed resource strategies. In addition, BPA has not explicitly included cost adders for greenhouse gas emissions, for which ranges of costs have been proposed.

While qualitative environmental impacts are "considered" in BPA's planning activities, EWEB believes Bonneville should recognize the need to expand its efforts at including the less- or non-quantifiable impacts of resource decisions in a more comprehensive and structured fashion.

We believe BPA's work in this area must continue to evolve and develop in concert with the activities of other regional partners. Policy analysis efforts should expand to include such issues as:

- environmental dispatch of existing and newly acquired resources;
- the significant non-linearity of environmental impacts;

- how far upstream and downstream of the resource should the impacts be considered;
- how the varied environmental costs are established and their comparability;
- how should economic discounting of environmental costs and impacts be handled;
- and the variability and vitality of recognizing multiple perspectives on the risks associated with alternative resources.

Mr. DEFAZIO. Thank you. Mr. Eldridge, you will be the last one before lunch here, unless you want to wait till after lunch.

STATEMENT OF M. STEVEN ELDRIDGE

Mr. ELDRIDGE. Thanks for inviting me today. My name is Steve Eldridge. I'm general manager of Umatilla Electric, a cooperative association about 200 miles up the river from Portland. Our service area is 2,500 square miles and we have 65 employees and 5 consumers per mile of line.

We are the largest, most efficient irrigation electric co-op in the United States. Ninety percent of the water taken from the Columbia River in Oregon for irrigation occurs in Umatilla and Morrow Counties. This amount of irrigation comprises three-tenths of a percent of the flow of the Columbia River and irrigates 200,000 acres, and these 200,000 acres supply all the bread, meat and potato needs of one million people for one year, with 30 inches of water and 400 kilowatt hours per acre per year, a very efficient use of natural resources.

There is not sufficient time today for me to respond to all of the issues that you raised. So I will confine my remarks primarily to the acquisition and Northwest Power Planning Council.

I'd like to start with back in the 1970s, with the letter of insufficiency, the last time we thought we were deficit in the region. As a result of that letter of insufficiency, we signed on with a bunch of other co-ops for a 10 percent of the Boardman, a coal-fired plant.

Things went along pretty well, and in fact, in 1981, BPA committed to purchase from PNGC any resource that they needed, and they felt at that time that the Pacific Northwest needed all the resources it could get.

Of course, you know shortly after that we discovered we weren't in deficit. In 1983, we were about to close a deal with WAPA when Bonneville came in and offered them a better price. So that fell through.

Then during the 1990s, when the surplus ran out due to the regional load growth, constraints on the Columbia/Snake River, which I think is a lot closer to 1,000 megawatts instead of 500, and thermal plant closures, once again, PNGC decided to pursue a long-term sale of Boardman.

Now, at the same time, we went on two parallel paths. There were utilities interested in California and the 52 megawatts we had to sell and Bonneville started their acquisition process, and we participated in that, as well. If you remember, about that time, BPA put their externality costs on and they had to back away from part of it because they were inappropriate. There was not any national policy on that.

We never sold it to BPA. It's going to go to California. It's going to start the first of 1994. It met Bonneville's price levels and there at the last, Bonneville did think they'd be interested, but they couldn't close the deal for a couple years.

In fairness to the other parties we were negotiating with, we closed the deal with California. It remains to be seen whether or not we would have ever been successful. So for the next 20 years, that 52 megawatts will be going to California for less than 30 mills a kilowatt hour.

We've also been involved with two cogen plants, 400 megawatts each, in the Hermiston area. Both have left Bonneville's acquisition process. They both started there because Bonneville needed more resources. The one plant, Portland General Electric, has decided that they wanted to replace their part of Trojan and they've withdrawn.

The other is a consortium of Pacific Gas and Electric and Battelle, very experienced developers, and they've decided that they don't want to wait 2 or 3 years and they've removed themselves from the convoluted process that BPA has. And that was a very competitive plan.

Also related to this is this extensive discussion of tiered rates. It appears to me that the tiered rates discussion is driven primarily with the dissatisfaction of Bonneville's process in acquiring conservation and new resources, in general.

I'm bothered by the fact that we're going to pick a solution like tiered rates rather than fixing the process we have. I would much rather make the acquisition process as effective as possible and then if tiered rates falls out as a natural consequence, I think that's a healthier way to get to tiered rates.

Now, it's been proposed by some that BPA should be paying end users to convert from electricity for space and water heating to using natural gas. We've lived through quite a bit of fuel switching and it was said today that up to a thousand megawatts could be saved by switching to natural gas, and I share a lot of the concerns that Randy hinted at.

Back in the 1970s, our food processing plants, their boilers were heated by gas and oil, and then, if you remember, Canada jacked up the price of gas. In fact, there was a moratorium in Oregon for any new gas hookups. And suddenly electricity was the better buy and more reliable. So all those gas steam boilers went to electricity.

Then at the end of WPPSS in 1982 and 1983, they all went back to gas and oil and we lost about 30 percent of our load. The same thing happened in the residential sector. About 40 percent of our residentials started heating with wood. Now they're turning away from that and they're coming back and wanting electricity.

In rural eastern Oregon, until just a few years ago, even most of the metropolitan areas didn't have much natural gas.

But now natural gas is doing what investor-owned have always done and picked the population areas and run gas lines in and provided service.

It seems to me that we're not asking the right question on this fuel switching. It seems to me that the best public policy and what we as a utility try to do is encourage energy efficiency, because long term, that's the best buy for our customers. The questions should be, Why are the natural gas companies encouraging people changing from a 98 percent efficient water heater to a 65 percent gas-fired water heater and why isn't there a natural gas super energy efficient home design, and is there a natural gas water heater wrap program or an energy efficiency window program or even a house insulation program?

No, there's not. We went through our fuel conversion and I'll bet that the next big in-rush we're going to see in residential load is

when all those people say I'm tired of cutting wood and they turn their electric furnaces back on.

I think that Congress, if they're going to encourage the use of energy, it should always be in the name of efficiency.

In the conservation area, we've accomplished a lot in conservation. Our irrigators use 30 percent less energy and 25 percent less water than they did 15 years ago, and it goes along with what Ralph Cavanagh was saying, that you don't need a club to get people to conserve. I think our irrigators are testimony to that.

In fact, the Act allows now to charge them 10 percent more if they don't conserve. We haven't done that because I don't think that it's politically possible to do it. This large amount of conservation in the irrigation sector was due to changing equipment, lowering pressures, changing pump and motor size.

In the residential, where we've had some successes, it's been in changing the equipment, in taking out that electric furnace and putting in an air-to-air heat pump or a ground source heat pump. That's when you pay for delivered savings, not hoped for savings from a tiny sample.

Now, our experience points out one of the basic problems, which has been mentioned several times. Residents paying for measures based on tiny samples, BPA should pay on the basis of actually saved energy. Conservation is a resource. It has to compete on the same level as every other resource.

BPA pays too much, almost twice per kilowatt hour as other large utilities for conservation. I've got some solutions here, if you want to hear them. I think Bonneville is held to a different standard than anybody else, which drives up their conservation costs.

They're expected to staff for the region, financially support State and local conservation programs, fund building code enforcement, fund the conservation conferences and be required to manipulate cost-effectiveness.

Then, very quickly, on the Council. The Council was created to bring about consensus in the region on resource acquisition, on fish and wildlife, and we need strong effective leadership to do that.

If you look at the recent past, there's a lot of debate about how strong and effective that leadership has been and how much consensus we have. There will never be consensus that the Council will bring about until decisions are based on traditional cost-effective methods and that they're an integral part of those decisions.

The Council receives a lot of press coverage, making it virtually impossible for the general public to sort out personal opinions or Council positions. As a consequence, Council members should take care not to use their position on the Council as a bully pulpit, espousing their personal views and beliefs.

The basic problem we have in the Northwest is a lack of commitment to work out solutions to reach consensus. We all run to you if we don't like what we hear. When you're responsible, you say, hey, get all together and work it out. Sometimes when our elected officials get involved in the details and demand a specific program, that hurts us. That doesn't help us build consensus.

If that doesn't work, we run to court. My request is that this Committee help de-politicize BPA and the Council. We must continue to have an open process in which any who wish to participate

can. Once the discussions have taken place, decisions have to be made based on good science, sound economics, and agreed on societal needs.

Help the region make these decisions based on good public policy, not politics as usual. Thank you.

[Prepared statement of Mr. Eldridge follows:]

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July 9, 1993

The Honorable Peter DeFazio
Chairman
Task Force on Bonneville Power
Administration
Longworth Building
Washington, D.C 20515-3704

Dear Mr. DeFazio:

Thank you for the opportunity to participate at the July 12, 1993, Task Force hearing on the Bonneville Power Administration. I am Steve Eldrige, General Manager of Umatilla Electric Cooperative Association, located along the Columbia River 200 miles east of Portland. We have the largest, most efficient irrigation load of any electric cooperative in the United States. Ninety percent of the water taken from the Columbia River for irrigation occurs in Umatilla and Morrow Counties--our service area. This amount of irrigation water comprises .3 percent of the flow of the Columbia River and irrigates 200,000 acres.

There was not sufficient time to respond in detail to all the issues raised in your June 29, 1993, invitation. Our discussion will be limited to resource acquisition and the Northwest Power Planning Council.

RESOURCE ACQUISITION

In the late 1970's Umatilla Electric Cooperative Association (UECA) and a number of other electric cooperatives in the Pacific Northwest formed Pacific Northwest Generating Cooperative and bought 10 percent of Portland General Electric's Boardman coal-fired plant. Umatilla Electric became an owner of the Boardman plant due to BPA's Notice of Insufficiency. When the 1980 Regional Power Act gave BPA authority to contract for the purchase of resources, BPA clearly indicated Boardman was the type of resource they would like to buy. In 1981 BPA committed to purchase from PNGC any resource that BPA needed and the Pacific Northwest needed every resource it could get. Shortly after this, BPA discovered it was in surplus. In May 1983, as PNGC was in final draft contract stage with WAPA, BPA offered WAPA a better deal and PNGC had no sale. During the 90's as the surplus ran out due to regional load

growth, Columbia/Snake River constraints and thermal plant closures, PNGC decided to pursue a long-term output sale of its share of Boardman once more. PNGC participated in BPA's acquisition process during which BPA established unique externality costs for an existing, operative coal plant. BPA ultimately had to remove the externality charges as inappropriate. Bonneville Power Administration never purchased PNGC's 10 percent share of Boardman. Turlock Irrigation is purchasing 52 MW for the next 20 years for a power cost under 30 mills/kwh real levelized. By the time BPA thought they would be interested in Boardman, they could not close or commit to close the deal in less than two years. The Northwest needs new resources but allowed 52 MW from an operating Oregon coal plant to go to California.

Umatilla has been involved with two co-gen plants (400 MW each) whose first effort was to secure a power sales contract with BPA. Both plants were priced under 28 mills real levelized and both have withdrawn from BPA's process. One plant is being built to replace part of the Trojan Nuclear Plant. The other plant is dealing with other utilities rather than become enmeshed in BPA's long, convoluted acquisition process.

The extensive discussion of tiered rates taking place in the Pacific Northwest is driven by concerns of how conservation resources and generating resources are acquired by BPA. It is troubling that rather than making BPA's acquisition process work effectively, a tiered rates surrogate is being accepted. It is one process to look at power needs and determine the best way to meet those needs. It is quite another process to decide on the solution then figure out how to make it work. "Tiered Rates" is following the latter process. How are these problems to be fixed? BPA must know the total cost to acquire a resource; must leave the social engineering to their customers; must buy the lowest cost resource based on actual delivered energy and must put people in charge able to make decisions with a proven ability to bring new resources on line successfully.

It has been proposed by some that BPA should be paying end users to convert from electricity for space and water heating to using natural gas. Some claim hundreds of megawatts could be saved by fuel switching. I've attended hearings before the Northwest Power Planning and Conservation Council where natural gas company executives deplore the use of natural gas for generation of electricity when it could be applied directly by the end user for more efficiency. Umatilla Electric believes in and promotes the efficient use of electricity. Our members long-term energy needs are best served when they use energy efficiently. We have been involved in fuel switching for the past 20 years without any assistance from BPA, natural gas companies or congress. Natural gas and oil were the first fuels for the steam boilers used by food processors served by Umatilla Electric. By 1975 these food processors had electric steam boilers because electricity was less

expensive and more reliable than gas. By 1983 the electric steam boilers were not used since natural gas was much cheaper than electricity. The early 1980's saw 40 percent of Umatilla Electric's residential electric heating turned off in favor of wood stoves. Today wood stoves are losing their popularity and people are making other fuel choices.

The best public policy is to encourage the efficient use of energy. Yet Oregon is one of the few states who have a fuel-blind building code--a building code bitterly contested by the natural gas industry. The question should not be should BPA pay electric users to switch to natural gas. Rather, why is the natural gas industry not promoting efficiently using natural gas. Why is the gas company encouraging people to replace electric water heaters which are 98 percent efficient with gas water heaters which are 65 percent efficient? Why isn't there a natural gas super energy efficient home design? Is there a natural gas company water heater wrap program or energy efficient window program or even a house insulation program?

Energy companies, electric or natural gas, serve their consumers best when they promote and market energy efficiency. Congress should encourage this.

The last of BPA's acquisition program I plan to address briefly is the conservation program. Umatilla Electric has a long history in conservation for our member-consumers. The most successful areas of conservation have been for irrigation consumers and portions of residential consumers. Umatilla Electric's irrigators use 30 percent less energy and 25 percent less water than they did 15 years ago. This was accomplished by modifying and replacing equipment, by physically changing the system (lower pressure), reducing water application and down-sizing pumps and motors.

The residential consumers who have conserved the most energy have been those who made physical changes to the equipment providing their heating and/or cooling. For example, change from a forced-air electric furnace to a high-efficiency electric heat pump.

Our experience points to one of the basic problems with BPA's conservation program. Rather than paying by measure based on tiny samples, BPA should pay on the basis of actually saved energy. BPA pays too much for conservation as a consequence of not paying for delivered savings. Another reason for high BPA conservation costs is that BPA is held to a different standard than anyone else. BPA is expected to staff for the region, financially support state and local conservation programs, fund building code enforcement, fund conservation conferences and be required to manipulate cost effectiveness.

NORTHWEST POWER PLANNING AND CONSERVATION COUNCIL

The Northwest Power Planning and Conservation Council (the Council) should be doing what BPA is in its competitiveness program. The Council needs to re-examine the need for its existence, its effectiveness and its continued role in the Pacific Northwest.

It has been suggested that perhaps the Council should have some statutory authority over BPA so that better regional decisions can be made. If this occurred, strong, responsible leadership and direction from the Council would be required. In recent years, the region has depended on the Council for strong, responsible leadership in the development of fish and wildlife programs among others. In many cases, Council decisions and resulting programs leave doubt as to their effectiveness or benefit to the region and those affected. The consensus building that the Council is charged with can never be achieved until traditional, cost-effective methods become an integral part of decision making in the fish and wildlife and resource/conservation programs. Consensus is built when there is confidence that Council decisions are made after a free, thorough discussion of all aspects of the issue and are based on good science, sound economics and agreed upon societal needs. The Council receives substantial press coverage, making it virtually impossible for the general public to sort out personal opinion from official Council positions in interview situations. As a consequence, Council members should take care not to use their position on the council as a "bully pulpit" espousing their personal views and beliefs.

The basic problem we in the Northwest have is the lack of commitment to work out solutions to reach consensus. We all run to our elected representatives at the least provocation; or, if that is unpromising, to the court as our arbitrator. My request is that this committee help de-politicize BPA and the Council. We must continue to have an open process in which any who wish to participate can. Once the discussions have taken place, decisions have to be made based on the best information. Help the region make these decisions based on good public policy--not politics as usual. Thank you.

Respectfully yours,

M. Steven Eldrige

M. Steven Eldrige
General Manager

Mr. DEFAZIO. Thank you. It's a little after 1:30. We're going to do that 30-minute lunch break and we'll hear from Mr. Tracy and Mr. Olson immediately after lunch. We're starting 5 minutes late, so we'll still take the full half-hour. So it will be 5 minutes after 2:00 when we reconvene, by my watch, which is fairly consistent.

[Whereupon, at 1:35 p.m., the Committee was recessed, to reconvene this same day at 2:05 p.m.]

AFTERNOON SESSION

Mr. DEFAZIO. We'll go back in session. Thank you very much for being so prompt. We had, as I recall, two more witnesses and then we will go on to questions. Mr. Tracy.

STATEMENT OF BUD TRACY

Mr. TRACY. Thank you, Mr. Chairman. My name is Bud Tracy. I'm the general manager of Raft River Electric Cooperative. It's located in south central Idaho in Malta. We serve south central Idaho, northeastern Nevada and northwestern Utah.

I also feel I'm here representing all of the Idaho cooperatives today as president of the Idaho Cooperative Utilities Association, representing 150,000 people and at the request of Congressman LaRocco.

Mr. DEFAZIO. Again, you were here at the beginning, so you heard my explanation why he wasn't here. He did want to be here today. Go ahead.

Mr. TRACY. Thank you. But maybe more importantly, the group of people that I would like to suggest that I'm representing are the ratepayers of the region and the people that we actually serve in Idaho.

Since the passage of the Regional Act, BPA has clearly pursued an aggressive path of conservation and generation resource development. Whether or not BPA has succeeded in its efforts is still a debatable issue.

With that in mind and looking at the questions that were posed, I would suggest that, first, BPA has paid far too much for incentives compared to what they actually could have got on the market.

Second, BPA has funded too many measures that were not cost-effective.

Third, BPA and the Council have tended to significantly overstate the amount of kilowatt hours that were actually attained through conservation measures.

Fourth, BPA's programs have entailed high administrative costs.

Finally, BPA's programs have become too centralized and inflexible, despite efforts to delegate more authority and discretion to the areas.

Trying to get a decision from BPA on a fairly timely scale has been virtually impossible. It has taken even into the years to get that accomplished.

We think that many of these problems could be overcome in the region if BPA moved towards more decentralized acquisition approaches and relied more on tiered wholesale rates. I would also link decision-making authority and responsibility which is lacking in the current regional structures. Utilities that make cost-effective

decisions will produce benefits for their consumers. Those that do not will reap the cost consequences, this as it should be.

BPA should not be a social engineer. Very frankly, BPA has not provided nor do I have enough information to speak concerning the Tenaska project due to the confidentiality issue. Over the long run, gas should remain very competitive, although there will be periods of price volatility.

In general, you can expect to pay very high price premiums to obtain long-term price certainty. As a BPA firm power customer, this is a real concern. In practice, there is a significant difference in the way BPA acquires conservation compared to other resources. In reality and from personal experience, the criteria and procedures are quite different as implemented by BPA.

As a shareholder in Boardman and in our efforts to market the 53 megawatts, BPA was extremely detailed in all aspects, including all costs. However, when it comes to the evaluation of conservation costs, they clearly have refused to include the total real costs, both by BPA and, specifically, the utilities.

Quite honestly, the program people within Bonneville don't want to know what the real cost is for fear that many of the programs would be exposed for their liberal not-cost-effective programs they've evolved into. When comparing other resource acquisitions to conservation, the real truth is many of the conservation programs should be eliminated.

Let me be very blunt. Many of the conservation programs and fundings have become viewed as entitlements and not considerate of cost-effectiveness. These programs within BPA, as well as within many of the utilities, are actually being used to milk the system as marketing schemes and provide employment under the guise of conservation.

We recognize the competitive elements that prompt developers to want to keep the details of their acquisition contracts confidential. However, there is a competing interest on the part of consumers who want to know how and the type of financial commitments BPA is making on their behalf. One way to accomplish this would be to disclose the total purchase price and levelized cost of each project.

There are two points that I believe should be considered regarding fuel of choice. First, there is a variety of issues that need to be addressed before a regional policy on fuel choice is implemented. Because of regional diversity, we believe that the fuel choice is best addressed at the local utility level.

Current signals are yielding a result that sees 95 percent of the new housing market choosing natural gas over electricity to serve household heating needs. Given this level of gas utilization, one wonders what additional steps would be effective.

Given that consumers are already responding to the price differential between natural gas and electricity, what is the likelihood that electric utilities would be paying for a consumer decision that would not occur otherwise?

The second point deals with the regional diversity. Member utilities of the public power community represent a diverse set of business viewpoints and operating environments. Some utilities are located where natural gas is not even available. Others are in direct competition with natural gas or dual-fuel utilities.

Despite this diversity, public power has spoken with a united voice regarding the regional fuel choice policy. We continue to believe that fuel choice issues are best addressed on the local level.

With regard to the role of the Council, the question evokes two responses. First, the Council's ultimate value to the region in power planning is that it calculates the cost planning and operating of the region versus on an individual, utility-by-utility basis. The world envisioned by the Act, with Bonneville acquiring resources for everyone, including the investor-owned utilities, is very different from the world we know today.

Although it is unlikely that we will experience single utility planning and operation anytime soon, it is still valuable to estimate the cost of pursuing that course. Second, the Council's role is that of planning, not implementation. Congress never intended the Council actually to implement a power plan. The job was left to Bonneville and the utilities.

The Council's mission is to develop a power plan and determine that the Administrator's actions are consistent with the plan, but not to perform an oversight role or to act as regional public utilities commission. In fact, as a Federal agency, Bonneville reports to Congress and the Executive Branch of the Federal Government. The Council is not to perform an oversight role, and in fact, the word does not appear in the Act itself with respect to the Council's role.

The Council's role is power planning. The responsibility of implementation falls to Bonneville and the utilities.

Those that would suggest the region must exhaust all available conservation before considering other resources do not sufficiently understand the Act's intent, the concept of least-cost planning or utility resource planning. First, it must be understood that the prioritization of the Act is intended to provide a system to screen resources in the development of a least-cost plan.

The Act's prioritization is designed to improve the comparative economics of conservation and renewables. Ultimately, however, BPA is to select the resources of the least-cost. If, after tweaking the economics under the Act's prioritization standards, certain conservation resources are not least-cost, then the Act directs BPA to acquire alternative resources.

Second, prudent utility planning argues against acquiring conservation to the exclusion of all other resources. The WPPSS experience demonstrates all too well the potential risk of placing too much emphasis on one resource type. New York State Commissioner Peter Bradford, a strong conservation proponent, has warned against turning conservation into the nuclear resource of the 1990s.

In addition, it must be understood that factors other than price enter into the utility resource acquisition decision. For instance, a utility may be willing to pay more for resources that are dispatchable, a characteristic not attributable to conservation.

In considering whether BPA has accounted for the environmental externalities associated with resource acquisition, I would raise one concern. Clearly, the impact on retail rates, primarily in the rural non-growing areas of the region, can have a very substantial effect, since not only is BPA's cost passed on, but the loss of revenue to

the local utilities is reduced in the case of conservation resource acquisition. Thus, the local utility must raise its retail rates.

Other conservation practiced from a federal level, such as the CRP conservation reserve program in the rural farming communities has reduced those sales, those rates have gone up.

I would suggest that Bonneville has only looked at one aspect of conservation. To further gain my support, I believe that Bonneville and the Council should clearly look at the load factor or the capacity or demand side of the program and inducing or fostering more efficient use of energy, and with the approach of the salmon and the endangered species. As we see our capacity diminish, the value of capacity could be worth more.

Those kinds of efforts would cause me to be very supportive of conservation programs where now I have certain reservations.

In resting, part of the suggestion is that I can reduce the need for future capacity acquisitions, either by BPA or the utilities. I appreciate the time and thank you, Mr. Chairman.

[Prepared statement of Mr. Tracy follows:]

TESTIMONY OF BUD TRACY, GENERAL MANAGER
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BEFORE COMMITTEE ON NATURAL RESOURCES
BONNEVILLE POWER ADMINISTRATION TASK FORCE
U.S. HOUSE OF REPRESENTATIVES

JULY 12, 1993

Mr. Chairman, members of the committee, I certainly appreciate the invitation and opportunity for the request to testify on what I consider one of the very significant issues facing the Bonneville Power Administration (BPA) and the energy economics of the northwest. In an effort to make maximum use of your time, I have attempted to structure my testimony into a very frank and precise statement. I trust that such a format will aid the committee members in their consideration of my thoughts.

My name is Bud Tracy, I am presently the General Manager of Raft River Rural Electric Cooperative, Inc. located in Malta, Idaho. We serve south central Idaho, northwestern Utah, and northeastern Nevada and are a full requirements customer of BPA.

In addition to my duties at Raft River I have served as an executive committee Board member for the Public Power Council for approximately 10 years ending in 1992. I have served as a Board Member of the Pacific Northwest Generating Cooperative, they are an Oregon Corporation who's role is to assist and provide generation and transmission services for it's members. PNGC has and is involved in the development and purchasing of resources to meet its members needs, I am the immediate past president of the Corporation.

In the late seventies to the mid eighties I also served as the Chairman and President of the Board of the Geothermal Power development group of which BPA, PGE, Idaho Power, EPRI and SRPA were members and through a joint venture with the D.O.E. developed and constructed a 5 MW Geothermal Plant.

My experience also includes a role as a project manager for the attempted development of a Hydro-Electric project known as the Eagle Rock Project on the Snake River. The project was ultimately terminated due to the lack of need or the ability to sell the output.

I presently serve as President of the Idaho Cooperative Utilities Association (ICUA) which represents more than 150,000 electrical consumers served by 13 cooperatives in Idaho, which are full requirement customers of BPA.

Possibly, the most significant and important role I have played and continue to play is the representative of the ratepayers and citizens of Idaho. Again, I trust in your consideration and recognition of those who are actually paying the bills when evaluating this and other testimony you receive on this issue.

1. Since passage of the Regional Act, BPA has clearly pursued an aggressive path on conservation and generation resource development. Whether or not BPA has succeeded in its efforts or is on the right track is a subject that will continue to be debated.

   We believe the main problem with BPA's acquisition programs is that they are yielding results that are too often not cost-effective. In the case of conservation, BPA's spending has been excessive. It is a fact that BPA spends almost twice as much per KWH on conservation than some of the region's large utilities that run comparable programs. BPA's own data shows that BPA has acquired substantial conservation that is not cost-effective compared to other resource alternatives. Some of this conservation has cost in the range of 36-93 mills/kwh in 1990 levelized dollars and does not include all of the costs, specifically the local utilities.

   Several factors have contributed to this problem. First, BPA has paid far too much for incentives compared with what it would actually take to move the market. Secondly, BPA has funded too many measures which are not cost-effective at the margin. Third, BPA and the Council have tended to significantly overstate the kwh savings of conservation measures when measured against actual results. Fourth, BPA's programs have entailed high administrative costs. Finally, BPA's programs have become too centralized and inflexible, despite efforts to delegate more authority and discretion to the areas. BPA has a bewildering array of programs each of which may involve any number of professional specialists within BPA. Trying to get a decision from BPA on a fairly simple program proposal can take considerable time, even into years.

We think that many of these problems could be overcome if the region and BPA moved toward a more decentralized acquisition approach that relies on tiered wholesale rates and greater competition in wholesale markets. A properly implemented tiered rate structure would provide the necessary incentive for BPA's customers to pursue conservation on their own. It would also link decision-making authority and responsibility which is lacking in the current regional structure. Utilities that make cost-effective decisions will produce benefits for their customers. Those that do not will reap the cost and rate consequences. This is as it should be BPA should not be a social engineer! Successful efforts will be emulated by others. In our view such a system will yield more innovative and efficient programs that will be supported locally.

The above comments can be generally applied to BPA's generation acquisition programs as well. Raft River has a particular concern relating to PNGC's share of the Boardman Project which was offered to BPA several times. That resource clearly would have cost BPA less than some resources BPA is acquiring. Yet the output of an existing resource whose costs are basically known and whose environmental impacts are sunk, has been sold out of the region for the long term. I do not want to get into the specifics of this decision. The sale to California will substantially benefit PNGC's co-op members. However, it would have been more beneficial for all concerned to find a way to keep the power here. However, the bottom line is that BPA's process was simply too inflexible to accomplish the result that was in the best interest of the region including BPA's customers. Had a system of tiered rates been in place, PNGC's share of Boardman would almost certainly have remained a regional resource.

2. Very frankly, BPA has not provided and nor do I have enough information to speak to the proposed contract between BPA and the Tenaska Combustion Turbine project with any specific knowledge. However, I would be concerned to the extent that BPA ties its entire gas supply, to fixed gas price escalation terms. Over the long-run gas should remain very competitive although there will be periods of price volatility. In general, you can expect to pay a very healthy price premium to obtain long-term price certainty. As a BPA firm power customer this is a real concern.

3. In practice there is a significant difference in the way BPA acquires conservation compared to other resources. In reality and from personal experience the criteria and procedures are quite different as implemented by BPA. In our efforts to market the 53 MW of the Boardman Coal Fired Plant to BPA they were extremely detailed in including all costs, however when it comes to their evaluation of conservation costs they clearly have refused to include the total and real costs by both BPA and the utilities. Quite honestly, the program people within the BPA don't want to know the real cost, for fear that many of these programs would be exposed for the liberal, not cost effective programs they have evolved into. When comparing other resource acquisitions to conservation the real truth is many of the conservation programs should be eliminated or terminated just as some of the renewables or fossil resources have been rejected.

   Let me be very blunt many of the conservation programs and fundings have become viewed as entitlements and not considerate of their cost effectiveness. These programs within BPA as well as many of the utilities are actually being used to milk the system as marketing schemes and provide employment under the guise of conservation.

   Lets be fair, the regional act gave conservation a 10% edge, but absent this, all acquisition are not but should be evaluated consistently both as to costs and benefits.

4. We recognize the competitive elements that prompt developers to want to keep the details of acquisition contracts confidential. However, there is a competing interest on the part of customers to want to know the type of financial commitments BPA is making on their behalf. The guiding principle should be to disclose as much information as possible without harming the competitive interests of the developer. One way to accomplish this would be to disclose the total purchase price and levelized cost of the project. This would give the customers an idea of the size of the financial commitment without compromising details of fuel price escalation forecasts or other embedded assumptions that would be detrimental to the developers interests.

   BPA has demonstrated through third party financing that there can be benefits both to BPA and its customers, the continuation of this vehicle certainly is a benefit to the region and it's ratepayers, we would strongly encourage its increased usage with the sharing of the benefits being the stimulus for future participation. Due to the lack of performance to date relative to BPA's billing credits I am unable to comment on how effective this means will be.

5. For the past two years the topic of fuel choice has been the subject of much discussion in the Northwest. The origin of this debate has been the need for new electric generating resources in the region after a decade of energy surplus. Natural gas, because of its availability, moderate environmental impacts and current low price has been the fuel most often proposed for new generating resources. The question of whether that fuel could be more efficiently used to displace electric end-uses such as water and space heating has arisen in this context.

There are two points that should be considered regarding fuel choice. First, there are a variety of issues that need to be addressed before a regional policy on fuel choice is implemented. Because of regional diversity, we believe that fuel choice is best addressed at the local utility level.

Although the direct use of natural gas for space and water heating can be more efficient than using the gas in a combustion turbine to produce electricity, there is more to the public policy debate. In fact, even the technical analysis is not entirely clear because combustion turbines would be displaced by nonfirm hydroelectric energy or used in conjunction with high-efficiency ground source heat pumps. The decision to encourage the use of natural gas as a substitute for electric end-uses is also a complex business decision. Many questions surround the implementations of a regional fuel switching policy. Among them; To what extent are measures beyond current market price signals necessary? Current signals are yielding a result that sees 95% of the new housing market choosing natural gas over electricity to serve household heating needs. Given this level of gas utilization, one wonders what additional steps would be effective. Other questions arise if you then make the decision to proceed with a regional fuel choice policy. What is the appropriate level of contributions from the three parties involved: the electric utility, the gas utility and the customer? Should the transaction be viewed as a deferral of the need to purchase new generating resources by the electric utility or the transfer of a revenue stream to the gas utility? Given that the customers are already responding to the price differentials between natural gas and electricity, what is the likelihood that electric utilities would be paying for a consumer decision that would have occurred anyway? What is the correct incentive to pay if all you are achieving is the acceleration of a market trend? What assurances do electric utilities have that consumers will not reverse their decision and return to the electric utility at some point in the future, should the price of natural gas escalate? These questions put the fuel choice issue in a broader and more comprehensive perspective.

The second point deals with regional diversity. The member utilities of the public power community represent a diverse set of business viewpoints and operating environments. Some utilities are located where natural gas is not even available. Others are in direct competition with natural gas or dual-fuel utilities. Many find themselves in extremely competitive environments with no access to bulk power suppliers other than BPA. Despite this diversity, public power has spoken with a united voice regarding the regional fuel choice policy. We continue to believe that fuel choice issues are best addressed at the local level. The limited availability of natural gas on a regional basis itself speaks for a policy that is local in its focus and implementation.

In my opinion the continued use of Super Good Cents incentives in areas where natural gas is available can be viewed as a marketing tool, but frankly if any program requires an monetary incentive it is apparently not meeting the cost effectiveness of the competition. In summary, there are many unanswered questions regarding the use of natural gas. We believe that the most effective solutions will arise as a result of local rather than regional initiatives, this is another area where tiered rates will allow for a local decision without BPA incentives.

6. Question #6 relates to the role of the Council in resource acquisition and goes to whether the council has adequately exercised its responsibilities under the Act. The question goes on to ask about the strengths and weaknesses of the Council's activities.

The question evokes two responses. First, the Councils ultimate value to the region in power planning is that it calculates the cost of planning and operating as a Region versus on an individual, utility-by-utility basis. The world envisioned by the Act, with Bonneville acquiring resources for everyone, including the investor-owned utilities, is very different from the world we now have. Although it is unlikely that we will experience "single utility" planning and operation any time soon, it is still valuable to estimate the costs of pursuing that course. In addition, the Council brings an element of public involvement that helps to make all utility resource decisions more acceptable. Finally, the resource cost estimates done by the Council help to provide a benchmark against which all resource decision can be judged.

Second, the Council's role is that of planning, not implementation. Congress never intended that the Council actually implement the power plan, that job was left to Bonneville and the utilities. The Council's mission is to develop a power plan and to determine that the Administrators actions are consistent with the plan, but not to perform an oversight role or to act as a regional public utilities commission. In fact, as a federal agency, Bonneville reports to Congress and the executive branches of the federal government. The Council is not to perform an "oversight" role and in fact the word does not appear in the Act itself with respect to the Council's role.

The legislative history of the Act is replete with references to Bonneville (and the Corps of Engineers and Bureau of Reclamation) as the implementing agency. Regarding the role of the Council:

> The chief task of the Council will be to prepare, adopt and periodically review and revise, after public hearings and participation, a regional conservation and electric power plan primarily for the purpose of guiding the Administrator in the exercise of the resource acquisition authorities granted him by section 6 of this legislation (sec.4(d)).
> (H. Report 96-976, PartII, p.33)

The Council's responsibility is power planning, the responsibility for implementation falls to Bonneville and the utilities.

The Council's prioritization of resources for acquisition is descriptive, not prescriptive. It is not necessary, nor wise, to focus only on the acquisition of high priority resources until their supply is exhausted or a specific target is met. All cost-effective resources should be pursued with emphasis on those that have been given a higher priority.

Under the Regional Act, conservation and renewables are granted a preference in resource allocation. While we support this prioritization, it must be recognized that this system -- or any other "externalities" mechanism -- does not presume that one resource type will be pursued to the exclusion of all other resources. Those that would suggest that the region must exhaust all available conservation before considering other resources do not sufficiently understand the Act's intent, the concept of least-cost planning, or utility resource planning.

First, it must be understood that the prioritization in the Act is intended to provide a system to screen resources in the development of a least-cost plan. The Act's prioritization is designed to improve the comparative economics of conservation and renewables. Ultimately, however, BPA is to select the resources that are least-cost. if, after "tweaking" the economics under the Act's prioritization standard, certain conservation resources are not "least cost," then the Act directs BPA to acquire alternative resources.

Second, prudent utility planning argues against acquiring conservation to the exclusion of all other resources. The WPPSS experience demonstrates all too well the potential risk of Placing too much emphasis on one resource type. New York State Commissioner Peter Bradford, a strong conservation proponent, has warned against turning conservation into the "nuclear" resource of the 90's.

In addition, it must be understood that factors other than price enter into utility resource acquisition decision. For instance, a utility may be willing to pay more for resources that are dispatchable -- a characteristic not attributable to conservation.

I also understand that the Council's review of BPA's conservation costs suggest that BPA can cut administrative overhead without reducing the amount of conservation that can be acquired.

As overhead is eliminated and the cost of acquiring conservation reduced, it is possible that more conservation can be cost-effectively acquired. This is precisely the system of resource review and selection intended by the Act-- not the blind pursuit of a single resource option.

7. In considering whether or not BPA has accounted for the enviromental externalities associated with resource acquisition I would raise only one concern. Clearly the impact on the retail rates, primarily in the rural non-growing areas of region, can have a very substantial effect since not only is the BPA cost past on but the loss of revenue to the local utility is reduced in the case of conservation resource acquisition. Thus, the local utility must raise its retail rates to cover lost revenue. This is creating a significant enviromental impact on those areas which are not growing or in many cases actually losing load, by placing a disproportionate economic burden on these already depressed areas. A couple of examples would be where other enviromental or conservation issues or programs have been issued or implemented. (ie) Timber areas the spotted owl or commercial fishing or sport fishery salmon and agricultural farm land with the (CRP) and (0-92) ASCS conservation programs.

8. As one of those non-growing utilities who has more than 80% of its annual sales going to irrigation customers with virtually the total balance of our sales going to agricultural associated residences and farm related services the acquisition process as implemented by BPA is one which seems to recognize only a portion of the problem. I clearly believe that the banner of motherhood and apple pie has been wave over and has blessed conservation with a disproportionate value over the consideration given to other firm resources.

Bonneville has and continues to spend money through out the United States by participating in demand side management programs but only recognize the energy side of the picture when looking at regional conservation. For a number of years Raft River has been placing substantial effort toward increased efficiency on the demand side of equation. With the increased pressure being placed upon BPA and the other federal agencies to increase the flows for Salmon survival it definitely appears as though the assumed capacity surplus has diminished substantially. This is based not only upon logic but is supported by the recent PNUCC presentation. May I suggest that my support for regional conservation could be greatly enhanced if the Regional Power Council and BPA recognize the value of increase efficiency through allowing the local utilities to meet their obligation by increased load factors through load management programs rather than just simply reduced sales of KWH's.

The interesting part of this suggestion is that it can reduce the need for future capacity acquisitions either by BPA or the utilities. Not only this but the savings to the end use consumer and the utility could be shared through reduced costs. This is one way to get greater utility support since the present conservation programs only reduce sales but require both BPA and the utility to provide capacity and actually encourage the inefficient use of the BPA system.

I sincerely appreciate the opportunity to testify and trust that any area or issue I have touched upon which may raise a question either today in yours or the full committees deliberation that you or they will challenge my intent in your investigation.

Thank you for your consideration:

Bud Tracy
General Manager

Mr. DEFAZIO. Thank you. Mr. Olsen.

STATEMENT OF BOB OLSEN

Mr. OLSEN. Chairman DeFazio, my name is Bob Olsen. I'm an elected commissioner from Mason County Public Utilities District 3 in the State of Washington. We serve more than 40,000 people and we are totally dependent on Bonneville for our power supply.

I appreciate your invitation to share some thoughts with you regarding BPA's resource development and acquisition activities. You have asked whether BPA is acquiring all cost-effective conservation and renewables. Regrettably, in my opinion, the answer is no. Had they done so, we would not be facing a rate hike of 16 percent.

You are all familiar with the stated reasons for the rate increase. Our energy surplus is gone, the failure of nuclear facilities, poor water conditions, the sagging price of aluminum, and fish costs. However, the Administrator has failed to mention another very important reason for the sizeable rate hike; namely, BPA's failure to aggressively acquire conservation in recent years.

As a result, this past winter, BPA had to spend millions of dollars to buy power from outside the region in the range of 30–60 mills to sell to the aluminum smelters at 18 mills. No wonder Bonneville has a revenue problem.

Both BPA and the Power Planning Council have wisely concluded that conservation is the region's resource of first choice. This approach requires aggressive programs to make our homes, businesses and industries more energy efficient.

Several years have passed since our planning body set forth its conservation goals for the next decade. Despite that passage of time, adequate programs are not currently in place and do not seem to be on the immediate horizon. This is a matter of great concern.

BPA has many programs, but they do not always translate into action. This, of course, is a waste of money and effort. BPA must find ways to market conservation more effectively. Present methods are slow, they're unproductive, and they're costly. BPA's centralized programs are not conducive to flexibility, and you've heard that a number of times already this morning, and they cannot address the region's diversity.

We have recommended that Bonneville look closely at using energy service companies. They offer programs that provide the financing, the marketing and take the risks. This seems to be a logical approach, especially with BPA's present fiscal restraints, borrowing caps and conservation budget cuts.

Mason #3 has always been a strong advocate of utilizing energy efficient measures. We are excited about the prospect of doing things and we're not alone in this. Countless utilities want to deliver cost-effective conservation, but are unable to do so because of BPA's budget constraints.

BPA recently took a number of actions to hold its rate increase down. Among the reductions was a 12 percent decrease in their conservation investment. I'm not sure about my mathematics, but this would reduce BPA's rate increase by only a small portion of 1 mill. I think the region should have learned over the past decade

that stretching out the benefits of our hydropower system through efficiency is the cheapest, most effective resource that we have.

Conservation, energy efficiency, is an answer to our problem, not one of its causes. Two examples from my utility's experience with Bonneville's resource acquisition processes I think demonstrate some of the problems. In response to a Bonneville solicitation, our utility submitted 9 separate conservation proposals for billing credits.

Out of the 9 proposals, not even one contract resulted. These conservation resource proposals were burdened with unnecessary and inappropriate administrative requirements and too much emphasis on verification. There's an old adage that you do not fatten the pig by weighing it.

In essence, 9 conservation resources were buried by paperwork. On our own initiative, Mason #3 and two other utilities approached Bonneville with a proposal to implement a conservation transfer program. This initiative was in response to the Power Planning Council's energy plan and proposed to implement conservation at no cost to Bonneville.

The proposal called for Puget Power to pay for conservation done in our service territory and, in return, Puget Power received the saved kilowatt hours. Bonneville was relieved of the cost of funding conservation, power flowed to a deficit utility, Puget Power, and my ratepayers would receive conservation benefits.

Our conservation transfer proposal was met with resistance. It took more than 2 years of constant negotiations, pleadings and cajoling before a contract was finally executed. Until Bonneville can find a way to respond rapidly and provide customers with proper incentives for taking the initiative to develop resources, cost-effective resource opportunities will continue to be lost to the detriment of the ratepayers in the region.

BPA's administrative processes seem to be different for generation as opposed to conservation. You will note that BPA moved quickly to negotiate with Tenaska and others for gas-fired resource options.

I've previously referred to the Tenaska power project and have just now. The case for acquiring Tenaska is flimsy, at best. The Regional Act and the 1991 regional plan make it clear that conservation is the highest priority resource. Renewables are second and efficient thermal resources are third.

Tenaska is none of these. It makes no sense for BPA to be spending hundreds of millions of dollars to acquire Tenaska and plead poverty when it comes to buying conservation, which is our cheapest, cleanest and highest priority resource.

I would feel more charitable on this issue if BPA had firm long-term commitments in place to acquire the conservation resource that we are all waiting to deliver.

The secrecy surrounding the Tenaska power project contract is unacceptable. When a resource sponsor wants public money for a project, they assume a responsibility to make available to the public information about the project, especially its costs.

How do we determine it is a good project without knowing the costs? The public's business ought to be public.

Fuel switching is a real potential for our region. It is an untapped opportunity, I think, to obtain cost-effective load reductions and defer new power plant construction. Fuel switching and using direct gas heating is at least twice as efficient as producing electricity with gas.

A pilot fuel switching program which was carried out by the Snohomish PUD demonstrated a substantial load reduction potential. In spite of the savings and efficiency gains resulting from fuel switching, Bonneville has not pursued this opportunity. However, BPA's rate increase and their stated willingness to look at tiered rates may result in future opportunities.

BPA has made slow progress in carrying out the mandates of the Act. The fact that Puget Power, a private utility with one-fourth of BPA's load, acquired as much conservation as BPA did last year suggests the agency needs to increase its efforts.

In some areas, progress has been made. Implementation of energy codes is one of the bright spots and BPA has been a little eager on that and they continue to be right now.

In conclusion, BPA's programs need improvement in the area of adhering to the priorities of the Act, by encouraging conservation, insisting that its utility customers accept an equitable share of the responsibility for that conservation, and incorporating environmental criteria into their resource acquisition program.

Mr. Chairman, that concludes my testimony.

[Prepared statement of Mr. Olsen follows:]

Comments to: **The Congressional Committee on Natural Resources**
Bonneville Power Administrative Task Force
Congressman Peter DeFazio, Chairman
July 12, 1993, Portland Oregon.

Testimony by: **Bob Olsen, Commissioner**
Mason County Public Utility District 3.

Mr Chairman and Members of the Committee:

My name is Bob Olsen. I am an elected commissioner from Mason County Public Utility District 3 in the State of Washington. We serve more than 40,000 people and are totally dependent on Bonneville for our power supply. I appreciate your invitation to share some thoughts with you regarding BPA's resource development and acquisition activities.

You have asked whether BPA is acquiring all cost effective conservation and renewables? Regrettably the answer is "no." Had they done so, we would not facing a rate hike of nearly 16%.

You are all familiar with the stated reasons for the rate increase. Our energy surplus is gone; failure of nuclear facilities; poor water conditions; the sagging price of aluminum; and fish costs. However, the administrator has failed to mention another very important reason for the sizeable rate hike--- namely BPA's failure to aggressively acquire conservation in recent years. As a result, BPA is spending millions to buy power from outside the region in the range of 30 to 60 mills to sell to the aluminum smelters at 18 mills. No wonder Bonneville has a revenue problem.

Both BPA and the Power Planning Council have wisely concluded that conservation is their resource of first choice. This approach requires aggressive programs to make our homes, businesses and industries more energy efficient. Several years have passed since our planning body set forth its conservation goals for the next decade. Despite that passage of time--- adequate programs are not currently in place and do not seem to be on the immediate horizon. This is a matter of great concern.

BPA has many programs-- but they do not always translate into action. This is a waste of money and effort. BPA must find ways to market conservation more effectively. Present methods are slow, unproductive and costly. BPA's centralized programs are not conducive to flexibility and cannot address regional diversity.

We have recommended Bonneville look closely at using energy service companies. They offer programs that provide the financing, marketing, and take the risk. This seems to be a logical approach, especially with BPA's present fiscal restraints, borrowing caps, and talk of conservation budget cuts.

Mason 3, has always been a strong advocate of utilizing energy efficiency measures. We are excited about the prospect of doing things and are not alone in this-- countless utilities want to deliver cost effective conservation but are unable to do so because of BPA budget constraints.

If BPA cut its conservation budget 20%, this would reduce BPA's rate increase by only two hundredths of a cent per kilowatt hour. The region has learned over the past decade that stretching out the benefits of our hydro-power system through efficiency is the cheapest most effective resource that we have. Conservation-- (energy efficiency) is the answer to our problem-- not one of its causes.

Two examples from my utility's experience with Bonneville's resource acquisition processes demonstrate the problem. In response to a Bonneville solicitation, our utility submitted nine separate conservation proposals for billing credits. Out of the nine proposals, not one contract resulted. These conservation resource proposals were burdened with unnecessary and inappropriate administrative requirements (reporting and record keeping) and too much emphasis on verification. There is an old adage that you do not fatten the pig by weighing it. In essence, nine conservation resources were buried by paperwork.

On our own initiative, Mason 3 and two other utilities approached BPA with a proposal to implement a conservation transfer program. This initiative was in response to the Power Planning Council's energy plan and proposed to implement conservation at no cost to Bonneville. The proposal called for Puget Power to pay for conservation done in our service territory, and in return, Puget Power received the saved kilowatt-hours. Bonneville was relieved of the cost of funding conservation, power flowed to a deficit utility, and my ratepayers were to receive conservation benefits.

Our conservation transfer proposal was met with resistance. It took more than two years of constant negotiating, pleading and cajoling a before a contract was finally executed. Until Bonneville can find a way to respond rapidly, and provide customers' with proper incentives for taking the initiative to develop resources-- cost effective resource opportunities will continue to be lost to the detriment of the ratepayers and the region.

BPA's administrative processes seem to be different for generation as opposed to conservation. BPA moved quickly to negotiate with Tenaska and others for gas fired "resource options." But, Bonneville would not offer an equal price to the Snohomish PUD for its conservation power plant.

Differing standards are applied in the area of resource costs. Bonneville has a target of acquiring conservation on a regional basis at a cost of 55 mills/kWh or less. In practice BPA rarely if ever has been willing to pay this limit for conservation. In contrast, Bonneville has paid in excess of 60 mills/kWh for a variety of generating resources (geothermal and wind projects).

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BPA has not been an effective indirect purchaser of the regions resources. For example, billing credits have been in existence for 13 years with virtually no resources acquired. Four major utilities (Clark PUD, Seattle City Light, Snohomish PUD and the Emerald People's Utility District have proposed conservation power plants, and to date no contracts have been signed.

As to third party financing-- BPA has only utilized this effective conservation tool on one occasion with the city of Eugene. A decade ago, BPA agreed to "net bill" $30 million in conservation bonds issued by that municipality. BPA would have been wise to offer that same opportunity to all of its public utility customers. My utility and others would have participated in such a program. Third party financing could also come from agreements with Energy Service Companies.

I have previously referred to the proposed Tenaska power project. The case for acquiring Tenaska is flimsy at best. The regional act and the 1991 regional plan make it clear that conservation is the highest priority resource. Renewables are second, and efficient thermal resources are third. Tenaska is none of these. It makes no sense for BPA to be spending hundreds of millions of dollars to acquire Tenaska and plead poverty when it comes to buying conservation which is our cheapest, cleanest, and highest priority resource. I would feel more charitable on this issue if BPA had firm, long term commitments in place to acquire the conservation resource that we are all waiting to deliver.

The secrecy surrounding the Tenaska power project contract is unacceptable. When a resource sponsor wants public money for a project, they assume a responsibility to make available to the public, information about the project, especially its cost. How do we determine it is a good project without knowing the costs? The public's business ought to be public.

BPA does consider environmental externalities in its resource programs. For example, BPA has assigned a one mill/kWh environmental penalty to the Tenaska project. This, however, is only about one-tenth of the penalty assessed by states such as California, Nevada and New York State which have adopted uniform methodologies . Bonneville needs to look at adopting such a method. Assigning a 3% penalty for a combustion resource over and above renewable resources does not have much credibility.

Fuel switching is a real potential for our region. It is an untapped opportunity to obtain cost-effective load reductions and defer new power plant construction. Fuel switching and using direct gas heating is at least twice as efficient as producing electricity with gas. A pilot fuel switching program carried out by the Snohomish PUD demonstrated a substantial load reduction potential.

In spite of the savings and efficiency gains resulting from fuel switching, Bonneville has not pursued this opportunity. However, BPA's rate increase and their stated willingness to look at tiered rates may result in future opportunities.

In spite of the savings and efficiency gains resulting from fuel switching, Bonneville has not pursued this opportunity. However, BPA's rate increase and their stated willingness to look at tiered rates may result in future opportunities.

In my opinion, Super Good Cents distorts the market place by providing incentives to install electric heat. Super Good Cents incentives ought to be eliminated in areas where gas is available.

Regarding the Northwest Power Planning Council-- On the whole, I believe the Council has done a good job of discharging its duties under the Act. They have been a guiding light to progressive utilities and conservation advocates for more than a decade. We are much better off with the Council than we would have been without them.

However, the Council, in my opinion, has narrowly defined its responsibility for adopting, implementing and enforcing model conservation standards. The states of Idaho and Montana have not implemented MCS standards adopted by the Council many years ago.

The Council, also, has not demonstrated an ability to convince Bonneville that more cost-effective resources, especially conservation and renewables, could be developed if BPA were willing to impose fewer restrictions on utility programs.

BPA has made slow progress in carrying out the mandates of the Act. The fact that Puget Power, a private utility with one-fourth of BPA's load, acquired as much conservation as BPA last year, suggests the agency needs to increase its efforts. In some areas, considerable progress has been made. Implementation of energy codes is one of the bright spots.

In conclusion, BPA's programs need improvement in the area of adhering to the priorities of the Act by encouraging conservation, insisting utility customers accept an equitable share of responsibility, and incorporating environmental criteria into its resource acquisition program.

Mr. DEFAZIO. Thank you. Questions, let's start with Ms. Van Dyke. You just alluded to your conservation power plant effect if you couldn't reach agreement with BPA on that. What were the major barriers, if you can define them?

Ms. VAN DYKE. We've had a lot of barriers and we've gotten through many of them, but we're unable to reach an agreement. I guess some that stick in my mind are that we haven't had a problem with how to verify the measures and we were basically asking to do what the current residential weatherization program is; same measures, do the same thing, same savings would result.

Bonneville wanted to go through a new verification process, for example, and reverify all those measures. We just said we're asking to do the very same thing, why should we have to separately verify these different measures when we're asking to do what you've already agreed are verifiable measures.

Mr. DEFAZIO. Is that because of the Oak Ridge report? Did they say this is because we are now questioning whether these measures are delivering what we projected they are delivering?

Ms. VAN DYKE. We ended our negotiations. We were negotiating fairly strongly last fall. So we didn't have any negotiations, I think, before that report came out, although they may have had access to that.

Mr. DEFAZIO. It seems to you at least that this was just another bureaucratic step, saying, here, one segment of what we're proposing to you is to expand efforts that you've already approved and you already measure them this way, and they're saying no, we want to reapprove them and measure them.

Ms. VAN DYKE. Exactly. Some measures that have been approved for the residential weatherization program, I believe, weren't going to be allowed as part of our program. I know we had an issue, the famous lost revenue problem, which we never did resolve as we came down to it.

I think we finally broke off negotiations over the master financing agreement; basically we threw our hands up and said that's not appropriate for Bonneville. We're a large utility. We go out and finance other projects. We finance our own capital bonds. We don't need Bonneville telling us how to do a financing agreement.

Mr. DEFAZIO. I found that particularly odd—why they would get into the details of your financing agreement.

Ms. VAN DYKE. And although other people have said, well, we're going to have an agreement with Bonneville without that, Bonneville basically told us if we didn't sign this master agreement, we could go no further. Frankly, also, that agreement was proposed to us after we had started negotiations.

So it wasn't like, agree to this and then we'll go on and negotiate. We had been negotiating for 6 or 7 or more months and then the master financing agreement came up. It was like the people who we were negotiating with hadn't talked to the people in the legal department and the financial affairs office about this agreement coming.

So it was partly, I think, a surprise. Also, just the detail was surprising, and we didn't think it was appropriate for them to have that level of supervision over our decisions.

Mr. DEFAZIO. Okay. To Randy Berggren, you talk about an exemption for smaller projects, which is something I raised earlier, the idea that there's an exempt level. Are you familiar with what was brought up about the Gardner Mill?

That was interesting to me that here on at least the industrial side we had something that seemed where we set some rather broad parameters and gave a couple of people the responsibility and said, okay, you come back to us and we'll sign off on these things quickly. That sounds to me sort of along the line of what you're talking about.

Mr. BERGGREN. Right. I think we continue to have discussions with Bonneville about that. Our view is that there is an order of magnitude difference in risk relative to just the issue of acquisition and that you can afford on smaller projects to basically kind of verify at a different level of administrative certainty than you need perhaps on a very large project that has much more financial risk associated with it.

There is some pragmatic ability to balance the administrative burden on smaller projects for the risk that you're assuming for delivery.

Mr. DEFAZIO. What are the problems that you see with their approach to third-party financing?

Mr. BERGGREN. I think the issue that we have heard at this point that is of most concern is the one that was raised earlier that committing to additional third-party financing, would create a higher percentage of their obligations as fixed, kind of ongoing, uncontrollable costs, and that that will mount and build over time to the degree that they approach an unacceptable level.

I think we're sensitive to that, but we think that there needs to be a way to find new ways of doing that. I think in the short-term, it makes sense to do third-party financing. It decreases Bonneville's capital requirements, while it certainly increases perhaps their ongoing obligations to finance the debt service on those payments.

The influx of that cash put in the local community where it can really be applied to an end-use specific relationship with your customers creates all kinds of flexibility that can truly, we think, create orders of magnitude of increased acquisition of conservation.

We don't deny the problem that Bonneville talks about, but we have not felt like that's been a particularly innovative discussion. Looking for ways to fix the issue of budget management and cost management, it's just been used as a barrier at this point in our discussions with them, although they continue to, I think, entertain discussion with us about that and we are still in dialogue and hopeful that we can continue to use the last remaining portion of our existing authorization to extend that pilot effort.

Mr. DEFAZIO. I assume you're talking about billing credits going to generation, not conservation. I know that EPUD can get billing credits for the methane. Are you thinking of other generation?

Mr. BERGGREN. I was commenting on our specific experience.

Mr. DEFAZIO. I thought you were talking about it more generally.

Mr. BERGGREN. No. I was being very specific to just our experience with Bonneville, which has basically only been successful in the billing credits side with generation type projects, where they've been much more flexible and, I think, have actually been very re-

sponsive in terms of the problems with that process and creating refinements to that.

Mr. DEFAZIO. Mr. Eldridge, I'm curious about this Boardman example. When was that when you tried to sell the 52 megawatts to BPA?

Mr. ELDRIDGE. I think the last offer was last year and then Bonneville couldn't make the kind of commitment we needed to stop negotiations with Terlock. So we continued with Terlock. Bonneville expressed finally that they were interested in the plant and would probably acquire it, but they couldn't give us a timeframe or a firm enough commitment for us to stop what we were doing with Terlock.

Mr. DEFAZIO. I guess I'm curious. I wonder when they started down the Tenaska path. Was that about the same time?

Mr. ELDRIDGE. I couldn't tell you. I don't know which request for proposals that plant was in. But it seems to me on Tenaska, and I don't know the details of it, but in running a power system, they've got to have some generation where all that huge amount of load is and there's some reasonable cost to secure that with a generation plant.

Mr. DEFAZIO. You said you sold it for less than 30 mills. Is that some sort of levelized cost?

Mr. ELDRIDGE. Yes. That's 1990 real levelized.

Mr. DEFAZIO. 1990, okay. I'm probably comparing 1990 to 1993. What would the real levelized 1993 cost of Umatilla's share of Boardman be—41 miles?

Mr. ELDRIDGE. I don't think it's 41. I think it's less than that. I could find out and send it to you.

[The information follows:]

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July 14, 1993

The Honorable Peter DeFazio
Chairman
Task Force on Bonneville Power
Administration
Longworth Building
Washington, D.C. 20515-3704

Dear Mr. DeFazio:

Thank you for inviting me to testify before your Task Force on Bonneville Power Administration. The manner in which you facilitated the hearing was very effective and your knowledge of the issues was clearly evident. I found my participation in the hearing to be an enjoyable experience and am grateful for the opportunity to address my concerns regarding BPA in a positive manner.

During the hearing you asked about the real levelized 1993 cost for UECA's share of the Boardman coal-fired plant. That cost is 32.1 mills/Kwh.

If I may be of further assistance to the Task Force, please do not hesitate to contact me.

Sincerely,

M. Steven Eldrige

M. Steven Eldrige
General Manager

mse/g

Mr. DEFAZIO. Yes. I'm just curious. It's hard when people start moving the levelized cost years around.

Mr. ELDRIDGE. I agree.

Mr. DEFAZIO. And talking about the cost of capital, you're saying that you think the drive toward tiered rates is really just sort of a symptom of the problems with the acquisition process.

Do you think we can meet our objectives without the tiered rates? What point were you making?

Mr. ELDRIDGE. The point I was trying to make is I think much of the support for the tiered rates concept is that people have given up on Bonneville improving their acquisition of resources, whether it be generation or conservation.

I'm not ready to do that. I would rather fix the present process and then as we move ahead, if tiered rates becomes a tool to achieve that, fine. But it seems to me we've chosen tiered rates as the solution and now are trying to justify it or make sure that it works.

I'm involved in two committees on this competitiveness within Bonneville and I have to say I'm more hopeful now that we can fix these very real problems that we've had and continue to have with Bonneville. There's such a deep commitment with the present Administrator and his top staff that there's a real opportunity.

I think we need to begin to look forward at what we are going to achieve. You know, the past has been not too good and Boardman is gone and I'm not going to lay awake nights about it. It's time to go on to the next resource and I'm optimistic now that we're making real progress.

Mr. DEFAZIO. I would ask everybody to think about that and reflect on that because I want to ask that of everybody. Reflect upon the problems and what we've heard about or what you've seen in terms of changes happening.

I just have one more question for you in particular. I just came across something I should have asked the Council representatives about, but one of your statements triggered it when you talked about fuel switching and energy efficiency.

I found a statement in the Council's testimony here where they talk about "The Council, however, never has used thermodynamic efficiency as a planning criterion. Our plans are based on economic efficiency, which is a much broader concept that focuses on total costs rather than energy efficiency."

What would you say to that given your statement about fuel switching?

Mr. ELDRIDGE. Well, I think that it's not traditional cost-effective calculations. It seems to me that the fuel switching we've seen in our own utility is an example of what happens when cost alone is the reason to change, and there's no increase in efficiency. Then it just jumps from one fuel market into the other.

On a residential level, they just don't have the resources to do that. Then you have the other problems, like going from electric heat to wood heat. You have air quality problems. You have other kinds of circumstances.

I don't understand how changing, if it is 1,000 megawatts of electric heat to gas heat, the emissions are any different than building

two combustion turbines. It seems like you may have more control over the emissions if you have the combustion turbines.

And you look at the overall efficiency, I believe that a full-cycle combustion turbine and a ground source heat pump, that entire loop is more efficient than an electric furnace.

Mr. DEFAZIO. In fact, when the gas witness testifies, this is a question that's been raised. You have the efficiency at the CT plant and then you have your transmission losses and then your conversion at the home unit or the residential unit or the business. But that is an interesting question about what's your total CO_2, Even though it may burn more efficiently at the home, it's not a regulated source in terms of scrubbers or whatever else you could use on what they use for CO_2 or collectors of some sort.

So that's an interesting question that I don't know the answer to.

The one thing that everybody agreed on here, although there are some different viewpoints represented, is that the process hasn't worked that well in terms of the acquisition process or the billing credits, and although there's varying opinions over the merits of those or what you might think should be eligible and how they might be measured, what do you think about what we've heard from BPA in terms of the changes?

You said you've seen some changes and you're optimistic. What about other witnesses? Why don't I start with Jane. Do you continue to dialogue with BPA or have we just broken our relationship off here altogether?

Ms. VAN DYKE. Obviously, we have a least-cost utility plan and one of our power suppliers in that plan is Bonneville. It's our goal and will continue to be our goal as long as our plan is for Bonneville to be competitive and to be cost-effective.

I'm usually an optimistic person and I guess I do want to be optimistic about Bonneville and I guess I have been because I've chosen that as part of our utility's least-cost plan to continue to have them as our supplier. But it does get frustrating.

Randy says great things and I would love to believe he can do that all, but it's just not happening. We were talking at lunch and here's an example. The customers went to Bonneville and said here are some expenses you can cut in conservation; don't cut the capital, don't cut the measures, here's some overhead expenses.

I think one of them was like Super Good Cents advertising. Bonneville took none of those. All they cut from conservation was on the capital side. They say here they don't do over here, and I guess that's what continues to frustrate some of us out there who are Northwest utilities, who are customers of Bonneville.

You want them to be successful. Our future depends on their success and so does the Northwest and there are things they can be doing. It would be great if we all could make Bonneville change exactly the way we envisioned it, but I'm certain that's not going to happen.

But there are little things they can continue to be doing and I think some of these process questions are simple. I guess I'd like to see how that happens in action. Are they going to sign some of these small one-megawatt offers that utilities have for them? Are they going to be able to come to some conclusions, make a decision

on the termination of Plants 1 and 3? They made the decision, but they approved the budgets for next year that includes preservation.

There's things they've talked about for years, but the decision doesn't quite get to that final bottom line where an action is taken or money is not spent or money is spent. So I guess I want to be optimistic, but I think I can only be it with my fingers crossed or something.

Mr. DEFAZIO. Anybody else want to reflect on that future or their current relationships, future relationships? The Administrator is sitting behind you, but be candid.

Mr. BERGGREN. I guess I would just state that I'm optimistic about Bonneville's ability to transform itself. Even with our resource strategy, which overtly considers a diminished dependence upon Bonneville, we still see Bonneville as a very substantial, significant and appropriate partner in the long-term around our capabilities to supply energy.

Our issues are built around more diversity; not only resource type, but resource supply. I think we have some sense of risk around the institutional nature of Bonneville and the multitude of complex issues that it has to face. We've factored that into our decision that we want a lower dependence upon Bonneville, but it is not a decision to move away, if you will, from Bonneville as a critical supplier or significant supplier of our power.

I think Bonneville, Randy, in particular, and his senior staff, as part of the function-by-function review, which I'm also a part of, have been very authentic and very open in listening very hard to what the issues of competitiveness are and the issues that a multitude of stake holders have in the region and are working those as honestly and as directly as they can, again given the complexity of these questions.

So I don't expect to see that change overnight. I think there are just too many diverse points of view held and there's too much to be debated for us to expect Bonneville to look differently tomorrow morning. I do believe that we're looking at a 3- to 5-year transition here, which will significantly change Bonneville's role, as well as the role perhaps of many of the utilities and other players in the energy region, but I'm very optimistic about Bonneville's ability to do that with the kind of attention they're giving to it right now.

Mr. DEFAZIO. Anybody else?

Mr. OLSEN. Mr. Chairman, I read somewhere where you made mention about the vision of Bonneville for the next 50 years. While that's certainly important and I share your desire to look at that vision, it's certainly important to look at what the vision of what Bonneville has been in the past 50 or so years and what it's meant to this region and what's it meant to public power.

I think if we can do as well in the next 50 years as we've done in the past, I think we can declare a victory. I'm certainly encouraged. I guess I'm an optimist, too, in the sense that first you have to recognize your problems and then deal with them and you also have to face reality.

I think the Administrator has certainly faced reality, particularly in making a decision to go ahead and terminate Plants 1 and 3. It's really something that should have been done a long time ago. We could have used that money in other areas and in much better

ways. But it's encouraging that he talks about making BPA a more result-oriented agency and that's certainly what's needed.

I like the concept that he talks about that everything is on the table and we do need to look at things like tiered rates, which, prior to now, Bonneville just hasn't been willing to do that. So I think there's a lot of encouraging things out there and I think we can look forward to the future, hopefully. And this sort of hearing helps, in my opinion.

Mr. ELDRIDGE. I would suggest that the Power Planning Council do the same kind of soul searching that Bonneville is doing and reassessing their reason for existence and their effectiveness and what do they need to do to be a consensus-builder and draw us together. I think that would be well worth their effort.

Mr. DEFAZIO. Do you think the current construct of the Council could lead to that? Do you think there's any reformulation of the contract of the Council that will be required? It's a real experiment in sort of a multi-state advisory body. It's fairly unique.

Mr. ELDRIDGE. That's a really difficult question. When two members from each state are elected in our own state, the whole state is not very well represented. It was borne of politics. The chief political officer in each state appoints who he thinks are going to follow his direction.

It is possible. The Governors, I believe, would have to make the commitment to their Council members; we want this to work for the good of the region. And then I think, yes, it could happen.

Mr. DEFAZIO. Anything anybody feels they need to add or qualify?

[No response.]

Mr. DEFAZIO. Thanks very much. I appreciate the amount of time you gave us in testimony. I'm going to call up Ron Wilkerson with the next panel, even though it's going to make it a little crowded. We'll let Ron get access to a microphone and speak and then I'll ask him a question, if appropriate, and then we'll let him go get his plane.

PANEL CONSISTING OF RON WILKERSON, MANAGER, WESTERN MONTANA ELECTRIC GENERATING & TRANSMISSION COOPERATIVE, INC., MISSOULA, MT; JACK WRIGHT, AREA MANAGER, PROVEN ALTERNATIVES, INC., LAKE OSWEGO, OR; GERALD R. ALDERSON, PRESIDENT AND CHIEF EXECUTIVE OFFICER, KENETECH/U.S. WINDPOWER, SAN FRANCISCO, CA; PAUL HATHAWAY, SENIOR VICE PRESIDENT, NORTHWEST NATURAL GAS CO.; STEPHEN F. JOHNSON, EXECUTIVE DIRECTOR, WASHINGTON PUBLIC UTILITY DISTRICTS ASSOCIATION, ACCOMPANIED BY STEPHEN W. ROMJUE, CHAIR OF THE BOARD, CONSERVATION AND RENEWABLE ENERGY SYSTEM; AND RICHARD ESTEVES, VICE PRESIDENT, SESCO, INC., LAKE FOREST, NJ

Mr. WILKERSON. Thank you, Mr. Chairman. Thank you for the special consideration to allow me to return home tonight.

Mr. DEFAZIO. I've been in Congress I don't know how many years now, it seems like a lot, but it's only about 6½, and I've put on more than a million miles. I'm very sympathetic to anybody who

has to get on an airplane. I have to get on one tomorrow. Go right ahead.

Mr. WILKERSON. Go right ahead.

Mr. DEFAZIO. Everybody just sort of settle.

Mr. WILKERSON. I think I'm by myself, right?

Mr. DEFAZIO. They can settle down around you there. We won't have enough chairs or it will be crowded. But we're going to have you testify and then I'll ask questions, if appropriate, and then we'll let you go.

STATEMENT OF RON WILKERSON

Mr. WILKERSON. Mr. Chairman, may name is Ron Wilkerson. I serve as Manager of an organization called the Western Montana Electric Generating & Transmission Cooperative, more commonly called the Western Montana G&T, headquartered in Missoula, Montana.

My organization represents the interests of six rural electric cooperatives, all of whom buy their entire power supply from Bonneville Power Administration. This group of utilities serves a very sparsely settled area. They have around 40,000 accounts scattered over about 50,000 square miles. So it's a sparse service area.

I also represent today the Montana Electric Cooperative Association, which is our statewide organization in Montana representing 26 rural electric cooperatives throughout the entire state.

Cooperatives, like public bodies, such as PUDs and municipals, are governed by elected boards and directors or elected officials, and those people are elected, of course, by those that are being served. So there's a direct connection.

I am pleased to have the opportunity to contribute to the efforts of the Task Force to assess the current electric energy acquisition both in conservation and generation. My educational and professional background allows some considerable insight into the workings of the electric supply mechanisms in the Pacific Northwest.

As a registered professional engineer with 23 years of power management experience with the Bonneville Power Administration and having served four years as Administrator of a sister agency to Bonneville, the Southwestern Power Administration, I have some basis for responding, I think, to your inquiries.

Mr. Chairman, you and your Task Force members are to be commended for recognizing that all is not well in the energy acquisition business in the Pacific Northwest. The issues are often technically very complex, but that doesn't mean they shouldn't be addressed.

BPA-served utilities are frustrated and less than optimistic about how the Regional Power Act is being implemented. We find it difficult to explain to our consumers why we now have power shortages and why their rates are beginning to rise much faster than the inflation rate.

In assessing the success of the Act with regard to power supply, please recall the stated purposes of the Act; "To assure the Pacific Northwest of an adequate, efficient, economical and reliable power supply." During the 12 years since the Council was formed, the region has gone from a 4,000 average megawatt surplus to a current 900 average megawatt deficit or shortage. The supply is obviously not adequate.

BPA rates are beginning what appears to be a dramatic exponential increase and we believe BPA rates could easily soon exceed the wholesale rates of the investor-owned utilities. This is not what we consider an economical supply.

The Act intended that conservation and renewables be evaluated honestly against conventional resources and used as a tool to achieve a truly low rate power supply. It appears BPA and the Council have manipulated the numbers to allow pursuing conservation and renewables at exceptionally high actual costs.

To deliver BPA power to consumers at the lowest rates, three organizations must coordinate and cooperate such that together they look like one well run integrated utility system. We observe this is not happening. The distribution utility, BPA, and the Council are not coordinating and cooperating to create the necessary results.

Why is the Act failing to provide the desired and intended results? We suggest at least five reasons. First, the Act has been misinterpreted, particularly with regard to the determination of cost-effectiveness. Secondly, the Council is encroaching on BPA's implementation responsibility, causing substantial duplication, confusion and excessive costs.

Third, the Council and BPA have lost sight of the stated purpose of the Act regarding adequacy of supply and economical supply. Fourth, there is an apparent conflict in the Act regarding the definition of resources, rate impacts, and resulting cost-effectiveness. As a result, the conservation resources causes much higher rate increases than does generation in the same amount. My written testimony elaborates on this.

If the Act separates the planning and implementation functions, this defies prudent business practices. Even when such functions are both under one organization, obtaining close coordination is sometimes difficult, but is necessary for a successful result.

BPA has several observed strengths and weaknesses related to resource acquisition. The strengths include having an established business relationship with regional utilities; the ability to acquire larger resources to gain economy of scale; ability to integrate various resources, including non-dispatchable conservation and intermittent renewables, such as wind and solar; and, BPA has a number of very well qualified and knowledgeable people.

BPA's weaknesses include placing too much emphasis on elaborate processes; lack of experience in resource acquisition; they've been on the learning curve; and, too much emphasis on assuring punitive environmental externalities to proposed resources, especially currently operating projects.

The near-term budget cuts by BPA are long overdue. They should not prevent BPA's acquisition of the targeted amount of conservation. BPA could be more efficient and effective if it returned to a management structure where individuals take more responsibility for making decisions and getting things done. Use of committees, groups, task forces, and such are not usually very efficient.

The Council's two major strengths in resource acquisition are its legal authority to develop a regional power plan with full public involvement and its ability to represent the Northwest Governors in influencing the regional economy through the electric power supply that they've planned, both in adequacy and in cost.

Major weaknesses of the Council are the Council has lost sight, as I mentioned earlier, of the Act's stated purpose, adequate supply and low rates; lack of expertise of staff and members, practically no people, that I know of, with past experience with actually planning to meet utility loads.

The Council has lost much credibility with the utilities, partly because of cynical comments by some Council members about utilities' concerns over rate increase impacts on their consumers.

There are significant differences between the processes for conservation and generation acquisition. One is not including the cost of creating the electricity which is delivered to new load after conservation expenditures have released it from its existing consumers. Another is the excessive discounting of conservation costs and the excessive inflating of generation costs before applying the cost of comparisons.

Resource acquisition costs and benefits for conservation are not appropriately shared. The benefitted consumer from conservation measures should pay much more of his or her costs of becoming efficient, because they receive the benefit.

We favor BPA acquiring the output of the Tenaska project. It is a dependable peaking resource. It can firm up non-firm hydro. Conservation and renewables cannot do these two things. Although the costs are relatively high, the Tenaska rate impact on consumers will be much less than the same amount of conservation acquired at the same cost.

It is common and necessary practice that certain information submitted by resource proposers be privileged and confidential. BPA will make the best arrangement possible. They share the objective of low cost dependable resources. The Council, however, should develop the capability to keep certain information confidential in the future.

With regard to fuel switching, the Act does not require it. Fuel switching is not conservation and BPA and the Council should allow the market to work. Switching to gas can actually increase the energy use and can increase pollution, as was mentioned by an earlier speaker.

Conservation incentives should not discriminate against those consumers where gas is available. The Act requires that quantifiable environmental costs be included in the system cost of a resource. We believe BPA has gone far beyond quantification as intended by the Act in assessing environmental externalities.

And applying such penalties to existing conventional resources which are going to operate anyway and produce the environmental effects, whether BPA acquires the output or not, is wrong. Boardman is a good example of that.

Our limited experience dealing with BPA on acquiring billing credit resources in a gas generating plant has not been good. It does not appear at this time that BPA is an effective acquirer also of indirect resources. Thus far, the Council has been concerned about electric energy. The time is coming fast when the region must give much attention to peaking resources. And if you think planning an energy supply is confusing, wait till you deal with the peaking resources.

In closing, we are concerned that the long-term economy of the Pacific Northwest is at risk. The northwest is fast losing its low cost electricity advantage. We do not need, Mr. Chairman, another quick fix by Congress. We urge your careful assessment of the situation before proposing action.

Confer with experienced utility planners who have had the direct responsibility of meeting utility loads. We're hopeful, Mr. DeFazio, that your Task Force can be useful in returning to the original objective of the Pacific Northwest or the Northwest Power Act to assure an adequate and economical power supply for the benefit of the people of the Pacific Northwest.

Thank you for allowing me the opportunity to testify. Thanks for moving me up a little bit.

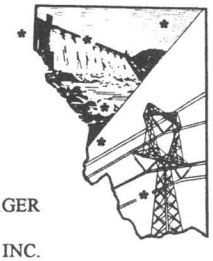
[Prepared statement of Mr. Wilkerson follows:]

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TESTIMONY OF RONALD H. WILKERSON, MANAGER
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GENERATING & TRANSMISSION COOPERATIVE, INC.
BEFORE COMMITTEE ON NATURAL RESOURCES
BONNEVILLE POWER ADMINISTRATION TASK FORCE
U.S. HOUSE OF REPRESENTATIVES

JULY 12, 1993; PORTLAND, OREGON

My name is Ron Wilkerson and I reside in Missoula, Montana. I am manager of the Western Montana Electric Generating & Transmission Cooperative, Inc., commonly referred to as the Western Montana G&T. This organization represents the interests of six rural electric cooperatives serving approximately 40,000 rural accounts in approximately 50,000 square miles in Western Montana, all of which purchase their entire power requirements from the Bonneville Power Administration (BPA).

My testimony today is presented also on behalf of the Montana Electric Cooperative Association representing 26 electric distribution cooperatives throughout the State of Montana. Each rural electric cooperative is governed by an elected Board of Trustees. Other forms of public power, such as municipal utilities, public utility districts, and peoples utility districts, are also governed by elected officials. These public power utilities are responsible to consumers through such governing officials elected by the consumers.

Thank you for inviting me to testify, and to contribute in a positive way to assessing how the Regional Act and its key players, BPA and the Council, are performing; and to make constructive suggestions on areas where improvements can be made. My educational and experiential background allows considerable insight about the workings of the utility industry in the Pacific Northwest. As a native Montanan, I received a degree in electrical engineering from Montana State University in Bozeman, Montana and have been a registered professional engineer for nearly 30 years. I retired from the Federal government in 1988 with 34 years of service including 23 years with the Bonneville Power Administration and four years as Administrator of the Southwestern Power Administration in Tulsa, Oklahoma. Virtually my entire career with BPA involved working directly with BPA's customers. Positions included Idaho Falls Area Power Manager/Area Engineer, Montana District Manager, and Upper Columbia Area Manager. During those years, I accepted several special assignments, including serving for nearly a year as BPA's Environmental Manager and Director of "Role EIS" Preparation. The "Role EIS" was the late 1970's effort to examine through a

programmatic environmental impact statement (EIS) the various possible roles the BPA might play in the Pacific Northwest power supply system. The five volume, 3200 page document has served as a reference to many who wish to better understand how the electric power system operates in the Pacific Northwest. Another special assignment was to manage the preparation of the Federal EIS on the Coalstrip coal-fired generating project and its associated transmission lines constructed by Montana Power Company and its four investor-owned utility company partners in Eastern Montana. Since 1988 I have been associated with the cooperatives in Montana in my current position.

I am pleased to have the opportunity to share my views on how the Regional resource acquisition effort is proceeding. You are to be commended, Mr. Chairman, along with the other members of your Task Force for recognizing that things are not all well in the Pacific Northwest with regard to power supply planning and implementation. Without question, the reasons why things are not well will be in some cases exceptionally complex, but nevertheless, such an effort should lead to better understanding and perhaps some improvement. You are undoubtedly aware there is a high level of frustration among the BPA-served utilities these days. It is difficult to explain to consumers why their electric power rates are beginning to rise at a rate much faster than normal inflation.

As I was preparing my testimony, it was difficult to consider BPA's resource acquisition performance in isolation from the Northwest Power Planning Council. The Council is a key player because it is driving events in a direction which influences the outcome. Because of this, my testimony will address activities of both BPA and the Council.

Today I will address: 1) whether the Regional Act is succeeding; 2) reasons for the Act's failure to produce results expected; 3) resource acquisition strengths and weaknesses; 4) acquisition processes sharing of costs and benefits, and BPA conservation acquisition; 5) acquisition of the output of the Tenaska Project; 6) environmental externalities; and 7) the experience of Montana cooperatives with the resource acquisition process. My testimony will not address the fish and wildlife program which I understand will be the subject of a subsequent hearing.

The Regional Act; A Success -- NOT!

If you have reviewed the Council's Annual Report to Congress over the past few years, you understand the Council assesses its own activities as being outstandingly successful. Certainly some of the recipients of the extravagant funding provided as a result of the Act would probably agree. The utilities I represent, however, see it differently. The BPA system is short of resources -- under the Power Plan this was not supposed to happen. Electric power rates charged by BPA are beginning an exponential increase which will almost certainly exceed investor-owned utility rates within a few years. Under the Act the cost of power was supposed to remain economical.

The Act was intended to allow the Pacific Northwest to continue to benefit from the highly efficient, low cost Federal hydroelectric (renewable) system and to insure a future adequate, economical power supply by developing the lowest cost resources to keep power rates low. Conservation was given emphasis, but only as a tool for achieving the objective. Renewables were also emphasized, but only when they met the cost comparison test. It appears the Council has lost sight of the intended objective and is pushing the Region in a direction of shortages and unwarranted high rates. BPA is

making a conscientious effort to implement the Council's Plan.

The consumers in the Pacific Northwest who obtain their electricity from a BPA-served utility are dependent upon three organizations. To bring about an adequate and efficient result, the three organizations must coordinate, plan, implement, and operate as if they were one efficient entity. The three organizations are the distribution utility, BPA, and the Power Planning Council. (Included with BPA, of course, are the Federal organizations which generate the Federal Power.) There is little hope that this three-legged stool will remain standing! The Council and BPA appear to be unreliable and unstable legs.

Because of uncertainty about the adequacy of future supply and because of the expected rapidly increasing costs, the distribution utilities must plan and develop resources to supplement or replace the legs of the stool represented by BPA and the Council. The fact that BPA customers are seeking alternatives to BPA and that no investor-owned utility is placing its load on BPA is evidence the Act is not operating as intended. The Act envisioned BPA would be the principal supplier for the entire Region, and that the Governors, through their appointed Council members, would be responsible for determining the amount of power supply developed to fuel the Pacific Northwest economy. Shortages and unnecessarily high power rates will hurt rather than help the Northwest economy.

Reasons the Act Has Failed to Provide Expected Results

There are, in my judgment, five factors which contribute to the Act failing to provide the results intended.

1. Interpretation of the Act. The Act established carefully designed criteria intended to obtain the lowest cost power supply for the Pacific Northwest with due regard for the environment and for wise use of energy through conservation and renewable resources. The Act has been interpreted such that most of the resources acquired are high cost. Not only are the costs high, but the rate impacts are disproportionally high as I will discuss later.

   The Act specifically deals with conservation "measures" which are supposed to be individually evaluated to determine whether they meet the cost-effectiveness criteria. If this had been followed, in the aggregate the average cost of conservation resources would be somewhat lower than the level which would just meet the cost-effectiveness criteria. In practice, what the Council and BPA have done is to package many measures together which in the aggregate form a conservation "program" with such program being given the cost-effectiveness test. Some measures in the program are costing well in excess of seven cents per kilowatthour. By themselves those high-cost measures would never meet the cost-effectiveness test.

   Additionally, the Act provides for giving conservation a ten percent advantage over conventional generation. The Council and BPA have extended that advantage to be twenty percent by considering that an additional ten percent advantage is achieved by having lower distribution and transmission system losses. This also allows higher cost

conservation resources than the Act envisioned to meet the cost-effectiveness test.

The utilities I represent firmly support considering conservation as a resource, but conservation must be treated equitably along with generation.

2. Council Role and Relationship to BPA. The Council has gone far beyond its authority under the Act in the resource acquisition field and has encroached substantially on the BPA Administrator's responsibility and authority under the Act. The Council should focus on planning and should recognize BPA is responsible for implementation. It is not the Council's responsibility to implement - - it is expected to "encourage," "review," and "monitor" implementation in order to improve on the Plan and Program it develops. A review of the Council's current budget will disclose it is spending a substantial majority of its budget (paid by ratepayers) to involve itself in implementing activities.

   The Council has indicated it sees its role as "overseeing" the activities of the Administrator and as providing "oversight" of the Administrator. Perhaps I am overly sensitive to semantics, but those words never appear in the Act. "Encourage, review and monitor" are the words actually used. The Council should assist the Administrator to implement the Plan and Program only when requested by the Administrator.

   The Interior Committee Report during its consideration of the Act stated, "Once the Plan is adopted, the Council's expenditures should not be as great as they may be prior to planning." The Committee's expectations have never been met. The expenditures of the Council have not dropped, instead they have increased largely because of the Council's "assumed roles" relative to implementation. Not only is this costly, it is duplicative and time consuming. It forces electric rates to rise.

3. Neglect of Basic Objective. As mentioned earlier, it appears the Council and BPA have lost sight of the basic objective of the Regional Power Act stated in Section 2.(2), *"to assure the Pacific Northwest of an adequate, efficient, economical, and reliable power supply."*

4. Conflict in Act Related to Rate Impacts and Cost Effectiveness. It is now generally agreed the rate impact of conservation costing a certain amount is much greater than the rate impact of generation costing the same amount per kilowatthour. The actual rate impact of the BPA conservation program has been much greater than had the same amount of generation been acquired.

   The Council has not explicitly informed the public of the rate impact of pursuing conservation versus pursuing conventional generation under the cost-effectiveness test in current use. We would encourage them to do so under their full disclosure policy.

   In my judgment, there is an unintentional conflict built into the Regional Power Act. The Act gives great emphasis to the rate impact of resource acquisition under Section 6(h)(3) and does not distinguish between conservation resources and conventional

resources. Could it be that the Congress when considering the Act did not recognize there would be a difference in rate impact between those two resources?

There would be no difference in rate impact if the cost of generating the electricity which is saved by conservation were included in the cost of the conservation resource. The Act in Section 3 appears to overlook this important fact which is and will in the future, if not changed, drive electric rates in the Northwest out of sight. Any energy resource must include the cost of producing the electricity serving new loads.

For more information on this apparent conflict, please see the attached draft paper entitled, "Conservation and the Apparent Conflict Regarding It in the Regional Act," dated January 5, 1993. I urge your Task Force, Mr. Chairman, to carefully study this matter and to correct one of the major obstacles to developing low-cost resources for the Pacific Northwest.

5. Separation of Planning and Implementation. Any student of successful business enterprises will agree that the planning and implementation functions of an organization must work in close harmony to achieve a desired objective. With the Act, the planning and implementation activities are placed in completely different organizations each with its own autonomy. Clearly the planners are not accountable for the result. Clearly the implementors are not accountable for the plan.

   To complicate matters further, the Council indicates some disagreement over its role and the role of BPA is "creative tension" and that this is probably healthy. I disagree. Rather than giving lip service to being a partner to BPA, the Council must stand shoulder-to-shoulder with BPA and work together as if they are one entity for the benefit of the Pacific Northwest.

Resource Acquisition -- Pluses and Minuses

To assess the strengths and weaknesses of the entities involved and other related matters, I will address the performance of BPA, the performance of the Council, the processes being used, and again touch on the cost-effectiveness test.

A. The strengths of BPA with regard to resource acquisition are:

1. They have an established business relationship with most of the utilities in the Pacific Northwest;

2. They can acquire larger resources and gain economy of scale; and

3. They can integrate a large variety of resources into the Columbia River Federal Power System including intermittent renewables.

4. A number of BPA employees have an excellent grasp of the Northwest Power System

and have recognized the difficulties faced by small utilities operating in low-density rural areas.

The principle weaknesses as we see it are:

1. There is too much emphasis on establishing elaborate processes and not enough attention given to actions identifying consumers' needs and acquiring the necessary resources.

2. The BPA organization lacks experience in resource acquisition. It is a "learn-as-you-go" program. An experienced utility manager with demonstrated resource acquisition capabilities would be appropriate.

3. The environmental externalities developed by BPA are unreasonable and not really quantifiable. They drive the cost of conventional resources higher thus justifying higher and higher cost conservation with its disproportionate rate impacts. Even though coal provides roughly 65% of the electricity in this nation, and nuclear about 22%, such new resources are not allowed in the Northwest.

The near term budget cuts being made by BPA are long overdue. They should not interfere with BPA's acquisition of the conservation included in the Power Plan. BPA must be assertive to recover from a "bad trip" during the last ten years.

BPA should return to a management style where individuals are responsible for results and are willing to put their reputation on the line to make decisions. The work groups, committees, task forces, etc., are nice from a social standpoint but they do not bring results in a timely, efficient manner. An astute person once told me, "Never send two people to do the job that one person can easily do." BPA should heed this advice.

B. The Council's strengths related to acquiring resources are:

1. Its legal mandate to prepare a Regional Power Plan with full public involvement.

The Council's weaknesses are:

1. Losing sight of the goal set forth in the Act to achieve an adequate, economical supply of power.

2. Ability to represent the Northwest governors to control the economy to the extent affected by power supply adequacy and costs.

3. Lack of staff and members with a background of planning to meet loads of utilities.

4. Certain members of the Council have been publicly cynical about the utilities' concerns regarding rate impacts. This is disappointing. The Council gradually has lost its credibility with most of BPA's customers or utility organizations. Virtually no

BPA customers or their representatives attend the Council's regular monthly meetings. Much of the attendance is by representatives of organizations seeking funding. Although the Council invites utility comment on its activities, for the most part the Council ignores the input they do receive from utilities.

Acquisition Processes, Sharing of Costs and Benefits, and BPA's Conservation Acquisition

There are significant differences in the processes used by BPA for acquiring conservation and for acquiring generating resources. Some of these differences are caused by the adjustments to the conservation costs (downward) and the adjustments to generation costs (upward), but a basic problem is that the cost of generating the electricity saved by conservation is not included in the conservation resource cost before comparing with cost of other resources. The current process results in the rate impact of conservation being high and the cost-effectiveness test being inappropriate. This point was discussed earlier in my testimony.

The resource acquisition costs and the benefits are not appropriately shared. The consumer who takes action to become more efficient should be expected to pay more of the cost because of the benefits such consumer will realize. Under current practices, the benefitting consumer pays too little of the cost -- but his neighbors who have already perhaps installed all available energy efficient measures on their own are expected to pay again through increased rates. The impact to the already-efficient consumer is much greater than had generation been acquired at the same cost.

Although it appears BPA is on track to acquire the 660 aMW of conservation which the Council has targeted in its Plan, the cost-effectiveness test needs to be revised and publicized. BPA is paying too much for conservation. We support, of course, the acquisition of truly cost-effective conservation. The current cost-effectiveness test includes adjusting the actual conservation costs such that they appear to be much lower. The costs of traditional or conventional energy generating resources are artificially inflated through environmental externalities before making the comparison with the adjusted conservation costs. The environmental benefits to society are simply not sufficient to justify the exceptionally high costs we are bringing upon ourselves.

Tenaska Project

BPA should proceed to acquire the output of the Tenaska Natural Gas Project because it has attributes that renewables and conservation do not have. The Tenaska Project can be used to meet peak load on a dependable basis -- conservation and renewables cannot. The Tenaska Project can be used to firm up non-firm hydro generation -- the renewables and conservation cannot.

We are concerned about the cost of the Tenaska Project but no more than we are concerned about the cost of conservation and renewables. The impact of the Tenaska cost on BPA's rates will certainly be less than the rate impact of BPA acquiring the same amount of conservation.

When a utility seeks competitive proposals for providing a generating resource, it is absolutely

necessary to protect the bidders by keeping certain cost information confidential. It is common practice -- I am unaware of any successful utility that would do it otherwise. There is no reason to believe that BPA will not make the best deal possible or to believe the Council can bring off a better deal by having all of the information it is seeking. The Council has injected itself into the BPA negotiation of trust agreements for wildlife mitigation at a tremendous additional cost to the BPA ratepayer. We suggest the Council refrain from injecting itself into BPA's negotiations for resources.

Fuel Switching

Fuel switching by definition is not "conservation." The Act does not encourage fuel switching. Fuel switching is "curtailment" of electricity use. Fuel switching should be a consumer decision -- not something mandated by a central planner.

Fuel switching is also often inappropriate when it comes to saving energy of all forms. For example, it takes less BTU's of energy to generate electricity with gas and electrically heat a home with a ground source heat pump than it does to heat the home directly with gas.

Economically, in rural areas the total cost of providing a gas and electric distribution system far outweighs the fuel cost advantage for gas at this time.

BPA and the Council should not take actions to subsidize consumers to encourage fuel switching. If an individual local utility chooses to do so, that is fine, but market conditions generally will lead consumers to the best choice for them. In other words, let the market handle it.

With regard to incentives, BPA should not discriminate against consumers who live where gas is available by prohibiting incentives for Super Good Cents home building. As mentioned earlier, a Super Good Cents home with a ground source heat pump is using less energy than a home heated by gas.

Environmental Externalities

BPA has gone well beyond the requirements of the Act to include "quantifiable" environmental costs in the "system cost" of a resource. As a result, the cost of fossil-fueled plants are artificially inflated driving the cost of the Region's electric power supply up dramatically. BPA has even applied the environmental externalities to coal plants currently in operation such as Boardman and those owned by Basin Electric Cooperative. These plants are going to operate whether BPA purchases from them or not. As a result, these low cost resources are being used in California and in the Midwest when they could be benefiting the Northwest at no incremental environmental cost and substantially less dollar cost.

BPA even proposed to assess an unsupported environmental externality cost to carbon dioxide which is not a designated pollutant. Fortunately, the DOE vetoed that extreme idea.

Our Experience With Resource Acquisition

Our member utilities in Western Montana have always been requirements customers of BPA. None have their own generation. A couple years ago we made a proposal to BPA for a billing credit conservation resource which involved installing low-loss distribution transformers. BPA's proposed contract was so administratively burdensome that the benefits to our utilities vanished. When we attended a meeting in Missoula called by BPA to negotiate the proposed contract and seven BPA people showed up, we knew we were in trouble -- especially after we were informed nobody in the group had any decision-making authority.

Although not involving the Western Montana G&T, the Flathead Electric Cooperative and Lincoln Electric Cooperative jointly have proposed a gas-fired generating facility in Northwest Montana, and have attempted to arrange for BPA to acquire the output. Those two utilities have been extremely frustrated in their attempt to sell the output to BPA, and it is my understanding BPA has turned down this resource forcing the utilities to seek markets elsewhere.

At this time it does not appear BPA is an effective indirect purchaser of resources such as through the billing credit process. The administrative costs are excessive and there is little assurance the Region will get what it pays for. An example of the latter is an arrangement BPA made for paying a utility for reconductoring a distribution line to reduce losses, but with no assurance the utility will manage its losses on the balance of its system to allow BPA to realize the savings. Reducing losses on one delivery point can be easily offset by allowing losses to increase on the delivery point. Those of us paying for that kind of conservation savings have reason to be concerned.

In closing, I would like to stress that the distribution utilities, BPA, and the Council need to be concerned about meeting the peak loads in the Region -- something the Council has ignored in the past. There has been a rapid loss of flexibility on the hydro system due to the Council's fish and wildlife programs. Hydroelectric and gas-fired turbines are dependable peaking resources. Most conservation and renewables are not dependable peaking resources. Having adequate peaking resources is essential to allowing the development of renewables such as solar and wind.

In our judgment, the long-term economy of the Pacific Northwest is at risk. Low rates are essential for attracting manufacturing plants which fuel the economy. The cost of living is a large consideration when business seeks a plant location. It affects the feasibility of establishing the enterprise. Acquiring labor to run the plant is a big factor. Low electric rates are a key element in retaining a low cost of living. The Pacific Northwest is losing its low power rate advantage.

While we welcome and encourage your interest, Mr. Chairman, we do not need another quick fix by Congress unless it is to undo its past mistakes. As a result of the Northwest Power Act passed by Congress in 1980, we obtained the Power Planning Council. Under its Power Plan, the Northwest has gone from a 4000 aMW surplus to a 900 aMW deficit. Most of the deficit is from the 800 aMW loss of generating capability on the Federal system due to the Council's mandated fish and wildlife program. BPA's conservation acquisitions thus far are in the 350 aMW range -- much less than what has been given up. And it has cost us over a billion dollars for conservation acquisition. We do not have an adequate power supply and it is fast becoming uneconomical.

I urge your most careful assessment of the situation before proposing actions. If you were planning a successful military air strike, you would not make a single reconnaissance flight and proceed with your bombing run. You may hit the target, but the chance of destroying and damaging the civilian population would be great. The same is true with our Regional electric power supply. Study the situation carefully. Talk to experienced utility planners with the responsibility for meeting load. Invite public comment. Don't sacrifice the economy of the Pacific Northwest to satisfy an ideology advocated by a few. That is already happening and your Task Force could be useful in urging a return to the original objective of the Northwest Power Act -- an adequate, economical power supply for the benefit of the people of the Pacific Northwest.

Thank you again, Mr. Chairman, for the opportunity to appear before your Task Force.

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D R A F T

CONSERVATION, AND THE APPARENT CONFLICT REGARDING IT, IN THE REGIONAL ACT

HYPOTHESIS: The Regional Act contains a serious conflict regarding the determination of "cost-effectiveness" and the determination of "billing credits" a BPA customer can receive.

DISCUSSION: It appears the drafters of the Regional Act made an assumption which is incorrect. That assumption is that the rate impact of acquiring conservation costing a certain amount per kWh is the same as developing a like amount of generation costing the same amount per kWh.

Please refer to Sections 6(h)(3) and 6(h)(4), dealing with the amount of billing credits for conservation and for resources other than conservation (copy attached). Please note the concern over rate impact on "the Administration's other customers" and the phrase, ". . . had the Administrator been obligated to acquire resources in an amount . . . " (emphasis added)

The term "resource" is defined as electric power from generating facilities, or load reduction from application of a renewable energy resource by a consumer, or from a conservation measure. [paraphrased from Section 3.(19)] The rate impact of the Administrator acquiring conservation resources (or renewable resources of a consumer) is substantially more than the rate impact of acquiring generating resources. This fact was not recognized by the drafters of the Act; if it had been, the language would have specified the type of resource to be used for the rate impact test.

The conflict can be noted in Section 3.(4)(A)(ii) which defines "cost effective" as a measure or resource which reduces the electric power demand at an estimated incremental system cost no greater than that of the least-cost alternative measure or resource. As mentioned earlier, the rate impact of a conservation measure will always exceed the rate impact of a generating resource with the same incremental system cost.

So we have one section of the Act which implies that the rate impact of conservation should not exceed the rate impact of generation (Section 6), and another section which defines "cost effective" in a way that prohibits this from occurring.

The conflict is likely a result of ignoring the fact that conservation does not "create" electric energy; it simply pays for existing or planned users of electricity to reduce existing or planned use. The same is true for consumer- developed renewable energy resources. All of the other forms of "resource" dealt with in the Act create electric energy.

The conflicts in the Act could be resolved by removing the word "incremental" from Sections 3.(4)(A)(ii) and 3.(4)(D); and defining "system cost" in Section 3.(4)(B) as including the average cost of existing generation in the cost of a conservation measure or resource, or a renewable resource which reduces a consumers' need for electricity. In other words, the cost per kWh of releasing the energy from its existing use (conservation or a consumer non-electric renewable resource) must be added to the cost of generating the saved or displaced electric energy.

The result would fit with standard utility planning processes quite well. New loads would be served with the lowest cost resource. The rate impacts on consumers as a result of using a conservation resource would be the same as for a generating resource, except for the 10% preference given to conservation. All "resources" (including conservation and consumer-developed renewable resources) would include the cost of generating the electric energy.

Please note the attached analysis "Alternative Ways to Treat Conservation and Related Rate Impacts."

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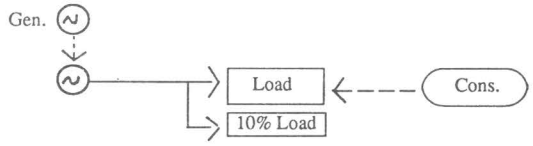
ALTERNATIVE WAYS TO TREAT CONSERVATION AND RELATED RATE IMPACTS

Base Situation (Assumptions)



Load = 10,000 kWh
Utility Power Supply Cost (including BPA transmission, etc.) = 23 mills/kWh
Generating Ability = 10,000 kWh
Time Period Is Not Relevant.

Further Assumptions



Assume that 10% load growth occurs.
Conservation is available to BPA at a cost of 30 mills/kWh.
Generation is available to BPA at a cost of 40 mills/kWh.

ALTERNATIVE #1
(Current Practice)
Minimize Dollars Spent And Serve All Loads

Acquire 1000 kWh of conservation at 30 mills/kWh or cost of $30.00. Total load remains same as for base case at 10,000 kWh. Serve load with existing power supply at 23 mills/kWh or $230.00.

Total Cost = 230 + 30 = $260
Unit Cost = 260/10,000, or 26 mills/kWh

NOTE:Individuals who have not increased usage and who have previously installed energy efficiency measures see their costs increase from 23 to 26 mills, or 13%.

ALTERNATIVE #2
(Consistent with Billing Credit Requirements of Northwest Power Act)
Minimize Cost of Serving Load Growth

Cost of serving existing load is 23 mills/kWh.

CONSIDER CONSERVATION APPROACH: Acquire 1000 kWh of conservation at 30 mills/kWh, or $30. Existing load drops to 9000 kWh. It continues to be served at 23 mills/kWh, or at cost of $207. Part of existing generation (power supply) re-directed to serve 1000 kWh new load at 23 mills/kWh or at cost of $23. Total cost of serving new load is $30 + $23 = $53.

CONSIDER GENERATION APPROACH: Acquire 1000 kWh from new generation at 40 mills/kWh, or cost of $40. (Assume it includes cost of transmission.)

Choose generation approach because it is less cost.

RATE IMPACTS

Alternative 1 causes overall cost of 26 mills/kWh or rate increase of 13%.

Alternative 2 total cost is $230 + $40 or $270. Load served is 10,000 kWh + 1000 kWh or 11,000 kWh. Unit cost is 270/11,000, or 24.5 mills/kWh. Rate increase required is :

$$\frac{24.5 - 23}{23} \times 100 = 6.5\%$$ (or in this case, one half of Alternative 1)

CONCLUSION

We still should push hard for cost effective conservation. The acquisition decision, however, would include the cost of producing the energy, causing the cost effectiveness level of conservation to be lower.

This method is consistent with the Billing Credits and Rate Impact Test described in Section 6 of the Act. It is consistent with the way resources were chosen before conservation was defined and included as "resource." It would help keep Pacific Northwest competitive with other regions. It is equitable to existing customers.

The rate impact must be noted! With our example, which showed that pursuing the 30 mill/kWh conservation option would actually cost $53 to serve the new load, lets assume that generation is available which costs 53 mills/kWh.

We have shown that the current approach, of minimizing dollar outlay, results in an energy cost of 26 mills/kWh or 13% increase.

If we pursue the generation option at 53 mills/kWh, we end up with total costs being $230 + $53 or $283. Load served would be 10,000 kWh + 1000 kWh, or 11,000 kWh. Unit cost would be 283/11,000 = 25.7 mills/kWh, yielding essentially the same percent increase (13%).

For this example case, the rate impact of 30 mill conservation is the same as 53 mill generation.

If generation is available at 40 mills, then we can justify conservation costing 40 - 23 = 17 mills/kWh to give the same rate impact. With the 10% adjustment, we could justify (40 X 1.1) - 23 = 21 mills/kWh for conservation.

Western Montana G&T
01/05/93

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An Act

To assist the electrical consumers of the Pacific Northwest through use of the Federal Columbia River Power System to achieve cost-effective energy conservation, to encourage the development of renewable energy resources, to establish a representative regional power planning process, to assure the region of an efficient and adequate power supply, and for other purposes.

Dec. 5, 1980
[S. 885]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Pacific Northwest Electric Power Planning and Conservation Act.
16 USC 839 note.

6.(h)(3) The amount of credits for conservation under this subsection shall be set to credit the customer implementing or continuing the conservation activity for which the credit is granted for the savings resulting from such activity. The rate impact on the Administrator's other customers of granting the credit shall be equal to the rate impact such customers would have experienced had the Administrator been obligated to acquire resources in an amount equal to that actually saved by the activity for which the credit is granted.

6.(h)(4) For resources other than conservation, the customer shall be credited for net costs actually incurred by such customer, an entity acting on behalf of such customer, or political subdivision served by such customer, in acquiring, constructing, or operating the resource for which the credit is granted. The rate impact to the Administrator's other customers of granting the credit shall be no greater than the rate impact such customers would have experienced had the Administrator been obligated to acquire resources in an amount equal to that actually produced by the resource for which the credit is granted.

Mr. DEFAZIO. I'll just ask you questions and let you go. I was curious that twice you mentioned that there's too much emphasis and costs placed on externalities, yet we heard from earlier witnesses that they—because of policies developed by the Reagan and Bush Administrations, in fact, BPA was prevented from assessing environmental externalities at anything that—it came out to about a mill, I think, on Tenaska. I'm curious why you chose to mention that twice and yet we had earlier testimony that, in fact, they were prevented from doing that.

Mr. WILKERSON. My testimony is based on the fact that cost of conservation, the actual cost is reduced not just by the ten percent in the Act, but also for some other reasons that have been administratively included, supplementing that, and the cost of generation which conservation is compared against has been artificially inflated through the use of externalities which are speculative, at best, as far as the actual impacts.

For instance, for an existing plant that's going to operate anyway, applying an externality in the comparison of whether you're going to acquire it or not seems a little bit ridiculous because the actual cost of acquiring Boardman would have been substantially less than other resources.

Mr. DEFAZIO. And I had asked the previous witness about the Boardman example and I'm not sure, and perhaps we'll hear it from the Administrator later. But, again, we were told that it was the policy of the previous Republican Administrations to not count environmental externalities, since they didn't believe in global warming, they didn't believe in other problems.

So my question is what have they applied. I'm not aware that they have been applying any discriminatory—I understand what you're saying about the conservation side and we'll get into that. But you're talking about something that other people are saying they're not applying and I'm just curious whether they really are applying it or not.

Mr. WILKERSON. With other resources, sulfur dioxide, nitrous oxide, they also put in some penalties having to do with location, those kinds of things. But the externalities mostly have to do with the pollutants that go in. I think when—my view is that when the Act was passed and the word "quantifiable environmental impacts" was put in there, it meant those things which you can estimate the cost of controlling, which the Congress and the Federal agencies have determined are, in fact, pollutants and that there is a cost of mitigation, a cost of scrubbers, for instance, those kinds of things, of meeting the laws of the land.

Mr. DEFAZIO. Like the Clean Air Act.

Mr. WILKERSON. As it is now, many states are going to use of environmental externalities, but there is no consistency among states, Federal agencies or anyone as to how much is going to be assessed for various kinds of environmental impacts.

Mr. DEFAZIO. So you would like to see it done on some sort of uniform basis across the country, so as to take out any sort of market distortion.

Mr. WILKERSON. If it is going to be done, it should be. But if Congress, which is society's decision-maker, you might say, if they decide that there are, in fact, penalties that should be put on certain

kinds of resources, perhaps there should be laws that are enacted that state that.

As far as I know, I don't think there are at this time.

Mr. DEFAZIO. Well, whether it was wisdom or not, Congress left a lot of latitude to regional authorities and/or air shed sorts of areas to deal with those sorts of things. And whether they do it through persuasion, penalties, prohibitions, whatever, has been somewhat left up to regional or state authorities. But they have identified a number of these pollutants as problems and, in particular, they're problematic in certain air sheds than they are in others.

The earlier concern raised about if gas was interrupted, oil-fired in cold weather circumstances for Tenaska, things like that, within the Puget Sound area and the problems related to that.

On the conservation issue, how is it that you—do you feel that it has been over-estimated in its efficacy? We had an earlier discussion here, I believe by Ms. Van Dyke, about the measurable—where their concerns were they were going to continue measures that had previously been authorized by BPA and BPA said, no, they wanted to develop a new way to measure the efficacy of those measures.

Do you think that your concerns—are your concerns about conservation that they have over-reported through some under-sampling or overestimation of effects, the conservation required? What is it that you use to say that the installed cost or the avoided generation cost is much higher than what they're reporting?

Mr. WILKERSON. My comments did not relate to the measurement of the actual conservation acquired. It has to do with the definition of conservation as a resource. I was with Bonneville and probably gave one of the first talks by a Bonneville official where we proclaimed conservation as a resource under Don Hodel as Administrator.

We all have believed that you just tell it the cost of getting people to give up their use of energy and that that would be considered the cost of the resource. Mr. Chairman, included with my written testimony, I've attached some stuff which I no longer believe that.

Traditional utility planning has a utility serving the new load, the load growth, the increasing load of the system, with a resource at the lowest possible cost. That's the way resources have always been planned. With conservation, we're not doing that.

If you serve new load with generation, you are not, in making your—and you have several types of generation, all of those, you compare one to another, and there's no cost of that comparison that's been allocated back to the existing consumers. You're looking at new load and new generation resources.

With conservation, what we are doing, we are paying to get the existing users to give up the use of the energy and then we're comparing that with the cost of serving the new load, but the unused costs—well, I guess it's not unused, it's the creating of the electricity that has to be re-diverted over to serve the new load, to go with giving up the load. That is not charged.

So we're reallocating the costs of the generation back to the existing——

Mr. DEFAZIO. I understand that on a regional basis, but I tried to get that in an earlier question, I think it was to Mr. Golden, about whether or not he would give a premium to conservation within a load limited area; for instance, Puget Sound, with the transmission problems into the Puget Sound area.

If you can induce conservation in the Puget Sound area, it's worth more than trying to induce conservation somewhere else.

Mr. WILKERSON. That deals with transmission. This has to do with—a resource cannot be a resource if the electricity hasn't been created. Investing in getting people to put in insulation does not create any energy. It frees it up, but it has to be generated someplace.

Mr. DEFAZIO. Right. But if we say—if you project a ten percent growth next year, we could get—save ten percent through conservation, then we wouldn't have to—there would be some additional transmission required because of the——

Mr. WILKERSON. I'm not worried about the transmission. I'm worried about if we get the existing users to give up ten percent of their use so that we can use that energy to serve new load, part of the cost of serving the new load is creating the energy that goes over to the new load, and that's the existing generation system.

Mr. DEFAZIO. Right. The same existing, but it wouldn't require——

Mr. WILKERSON. It wouldn't require building anything.

Mr. DEFAZIO [continuing]. Incremental costs.

Mr. WILKERSON. It's a matter of how you do your comparison. So the true cost of conservation as a resource would be the cost of generating the existing supply, like Bonneville's existing——

Mr. DEFAZIO. Okay. I get——

Mr. WILKERSON. Do you see what I'm saying?

Mr. DEFAZIO. Yes. I get your point. It's a different price.

Mr. WILKERSON. You'll end up with the same rate impacts then. You end up with a little different threshold for conservation. It doesn't diminish its importance. It just makes the comparison very fair and it does not create a higher rate impact on consumers than would generation.

Mr. DEFAZIO. One other point you made which was about peaking. Again, I would assume that your remarks generally were that the peaking problems or capacity problems that we're headed toward, you don't think that generation or any sort of—I mean, the conservation or in any form or any sort of innovative programs that have to do with time of day rates or off-peak metering or something to deal with some of the peaks, you don't think there's any value in those.

Mr. WILKERSON. Yes, yes. We haven't reached that yet, but shifting load off-peak is something we're going to have to deal with as we approach the peaking problems. Certain kinds of conservation are very good from a peaking standpoint. You're making your distribution and transmission systems more efficient. It gives you the biggest bang over the peak period than at other times.

So those are very good. But for the most part, wind and solar and many forms of conservation do not allow you to put that on peak and they don't allow you to put it on in any particular part of the region where you want, so moved around.

And peaking is a very complex thing because not only do you have to have the machine capacity to meet the actual peak load at the instant it hits there, you have to have enough energy to go with it to cover the whole shape of the peak, however broad it is. And we are really losing that flexibility on our hydro system very rapidly. It's going to be a much bigger problem much sooner than we had ever imagined.

Mr. DEFAZIO. Okay. Thank you very much. We'll let you go so you can go get your plane. Appreciate your time. So back to Panel IV and we'll first go to Jack Wright.

STATEMENT OF JACK WRIGHT

Mr. WRIGHT. Mr. Chairman, thank you for inviting Proven Alternatives to be with this session. My name is Jack Wright. I'm the Area Manager for the Northwest Office of Proven Alternatives. We're a nationwide firm that has an established record in successful energy conservation and load management projects, with the acquisition of Puget Energy Services last year.

We expanded our base of experience as a partner in conservation in this region since the mid-1980s. We have worked with over a dozen utilities to implement demand side management programs. Our projects are located throughout the United States and include the continuous operation of projects under Bonneville Power Administration's energy savings program.

We have provided a broad spectrum of energy management services to both investor-owned utilities and municipal utilities and have been involved in a wide variety of projects in the commercial, industrial and institutional sectors. The company operates nationally with a small headquarters staff, six area offices, and a project financing arm, Proven Alternatives Capital Corporation.

I appreciate the opportunity to provide you with a perspective from the service provider's vantage of these region's status in acquiring conservation, as well as the potential for partnerships that can effectively move the region closer to its conservation acquisition target.

In responding to the various questions, Question 1, regarding BPA's strengths and weaknesses, and, in particular, is the BPA conservation program acquiring all cost-effective efficiency, we think that Bonneville should be commended for its leadership in laying a solid foundation and a framework for the development and acquisition of conservation.

Bonneville has set an example for electric utilities across the country. We need only look at what Bonneville has accomplished in the way of promoting conservation. In the last decade, Bonneville has out-spent some of the most aggressive utilities in the nation by two-to-one. The fact that the agency has spent a total of $1.2 billion on conservation and has acquired 330 average megawatts of conservation in the last decade is a strong reminder of this agency's ability to make a long-term commitment to resources recognized as the region's resource of first choice; at least we think it should be.

While BPA has concentrated a majority of its efforts in acquiring conservation in the residential sector, we believe that the opportunity for the greatest savings exists in the commercial, institu-

tional and industrial sectors. Our experience in other parts of the country with utility programs that have targeted these sectors tells us that the long-term economic benefits are tremendous and contribute greatly to a stable economic environment.

The opportunities in the commercial, institutional and industrial sectors for comprehensive conservation programs are much less encumbered. There are fewer numbers of customers to contact, greater savings available per facility, and lower administrative costs.

In most cases, the decision criteria for participation is more clearcut. The program delivery systems for the commercial, institutional and industrial conservation markets are larger scaled and more interactive than residential programs.

The key, we believe, for acquiring substantial energy savings in the non-residential sectors is timing. If funding for these projects is not available at the time the industry is ready to undertake retrofits, it is likely that the opportunity will be lost forever.

We generally agree that Bonneville is on track to acquire its share of the region's targeted level of cost-effective conservation. However, after encouraging utilities to rapidly accelerate their efficiency programs, Bonneville is now in a position of near-term budget constraints. We believe that if the region's utilities continue to depend on Bonneville for full funding of conservation programs, budget cuts in the near term will significantly compromise the ability of the region to achieve its acquisition goals.

We think a major conservation acquisition program requires a steady, long-term commitment of both staff and budgets. The concept that energy conservation is a resource, like any generating power plant, was first introduced by the Northwest Power Act. Treating conservation as a one-time program, as Bonneville currently does, exposes it to the risk of budget cuts, which translate to uncertainty in the regional planning mechanisms of its utility customers. The problem shifts from one of achievable conservation targets to one of uncertainty and risk.

In response to Question 2 regarding why energy services companies, such as Proven Alternatives, have played a major role in other parts of the country, but have not been particularly active in the northwest, the primary reason for the relative success of companies like ours in other parts of the country is due to the fact that the rest of the country pays substantially more for electricity.

Higher prices simply mean more conservation is economical under more customers' financial decision criteria. This allows for more creative and comprehensive programs, but longer-term savings assurances.

We've also seen that in other regions where capacity constraints are a big problem, utilities have adopted more flexible DSM program offers. In a low rate environment like the northwest, we, as a private company, take considerable risks for very small profit margins. As a result, we don't see the kind of conservation acquisition activity going on here like we do in California and, particularly, the east coast, where we have three offices. Consequently, conservation acquisition has developed risks less rapidly in our region by ESCOs.

In a period of budget constraints, energy service companies, like Proven Alternatives, can play a very important role in providing

energy efficiency savings to BPA and its customers. One of the features that makes our company unique to the industry is our ability to provide third-party financing. We believe that we are the only independent energy efficiency company that offers non-recourse project financing as an investment tool.

By investing in our customers' energy efficiency projects, we effectively isolate the customers' financial risk from their capital risk and avoid delays in dealing with third-party financiers. In this way, we can make significant contributions to Bonneville's ability to leverage limited conservation dollars.

Another area where we can play a partnership role with Bonneville and its customers is in program design. We have a full complement of sales, engineering and operations professionals to support project development and execution, quality control, and communications, and we think we're able to provide Bonneville and its customers with the staffing and expertise required to make these programs succeed.

Building long-term relationships and developing effective communications between the partners is the approach we feel must be embraced. In order to sustain these partnerships, all parties, utilities, customers, and developers, must have a stake in the performance of the conservation resource. This is what Proven Alternatives strives to do with its third-party project financing capabilities.

Question 3, are there significant differences in the processes used by BPA to acquire conservation, renewable and fossil resources? In order to respond to a resource acquisition request from Bonneville, a typical energy efficiency company like Proven Alternatives would have to have the same procedural and administrative demands placed on it as a large independent power producer.

The energy efficiency industry, particularly in the northwest, for reasons previously given, is small and very competitive. The level of perforation required to respond to a conservation bid is similar to that of a supply side bid. Companies like ours must carefully balance the best use of our resources.

We must weigh the costs in responding to administratively demanding bid requests with the benefits of developing projects directly with the customer, without having anything to do with the utility company.

Our experience with utility bidding practices across the country is that the complexity, rigidity and focus on simple economic criteria tend to limit the program effectiveness to cream-skimming targets which sacrifice lost opportunities, and we're not in the cream-skimming business.

Question 4, is BPA an effective indirect purchaser of regional resources? Proven Alternatives has successfully completed projects where BPA has been an indirect purchaser of the energy savings. In all three cases where Bonneville programs were used, the projects received the State of Washington's Governor's Award for Energy Management. One project was the Columbia Basin College in Richland, Washington. That project saved $73,000 a year for the school.

Regarding the question regarding the Planning Council's role, has it been properly exercised, we think that the 1991 power plan

is a model comprehensive planning document. It sets forth the clear and decisive agenda for regional commitment.

We think that the Council could take much more of a leadership role, however, and we'd like to see a more proactive and strategic approach, all focused on the same goal.

On the externality issue, we believe that one thing that has not properly been addressed is CO_2 and that needs a lot of attention.

In summary, we think BPA has provided leadership and can continue that leadership role by developing flexible programs that address the needs of the commercial, industrial and institutional sectors.

It's these areas that have the greatest opportunities and we're more than willing to work with BPA or its customers to bring our experience—to bring comprehensive projects in and not cream-skimming.

Thank you, sir.

[Prepared statement of Mr. Wright follows:]

Testimony Submitted before the

U.S. House of Representatives
Committee on Natural Resources

Bonneville Power Administration Task Force
Hearing on July 12, 1993

by

Jack Wright
Proven Alternatives, Inc.

Members of the Task Force, my name is Jack Wright and I am the Area Manager for the Northwest office of Proven Alternatives, Inc. Proven Alternatives is a nationwide firm of energy-efficiency professionals, with an established record of successful energy conservation and load management projects. With the acquisition of Puget Energy Services in 1992, the profile of Proven Alternatives expanded to include a broad base of experience as a partner in conservation in the region since the mid-1980s.

Proven Alternatives has worked with over a dozen utilities to implement demand-side management programs. Our projects are located throughout the United States and include the continuous operation of projects under Bonneville Power Administration's Energy Savings Program.

We have provided a broad spectrum of energy management services to both investor-owned and municipal utilities, and have been involved in a wide variety of projects in the commercial, industrial and institutional sectors. The company operates nationally with a small headquarters staff, six area offices, and a project financing arm, Proven Alternatives Capital Corporation.

I appreciate the opportunity today to provide you with a perspective from the service provider's vantage of the region's status in acquiring conservation as well as the potential for partnerships that can effectively move the region closer to its conservation acquisition target.

Response to Questions 1-6:

Q.1. (a) What are BPA's strengths and weaknesses in the resource acquisition field?
(b) In particular, is the BPA conservation program acquiring all cost-effective efficiency?

(c) Is BPA on track to acquire the amount of energy efficiency the Northwest Power Planning Council has targeted for acquisition by the year 2000?

(d) Will near-term budget cuts prevent the region from achieving these goals?

A. 1 (a) & (b): *Bonneville should be commended for its leadership in laying a solid foundation and framework for the development and acquisition of conservation. Bonneville has set an example for electric utilities across the country. We need only look at what Bonneville has accomplished in the way of promoting conservation. In the last decade Bonneville has outspent some of the most aggressive utilities in the nation by two-to-one. The fact that the agency has spent a total of $1.2 billion on conservation and has acquired 330 aMW of conservation in the last decade is a strong reminder of this agency's ability to make a long-term commitment to a resource that is recognized as the region's resource of first choice.*

Bonneville has demonstrated its commitment to full-scale comprehensive conservation programs like the Hood River project. This community-wide residential conservation project involves a model program for measurement and verification of savings. With on-going monitoring of energy savings, the customers who participated in the program will have the benefit of knowing the value of conservation programs.

In all of its resource programs, conservation being no exception, Bonneville has made a significant investment in public involvement and education. Its commitment to "front-ending" their programs with a strong educational orientation will continue to pay off in terms of providing a sustainable infrastructure toward delivery of services.

Bonneville should be commended for its success in the residential conservation area. The residential conservation market is, undoubtedly, the most difficult to penetrate, because the individual consumer's discount rate tends to be high. In other words, "paybacks" for residential customers on conservation measures need to be very short in order to incentify them to participate.

While BPA has concentrated a majority of its efforts in acquiring conservation in the residential sector, we believe that the opportunity for the greatest savings exists in the commercial, institutional, and industrial sectors. Our experience in other parts of the country with utility programs that have targeted these sectors tells us that the long-term economic benefits are tremendous and contribute greatly to a stable economic environment.

The opportunities in the commercial, institutional and industrial sectors for comprehensive conservation programs are much less encumbered. There are fewer numbers of customers to contact, greater savings available per facility, and lower adminstrative costs. In most cases, the decision criteria for participation is more clear cut. The program delivery systems for the commercial, institutional and industrial

conservation markets are larger scaled, and more interactive than residential programs. The key to acquiring substantial energy savings in the non-residential sectors is timing. If funding for these projects is not available at the time that industry is ready to undertake retrofits, it is likely the opportunity will be lost.

1(c): *We generally agree that Bonneville is "on track" to acquire its "share" of the region's targeted level of cost-effective conservation. According to the 1992 Resource Plan, Bonneville expects savings to continue accruing and has budgeted $600 million to acquire another 150 aMW for the budget years 1993-95, with a total acquisition target of 680 aMW by 2003.*

1(d): *After encouraging utilities to rapidly accelerate their efficiency programs, Bonneville is now in a position of near-term budget constraints. We believe that if the region's utilities continue to depend on Bonneville for full funding of conservation programs, budget cuts in the near-term will significantly compromise the ability of the region to achieve its acquisition goals.*

A major conservation acquisition program requires a steady, long-term commitment of both staff and budgets. The concept that energy conservation is a resource like any generating power plant was first introduced by the Northwest Power Act. Treating conservation as a "one-time" program, as Bonneville currently does, exposes it to the risk of budget cuts which translate to uncertainty in the regional planning mechanisms of its utility customers. The problem shifts from one of achievable conservation targets to one of uncertainty and risk.

The obvious risk of not achieving the conservation targets is that more generating resources will have to be acquired. Assuming medium-high loads as does the 1991 Power Plan, any reduction of achievable levels of conservation moves all other resources forward in time. According to the 1991 Power Plan, by 2010 the amount of coal gasification power plant energy will have increased to 1,500 megawatts which makes up for most of the reduced conservation savings. In this scenario, not only are the replacement resources much more expensive than conservation, but are, in many cases, more difficult to obtain and subject to much more problematic uncertainties, such as environment, siting, and public acceptance.

Q.2. Energy services companies such as yours are major participants in the energy efficiency field in certain areas of the country but have played a lesser role in the Pacific Northwest Region.

(a) Why is this the case?

(b) What role could energy services companies play in providing efficiency savings to BPA and its customers?

A. 2(a) The primary reason for the relative success of companies like ours in other parts of the country is due to the fact that the rest of the country pays substantially more for electricity. Higher prices simply mean more conservation is economical under more

customers' financial decision criteria. This allows for more creative and comprehensive programs with longer-term savings assurances. We have also seen that, in other regions where capacity constraints are a big problem, utilities have adopted more flexible DSM program offerings.

In a "low-rate" environment like the Northwest, we take considerable risk for very small profit margins. As a result, we don't see the kind of conservation acquisition activity going on here like we do in California or on the East Coast. Consequently, conservation acquisition has developed less rapidly in our region.

2(b): In a period of budget constraints, energy service companies like Proven Alternatives can play a very important role in providing efficiency savings to BPA and its customers. One of the features that makes our company unique to the industry is our ability to provide third-party financing. We are the only independent energy efficiency company that offers non-recourse project financing as an investment tool. By investing in our customer's energy efficiency projects, we effectively isolate the customer's financial risk from their capital risk and avoid delays in dealing with third-party financiers. In this way we can make a significant contribution to Bonneville's ability to leverage limited conservation dollars.

Another area where we can play a partnership role with Bonneville and its customers is in program design. With a full complement of sales, engineering and operations professionals to support project development and execution, quality control, and communications, we are able to provide Bonneville and its customers with the staffing and expertise required to make these programs succeed. Each office draws upon its own expert staff, and on specialized technical, financial, and management expertise from anywhere in the company to ensure successful implementation of energy-efficiency projects.

There is a need to move beyond the acknowledgement of common goals, and move closer to a collaborative approach to meeting those goals. Building long-term relationships and developing effective communications between the partners is the approach we feel must be embraced. In order to sustain these partnerships, all parties - utilities, customers, and developers - must have a stake in the performance of the conservation resource. This is what Proven Alternatives strives to do with its third-party project financing capabilities.

Q. 3 (a) In practice, are there significant differences in the processes used by BPA to acquire conservation, renewable and fossil resources?

(b) Are procedures, requirements, and administrative demands essentially equivalent for equivalent resources?

(c) Are resource acquisition costs and benefits appropriately shared?

A. 3(a) & (b) In order to respond to a resource acquisition request from Bonneville, a typical energy efficiency company like Proven Alternatives would have the same

procedural and administrative demands placed on it as a large independent power producer. The energy efficiency industry, particularly in the Northwest for reasons previously given, is small and very competitive. The level of preparation required to respond to a conservation bid is similar to that of a supply-side bid. Companies like ours must balance carefully the best use of our resources. We must weigh the costs of responding to administratively demanding bid requests with the benefits of developing projects directly.

Our experience with utility bidding practices across the country is that the complexity, rigidity and focus on simple economic criteria tend to limit the program effectiveness to "cream-skimming" targets which sacrifice lost opportunities.

***3 (c)** Back in 1991 when Bonneville issued its only competitive solicitation for conservation, this company had not been established. The fact that we did not participate in the bidding process makes it difficult to respond to this question directly.*

However, what we can tell you is that we understand that Bonneville never completed that acquisition process. In fact, it was explained to us that Bonneville recently polled its various customer utilities that had agreed to participate in the program two years ago to inquire if they were still interested in participating in the program. The response that Bonneville received was along the lines that most of these utilities had gone ahead with programs of their own and were not counting on this particular program to materialize.

Unfortunately, it is examples like this that send the message to the development community that the high cost of doing business with Bonneville greatly outweighs any benefits.

Q. 4.: Is BPA an effective indirect purchaser of regional resources through third-party financing, billing credits, conservation power plants and other indirect means?

***A. 4.:** Proven Alternatives has successfully completed projects where BPA has been an indirect purchaser of the energy savings. In all three cases where Bonneville programs were used, the projects received the State of Washington's Governor's Award for Energy Management.*

One such project involved the Columbia Basin College in Pasco and Richland, Washington. Under contract with the State of Washington and BPA's Energy Savings Program (E$P), Proven Alternatives provided project financing, engineering analysis, design and specification, bid and contract documentation, and construction quality assurance to the 25-building community college campus. The annual energy savings from the installed measures are $73,000.

The other two projects involved a youth camp facility built in the 1950's as an Air Force installation which resulted in $15,000 annual energy savings, and South Seattle

Community College campus,under Seattle City Light's Energy Smart Design program, where the annual energy savings are $78,000.

Q. 5 Has the Northwest Power Planning Council adequately exercised its responsibilities under the Act in the resource acquisition field? Please describe the strengths and weaknesses of the Council's activities related to resource acquisition.

A. 5 *The Council's 1991 Power Plan is a model comprehensive planning document which sets forth a clear and decisive agenda for a regional commitment to integrated resource planning. In the Plan, the Council establishes conservation as our most affordable and reliable resource and sets forth a very "do-able" goal for Bonneville and the region's utilities of acquiring 1,500 aMW of conservation by the end of the decade. In addition, the Council has taking the lead in developing a standardized method for monitoring the interim process toward achieving the goal.*

We believe there is still room for the Council to take more of a leadership role. In the region's separate ratemaking and policy making venues, the Council could take a more proactive and strategic approach to assure that all are focused on the same goal of accelerating conservation acquisition levels.

Overall, the Council has effectively exercised its authority under the Act with regard to providing leadership in resource planning for the region. The Council's responsibilities beyond that, with the possible exception of its authority under Section 6(c), is very limited with regard to actual resource acquisition process.

Q. 6 Has BPA adequately accounted for the environmental externalities associated with various energy sources in its resource acquisition process? If not, what specific issues should BPA revisit?

A. 6. *Under the Northwest Power Act, BPA is required to include quantifiable environmental externalities in determining a resource's total system cost for planning and acquisition. The 1992 Resource Plan is the first to incorporate the values the agency has determined apply to quantifiable indirect costs. Monetary values have been quantified for air emissions that are regulated by EPA and for the land and water use costs associated with resource operation.*

We feel that the costs that BPA has explicitly incorporated into resource costs are adequately accounted for, with the exception of CO2. The agency made a decision two years ago not to recognize carbon dioxide as a "quantifiable" externality. While CO2 emissions are not yet regulated, their contribution to the global warming threat is recognized. Simply replacing one 60 watt bulb with a new 15 watt high-efficiency lamp saves the environment 400 pounds of carbon dioxide annually.

BPA has provided leadership, especially in residential conservation, all the while balancing environmental concerns with adequate energy supplies. BPA can continue its leadership role by developing flexible programs that address the needs of the commerical, industrial and institutional sectors. It is in these areas that Bonneville has the greatest opportunities to achieve its conservation goals and improve the competitiveness and financial health of Northwest business and industry.

Proven Alternatives is willing to work with BPA and its customers to bring our experience in comprehensive projects embracing all cost-effective conservation that address all needs of customers, utilities and citizens of the region.

Mr. DEFAZIO. Thank you. Mr. Alderson.

STATEMENT OF GERALD R. ALDERSON

Mr. ALDERSON. Mr. Chairman, thank you for the opportunity to appear here today. I am Gerry Alderson, the President and Chief Executive Officer of KENETECH Corporation, and, KENETECH, as a private company, is not necessarily a household name. However, it is a firm or an organization which is involved in all aspects of the areas that you have heard testified to here today.

We engineer, develop, build, construct, operate and maintain fossil fuel facilities, cogeneration facilities, as well as we have a significant subsidiary which is in the energy conservation business, and we are the largest renewable developer in the world through our subsidiary, U.S. Windpower.

In the interest of conserving the energy of everyone in this room, I will limit my remarks today to highlight a couple of areas that are in our written testimony and rely on that written testimony to cover most of what I would otherwise comment upon.

I'll also generally restrict my comments here to be those from the vantage point of U.S. Windpower in terms of its development of renewables in the northwest.

The two specific areas that I would like to comment on begin, first, with the complexities of pricing and the challenges associated with comparing the cost of energy—the real levelized cost, if you would like to use that term—associated with the renewable resource as compared to other generation options.

In the all resource bid that BPA had a couple of years ago, the project, a relatively large project that we bid in this particular area, was roughly three mills higher than the project which was eventually selected. And without going through the issues associated with externalities, let me point out that at that level of pricing differential, more traditional considerations, such as exposure to fuel escalation risks, the imposition of taxes, which I'm sure we'll agree is more likely to occur on fossil fuel generated electricity as opposed to that from renewables, makes it virtually impossible, in our judgment, to look at those on a case-by-case basis.

For instance, had the project that I had referred to earlier as being three mills different in pricing from the fossil fuel plant that had been selected been chosen, that facility would today, at least for the first ten years of its operating life, be some 1.2 mills less expensive than the electricity generated by that project by virtue of the National Energy Policy Act and the inclusion therein of a 1.5 cent production tax credit associated with wind-generated electricity, effectively, between the time of that bid and today, lowering the price by 1.5 cents or 15 mills as contrasted to the original three mill differential.

And I think perhaps implicit in that particular example is the concern that I would express and offer to you in terms of something that I've not heard mentioned here today, but the search for ways in the process for BPA to look iteratively at things going on in its marketplace.

So that at the point in time that you have a bid, if, two months later, there's been a substantial change in the relative pricing of

various technologies, to view and develop a way to take that into consideration.

The second broad area of at least concern that I would flag is the subject of debt guarantees. And while we as a firm or an organization recognize BPA's mandate, if you will, particularly in working with its municipal customers to provide debt financing or debt guarantees in conjunction with those projects, we are concerned that that particular vehicle can substantially distort market signals and that in the process of providing such a guarantee, there are really two what we would perceive as quite substantially different considerations that we would hope would be taken into account.

The first is the true economic financial benefit to the individual municipal utilities is an aggregation of projects of relatively small size in order to achieve market efficiencies. We think, under a broad BPA umbrella, that is a very effective use of that particular authority.

On the other hand, a debt guarantee can very quickly become a substitute for project risk and you can certainly have the situation where a less than proven project finds itself in the marketplace competitive or superior to a project with substantially less risk, simply because of the guarantee of the indebtedness.

We think that that is a very easy, practical and routine thing to avoid. Virtually all large municipal power projects that we are otherwise involved in require performance guarantees. There's an insurance industry in the United States which routinely prices and provides those performance guarantees.

And the simple inclusion of a performance guarantee requirement in any project in which BPA guarantees a debt would seem to us to eliminate the risk associated with the project performance and limit the particular authority to improving the competitiveness of the financing by its aggregation and size in the marketplace.

And with the green light still on and in the interest of energy conservation, I'll leave those two items highlighted.

Thank you.

[Prepared statement of Mr. Alderson follows:]

Statement of Gerald R. Alderson
President and Chief Executive Officer
KENETECH/U.S. Windpower

Before the Committee on Natural Resources
Bonneville Power Administration Task Force
United States House of Representatives
103rd Congress, First Session

Introduction

Thank you Congressman DeFazio for inviting me to testify before your Natural Resources Committee Task Force. I appreciate the opportunity to express the views of my company on several issues regarding the Bonneville Power Administration (BPA).

I am Gerald Alderson, President and Chief Executive Officer of KENETECH Corporation, a diversified supplier of products and services to the electrical generation industry. KENETECH is involved in wind energy, gas-fired cogeneration, biomass, energy efficiency and the construction and operation of electric generation plants. I am also a Vice Chairman of The Business Council for A Sustainable Energy Future. Today I will focus my remarks from the viewpoint of U.S. Windpower, the KENETECH subsidiary which manufactures wind turbines and constructs and operates electrical generation plants utilizing wind energy. USW was founded in 1974 and installed its first wind energy electric generating facility in 1981. Since that time, USW has grown to be the largest manufacturer and developer of wind energy projects and has installed over 4,200 wind turbines equaling 420 MW of installed capacity. USW's installed base represents over $500 million of private capital investment including investors from the Northwest such as subsidiaries of PacifiCorp and Northwest Natural Gas. Annually, USW produces over 800 million kilowatt hours or enough energy to meet the annual needs of 130,000 homes.

To further reduce the cost of windpower, USW has recently developed a new wind technology in a consortium with the Electric Power Research Institute and two investor-owned utilities, Pacific Gas & Electric and Niagara Mohawk. This advanced turbine, the 33M-VS, is cost competitive against many other forms of electrical generation and produces electricity at 5¢/kWh on average. It can produce power for as low as 3.5¢/kWh with the right wind resource and utility financing.

Pacific Northwest Wind Projects

It is the advent of this cost effective new technology that has paved the way for the announcement of two commercial-scale wind energy projects in the Northwest. In fact, one of USW's projects was selected out of 2500 megawatt of proposals from all types of fossil fired and renewable resource bids in Puget Sound Power and Light all resource competitive solicitation. On August 12, 1992, Puget Power, PacifiCorp, Portland General Electric and Idaho Power announced their intention to co-own a 50 megawatt wind energy facility with USW as the manufacturer and developer. Negotiations are ongoing for a facility to be installed by January 1, 1996 in eastern Washington.

The other current project USW is developing in the Northwest is in conjunction with BPA. PacifiCorp, USW, EWEB and Idaho Power submitted a bid to BPA in their "wind-only solicitation" to develop a 50 to 75 MW wind project, contingent on BPA taking a portion of the power. In February of 1993, USW and its co-bidders were informed that BPA intended to negotiate a 25 MW power contract. The project is slated to be 50-75 MW facility with

PacifiCorp, EWEB, Idaho Power and Tri-State G&T owning the project and selling a portion of its output to BPA and retaining the majority of power for their own use. This is truly a private/public partnership with the involvement of a private U.S. developer, several IOUs, a large municipal utility (EWEB) and a federal power marketing agency (BPA). We commend BPA on their decision to proceed in this unique partnership which will pave the way for significant future windpower development in the northwest. Negotiations to complete this project are ongoing and expected to be completed in the coming months. The project is scheduled to be operational by January 1, 1996.

All utilities involved in these wind projects in the region are to be praised for making the decision to aggressively pursue renewable energy. It is also noteworthy that the company will soon be opening a Portland office to better serve the Pacific Northwest. U.S. Windpower is committed to making wind energy a generally accepted utility generation technology. It is with this background in mind that we would like to respond to the questions provided by the committee.

What are BPA's strengths and weaknesses in the resource acquisition field?

BPA is to be commended for undertaking their 50 MW wind-only solicitation. This is the largest wind solicitation undertaken by one entity so far in the Pacific Northwest. We appreciate BPA's lead in pioneering wind technology in the region.

Although we appreciate BPA's move into wind energy, we are concerned that the acquisition process is not as effective as it might be. I'll set forth our views on how it might be improved.

Our overall view is that BPA is not acquiring all available cost-effective renewable resources. If recent history has taught us anything, it is that price and availability of electrical generation can and will vary sometimes dramatically over short periods of time. We need only to look at nuclear power which was at one time thought to be "too cheap to meter." Or to look at the variablility of BPA's hydro-electric electricity production which has been subject to considerable variation due to lower than normal rainfall and environmental demands.

Because of the potential for price and supply variation of all electrical generation over time, it is prudent for BPA to adopt a "portfolio" approach to resource acquisition in which a range of cost-effective generation technologies are acquired. This is a risk mitigation strategy which requires identifying and quantifying potential risks and incorporating them into the resource acquisition decision making process.

BPA has begun resource diversity in their recent solicitations. However, it appears they are relying too heavily on fossil technologies and not balancing their supply with enough cost effective renewables such as wind.

We say this because we don't believe enough consideration has been given to the risk factors associated with each technology. In a recent, open BPA solicitation, wind energy was only 3

Mils higher than gas-fired cogeneration. If the potential for gas price increases and/or energy and/or pollution taxes were taken into account, that 3 Mils might quickly be erased and wind energy, with no fuel cost and no exposure to future fuel escalation, would be BPA's lowest cost resource.

In fairness to BPA, they did attempt to add an externalities value in their original open solicitation. The original request for bids allowed an externalities adder of 3 to 5 Mils for natural gas and 10 to 15 Mils for coal in "scoring" that solicitation. However, before the bids were due the externalities adders were withdrawn and replaced by a token adder of 1 Mil. We understand that the Department of Energy acting under orders of the previous administration instructed BPA to remove the externalities from the bid. We congratulate BPA for attempting to reflect the true cost of power in their bid and regret the short-sightedness of the former administration. We pledge to give BPA any political help we can to make sure they are able to make the right choices in future solicitations.

BPA also attempted to pass the risk of future energy taxes on to project developers. Lending institutions were unwilling to finance a project with this risk and BPA had to assume the major share of this tax risk. It is noteworthy that this risk was not taken into account when evaluating wind energy in the open bid process. We believe BPA should undertake an integrated resource planning process which thoroughly examines environmental externalities. Realistic values should be calculated for these externalities and applied to the resource acquisition process. Since BPA is a federal agency, particular attention should be paid to CO_2 reduction since President Clinton has committed the nation to the goal of obtaining 1990 CO_2 levels by the year 2000. We would emphatically recommend that a more realistic risk factor or "externality" be used in evaluating future solicitations to mitigate risk.

The recent BPA wind solicitation surpasses the 30 MW demonstration project called for in the Northwest Power Planning Council's (NWPPC) plan by the year 2000. While this is commendable, the NWPPC plan is out of date because it fails to recognize that the price of wind energy has come down 30% since its plan was developed. The NWPPC plan was developed using prices of 7-10¢/kWh as the cost of wind energy. At its current pricing of 5¢/kWh (or less if the 1.5¢ production incentive in the Energy Policy Act of 1992 can be utilized), wind is quite cost effective. We hope the NWPPC will update their plan using current pricing and increase the role of wind energy in that plan.

Currently, the market is outperforming the NWPPC plan. Several utilities in the Northwest have realized the value of wind energy in their energy mix. Puget Power and Light, PacifiCorp, Portland General Electric and Idaho Power have joined together to own a 50 MW wind project in the area. Portland General Electric is currently requesting bids for wind projects. PacifiCorp, Idaho Power and Eugene Water and Electric (EWEB) are pleased to be currently negotiating with BPA as one of the low bidders in the wind only bid. These investor-owned utilities and EWEB are demonstrating leadership in renewables in their industry.

The BPA wind bid is for a project or projects scheduled to come on-line on January 1, 1996. Thus, it will have no effect on BPA's near-term budget. Since wind energy will be purchased under a contract, as delivered, it will not require an up front capital outlay by BPA. Adding 50 MW of wind energy (needed generation) into a 17,000 MW system will add no cost to BPA's customers compared to the alternatives. Further, since wind energy has no fuel cost, future prices will remain stable. Adding larger quantities of wind would, in our view, help to stabilize power prices in the region and mitigate fuel price risk.

Are there significant differences in the processes in practice used by BPA to acquire conservation, renewable and fossil resources?

As previously stated, we feel BPA should target resource diversity and place some value on risk avoidance and should also include environmental values in its resource acquisition criteria.

We would also request that all bidders be treated equally in any bids that BPA undertakes. That BPA has a close relationship with their municipal utility customers is well known and accepted. It is also accepted that these municipals have access to tax exempt financing with lower than commercial market rates. Finally, we recognize that, in part due to their size, BPA may guarantee the debt of these entities from time to time in order for them to realize the aforementioned benefits.

We are concerned, however, that these "entirely appropriate" financial guarantees do not inadvertently result in BPA assuming the "equipment" risk in a project. It seems to us that there are two considerations of which to be mindful. The first is that BPA will suffer a financial loss because of equipment failure. In spite of the many technological gains over the past several years wind turbines remain a relatively new technology. Secondly, by removing the responsibility for equipment performance from some equipment suppliers, but not all suppliers, the bid process cannot possibly treat all bidders equally. This undermines a fundamental objective of a public bidding process - the best equipment at the best price with the risk of performance placed on the supplier. By its debt guarantees BPA can, in affect, artificially influence the market forces otherwise at work.

Fortunately, both of these concerns can be addressed simply and straightforwardly - require equipment performance bonds in any transaction in which BPA is ultimately responsible for the project's debt. This requirement has the added benefit of being "normal practice" even with mature generating technologies. Performance bonds are routinely sought and received for municipal gas turbine projects as well as other technologies. Performance bonds are also available for wind energy production equipment once insurers have satisfied themselves as to the efficacy of the particular equipment and the supplier's ability to support the warranty.

In summary, such an approach would:

1. Insulate BPA from the risk of loss due to equipment failure

2. Conform to standard industry bonding practice relative to municipal power generation projects.

3. Maintain a "level playing field" among possible suppliers of wind energy generation equipment.

Is BPA an effective, indirect purchaser of regional resources through third-party financing, billing credits and other indirect means?

As the largest distributor of electricity and with its vast transmission system in the Pacific Northwest, BPA is the ideal agency to act as a power marketing authority for a wide range of electrical generation options in the region. BPA supplies electricity to virtually all of the investor-owned and municipal utilities in the northwest and several in California. With the quantity and variety of generation resources potentially available to BPA, they are uniquely situated to purchase and distribute power throughout the region.

Wind energy is most effective as a regional resource and is found throughout the region. The large hydro-storage capacity of BPA is very compatible with windpower and can be used to shape the wind resource. Wind can also be used to conserve the hydro resource.

The extensive BPA transmission system can be used to move wind energy from the less populated areas of the system to the load centers of the region. BPA can be a very effective pathway to keep electricity balanced and flowing throughout the region.

Has the Northwest Power Planning Council (NWPPC) adequately exercised its responsibilities under the Act in the resource acquisition field?

The NWPPC's plan calls for a hierarchy of resource acquisition beginning with all cost effective Demand Side Management (DSM), then renewables, then high efficiency thermal and finally other thermal. The region is doing an effective job in capturing DSM savings although more work can be done in this area.

We believe the plan should be revisited and that fuel risk and externalities should be evaluated and included in the plan. We also believe that the new costs for wind energy should be factored into the plan. If this is done, wind will emerge as the most cost-effective new resource which can be added in the northwest. The NWPPC has the authority to approve plants of 50 MW or larger in the BPA system. We would like to see the Council set at least a 250 MW target in their plan for wind energy for the region by the year 2000 and to encourage BPA to be a major factor to reaching that goal.

Summary

To summarize our comments, I would say the following:

- The NWPPC should incorporate externalities into their resource evaluation process, include an accurate, current cost estimate for wind energy and set higher goals for wind electric generation in the region.
- BPA should make sure they have a fair and balanced resource acquisition process where all bidders are treated equally while BPA avoids "equipment risk".
- BPA should increase the quantity of wind in its resource mix to hedge against the risk of fuel price and tax increases.
- BPA should act as a regional marketing authority for renewables.

Mr. DEFAZIO. Paul Hathaway.

STATEMENT OF PAUL L. HATHAWAY

Mr. HATHAWAY. Thank you, Mr. Chairman. I appreciate the opportunity to testify. I am Paul Hathaway, senior vice president of Northwest Natural Gas Company. I've been 31 years in the natural gas distribution business. I've been an officer of two combination utilities, as well as my present company, San Diego Gas and Electric and Consolidated Edison of New York. I am a registered engineer.

In the interest of time, also, I will skip through pieces of my written testimony and hit some highlights. The responses to your specific questions to me are predicated on the premise that it's more efficient to use natural gas directly for heating in homes and business and industries than it is to use it indirectly to generate electricity to do that job.

Your first question asks what's the potential for cost-effective electricity savings in the northwest region from fuel switching to natural gas. For many years, our region has been dominated by low cost hydro power because of the low cost and electric energy is used far more extensively in the northwest for heating and water heating than in other parts of the country.

And because electricity has dominated the industry seen here for so long, the market saturation of natural gas in the region is quite low, something on the order of 35 percent, which means that there is a large amount of electric space and water heating in the region.

Much of that electric space and water heating is located in homes and businesses that are near or already being served by natural gas. The potential for shifting these existing electric customers to natural gas represents a very large electric generating savings by reducing demand on the electric system of the region.

We've done a dozen or more studies in recent years that have looked at the magnitude. The conclusion that we have reached as we've looked at the issue ourselves in the gas industry is that somewhere between a thousand and 1,600 megawatts, average megawatts of electric generating capacity could be shifted—could be saved by shifting residential space and water heating customers from electricity to natural gas. There have been some studies that have shown that the peak capacity savings could be as high as 6,000 megawatts.

Fuel switching is a resource that's readily available. As an example, on our own system, Northwest Natural Gas, we've got about 100,000 customers who use natural gas for space heating, but who use electricity for water heating.

Converting those water heating customers to natural gas could be accomplished relatively inexpensively and rapidly. The 100,000 water heaters, we figure, represents about an average demand of perhaps .56 kilowatts each, a total of 140 megawatts at peak use. If those customers were completely reimbursed for conversion to natural gas, the total cost to do that job would be something on the order of $50 million. Fifty million dollars to serve a 140-megawatt peak is a pretty reasonable cost for power purchase, about $350 per kilowatt of an installed generating capacity. It's about a half to a

third of the cost of building a combustion turbine power plant to serve that equivalent load.

Additionally, combustion turbine power plants would operate at an efficiency of something in the 40 percent region and would burn more than twice as much natural gas as compared to sending that gas directly to the homes for water heater service.

The answer to your first question goes directly to the purpose and the rationale of fuel switching. The direct use of natural gas in homes brings to the consumer an energy cost reduction and it brings to the electric industry a reduced demand on the electric system, and it brings to all the users, energy users in the region, a reduction in the total use of the natural gas resource.

The second part of your questions asks do current market conditions create a sufficient incentive for fuel switching, and, if not, what measures should Bonneville undertake to encourage fuel switching.

Under the current market conditions, it doesn't appear to be sufficient incentive to encourage the existing electric space and water heating customers to switch to natural gas. Natural gas does enjoy a price advantage compared to electricity, but that, by itself, isn't enough to cause energy consumers to spend the money necessary to convert an existing system from electricity to natural gas generally.

In fact, many of the promotional programs that are now used by Bonneville and the electric utilities have exactly the opposite effect and discourage, sometimes even prevent the use of natural gas for space and water heating.

So the conservation incentive programs, such as Super Good Cents and the manufactured housing acquisition or MAP program, have actually been used to inhibit a customer from choosing natural gas as a primary heating or water heating source.

BPA has admitted in a recent report that new residential program incentives, as currently designed, do adversely affect the fuel choice. Bonneville cites the relatively small percentage of homes, about 13 percent, that were adversely influenced by Super Good Cents incentives.

In reality, we find the number to be greater than that and I'll give you an example in your own area of Eugene. One of our major builders who has been building gas homes for a number of years recently announced that he's going to build all electric homes in 1993 because of the Super Good Cents subsidy.

He'll build over 100 homes this year and most of those homes will be built in areas where natural gas is available, where, absent the Super Good Cents incentive, we believe, the builders, the buyers could choose natural gas. That's just one case of dozens in the region where home heating and water heating is influenced by the Super Good Cents incentives.

And it's hard for a builder or a developer to ignore as much as a $2,500 per unit gift given for building an all electric Super Good Cents home. Under the present Oregon building code, the additional cost to a builder to meet Super Good Cents standards is relatively little.

Some of the BPA customer utilities use the Super Good Cents program as a fuel choice block and prohibit the use of natural gas

appliances in Super Good Cents dwellings, refusing to pay the incentive if natural gas appliances are used in the home.

Other utilities will allow only a sealed combustion direct vented gas appliance, which pretty much limits the choice.

The original intent of Super Good Cents and the MAP programs were to encourage standardizing of higher levels of conservation through increasingly stringent building codes.

We think that goal has been largely achieved in the region. In the states that we serve and Oregon and Washington now administer much tougher building codes. So instead of being a true conservation measure now, these programs are now a means of influencing the consumer's choice of heating fuel.

We believe very strongly that BPA should undertake several different efforts to encourage resource acquisition through fuel switching. First, we believe that they should become proactive in encouraging and providing incentives for fuel switching wherever it's economic or feasible on systems that are served by Bonneville.

They should be providing incentive dollars to their utility customers to compensation them for reduced revenues when fuel switching does occur.

Second, we believe that the obsolete conservation programs, such as Super Good Cents and MAP, would inhibit the use of natural gas or inhibit the choice of natural gas. That should be eliminated.

Third, the BPA and its customer electric utilities, along with the natural gas utilities, should be working together and planning not only fuel switching programs, but other uses, as well, where natural gas is involved, such as the possibility of sharing pipeline capacity on projects where new combustion turbines are going to be built, joint trenching operations where the consumer can save dollars through the utilities working together in a single instead of multiple installations of facilities.

We believe that we owe it to the consumers of the Northwest to conserve all forms of energy and to work together to reduce the wasteful use of energy wherever possible.

In response to your next question, should BPA prohibit the expenditure of Super Good Cents incentives in areas where natural gas service is currently available, you might say asked and answered, a resounding yes. Those Super Good Cents programs inhibit the choice of natural gas and inhibit fuel switching which benefits everyone.

Question 2 asks in practice, are there significant differences in the processes BPA uses to acquire and evaluate fossil conservation and renewable resources in the processes it applies to the fuel switching resource. Are procedures, requirements and administrative demands essentially equivalent for equivalent resources? Are resource acquisition costs and benefits appropriately shared?

There are great differences in the processes that BPA uses to acquire new electric generating resources, such as combustion turbines, and the processes that it uses or seems to use to evaluate fuel switching. In practice, BPA has not made any significant progress in promoting or acquiring the fuel switching resource, in part, because fuel switching is not seen as a legitimate resource in the planning process.

BPA has taken the position for at least a dozen years that it cannot use fuel switching as a conservation resource and it maintains that it doesn't have the statutory authority to do so, because fuel switching doesn't meet either the definition of a resource or conservation in the power planning act, and they cite legal opinions to back up the position. So they don't, in fact, evaluate fuel switching on an equal term with other resources.

Let me conclude by saying it appears to me that the planning processes of Bonneville and the Power Council haven't been particularly open to considering natural gas in planning for current or future demands and energy resource requirements of the Pacific Northwest.

I think that the individual utilities, gas and electric, can do a better job of planning for their own future demands than requirements if these perverse electric consumption incentives were eliminated and if natural gas is given a level playing field under the BPA incentives system.

We, frankly, have made more progress working together with individual utilities, Bonneville's customers, than we have in convincing Bonneville that we deserve and the consumers of the region deserve a level playing field.

We owe it to the consumers of the Pacific Northwest to work to use all forms of energy wisely, to work together as utilities to reduce the wasteful use of energy wherever possible, and to keep all of our energy supplies available and economic in the marketplace.

Thank you very much.

[Prepared statement of Mr. Hathaway follows:]

TESTIMONY OF

Paul L. Hathaway

Sr. Vice President, Northwest Natural Gas Company

Before the

U.S. House of Representatives

Committee on Natural Resources

Bonneville Power Administration Task Force

Thank you, very much, for this opportunity to testify before the Bonneville Power Administration (BPA) Task Force. I am Paul Hathaway, Senior Vice President, Northwest Natural Gas Company. My responsibilities at Northwest Natural Gas Company include the district operations (all of the company's activities outside of the Portland metropolitan area) as well as administrative services, human resources, and public relations company-wide. I have spent 31 years in the natural gas distribution utility business and I have been an officer of two other utility companies: San Diego Gas & Electric Company; and Consolidated Edison Company of New York. I am a registered mechanical engineer.

In my testimony I will respond first to the specific questions that you ask in your letter of June 23, 1993. Following that, I will discuss the natural gas industry in the Pacific Northwest generally, and comment upon the increasing need for natural gas and electric utilities to work together in planning future regional energy delivery.

The responses to your specific questions are predicated on the premise that it is more efficient to use natural gas directly for heating in homes, businesses, and industries than it is to use natural gas to generate electricity in combustion turbines. Included in my testimony are two charts entitled, "Total Energy Trajectories," that illustrate the efficiencies of the direct use of natural gas vs. combined cycle combustion turbine electric generation. One chart deals with the overall efficiency of residential space heating by direct use of natural gas compared with natural gas-fired electric generation. The other deals with water heating on a similar basis. The charts demonstrate, principally because of the relatively low efficiency of the

combined cycle turbine, that the direct use of natural gas for heating is far more efficient than the indirect use of natural gas to generate power for heating.

The first question asks, "What is the potential for cost-effective electricity savings in the Northwest region from fuel switching to natural gas?" For many years, our region has been dominated by low-cost hydroelectric power. Because of that low cost, electric energy is used far more extensively in the Northwest for heating and water heating than in other parts of the country. Because electricity has dominated the energy scene here for so long, the market saturation of natural gas in the region is surprisingly low -- something on the order of 35 percent. This means that there is a large amount of electric space heating and water heating in the region. Much of that electric space and water heating is located in homes and businesses that are near or already being served by natural gas. The potential for shifting these existing electric customers to natural gas represents a very large electric generating savings

by reducing demand on the electric system of the region. There have been half a dozen or more studies that have looked at the magnitude of this potential. The conclusion that we in the natural gas industry have reached (conservatively), is that somewhere between 1,000 and 1,600 average megawatts of electric generating capacity could be saved by shifting residential space and water heating customers from electricity to natural gas. Some studies have shown that the peak capacity savings could be as high as 6,000 megawatts.

Fuel switching is a resource that is readily available. On our own system at Northwest Natural Gas we have about 100,000 customers who use natural gas for space heating, but who use electricity for water heating. Converting those water heating customers to natural gas could be accomplished relatively inexpensively and rapidly. Those 100,000 water heaters represent an average demand of about .56 kilowatts each and total about 140 megawatts at peak use. If those customers were completely reimbursed for their cost of conversion to natural gas, the total

cost to do the job would be about $50 million. $50 million to serve a 140 megawatt peak is about $354 per kilowatt of installed generating capacity. That's about one-half to one-third of the cost of building a combustion turbine power plant to serve that load. Additionally, the combustion turbine power plant that would serve that electric load would operate at an efficiency of about 40 percent and would burn more than twice as much natural gas as compared to sending that natural gas directly to the homes for water heater service. The answer to your first question goes directly to the purpose and rationale of fuel switching. The direct use of natural gas in homes brings to the consumer an energy cost reduction, brings to the electric industry in the region a reduced demand on the electric system, and brings to all energy users in the region a reduction in the total use of the natural gas resource.

The second part of question one is, "Do current market conditions create a sufficient incentive for fuel switching?" If not, what measure should BPA undertake to encourage fuel

switching? Under the current market conditions, there does not appear to be sufficient incentive to encourage existing electric space and water heating customers to switch to natural gas. Natural gas does enjoy a price advantage compared to electricity, but that by itself is not sufficient to cause energy consumers to spend the money necessary to convert existing systems from electricity to natural gas. In fact, many of the promotional programs now used by BPA and the electric utilities have exactly the opposite effect and discourage, even prevent, the use of natural gas for space and water heating. Some of the so-called conservation incentive programs such as Super Good Cents and Manufactured Housing Acquisition Program (MAP) have actually been used to inhibit a customer from choosing natural gas as a primary heating or water heating source. BPA has admitted in a recent report that "new residential program incentives as currently designed do adversely affect fuel choice." BPA cites a relatively small percentage of homes (13 percent) that were adversely influenced by the Super Good Cents incentives. In

reality, the number is much greater than that. For example, a major homebuilder in the Eugene area has recently announced that he will build all electric homes in 1993. That builder will build over 100 homes during this year. Most of those homes will be built in areas where natural gas is available and where, absent the Super Good Cents incentives, the buyers could choose natural gas. That is one case out of dozens where the decision on home heating and water heating is influenced by the Super Good Cents incentives. It is hard for a builder or developer to ignore a $2,500 per unit "gift" given for building all-electric Super Good Cents homes. Under the present Oregon building code, the additional cost to a builder to meet Super Good Cents standards is very little.

Some of the BPA customer utilities use the Super Good Cents program as a fuel choice block, and prohibit the use of any natural gas appliances in a Super Good Cents dwelling, refusing to pay the incentive if any natural gas appliances are used in the home. Other utilities allow only sealed combustion direct

vented natural gas appliances.

The original intent of these super Good Cents and MAP programs were to encourage the standardizing of higher levels of conservation through increasingly stringent building codes. That goal has been achieved in the region and the states we serve (Oregon and Washington) now administer much tougher building codes. So, instead of being a true conservation measure, these programs are now used as a means of influencing the consumer's choice of heating fuel.

We believe very strongly that BPA should undertake several different efforts to encourage resource acquisition through fuel switching. First, BPA should become proactive in encouraging and providing incentives for fuel switching wherever it is economic or feasible on systems served by BPA. BPA should be providing incentive dollars to its utility customers to compensate them for reduced revenues when fuel switching does occur. Second, we believe that the obsolete conservation programs such as Super Good Cents and MAP that inhibit the use of natural gas should be

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eliminated immediately. Third, the BPA and its customer electric utilities along with the natural gas utilities should be working together in planning not only fuel switching programs, but also other uses of natural gas including the possibility of sharing pipeline capacity as new natural gas powered electric generation is brought on to the various electric systems, and sharing facilities as in joint trenching operations. We owe it to the consumers of the Pacific Northwest to conserve all forms of energy, to work together to reduce the wasteful use of energy wherever possible, and to keep our energy supplies economic in the marketplace.

In response to the question, "Should BPA prohibit the expenditure of Super Good Cents incentives in areas where natural gas service is currently available?" The answer is a resounding yes, because everyone benefits from fuel switching. The electric industry benefits by reducing demand on its system as fuel switching occurs. The individual consumer benefits because the price of natural gas is much less than the price of electricity

for heating and water heating. Society benefits because less natural gas is used in direct applications than in indirect applications where natural gas generates electricity, which is then used for heating. Thus, the natural gas resource is used more efficiently. Society also benefits because less natural gas is burned when fuel switching occurs, thus less carbon dioxide is emitted into the atmosphere. Natural gas consumers benefit because a reduced use of natural gas by virtue of fuel switching means that there is a lesser requirement for expensive, new pipeline facilities. Thus, encouraging the use of natural gas where it is most efficient benefits everyone.

Question two asks, "In practice, are there significant differences in the processes BPA uses to acquire and evaluate fossil conservation and renewable resources and the processes it applies to the fuel switching resource? Are procedures, requirements and administrative demands essentially equivalent for equivalent resources? Are resource acquisition costs and benefits appropriately shared?" There are great differences in

the processes BPA uses to acquire new, electric generating resources, such as combustion turbines, and the process it seems to use to evaluate fuel switching. In practice, BPA has not made any significant progress in promoting or acquiring the fuel switching resource in part because fuel switching is not seen as a legitimate resource in the planning process. BPA has taken the position for at least the last dozen years that it cannot use fuel switching as a conservation resource. It maintains that it does not have the statutory authority to do so, since fuel switching does not meet either the definition of a "resource" or "conservation" in the Northwest Power Planning and Conservation Act. BPA cites legal opinions to back up this position. Because of this, BPA does not, in fact, evaluate fuel switching on equal terms with other resources and it does not seem to consider fuel switching in its processes to acquire and evaluate resources. I strongly believe that this position should be reviewed and reconsidered by BPA, particularly in light of the fact that these legal opinions were written before natural gas turbines were

considered as a primary planning resource for future power generation.

Natural gas is becoming a stronger and more important energy resource for the Pacific Northwest. Natural gas is plentiful in North America. It's economic and it's very clean, environmentally. The pipeline transportation system that brings natural gas from production to market is already in place. More than a million miles of pipeline exists that can carry natural gas from any producing point to any market point in the country. The reserves of natural gas in the United States and other parts of North America are enormous. The U.S. Department of Energy estimates that we have a 60 year supply of conventional reserves just in the continental U.S. and Canada -- sufficient to supply us amply at present and projected use rates. We also have another 150 to 200 years supply of unconventional reserves. These are reserves that require more costly technology to recover, but which nonetheless are very much available. The supply of natural gas is not really an issue -- at least not for

the next century or so. There is more than enough natural gas to last this country from the present time into the energy era that we look for in the not too distant future when the true renewables will be the primary sources of energy as opposed to the fossil fuels of today.

What is most important to our region, now, is that natural gas needs to be fully utilized as a viable resource in the energy planning of the region. To this point, there has been very little joint natural gas and electric planning. We have made efforts in our industry to work together with the Northwest Power Planning Council (NPPC) but, so far, there has been relatively little progress except for an occasional meeting to discuss the possibilities of the use of natural gas. We have also met several times as an industry with the BPA in an effort to encourage them to consider natural gas and fuel switching in their resource planning but, thus far, there has been no true recognition of the direct use of natural gas as a planning resource that has come to fruition.

My utility, Northwest Natural Gas Company, is now working closely with two of BPA's customers: Clark PUD; and Eugene Water & Electric Board, and with Portland General Electric company in exploring the possibility of joint programs. Some of these efforts could include fuel switching programs as well as operational programs such as joint trenching, shared meter reading, billing, etc. There are earlier examples of natural gas and electric utilities working together to plan fuel switches and other efficient uses of energy in their own service territories. It appears to me that individual utilities can work together better to provide the energy resources that are needed in the region. Thus far, in recent years at least, it appears that the planning processes of the NPPC and BPA have not been particularly open to considering natural gas in planning for the current and future demands and energy resource requirements of the Pacific Northwest. I believe that the individual utilities can do a better job of planning for their own future demands and requirements if perverse electric consumption incentives are

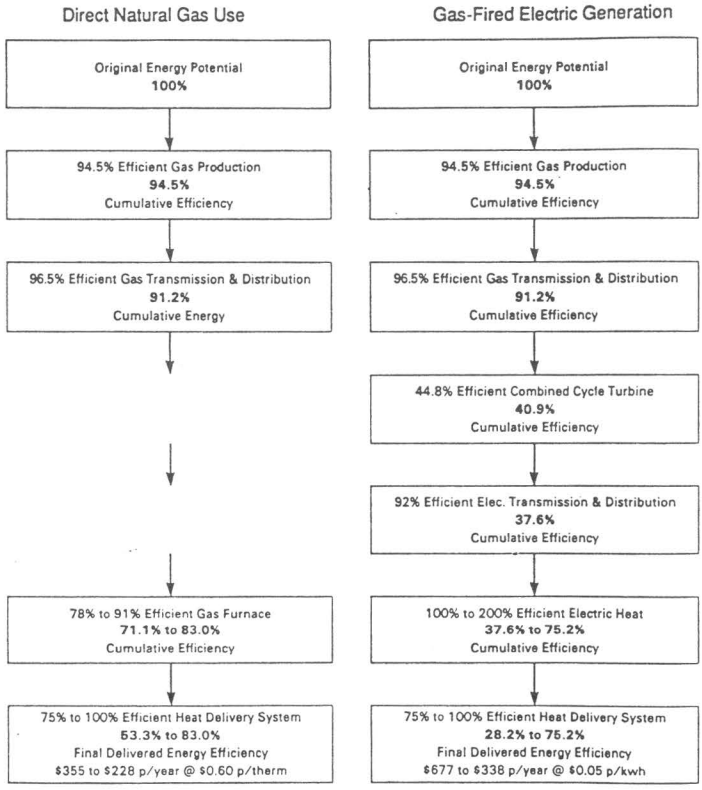
eliminated and natural gas is given a "level playing field" under the BPA incentive system. Frankly, we have made more progress working together with the individual utilities than we have in convincing BPA and the NPPC that we deserve and the consumers of this region deserve a level playing field for natural gas. We owe it to the consumers of the Pacific Northwest to work to use all forms of energy wisely, to work together as utilities to reduce the wasteful use of energy wherever possible and to keep all of our energy supplies available and economic in the marketplace.

Thank you, very much, for this opportunity to testify before the Task Force.

PLH/lk

Direct Use of Gas (Continued)

Total Energy Trajectory[1]
Direct Natural Gas Use vs. Combined Cycle Combustion Turbine Electric Generation
Residential Space Heating[2]

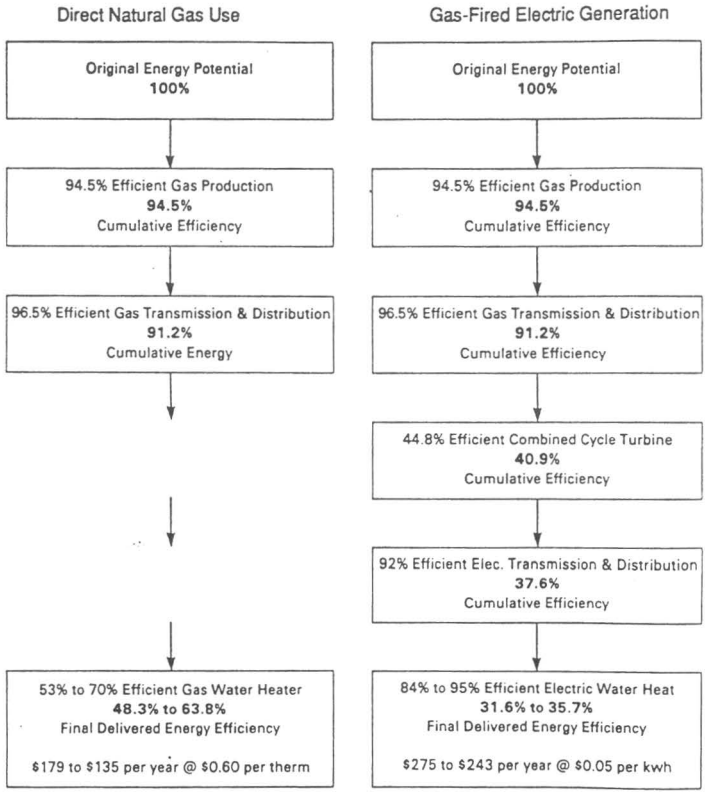


[1]Total Energy Trajectory includes the total energy required to extract, process and convert a basic energy resource and deliver the resulting energy to the customer's meter. It also includes energy used by appliances on the customer's side of the meter to create useful energy such as heat and to distribute it within the house. Since appliance efficiencies vary, the final delivered efficiencies and annual costs are given as a range.

[2]Based on a typical residential space heat load of 35 million Btus per year.

Direct Use of Gas (Continued)

Total Energy Trajectory[1]
Direct Natural Gas Use vs. Combined Cycle Combustion Turbine Electric Generation
Residential Water Heating[2]



[1]Total Energy Trajectory includes the total energy required to extract, process and convert a basic energy resource and deliver the resulting energy to the customer's meter. It also includes energy used by appliances on the customer's side of the meter to create useful energy such as heat and to distribute it within the house. Since appliance efficiencies vary, the final delivered efficiencies and annual costs are given as a range.

[2]65 to 74 gallon first hour rating and 16 million Btu per year water heat load.

Mr. DEFAZIO. Thank you. Mr. Johnson.

STATEMENT OF STEPHEN F. JOHNSON

Mr. JOHNSON. Good afternoon, Mr. Chairman. I'm Steve Johnson, Executive Director of the Washington PUD Association. I'm accompanied today by Steve Romjue, who is the Manager of the Grays Harbor PUD and is Chair of the Board of a conservation and renewable energy system, or CARES.

Collectively, the Washington PUDs are the largest customer of the Bonneville Power Administration. We serve 1.5 million people in the State of Washington and 22 electric PUDs there, five of which generate the majority of their own power, seven purchase the majority of their power from Bonneville, and 12 are 100-percent requirement customers of the Bonneville Power Administration.

The focus of our testimony today is on how and why a joint operating agency, CARES, was created to acquire efficiency and renewables and on what role similar JOAs and third-party financing mechanisms can play in assisting utilities and Bonneville in more effectively acquiring new resources.

I should tell you that I may not be fully responsive to the questions that were sent in the letter inviting the panelists, because I was added late to this panel, but would be happy to address those where you see them relevant to this testimony, which I think you will find interesting.

The conservation and renewable energy system is a joint operating agency organized under the laws of the State of Washington. It's current members are eight small and medium-sized Washington PUDs; Benton, Clallam, Franklin, Grays Harbor, Klickitat, Okanogan, Pacific and Skamania Counties. Washington's cities, as well as PUDs, are eligible for future membership.

The agency's major objective is the acquisition of energy resources which are least-cost, economically and environmentally, for the northwest. CARES' mission is to develop conservation, renewable and high-efficiency energy projects consistent with the mandates of the Pacific Northwest Electric Power Planning and Conservation Act.

Another CARES goal is to spread economic benefits of energy resource development across the state by funding projects in rural counties. One of the most significant benefits of CARES is providing Bonneville and the region a third-party financing mechanism.

CARES will be able to finance projects at a lower cost through use of tax-exempt bonds, helping reduce BPA resource acquisitions costs and Treasury borrowing. In Oregon, by the way, an effort is underway to organize an agency similar to CARES and Bonneville is supporting that effort, as it did to financially support the organization of CARES.

The need for CARES grew out of the recognition that significant barriers were preventing PUDs from participating in Bonneville conservation and resource acquisition programs and from developing their own energy resources. These barriers to participation stem, in part, from weaknesses in Bonneville conservation programs, but also, in a large measure, from the nature of PUDs and other public utilities.

These utility barriers include the following; lack of an adequate resource development funding mechanism. All utilities can't issue bonds to fund conservation and renewables by themselves, the issuance costs and so forth. They need to come together to be able to do that.

Utility staffing and technical resource limitations. Four of the CARES members only have one conservation staff member in the utility. For them to be able to even work with Bonneville on a conservation program is extremely difficult.

Size of project risks, even a small project, conservation project, let alone a renewable or a cogeneration plant, something like that, do something that may be well beyond the resource risks and the political, local political risks for that utility.

There's also the lost revenue issue. Now, this is something that CARES can't address, as such, but is a concern for those utilities, because many of the small and rural PUDs and even larger PUDs are located in timber enacted and other slow growth areas and face a real problem in addressing that issue, aggressive pursuing conservation and, at the same time, losing revenues.

And there is the problem of the relatively large—relative advantage of larger utilities who have large staffs with lots of expertise and know how to design programs, know how to work effectively with Bonneville in terms of resource acquisition.

Further, there's limited infrastructure. Out there in these utility service areas, you may not have the contractors available and other skilled equipment suppliers and so on that are needed to produce these resources.

As a consequence, there is a non-participation in resource acquisition by small and medium-sized utilities and the result for the region is there are fewer low cost conservation and generation resources will be captured. Energy resource development programs will neglect areas of the state and region that especially need economic development.

At the same time, a number of studies have shown that—for instance, the University of Oregon EWEB study and a B.C. Hydro study—that utilities have demonstrated that when utilities develop conservation in their own service areas instead of developing remote central station generation plants, their communities derive economic benefits while avoiding environmental and siting problems.

Also, there's the cost of the loss of support for Bonneville in its conservation programs by these utilities when they're unable to take advantage of those programs.

The benefits of participation, and CARES is pretty much the inverse of these, local utility participation, for one, can—local utilities have an existing contractual relationship with end-use customers and have valuable load information about customers and the utility has a permanence in the local community that allows ongoing oversight of projects.

Other benefits include development of new demand side and supply side resources, fostering of economic development, retention of renewable generating resources for the Bonneville system, lots of wind sites. Virtually all of the wind sites in Washington State, for example, are located in PUD service areas. To the extent they're

developed by utilities that are not customers of Bonneville, those sites and the value of those sites goes elsewhere and are not made available to the Bonneville system.

CARES helps address that by engaging PUDs in the development of those resources. And you get a diversity of type, size and geographic location of resources.

Bonneville's role in promoting third-party resource development and financing mechanisms, like CARES, has been significant. CARES and similar JOAs can overcome some of the weaknesses in Bonneville's conservation acquisitions efforts, which the public Power Council has described. According to PPC, Bonneville efforts suffer from, and this won't be new to this panel, as you've already heard many of these things earlier, unpredictable and changing requirements, changing budget levels, burdensome oversight and review requirements.

Utilities frequently have difficultly reaching agreements with Bonneville and innovative approaches to conservation and renewable resources can often be discouraged. In fairness, many of these weaknesses stem from the fact that Bonneville is a Federal agency with cumbersome reporting and accountability requirements.

Some of these requirements can be avoided by shifting development, financing and acquisition efforts to JOAs, such as CARES. Bonneville's support for CARES is indicative that it recognizes these weaknesses and the role which JOAs can play in overcoming them.

Here's what CARES is doing currently. CARES is currently negotiating two major projects with Bonneville and we expect to have these contracts finalized in October. One is a 27 average megawatt conservation acquisition project. About 40 percent of the conservation will be acquired through residential weatherization, energy efficient showerhead and water heater programs, and 30 percent through commercial programs. The remaining 30 percent of the energy savings will be acquired through industrial and irrigation efficiency programs.

The other major project of CARES is a wind energy project located near Goldendale, Washington. CARES will finance and own the project and sell its output to Bonneville under a capacity contract. The 25-megawatt capacity project consists of 91 advanced design wind turbines and will produce 7.4 average megawatts of electricity.

With some trepidation, I'd add that I've got some figures on the cost of that resource that may be of interest, since it came up earlier. That's a 43 mill resource and with the 15 mill incentive payment, which we hope that Congress will fund, it makes that a 23 mill average levelized resource. So it's a very valuable and competitive resource.

In conclusion, we believe CARES is a significant model for future resource development by Bonneville's public customers, consistent with the priorities given to conservation and renewables in the Northwest Power Planning and Conservation Act.

As Bonneville moves away from operating conservation and other resource programs itself and begins promoting conservation and resource acquisition by customers through tiered rates and other in-

centives, joint operating agencies like CARES will become increasingly important.

Financing of resource acquisition by CARES will reduce both the need for Treasury borrowing and the costs of new resources, while allowing small and medium-sized utilities to participate in their development and ownership. To the extent CARES and similar organizations promote resource development in rural timber-impacted and economically distressed areas, they can play a significant role in distributing the costs and benefits of resource acquisition development more equitably across the region.

As Bonneville takes steps to become a more efficient businesslike organization, it should continue to support the establishment of organizations such as CARES that can bring tangible benefits.

Thank you for the opportunity to testify.

[Prepared statement of Messrs. Johnson and Romjue follows:]

Statement of
Stephen F. Johnson, Executive Director
Washington Public Utility Districts Association
and Stephen W. Romjue, Chair of the Board
Conservation and Renewable Energy System (CARES)
Presented on Behalf of the
Washington PUD Association
Before the
Committee on Natural Resources
Bonneville Power Administration Task Force
July 12, 1993

Mr. Chairman, members of the task force, I am Stephen F. Johnson, executive director of the Washington Public Utility Districts Association. I am accompanied today by Stephen W. Romjue, manager of Grays Harbor County Public Utility District and Chair of the Board of the Conservation and Renewable Energy System, or CARES.

Collectively the Washington PUDs are the largest customer of the Bonneville Power Administration and serve 1.5 million people. Of the 22 PUDs that provide electric service, five generate a majority of their own power, seven purchase a majority of their power from Bonneville, and 12 purchase 100% of their electricity from Bonneville.

The focus of our testimony today is on how and why a joint operating agency, CARES, was created to acquire energy efficiency and renewables, and on what role similar JOAs and third party financing mechanisms can play in assisting utilities and Bonneville in more effectively acquiring new energy resources.

The CARES Idea

The Conservation and Renewable Energy System is a joint operating agency organized under the laws of the state of Washington. Its current members are eight small and medium size Washington PUDs: Benton, Clallam, Franklin, Grays Harbor, Klickitat, Okanogan, Pacific, and Skamania County PUDs. Washington cities, as well as PUDs, are eligible for future membership.

The agency's major objective is the acquisition of energy resources which are "least cost" economically and environmentally for the Northwest. CARES' mission to develop conservation, renewable and high-efficiency energy projects is consistent with the mandates of the Pacific Northwest Electric Power Planning and Conservation Act. Another CARES goal is to spread the economic benefits of energy resource development across the state by funding projects in rural counties. One of the most significant benefits CARES provides to Bonneville and the region is its function as a third party financing mechanism. CARES will be able to finance projects at a lower cost through use of tax exempt bonds, helping reduce BPA resource acquisition costs and treasury borrowing.

In Oregon, an effort is underway to organize an agency similar to CARES. Oregon Municipal Electric Utilities (OMEU) has received financial assistance from BPA to create a joint conservation financing organization. The municipal utilities involved would use their joint revenue bonding authority to develop conservation resources for acquisition by BPA. The joint financing approach will enable small municipal utilities in Oregon to work with BPA to acquire conservation at a lower cost to the region and to insure the stable level of funding necessary to meet local and regional conservation targets. Utilities currently exploring this approach include the Springfield Utility Board, City of Ashland, City of Milton-Freewater, City of Forest Grove, City of Bandon, City of Monmouth, and the Canby Utility Board.

Barriers to PUD Resource Acquisition

The need for CARES grew out of the recognition that significant barriers were preventing PUDs from participating in Bonneville conservation and resource acquisition programs, and from developing their own energy resources.

During the 1980's, with the exception of the Super Good Cents program, only a handful of the Washington PUDs were participating in Bonneville-designed conservation programs. For the most part, utilities failed to participate because of constraints they faced, not because of lack of interest.

These barriers to participation were, and are, many. They stem from weaknesses in Bonneville conservation programs, but also in a large measure from the nature of PUDs and other public utilities. These utility barriers include the following:

1. Lack of an Adequate Resource Development Funding Mechanism

Small and medium size PUDs and cities do not have the financial resources or the access to bond markets necessary to develop energy resources. Though each PUD has the power to issue tax-exempt bonds, this approach is difficult and costly for small utilities. Bond issuance activities tend to be proportionally more expensive, the bonds are viewed as higher risk, and there is a smaller population of potential purchasers for bonds issued by small utilities.

2. Utility Staffing/Technical Resource Limitations

Small and medium size utilities can not respond effectively to BPA resource development incentives, such as billing credits, because they have neither the staff nor the particular technical expertise needed to develop the resources or manage their development by third parties. Fifty percent of the Washington PUDs have fifty or fewer employees. Five utilities have fewer than twenty. Employees in the smaller PUDs often perform several different functions. Four of the eight CARES members have only one conservation staff person.

3. Size of Project Risks

Small and medium size utilities can not undertake the risks, both financial and political, inherent in resource development. For example, the cost of developing a several-million-dollar cogeneration plant may seem reasonable when compared to the revenues of a large utility. However, the cost may seem overwhelming when compared to the revenues of a small PUD or city.

Unfortunately, this proportionally greater risk has discouraged small utilities from developing potentially cost-effective conservation and renewable generating resources in their service territories.

4. Lost Revenue Issue

For those PUDs and cities facing no load growth, or the possibility of major load loss (e.g., closing of a lumber mill), conservation may be viewed as merely a revenue loser that potentially could result in the need for a near-term rate increase to cover

fixed operating costs. This is the situation faced by the majority of the small, rural utilities in economically distressed areas of the state. The impact of lost margin is proportionately greater for a small system with limited ability to expand the revenue base.

5. Relative Advantages of Large Public/Private Utilities

Large utilities are easier for Bonneville to work with because they have large specialized staffs, and are more attractive because they may have very significant conservation potential. Neglect of the smaller utilities, however, will lead to loss of significant resource opportunities. Rural areas, which have timber-related and other economic problems, also find themselves paying for resource acquisition efforts elsewhere where local economics are relatively well off.

6. Limited Infrastructure

Small PUDs may not have skilled contractors available locally, and may be located far from equipment suppliers.

Consequences of Non-Participation in Resource Acquisition by Small and Medium Size Utilities

If BPA utility-focused resource programs do not promote participation by small and medium size utilities and/or provide mechanisms for their participation, there will be negative impacts on Bonneville's long range resource acquisition goals. These impacts include:

1. Fewer low-cost conservation and generation resources will be captured.

Small and medium size utilities' service areas contain significant potential resources—renewable generating resources in particular. Often it is easier to site and develop projects in a rural, rather than an urban setting.

2. Energy resource development programs will neglect areas of the state that especially need economic development.

The majority of the Washington PUDs' service territories are located in economically distressed areas of the state. The majority of these PUDs are small to medium size. Resource development in these areas can provide a much needed boost to local economies. A number of studies (by University of Oregon/EWEB and B.C. Hydro, for example) have demonstrated that when utilities develop conservation in their own service areas instead of developing remote central station generating plants, their communities derive economic benefits while avoiding environmental and siting problems.

3 Loss of support for BPA and its Conservation Programs.

When small and medium size utilities are unable to participate in BPA conservation programs, they may fail to support—and may even oppose—these programs. This should come as no surprise, since the utilities and customers who are most in need of assistance would be paying for programs developed elsewhere.

This loss of support for BPA conservation programs could lead to loss of political support for BPA.

Benefits of Participation by Small and Medium Size PUDs and Cities

Widespread participation by small and medium size Washington PUDs in resource acquisition through CARES and similar organizations will provide many benefits for the region. Development of conservation resources by individual retail utilities and consortiums helps insure the viability of conservation as a resource. Most conservation results from energy efficiency improvements in end-use customer facilities. Attempts by either power marketing agencies or non-utility private sector service providers to develop/acquire such resources directly, without local utility participation, can not be as effective as those which directly involve the local utility. The local retail utility has an existing contractual relationship with the end-use customer, has valuable load information about the customer, and has a permanence in the local community that allows ongoing oversight for projects.

Other benefits of participation include:

1. Development of new demand-side and supply-side resources;

2. Fostering of economic development in distressed rural areas;

3. Retention of broad-based public support for Bonneville;

4. Retention of renewable generating resources for the Bonneville system; and

5. Diversification of types, size, and geographic location of resources.

Bonneville's Role in Promoting Third Party Resource Development and Financing Mechanisms Like CARES

Bonneville assisted in the establishment of CARES and is assisting in the development of the Oregon municipal joint conservation financing organization. Bonneville's support for these projects pays off in several ways:

Because CARES at this time is developing resources for sale only to Bonneville, the risk of resource development—and the benefits—are regionalized.

CARES and similar JOAs can overcome some of the weaknesses in Bonneville's conservation acquisition efforts, which the Public Power Council has described. According to PPC, Bonneville efforts suffer from unpredictable and changing requirements and budget levels, and from burdensome oversight and review requirements. Utilities frequently have difficulty reaching agreements with Bonneville, and innovative approaches to conservation and renewable resources are discouraged. Most of these weaknesses stem from the fact that Bonneville is a federal agency with cumbersome reporting and accountability requirements. Some of these requirements can be avoided by shifting development, financing and acquisition efforts to JOAs such as CARES. Bonneville's support for CARES is indicative that it recognizes these weaknesses and the role such JOAs can play in overcoming them.

CARES Current Activities

Currently, CARES is negotiating two major projects that will provide energy resources to Bonneville. Bonneville will be purchasing resource capability and backing the CARES financing for the projects. One is a 27 average megawatt conservation acquisition project. About 40 percent of the conservation will be acquired through residential weatherization, energy efficient shower head and water

heater programs, and 30 percent through commercial programs. The remaining 30 percent of the energy savings will be acquired through industrial and irrigation efficiency programs.

The other major project of CARES is a wind energy project located near Goldendale, Washington. CARES will finance and own the project and sell its output to Bonneville under a capability contract. The 25 megawatt capacity project, consisting of 91 advanced design wind turbines, will produce 7.4 average megawatts of electricity. The project developer is FloWind Corporation. FloWind plans to use a new prototype wind turbine designed by Advanced Wind Turbines, Inc. of Redmond, Washington. Goldendale is located in Klickitat County PUD's service area.

CARES hopes to have successfully completed contract negotiations for these projects by October of this year.

Conclusions

We believe CARES is a significant model for future resource development by Bonneville's public customers, consistent with the priorities given to conservation and renewables in the Northwest Power Planning and Conservation Act. As Bonneville moves away from operating conservation and other resource programs itself, and begins promoting conservation and resource acquisition by customers through tiered rates and other incentives, joint operating agencies like CARES will become increasingly important. Financing of resource acquisition by CARES will reduce both the need for treasury borrowing and the costs of new resources, while allowing small and medium size utilities to participate in their development and ownership. To the extent CARES and similar organizations promote resource development in rural, timber-impacted and economically depressed areas, they can play a significant role in distributing the costs and benefits of regional resource development more equitably across the region. As Bonneville takes steps to become a more efficient, business-like organization, it should continue to support the establishment of organizations such as CARES that can bring tangible benefits to the region.

Mr. DEFAZIO. Thank you. Finally, Mr. Esteves.

STATEMENT OF RICHARD ESTEVES

Mr. ESTEVES. My name is Richard Esteves, vice president of SESCO, Inc., which is a minority-owned energy service company specializing in the treatment of residential and low income households.

We provide conservation services free of charge to the individual residents and participants, making our revenue strictly off of selling back to the utility company the conserved measured kilowatt hours that are saved there over a period of time.

That's a key concept because it matches the history that we've seen on the independent power producer side in which QFs and independent power producers are able to sell back to the utility company metered produced kilowatt hours over a period of time. We're trying to bring the same type of accountability to the conservation field, along with companies such as Proven Alternatives, KENETECH and others.

The key is that we are paid based on the output of what we deliver to the utility system. No savings, no payment. On the other hand, if we do a particularly good job, a comprehensive job, we're paid in proportion to the benefits that we're able to deliver.

Since the utility is able to price the service at a price per kilowatt hour that is less than its avoided cost, it's guaranteed to always be cost-effective for that utility company, regardless of the level of activity that is actually reached. As I said, we are probably the largest energy service company dealing with the residential area. We currently have 56,000 houses completed or under contract.

Perhaps even more important, we have over 60,000 measurement years of actually measuring the results at the various houses. To put this into perspective, all of the studies combined that Bonneville has done on its residential program is less than 10,000 measurement years.

Our company, along with perhaps Seattle City Light, has the largest database of such records in the country. We normally sign contracts for the length of term that the utility is interested in. Our contracts have gone from as little as four years to as long as 25 years. We've offered contracts to Bonneville Power for a maximum of 20 years.

Adjustments are made usually for weather conditions or for local economic factors or for control groups or whatever the factors the utility wants to put into the measurement plan. We treat all across the board. We treat single-family homes, multi-family homes, mobile homes, renters, high income, low income.

Since we charge the customer nothing for the service, there is no restrictions on who may participate or practically who can participate. We're simply going after those homes which are most in need of the conservation benefits.

Currently in the Northwest, have a contract with Portland General Electric to do approximately 5,000 low income homes in the Salem, Oregon area. It's under a special tiered rate system in which we're paid significantly less for the first 1,200 kilowatt hours and significantly more for anything above that. The 1,200 kilowatt

hours is the level that PGE is currently saving in its residential low income program.

This provides the ESCO with an incentive to do a very comprehensive job or to maximize the revenues and to maximize the savings that come from it. And the same type of thing happens regardless of whether there's a tiered rate system. Because we're paid on the results, we are not going to try and install things which are not needed or which are not cost-effective.

On the other hand, if I walk out of a house leaving something undone that should have been done, I'm leaving money on the table when I leave that place. Consequently, the performance conservation contract, whether it be commercial, industrial or residential, has an incentive to do everything they can that's comprehensive and cost-effective in that place up to the level of cost- effectiveness for that.

Other projects we have ongoing in the Pacific Northwest is we're negotiating a contract now to Puget Sound Power and Light for 10,000 residences and cooperating in another project which would retrofit 45,000 residences that are not electrically-heated. We also have seven other contracts across the country with other utilities.

Our experience at Bonneville goes back quite a ways, back to 1982 when I was working with an electric utility company on the east coast. Bonneville became interested at that point in developing a performance-based residential program. It went so far as to develop a draft RFP for soliciting this service and sent it to us for our comment and review.

That, of course, went by the boards in the mid-1980s, as did many other of Bonneville's programs. We heard again about Bonneville in 1989 when we understood that they were to go out for an all source bidding program, which would include conservation. We were very impressed by this, but when we went to find out, we found out that they had planned to not allow residential customers to benefit from this program because they felt they were already treating the residential customers as well as anyone could and there were no more resources available.

Fortunately, Bonneville did change its mind after some of the utilities and other parties spoke with them. Bonneville is a very large entity, but it is still a utility company. It's a utility company with a bit of a difference. It has no retail customers. It has no oversight from local regulatory agencies. It has no need, even as a public body, to put itself up for judgment by the electorate it serves.

It also has almost unlimited resources in the short run and it has the ability, because of its size, to appear to be immovable in its policies. However, this is not unique to Bonneville Power. We've seen the same type of thing occur in large institutions across the country, though particularly true in the electric utility industry, which is still enamored with long-term central planning and master plans and everything else that we thought had disappeared with the Soviet-style central planning economy.

However, what we see instead is that because of it's size, the need to manage an extra large area, what you have are very large programs, centrally planned and designed with very little local control, very little application changing at the local level.

You asked what I thought the weaknesses and strengths were of the Bonneville acquisition system. I think Bonneville's shear size is both its strength and its weakness. As I say, because of it's size and because of it's need to centrally plan everything and it's lack of accountability for that savings, you have a very large bureaucracy that is not receptive to any suggestions from the outside or any local changes.

Also, its very size also gives it the opportunity to run such independent programs paralleled with the existing programs. There are, as Mr. Hardy said, 100-plus different host utilities that it serves. It cannot design the same program for each one. They have different needs. The CARES program is an obvious response to that type of need.

There should be the opportunity for these other utilities to participate in a performance-based program which is not designed and overseen directly by the utility company; in this case, Bonneville Power.

Bonneville, unfortunately, has a habit of rejecting bad news, rejecting any criticisms that it has. We saw this very recently when we questioned the cost-effectiveness of its residential programs and its commitment to cost-effective conservation.

In more than ten years, the U.S. Department of Energy's Oak Ridge National Laboratories has conducted extensive evaluations of Bonneville programs. What it has shown is that over the last ten years, the savings on those programs have dropped from over 4,000 kilowatt hours down to about 1,500 kilowatt hours, about a third of what it once was.

In even more depth was when you looked at what happened after the first year and what the studies showed is that year after year, the first year savings dropped significantly. On average, they've been dropping on an average of 12 percent for each year afterward, a very significant deterioration, significantly calling into question the savings numbers that we've seen that Bonneville has been claiming for these things.

We saw this morning a series of charts and bar graphs on what the savings are. Those savings are still based upon an estimate of 2,800 kilowatt hours per house. What happened? After the Oak Ridge study came out, Bonneville's internal central planners sent a memo around saying we reject this particular analysis; we're going to continue using 2,800 kilowatt hours.

I have to tell you that Bonneville's programs have not reached 2,800 kilowatt hours per house since 1986. However, a new study has just come out showing a different number. Instead of supplying cost at around 83 mills per kilowatt hour, a new study by SRC is now showing 78 mills per kilowatt hour, still far above the conservation level—the conservation cutoff.

Of greater concern, though, is that Bonneville is falling back and not pursuing the residential conservation field significantly. Yes, it has treated several hundred thousand houses, but it has over a million residential customers out there. As of last year, Bonneville had only treated 35 percent of its electric heat single-family market, which represents only 40 percent of the total population.

Eighty-five percent of the houses in the Bonneville region have not been treated. That means that five out of six residences know

only Bonneville conservation, do what they see in the ads, and what they pay in order to support those programs for others. There is a massive, massive amount of conservation still available in the residential field which needs the assistance of other parties to work with Bonneville to reach those.

We believe that the private sector operating on a performance basis can provide a lot of that help.

[Prepared statement of Mr. Esteves follows:]

TESTIMONY OF RICHARD ESTEVES

Vice President, SESCO, INC.

before the

Bonneville Power Administration Task Force

of the

Committee on Natural Resources

U.S. House of Representatives

July 12, 1993

BACKGROUND ON SESCO, INC. AND ENERGY CONSERVATION PERFORMANCE CONTRACTING

SESCO, Inc., a minority-owned Massachusetts corporation organized in 1985, is the nation's largest energy services company ("ESCO") specializing in the residential and low income market. We install conservation improvements free of any cost to participants.

An ESCO (also know as a "performance" conservation contractor) is a conservation company which asks to be paid based upon the savings performance of its work, not on the basis of what it installs. Thus, we might weatherize and insulate a house and add water heating and lighting improvements (SESCO's typical package). If we do a good job and there are metered savings in future years, we are paid in proportion to the savings. If there are zero savings, we get paid nothing. This is the ESCO's ultimate guarantee: No Savings = No Payments.

Since the utility can pre-set the price to be lower than it avoided generation costs, the use of third party performance conservation providers is guaranteed to be cost-effective for the utility and its ratepayers. This procedure assures that the ESCO will seek to install only the improvements that are effective and cost-effective. It also assures that a comprehensive effort is undertaken, since for a performance contractor to leave needed improvements undone when they leave a customer's residence is

In addition to the inspections, each customer is asked to complete a satisfaction survey. SESCO, a performance contractor, recognizes the performance of its crews. Crew bonuses are provided for inspection ratings, customer satisfaction and the comprehensiveness of the work done in each house. Unless the customer has a later need for warranty work, that is the end of the process for the customer.

Meanwhile, the utility and SESCO will monitor the savings by comparing that customer's energy consumption before the work was done with that after the work was done, often in comparison with a control group of nontreated houses. After adjustments in accordance with the utility-approved measurement plan, payment is made per kilowatt hour saved each year of the SESCO-utility contract.

SESCO PROJECTS COMPLETED OR NOW UNDERWAY

PGE Project(s)

Since early 1993, **Portland General Electric Co. (PGE)** and SESCO have been conducting a 5,000 house pilot project for lower income electric heat customers in the greater Salem, Oregon area. PGE is purchasing the first 1200 kilowatt hours per house at 39% of avoided cost and the rest of the savings at 90% of avoided cost. PGE's own low income weatherization is achieving about 1200 kWh/house in savings annually. SESCO expects to save at least twice as much per house.

This two-tiered pricing system, the first in the nation, indicates the flexibility of performance contracting to meet the needs of the utility. By providing the first block of savings to the utility for free or for a very low price, the ESCO assures that the utility and its ratepayers receive their benefits before the ESCO gets any profits. By setting the final block price near avoided costs, the concept assures that the ESCO will be as comprehensive as possible in each treated house, maximizing the savings in order to maximize the revenues.

PGE is also evaluating a similar two-tiered proposal to expand the program throughout its service area to an additional 10,000 electric heat customers. It is also looking at providing 30,000 other residential customers with free energy efficient lighting.

Other Pacific Northwest Projects

Puget Sound Power & Light Co. and SESCO are negotiating a 10,000 house contract for the greater Puget Sound area. SESCO is also working with two other ESCOs in a coordinated effort for Puget Power that will provide comprehensive water heating and lighting improvements to about 45,000 residences without electric heat.

Other SESCO Projects

All of SESCO's conservation projects have been performance-based energy services contracts with the host utility, which pays SESCO based exclusively upon the savings measured at the treated homes. No charge is made to the host household.

Central Maine Power Co.'s 20,000 house, $25 million "Project HouseWise" is the nation's largest contract for residential conservation. Begun in 1992, it is about 40% complete.

New York State Electric & Gas Co.'s "Free Power Project" with SESCO, an $8 million, 10,000 house residential project, is the largest residential performance contract in New York. Begun in 1993, it is about 10% complete.

Rockland Electric Co.'s "Free Power Project" with SESCO in northern New Jersey treated essentially all (about 4,700) of that small utility's electric heat customers. Savings during the first year have averaged 2,200 kWh per house, for utility bill savings of about $280 annually per household.

Central Maine Power Co.'s "Power Partners" program treated 9,700 houses during 1990-92. Annual savings during the past three years have averaged 2,560 kWh per household.

Commonwealth Edison Co. (Chicago, IL) treated 1,000 multi-family units during 1988 and 1989 under its performance contracting REEP ("Residential energy Efficiency Program"), making it the largest performance contracting project exclusively for multifamily customers. Annual savings, which included common area treatments, averaged over 3,000 kWh per treated customer.

SESCO treated 5,550 **Western Massachusetts Electric Co. (WMECO)** electric water heating customers in 1986-1987. Although only about half were also electric heat customers, annual savings during the three years after treatment averaged about 2,000 kWh per customer.

EVALUATION OF THE BPA CONSERVATION ACQUISITION SYSTEM

Introduction

Bonneville Power is a utility. A utility with a difference. It has no non-DSI retail customers, has no oversight from a local regulatory commission, and has no need to offer itself for regular judgement by the electorate it professes to serve. The differences are also positive -- Bonneville is a utility with access to borrowing capacity from the federal government and of such size relative to anything else in the Region as to seem almost immovable. But make no mistake about it, Bonneville is, first and foremost, an electric utility.

Electric utility resource acquisition in the United States is a bastion of Soviet-style central planning fighting to forestall the introduction of a competitive free market economy to their fiefdom. Utility "apparatchiks" point their weapons at anyone who may seek to bring free market efficiency to a field dominated by utility monopoly.

There may be an argument for the use of a utility's "natural monopoly" for the distribution system. But there is no "natural monopoly" in the conservation or generation of power. Nevertheless, utilities throughout the U.S. maintain protected monopolies in conservation as the only entitles that can charge the cost to ratepayers other than those receiving treatment. The utility is the only party that can charge the cost of conservation at House A or Office B to the ratepayers in House X, Office Y, or Industry Z. Any private company must charge the cost of conservation to the building receiving it. And the utilities control that option ruthlessly, to the detriment of the ratepayers -- and often to the detriment of the owners of the utility system, whether stockholders or the federal government.

It was the utility monopoly in power generation that caused the power plant fiascos of the 1970s, including the billions of dollars spent on the WPPSS, Pebble Springs, and Skagit/Hanford nuclear projects in the Pacific Northwest. The Public Utilities Regulatory Policies Act of 1978 (PURPA) helped curb some of the inefficiency in generation acquisition. It has provided an effective free market "yardstick" to the utility central planners. But PURPA does not apply to independent conservation developers (usually known as energy service companies, or ESCOs), and conservation remains retarded by continued utility monopoly.

Bonneville "Tests," Thus Far Rejects Free Market Competition

Since the mid-1980s, utilities, often prodded by their regulatory commissions, turned to open competitive bidding to acquire new conservation and generation resources. So far, dozens utilities have issued competitive bids and have contracted with ESCOs and independent generators on a performance basis. Now, many state

public utility commissions are requiring that utilities acquire new resources exclusively or primarily through competitive bidding.

BPA started a competitive free market bid process in 1990 and issued its RFP for 300 MW in January 1991, with bids due June 1991. The RFP automatically protected all existing or planned BPA conservation programs from competition from ESCOs and set out detailed guidelines for what would be acceptable and how it would be evaluated. Nevertheless, based upon the opportunities found in the Region which were not yet served by BPA, numerous ESCOs submitted bids. From these BPA accepted the top 9 conservation proposals (some involving multiple projects), totalling some 80 aMW, for negotiation. Each of these proposals had offered to Bonneville a commitment to be evaluated and paid on the basis of their measured results over a period of years -- and to finance those installations without direct BPA help. And Bonneville accepted a single generation proposal, the 200+ aMW Tenaska plant.

SESCO's 10 weatherization projects, which BPA evaluated to cost 25-29 mills/kWh (1990 dollars, real levelized), represented the single largest group of winning DSM bids. SESCO offered to be paid on the basis of the measured, metered, verified savings over a period of 20 years following treatment of each house. SESCO also cooperated with two other ESCOs that specialize in water heating and "basic service" houses to offer a unified residential program that would provide comprehensive services to over 400,000 residences throughout the Region. Together, these companies made a firm offer to invest a total of over $235 million in private capital to provide free conservation services to the residences of the Region.

Having made the offer and having accepted for negotiation several quality proposals that met the standards required, the only thing remaining for a test of the process was to complete the contracts and implement the programs.

As of this date, over 2 years after Bonneville received those proposals, BPA has failed to contract for even a single kWh of conservation from **any** of the winning bidders, many of them respected nationally as experienced, quality ESCOs. To our knowledge, SESCO is the only ESCO to have undertaken extended negotiations with BPA.

BPA assigned low priority to this task of completing negotiations, as the BPA 10-15 person "Negotiating Team" included no senior management personnel. BPA then prohibited SESCO from communicating with BPA management at all, even when we had reason to believe that the Negotiating Team was misrepresenting SESCO's program and SESCO's positions to the various upper levels of BPA management.

Customer Category Served	Conservation Treatments Provided	Homes in Winning Bids	Resulting Investment
Homes with Electric Space and Water Heating	**Total House Program:** insulation; weatherization; water heating and lighting efficiency improvements	100,000	$160,000,000
Homes with Electric Water Heating (but not electric space heating)	**HydroTherm Program:** water heating and lighting efficiency (including 5-8 compact fluorescent or halogen bulbs per residence)	120,000	$30,000,000
Homes with No Electric Space or Water Heating	**Free Lighting Program:** lighting efficiency (10+ compact fluorescent or halogen bulbs per residence)	200,000	$45,000,000
	TOTAL OUTLAY BY SESCO GROUP:		**$235,000,000**

It took over a year after the bids were submitted for BPA to begin serious negotiations, in July 1992. After 4 months of back-and-forth but productive negotiations (July - September 1992), the BPA Negotiating Team in November 1992 suddenly announced it was cancelling the 200,000-house lighting project negotiations, that it was cancelling 95,000 of the 100,000-house "total house" programs, and that it was eliminating the measures (lighting) that would provide half the savings in the programs for 120,000 electric water heating customers.

The reason given for dropping the ten 10,000 house weatherization proposals to a single 5,000 house pilot was that the program was too large. However, Bonneville did go ahead with the 200+ aMW Tenaska combustion turbine generation proposal, which was a hundred times larger than the after-the-fact limits placed upon the weatherization offer. The Negotiating Team cited uncertainty over the cost-effectiveness of compact fluorescent bulbs as the reason for dropping the balance of the programs. This is the same technology used by every other utility system in California (and several in the Pacific Northwest), with millions distributed by these utilities. This is the same technology that BPA itself, less than four months later, recommended to its own employees for implementation. These is the same technology in which SESCO itself proposed to invest millions of dollars for BPA residential customers, with payment based solely upon metered, verified savings.

BPA refused to allow SESCO to appeal any of these decisions to the BPA Administrator, to any assistant administrator, to the "Leadership Team," to the "Steering Committee," to the "Project Manager," or to the "Acquisition Management Team." SESCO wrote to the Administrator, to the senior management, and to the head of the bidding programs but was each point rebuffed. We have been given the right of appeal and we have taken that step. Our complaint about our treatment by the Negotiating Team will be decided -- by the Negotiating Team itself.

The Negotiating Team's so-called "offer" to undertake a 5,000 house pilot was, in our view, not genuine. SESCO had repeatedly stated that the low price offered was contingent upon its being able to implement a project of reasonable scale, a 10,000-house minimum. The underlying reason for this "offer" may be evident in the second part of its requirement--that the one 5,000-house project be redesigned to resemble BPA's centrally-designed program. Thus, BPA's central planners sought to eliminate any potential for an independent private sector "yardstick."

The Negotiating Team's apparent change of attitude in the fall of 1992 coincided a shift in the Negotiating Team's membership and with BPA's receipt of weatherization savings data from Oak Ridge National Laboratory (ORNL), a lab of the U.S. Department of Energy. ORNL has been conducing evaluations of BPA's weatherization programs since the early 1980s, and has completed more than ten of them to date. But there was a problem for BPA's headquarters staff. The ORNL results were showing a significant decrease in the savings being realized with each new year of treatment, as discussed below.

Our repeated attempts to speak with BPA management have been met with letters stating that we have to talk with the Negotiating Team. Our requests to the Negotiating Team have met with refusals to negotiate or even meet with SESCO. We await BPA decisions on whether to negotiate the remainder of the water heating programs and any of the lighting programs, as well as resumption of the weatherization negotiations.

BPA Staff Seeks to Disregard Studies Critical of its Residential Weatherization Program

In late 1992, BPA staff received draft information that the latest measurements were showing that BPA's residential weatherization program installations saved only 1330 kWh per treated house in the first post-treatment year. See Chart 1, taken from the ORNL study. The Study also showed that the first-year savings then significantly deteriorated in the second and subsequent post-treatment years, by an average of over 12% drop per year. See Chart 2, also from the ORNL study, plus an ERCE longer terms study of the houses treated in 1982 and 1983.

SOURCES FOR CHARTS:

RESIDENTIAL CONSERVATION ACHIEVED
AND
BPA RESIDENTIAL WEATHERIZATION COST

SOURCE	DATA ON CHARTS
Brown & White (Oak Ridge National Laboratory), Evaluation of Bonneville's 1988 and 1989 Residential Weatherization Program: A Northwest Study of Program Dynamics, December 1992 (for BPA) [cited as BPA EVALUATION 1992]	BPA 1980-82 BPA 1982 BPA 1983 BPA 1985 BPA 1986 BPA 1988 BPA 1989 All cost data
Horowitz, Ecker, Degens (ERCE), Long-Term Impacts of the Interim Residential Weatherization Program on Household Energy Savings, June 1991 (for BPA)	BPA 1982-83 Follow-On

74-346 O - 93 - 12

According to ORNL, even assuming the 1330 kWh/year savings to remain constant over a 31-year period (with zero deterioration), the cost would still be 83 mills/kWh (real levelized 1989 dollars)--far above the Northwest Power Planning Council (NPPC)s cost-effectiveness ceiling. See Chart 3. This figure apparently does not include (1) a substantial portion of BPA's central administrative costs, and (2) the cost of BPA's new "lost revenue" compensation payments (up to 20 mills/kWh assumed to be saved) to its customer utilities. Were we to include the 12% average annual savings deterioration alone, the cost would easily reach into the hundreds of mills/kWh. BPA had already evaluated the SESCO projects as providing savings at 25-29 mills/kWh in real levelized 1990 dollars to be paid over a 20-year period. If savings deteriorate, so would the payments to SESCO. Similar prices and terms were offered for the other ESCO projects.

Members of the Negotiating Team tried to disavow the latest ORNL study. BPA did not produce it when asked in 1993 Rate Case discovery for all evaluations of its residential conservation projects. The BPA rate case witness on this subject then sought to disavow the ORNL study, even though she herself had previously written a memo in January 1993 stating:

> At our [BPA] meeting on January 14, 1993, we discussed the 1988 and 1989 Residential Weatherization savings estimates published in the Oak Ridge National Laboratory report, ORNL/CON-323. These latest findings are robust and the methodology used to estimate the savings and costs listed below is defensible and is in accordance with professionally accepted standards of the program evaluation discipline.
>
> While the savings estimates may be methodologically robust, and in fact, corroborate a 10 year trend of declining first year savings, they are substantially lower than any previous years' savings.

The BPA witness then claimed that a new study by Synergic Resources Corporation (SRC) would show the BPA residential weatherization program to be cost-effective. But the final draft of that study corroborated the excessive costs of the BPA centrally designed programs, concluding that the weatherization program costs over 77 mills/kWh (1991 dollars, real levelized), without counting BPA's own considerable administrative costs. The BPA witness then claimed that the SRC study would somehow be changed and produce "higher savings and lower costs." SESCO has since checked with the author of the study at SRC, who feels that the study was conducted in accordance with accepted measurement procedures and with the instructions previously provided by Bonneville. We are now awaiting the final report.

Despite these studies, BPA now merely assumes that its residential weatherization program saves 2800 annual kWh/house, undiminished for 40 years! This level of savings have not been realized by Bonneville programs since its 1986 programs -- which then dropped by over 500 kWh the following year. AS far as we

have been able to determine, there is no measured data that would provide any reasonable basis for this assumption of 2800 annual Kwh in savings and no basis for assuming such savings do not deteriorate over time. But that is how BPA cost-justifies its current program.

The Impact of Avoiding a Free Market Approach

The testimony of Richard Esteves in the BPA 1993 Rate Case demonstrated that refusal to use private sector ESCOs in the residential sector alone will cost BPA up to $469 million (1993 dollars) more than needed to achieve the desired level of savings. These results were determined using data taken exclusively from ORNL and BPA evaluations and from BPA's written records of the negotiating sessions. No party believed it necessary to cross-examination his testimony.

Instead, BPA continues its solitary reliance upon its increasingly less effective centrally designed conservation programs. Among the reasons for this are:

1. The BPA residential weatherization program continues to target only single-family homes occupied by owners with sufficient interest and money to pay a substantial share (around 30-40%) of the cost. The number of these homes that can substantially cut energy use is dwindling, as the BPA program has already treated many of the region's least efficient houses in this category. The average pre-treatment electricity consumption of houses in the BPA program started at 29,350 kWh/year in the 1980-82 program and has declined to 23,130 kWh/year in the 1989 program, as there are fewer and fewer houses that do not already have some efficiency measures already installed. We have learned from experience that a large fraction of residential dwelling owners will not pay even $49 for comprehensive residential conservation, because:

   A. They do not immediately perceive the benefits.

   B. They fear that the contractor will seek additional payment later or will seek to do additional work for pay.

   C. They are landlords, but the tenants pay the electricity bill.

2. The BPA program overlooks the enormous potential in:

   A. multifamily buildings and mobile homes

   B. rental dwellings of all types

   C. homes where the owners are not willing to pay a lot of money (or any at all)

D. homes where the owners are just not interested enough to deal with the bureaucratic requirements of existing programs.

These bureaucratic requirements can discourage all but the most diligent homeowners. BPA, typical for utility programs, requires each resident to initiate contact with the utility, to arrange to meet the utility auditor, to decide whether to proceed in the face of costs that the utility program does not cover (or the need to incur substantial debt), to arrange to meet several bidding contractors, to evaluate their bids (and their reliability), to arrange to meet the selected contractor(s) when the work is to be done, and to arrange to meet the utility inspector. With increasing numbers of households in which all adults work during the day, it becomes more difficult to accomodate the necessary 5 sepaate visits to the home (even if only two contractors bid).

The SESCO approach is one-stop: The auditors and inspectors accompany the crews doing the work. There is usually only one visit to each house. If metering data later shows low savings, another visit remedies the problem.

3. The existing BPA weatherization program does not assure a comprehensive range of measures or ensure that all needed measures are installed. Because the home owner must pay a substantial share of the cost, the BPA program allows the home owner to cut costs by not installing all needed measures. The SESCO project now underway in Salem, Oregon, is providing more comprehensive treatments than the BPA program, partly because the homeowner faces no cost and partly because SESCO offers measures not in the BPA program at all.

4. BPA disregards large opportunities for cost-effective conservation in the majority of dwellings throughout the Region. Through last year, BPA had treated only about 35% of the electric heat single-family residences built before 1983 in BPA-served areas. But that group represents only about 40% of the total dwellings. BPA has no substantive conservation program to offer to customers without electric space heat (apart from distributing showerheads), even though such houses consume electricity for lighting and sometimes water heating. In effect, Bonneville's residential program has not affected about 85% of the homes. The only contact those 85% have with BPA conservation programs is what they see on television and what they pay in their utility bills.

MEASURES INSTALLED	% of Houses Receiving		Leader
	BPA	SESCO	
Attic Insulation	71%	87%	SESCO
Floor Insulation (crawl, basement, full and partials)	67%	42%	BPA
Weatherstripping	45%	94%	SESCO
Caulking	44%	82%	SESCO
Duct Insulation	23%	35%	SESCO
Wall Insulation	19%	--%	BPA
Clock Thermostats	12%	--%	BPA
Water Heater Wrap	1%	82%	SESCO
Pipe Insulation	1%	89%	SESCO
Efficient Lighting (mainly compact fluorescent bulbs)	--%	99%	SESCO
Sources: BPA EVALUATION 1992, WP-93-E-SE-08A, p. 5.2 (507 houses) SESCO-PGE Project (first 203 houses treated in Salem, Spring 1993)			

SESCO ANSWERS TO TASK FORCE QUESTIONS

1. a. The very size of Bonneville provides both its strength and its weakness in the resource acquisition field. Its size means that it tends to rely on overall "global" central planning and designs lowest denominator programs that it believes will most often work, if properly implemented. The central planners do not require long-term accountability of contractors or of the central planning system itself. Instead, BPA proffers myriad regulations for the most minute of matters, such as DSM installations and resists changes or improvements. And it recoils in horror at the apostasy of a free market making evaluations and decisions in the place of the central planning staff. BPA reflects an assembly line control mentality instead of quality circles making local decisions and individualized efforts empowered and held accountable for the final results.

   But BPA's size can also work for it. It has the size and resources to allow parallel development tracks, allowing for a combination of centrally designed programs and for the use of performance-based DSM efforts. There are dozens of host utilities that may have little desire to participate in anything but BPA-designed programs. There are many others that would like very much to avail themselves of the free market alternative, if given the chance and support by Bonneville.

   b. BPA is far from acquiring all cost-effective conservation, particularly in the residential sector. According to BPA numbers, it has reached only about 35% of the single family electric heat target group, which comprises only about 40% of the housing stock. BPA has missed the massive opportunities in residential lighting and in comprehensive electric water heating improvements for those homes without electric heat. In fact, BPA programs have missed about 85% of its retail residential customers. And it is getting poorer and poorer results in the small sub-segment of electric heat residences it does treat. We see no way that BPA can come close to reaching its NPPC goals without significant changes in its way of operation. We believe that a key to reaching those goals is to allow private sector conservation companies use their own resources to deliver the needed conservation resources as a supplement to BPA's own efforts.

   c. Near-term budget cuts are no excuse for missing any targets or from not increasing the realization of conservation even beyond the goals set. Conservation, properly designed and implemented, can be very cost-effectively pursued. Private capital is ready to put up hundreds of millions of dollars to invest in cost-effective conservation in the Region. This can readily offset any reductions in conservation budgets. BPA would purchase the resultant metered energy savings over the life of the savings,

relieving short-term rate impacts and more closely matching conservation costs nd benefits over time. ESCOs are willing and able to put up hundreds of millions of their own dollars in conservation projects just for the opportunity to be paid by BPA on the basis of actual kWh saved, in the case of SESCO, over a 20-year period.

2. ESCOs "have played a lesser role in the Pacific Northwest Region" because BPA has refused to contract with ESCOs for conservation, and BPA dominates the region. In fact, BPA appears to have put forth a policy of avoiding private sector performance contractors. The BPA Administrator has spoken of the need for long-term contracts that use third party financing but he seems to exclude ESCOs from that category.

   This BPA attitude does not mean that ESCOs are not becoming active in other local jurisdictions. Puget Sound Power & Light Company (Puget) and Pacific Power & Light Company (PP&L) are contracting with ESCOs under competitive bidding solicitations. Portland General Electric Company (PGE), to its credit, is contracting with ESCOs without regulatory compulsion. To demonstrate what good faith negotiations can accomplish, PGE fully negotiated a contract much more complicated than our BPA offering in only three days of negotiations.

   A further complication which has stood in the way of ESCO participation in the Region is that ESCOs cannot practically contract directly with BPA customer utilities, independent of BPA. ESCOs cannot possibly compete with the deal those utilities get from BPA. First, BPA prices its power at flat average cost (now about 2.5 cents/kWh but going up somewhat) instead of marginal cost. Second, BPA offers its own centrally-designed conservation programs at zero cost to those utilities. Third, BPA pays the utilities an administrative fee (over $300 per house) to operate the program. Fourth, BPA now even pays those some of those utilities (but apparently not Snohomish PUD) up to 20 mills/kWh additional (as compensation for "lost revenue") just for allowing the BPA program to operate. And this 20 mills/kWh is tied to BPA's overstatement of the savings its residential weatherization program achieves (2800 annual kWh/house for 40 years); it is not based on the studies showing that the program actually saves only 1330 annual kWh/house in the first year and that the savings then suffer substantial deterioration. Thus, BPA offers below-marginal cost rates, a free conservation program, payment to operate the program, and payment for "lost revenue."

3. a. In practice there are massive differences in the way that BPA treats conservation and generation. You need only look at the competitive bidding programs. Today, 25 months following submittal of bids to BPA, there is not one conservation contract signed. Even our smallest program at about 2.2 aMW was rejected as being too large. But the 200+ aMW Tenaska plant, a hundred times that size, has been fast tracked. Our own

negotiations were overseen by low level BPA representatives, with never even one hour of attendance by any of senior management. But Mr. Hardy and Ms. Hickey and others have been actively involved in the Tenaska review and discussions. We have begged for only an hour of Mr. Hardy's time, or Ms. Hickey's, or Mr. Auburg's, or Mr. Elizalde's, or the Acquisition Management Team's or the Leadership Team's and have been repeatedly rejected. I am sure that were we offering to invest $230 million in a generation project instead of conservation, we would not have received this kind of treatment.

b. BPA has more complicated and contradictory positions about conservation than about generation. For example, BPA seeks to micro-manage every aspect of conservation resources, and when this is not feasible, it claims that the conservation resource is unacceptable. However, for a generating resource, it pays based upon the results measured (kWh), without a requirement that it precisely match the procedures used by Bonneville for all of its generation or that Bonneville use the same technology for its own generation programs. Although performance-based conservation was the theoretical goal of the BPA competitive bid, when it came time to negotiate a contract, we were repeatedly forced to accede to implementation limitations that were not performance based at all.

4. a. To date, BPA has been a very poor purchaser of conservation resources through indirect means such as third party financing, billing credits, ESCOs, etc. While we might accept some problems may be caused by bidders or other parties, it is strange that despite all of the assurances that BPA supports this activity, no contracts with private sector companies have been completed or implemented with Bonneville.

b. Because BPA does not have accountability for its own conservation programs, it finds it difficult to require this of others. Right now, BPA's residential weatherization program pays 100% of the costs today for the promise of benefits in future years, whether or not the savings actually occur. Why should people want to try to change this? As a comparison, the Tenaska station gets paid each year for 20 years based upon the measured output for each year. Or you could give it a choice of getting all of its $2+ billion up front without being accountable for any lack of generation in future years. It sounds silly, but this is the option that BPA is offering its utilities under its third-party financing and conservation power plant performance rules. BPA has rejected performance-based offers, such as that of Snohomish PUD.

5. a. We praise the Northwest Power Planning Council's role in setting the tone and moral authority for the pursuit of cost-effective conservation. In the three years we have been active in this part of the country, we have been

impressed with the weight that utilities give to the goals of the NWPPC. Its role as a moral force for promoting conservation is remarkable and perhaps unmatched by any other entity elsewhere in the country.

This is where it seems to stop. The Council does not appear to involve itself in review ing the details of BPA's programs and seems very reluctant to take on the BPA central planners' theories and programs. For example, the NPPC staff has apparently recommended in favor of Tenaska under the presumption that BPA is actively seeking all cost-effective conservation. We have seen that to be false and can so demonstrate. We asked to appear before the Council to update it on the progress (lack thereof) of BPA's conservation bidding programs, but were told that it was not of interest to the members. Furthermore, the invitation to a single bidder to review BPA's activities might encourage others to seek similar redress. I agree totally. The Council should be the site to redress problems with the resource acquisition program. The Council should do more that issue platitudes about the need to secure all cost-effective conservation. It must be willing to investigate those instances in which this may is not occurring and to follow-up on the correction of those problems. Unlike investor-owned utilities (IOUs), BPA has no actual regulatory commission to monitor its conservation activities. FERC doesn't do it.

Chart 1

Residential Conservation Achieved

According to U.S. DOE (Oak Ridge Nat'l Lab) Studies

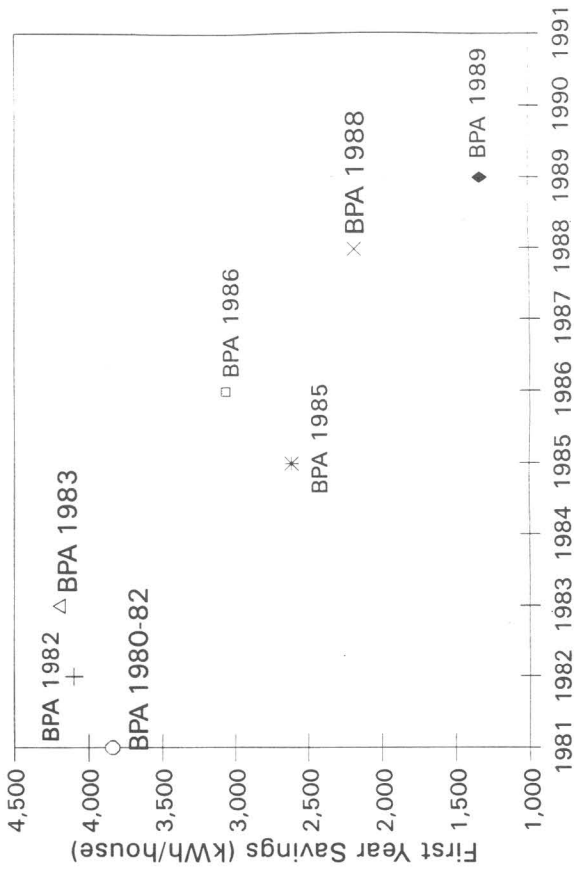
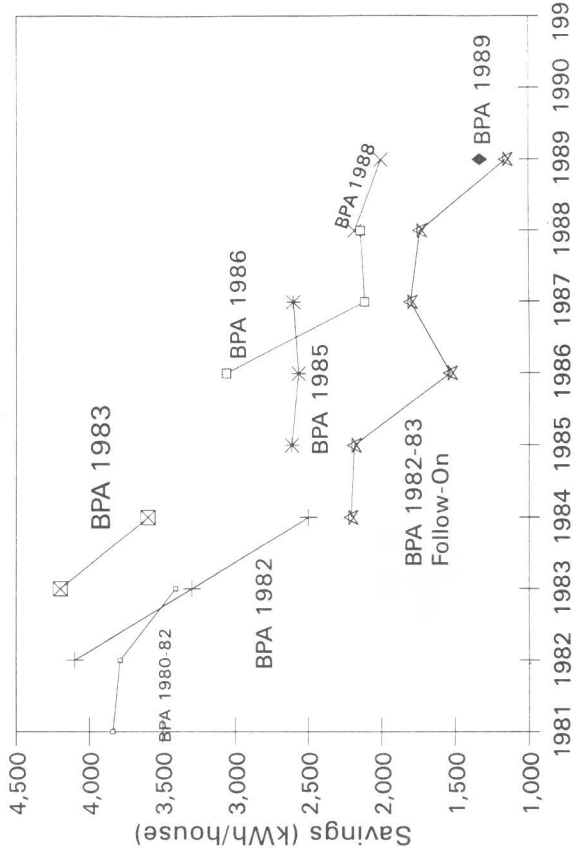


Chart 2

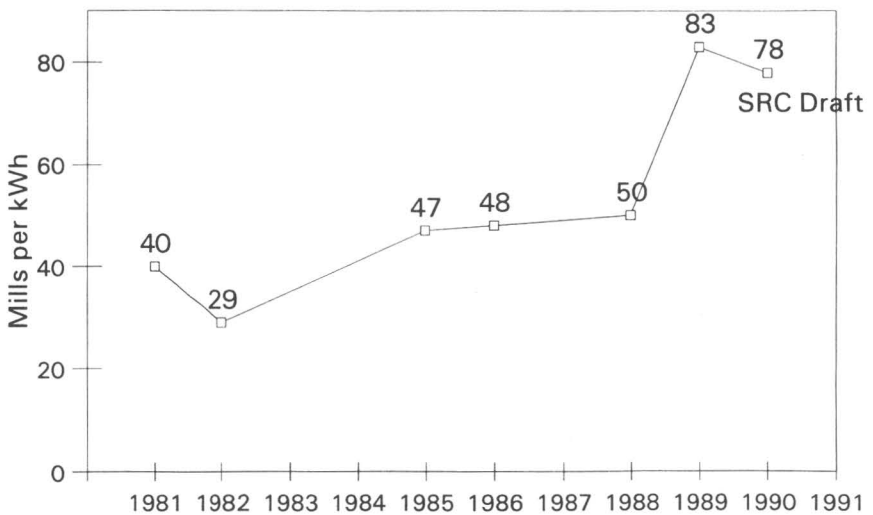
Residential Conservation Achieved

According to U.S. DOE (Oak Ridge Nat'l Lab) Studies



BPA Residential Weatherization Costs

According to U.S. DOE (Oak Ridge Nat'l Lab) Study
1989 Dollars (levelized)



Analysis assumes first-year savings persist, without deterioration, for 31 years.

Chart 3

Mr. DEFAZIO. Thank you. Let's go to a couple of questions. Mr. Hathaway, I know we've had this discussion before, but why don't you give me an update on what is the long-term outlook for gas supply and costs, briefly, given the fact that a lot of questions about Tenaska revolve around that?

Mr. HATHAWAY. If you consider, and we need to consider in the Pacific Northwest, too, natural gas availability, first of all, in the lower 48 states and in Canada, the estimates purely for the U.S. are that we have about a 60-year supply of conventional gas reserves.

Added to that are what, for lack of a better word, to lump them together, but what would be called unconventional reserves, and those are gas reserves in the ground that require technology, higher costs to get out, but which, nonetheless, are there and, under the right economic circumstances, can be brought forth; probably, another estimate range, from 100 to 150 years worth of natural gas resources altogether, certainly enough to take us into an era where we're going to be much more dependent upon renewables.

We buy a lot of gas from Canada. The reserves in Canada, I think, are going to prove to be even better, from our point of view. We buy about 65 percent of our gas from the Canadian reserves now.

One of your earlier witnesses commented on the concern about being dependent upon Canada and cited the time back in the early 1970s when the Canadians raised the price of gas tremendously. Over the period, I think they raised it by about a factor of seven times at one point.

The result of that was that we shifted our use and other utilities who purchased from Canada shifted our use to a much higher percentage of domestic resources, something like 70 to 80 percent. And, at the same time, we underwent the deregulation processes and deregulated the price of gas in the U.S.

The result of that has been a surplus of natural gas that has persisted since about the late 1970s. The price of Canadian gas very quickly came back down to become competitive, very competitive with U.S. resources. And the Canadians changed their entire policy, their national policy, because there were far more of the resources than they could ever consume domestically, that it was targeted as a resource for export and that it would be priced along the border at whatever the necessary market price was to export it.

Maybe it's a longwinded way of saying that I think we have enough natural gas to get us into the era of true renewables, which we will, I think, approach long before we run out of the resource.

Mr. DEFAZIO. Thank you. One thing that seems common among the emphasis of the other witnesses on the alternate energy conservation resources is capital and money. I would just like to explore that a little bit in terms of—now, with CARES, this wind project, are you issuing the debt with any guarantees from BPA or are you issuing the debt on your own?

Mr. JOHNSON. The bonds will be issued by CARES, which is a municipal government in the State of Washington, but they will—there are guarantees by Bonneville. I've probably got somebody here that can give you some of the details.

Mr. DEFAZIO. Which would bring down, obviously, the premium.

Mr. JOHNSON. That's right. It makes a higher level of market acceptability because Bonneville is backing those bonds.

Mr. DEFAZIO. Now, in your case, I assume you're just issuing your own debt or coming up with your own capital, however one wants to——

Mr. WRIGHT. It's a combination of private investment capital, hard equity dollars and conventional bank or institutional sources of financing. There's a lot of it there.

Mr. DEFAZIO. With no guarantees by BPA.

Mr. WRIGHT. No guarantees—well, we——

Mr. DEFAZIO. I mean other than they might purchase the output. They might be a good contract for that. But you're going to have the backing of the bonds in case there were technical or whatever problems and you would do it without the——

Mr. WRIGHT. We've taken the risk with our own capital.

Mr. JOHNSON. And there is a significant price on that risk, of course. The price of money is—there's a big gap difference there.

Mr. WRIGHT. Yes.

Mr. DEFAZIO. I don't know. I'm confused by this. I thought he was the wind and he's wind. Who are you talking about?

Mr. ALDERSON. If I might——

Mr. DEFAZIO. You're the other one. I'm sorry. I'm getting my wind people mixed up.

Mr. ALDERSON. Aside from wind, KENETECH has done in excess of a billion dollars of projects, all of which have been financed using similar kinds of structures. The JOA that was referred to here in other areas of the country is referred to as a JPA or a joint powers authority.

There is a tendency to mix two entirely different financial concepts. One is the financial concept associated with municipal debt and the non or the tax-exempt status associated with that and, therefore, the more efficiently issued debt in the marketplace. The second one is project risk, whether or not the project works.

In the first instance, it is an obvious advantage for the region to have that tax-exempt debt associated with it. In the second instance, in terms of project risk, the risk doesn't go away. All you've done is masked its pricing and spread it across either—you're either asking the marketplace to value it or you're asking the customers—in this case, the eventual customers of BPA to bear that risk.

That was the point earlier that in almost all municipal fossil fuel projects which we are involved with, you simply get performance guarantees with the project. So what you do is you limit the guarantee to be that efficiency which is gained through the municipal financing as opposed to accepting the project risk in that same instance.

Mr. DEFAZIO. Mr. Esteves, in the case of SESCO, you are not only putting up the capital, but you are saying you will put up the capital and BPA or whatever customer will only have to pay for measurable results.

Mr. ESTEVES. Yes, sir.

Mr. DEFAZIO. So, essentially, you're taking out some of the risk factor that we're hearing about over here. Is there a premium to us in terms of the cost for the savings?

Mr. ESTEVES. No.

Mr. DEFAZIO. Because you're taking the risk.

Mr. ESTEVES. No. The price of our proposal is valued by Bonneville Power analysts at 26 mills per kilowatt hour. Bonneville's own programs are valued by SRC and by DOE at about 80 mills per kilowatt hours.

Mr. DEFAZIO. I'm interested in that. I'm also interested in your comments about the deterioration of the applications by BPA. Maybe you could expand on both of those. Why do their applications tend to deteriorate so quickly? I was a S.U.B customer. I had weatherization done in the early 1980s. The idea was that anything that was installed should have a certain life span. Therefore, the savings would last considerably more than a year.

Mr. ESTEVES. Some of the savings are lasting more than a year. Unfortunately, not all of them do. I can't tell you why their programs have deteriorated as they have. All I can tell you is that when the savings were measured by Oak Ridge, with Bonneville's help and with their host utility's help, the savings dropped.

Mr. DEFAZIO. Were they initially overestimated, do you think?

Mr. ESTEVES. No. They——

Mr. DEFAZIO. They were measurable at one point and then——

Mr. ESTEVES. Right.

Mr. DEFAZIO [continuing]. There was a measurable deterioration in the same measured structure.

Mr. ESTEVES. Exactly.

Mr. DEFAZIO. With no major change in occupancy, use or anything else.

Mr. ESTEVES. Correct. That was adjusted for. This happens. You may have any number of things that will happen in terms of deterioration of the savings. You may have people saying that, well, I don't have to be as careful as I once was because I've got that taken care of.

You need to have someone that's involved on a continuing basis with that resource to make sure it's there. Certainly, someone who is involved in the commercial and industrial project over ten years goes back to make sure the maintenance is taken care of and everything else.

You don't expect to send a wind farm out there and let it stay there and assume it's going to operate perfectly for the next ten years.

Mr. DEFAZIO. So in your case, the treatment that you apply, you haven't experienced this deterioration.

Mr. ESTEVES. We have experienced deterioration from one year to another.

Mr. DEFAZIO. How does it compare to their deterioration?

Mr. ESTEVES. We go back and fix it. We replace the kilowatt hours. We're paid each year depending upon what it is. The record that we have is that in three of the four projects for which we have more than one year's worth of data, the savings in year three were higher than the savings in year one in three of those four.

Mr. DEFAZIO. So you're effectively the energy police here. You do my treatment and then you notice that my consumption is up and you're going to come by and check out what I'm doing and make sure I'm not turning up the heat and opening the window.

Mr. ESTEVES. Yes, in a police sense. But many people, after they get the work done, actually increase their consumption of electricity because they're no longer as careful as what they were doing and what have you.

So we take a look at what the savings are after the first year. If they're below what we expect them to be, we go back in there and talk to the customer and say, look, it's your house, you own it, you do whatever you want with it, but if you want to see your utility bill savings that you and I talked about earlier, you have to continue doing the same types of things you were doing before.

If you've kept the door closed to the spare bedroom and had the thermostat turned off there before, continue doing that.

Mr. DEFAZIO. So do we have a control group comparison here in essentially the same market, same climate, same housing conditions? Some parts of the region have better higher quality housing than others, newer housing, more insulation or whatever.

I'm really puzzled and I don't know—am I going to get to the bottom of this disparity in the deterioration, whether it just has to do with followup, whether it has to do with your initial treatment, very different treatments.

I mean, aren't your original treatments somewhat comparable? These are somewhat standard when you go into an all electric house.

Mr. ESTEVES. I don't know what Bonneville does in the homes or to what care they install it. I assume they do a good job. All I can tell you is that we measure the results, that's what you're interested in.

Mr. DEFAZIO. I'm just trying to figure out what leads to the disparity.

Mr. ESTEVES. We like to believe that because of the incentive we have to be comprehensive and to do a quality job to begin with, perhaps we have a little bit of an edge over the average contractor involved. Perhaps that accounts for part of it.

But I think part of it, too, just may be in the way the customers are selected to participate. For example, in the Bonneville programs, in order to participate, you have to put up 30 to 40 percent of the money, which is frequently $800 to $1,000 worth of money up front.

Well, for someone to want to do that, they have to be very excited and very angry about their bills and very interested in doing the savings. Perhaps they had a very heightened awareness in the first year or two because of this and then after a while it goes away. So they're not as sensitive to the conservation as they might have been to start with.

Mr. DEFAZIO. I don't know. It's interesting. I'll ask BPA to look at that. Thank you. I appreciate that. Mr. Johnson, on the Goldendale project, I'm just curious about the numbers there. Is there something—I mean, is this really innovative unproven wind technology that's going to come in at this price? Is it something off-the-shelf that's operating elsewhere?

Mr. JOHNSON. It's not something off-the-shelf. It's a state-of-the-art wind turbine and this project, of course, was selected together with Bonneville competitively.

Mr. DEFAZIO. Is it operating elsewhere?

Mr. JOHNSON. It's not operating yet, no.

Mr. DEFAZIO. So these are projections.

Mr. JOHNSON. Yes.

Mr. DEFAZIO. These are projections on efficiency and what it's going to come in at.

Mr. JOHNSON. Yes, that's right. But there are performance guarantees in the contract with the developer.

Mr. DEFAZIO. Okay. So the developer is going to agree to deliver at this price.

Mr. JOHNSON. That's correct.

Mr. DEFAZIO. All right. I just wanted to be sure of that. I think that that pretty much covers my questions. If anyone feels there's something they really need to add, they're welcome to do it and take a brief moment.

[No response.]

Mr. DEFAZIO. Thank you very much. I appreciate, again, your patience and waiting all day for the panel. At this point, I'm going to call up the—I had asked the Administrator if he would wait around because I think it's instructive. I know that he's been a very open door person, but to hear these sorts of concerns expressed by the customers, he does have his limits and he has to get to a meeting. He's already late.

So I'm going to bring him up now instead of after the last panel and ask him perhaps to just discuss some of the concerns, criticisms and the few and far between plaudits that the Administrator heard today and take credit for all of them.

Mr. HARDY. Thank you, Mr. Chairman. I guess I'd just like to make kind of three policy level observations. There's been a lot of information, some of which we very much agree with and some of it which we don't. But rather than get into the details of that, I think we can follow up in written questions and answers afterwards or perhaps at the next hearing.

Three observations that I have on a policy level after having listened to a lot of what's been said today, much of which we've heard before, some of which is new. First, we are absolutely committed to acquiring all cost-effective conservation in the region over the next ten years or whatever the planning horizon happens to be.

We and the Power Council have settled on a target of 660 megawatts and I couldn't tell you whether, when we get there, it will be 660 or 600 or 800 or some other number. But whatever number it is, we are committed to acquiring that amount of conservation and we believe, even with the budget cuts that we are on track to doing that. I want to make that an absolutely unequivocal statement.

Secondly, you have heard a lot of criticisms today of our resource acquisition process, both on the conservation side and on the generating resource side. Sue, on the first panel, described some of the changes we've made, at least in the billing credits side, to try to streamline that acquisition process, and you will see more of those.

I think the challenge that we both have, the challenge that certainly I have and the challenge that you have in conducting these oversight hearings, is to separate legitimate criticisms about inefficiencies that we have, or processes that we can change, from people who simply want a bigger straw in the punch bowl.

That is a real challenge. And you heard a lot of both, some cleverly disguised as efficiency comments and others not so cleverly disguised. That's the nature of the business we deal with.

We went through a competitive acquisition and we selected three projects. For the three we selected, there were about 50 that we didn't select. We probably haven't funded any of our utility customers, or not many of them, to the levels that they really would have preferred to have been funded to.

That's unfortunate, but that's a reality of the financial circumstances that we find ourselves in. And, in fact, through third-party financing arrangements that we're now working on with CARES and other utilities, we think we can remedy that over the next year or so.

But separating out what are simply appeals for more money or more funding or more punch from legitimate criticisms of ways that we can improve and streamline our ability to deliver resource to all of our customers is a major challenge that we at Bonneville face and that the region faces.

Third and finally, and you'll hear a lot more about this in the next hearing, is competitiveness. I think one of the solutions to that will be in the unbundling of services activity associated with a competitiveness project.

We have talked a lot about tiered rates today and some have mentioned it as a panacea or an overly simplistic solution. When we've talked about tiered rates, I would like to convey to you that I'm trying to use that as a metaphor for a whole larger set of rate design issues that will come out of the marketing plan in the unbundling of services.

What you're basically talking about here are probably a series of rates that will encourage conservation, and give the right resource development signals both for energy and capacity, and a segmentation of markets that will allow customers greater freedom of choice than they currently can get under our existing rate structure. Those rates and markets will be coupled with more streamlined program offerings such that hopefully we can give customers a much wider spectrum of choices that allows them to make decisions that are more customized to their individual needs. At the same time, we plan to have a lot less of the program delivery overhead which has been undeniably part of our problem over the last two years while we've been gearing up the conservation programs and doing experiments in competitive bid, unsolicited proposals and billing credits.

So, I think that I, too, am optimistic about the future here. We've got a lot of problems that we can work on. I think the Competitiveness Project and what we're doing in the resource acquisition area will help us enormously. And, I think what we do in the rates area, tiered rates and beyond, and the market segmentation that will come out of the unbundling of services portion of that project will provide us and our customers with some very useful price signals and guidance that will help us achieve a new, more efficient and more streamlined resource acquisition structure, which will deliver on the promises that the Regional Act made to the region some 13 years ago.

Mr. DEFAZIO. I would hope—back to a point I made earlier—that as you're making these changes or have made these changes in the agency, that we aren't just going to wait for that. And it sounded very good when you talked about sort of the range of rates or services that are more discriminate that will be available and provide a lot more flexibility.

But there's going to be a two or three-year time period before we reach—I guess 1995 might be the objective for that. Would it be for that sort of a——

Mr. HARDY. I think that 1995 will probably be the latest that we'll do it. If we can do some of this sort of stuff earlier, we will. We're having the first meeting on tiered rates this week to start the process.

I'm relatively confident we will conclude the development of a methodology for tiered rates by this time next year. We then have to go through some sort of a 7(i) rate process. The question then is—it's really two questions. One, how does it fit with the overall market segmentation strategy and the timelines associated with that, and, secondly, can we go through some sort of a special 7(i) process and restrict it just to a tiered rate or a series of rate design kinds of changes.

The problem you typically run into is when you go back to FERC. It will have been a year since we've done a revenue requirement study and FERC—since the basic thing that FERC does is review our rates for revenue sufficiency, the first question we usually get asked is have you updated your revenue requirement study.

Well, if the requirement from FERC is going to be that we update our revenue requirements, we have just stepped into the 1995 rate case in 1994, with all of the panoply and TV ads and everything else associated with that sort of thing.

So we need to ascertain from FERC if we can limit their review to rate design changes. If we can, then we will probably proceed more quickly. If we can't, then we may be stuck with 1995 before we can actually implement these things. My hope in the case of tiered rates would be to have the methodology developed, and stipulated in the initial proposal of the 1995 rate case, so that it's a given and there isn't really much argument or, hopefully, controversy about it.

Mr. DEFAZIO. But, of course, there would still be an interim period and obviously we're not going to totally discourage these other tools even in the future with the rate structure perhaps providing more or less emphasis. So I guess my concern, in part, is the near term.

I realize that this report is from the beginning of the year in terms of the assessment and tier credit, BPA did, as for the evaluation report itself.

What I'm hoping is that we're going to see some movement in the near future on some of the problems we've been hearing about. We'll get more contracts signed. The EWEBs of the world will actually have their negotiations that they've been waiting for.

This one sort of ray of hope I heard was the Gardner—the description of the industrial project with the Gardner plant. That sounded like ideal. The idea of having something that's in the range of a megawatt, where you've given the discretion down to a

couple of people in the area office and within a range of parameters, they've got quite a bit of latitude to move forward and move with some flexibility to get the thing done.

I would hope that we're going to see that example replicated around the region, along with the idea of the conservation power plant at the signing last week.

Mr. HARDY. That is clearly our intention. We have a number of things working in the pipeline right now, such as the third-party financing negotiations with Tacoma and Seattle, CARES, and the Emerald PUD conservation power plant we signed last week.

We would hope that we're simply not going to put things on hold. In this interim period, we'll move forward as aggressively as we can, while, in the meantime, trying to streamline these things as best we can and not simply wait around for some new rate structure before we take any action. That being said, I think we can continue to move ahead.

In the near term, we probably cannot satisfy all the expectations that our utility customers have, but we'll try to meet as many of those as we can. Again, when you look at the growth from 1994 to 1995, in particular, there's another significant step up in funding that will help us meet those expectations in 1995 to a much greater degree.

By then, we'll have a better idea of what direction we want to proceed in terms of rate structure changes and market segmentation changes, even though we will not have implemented those yet. I think those two will go hand-in-hand.

Mr. DEFAZIO. Again, I appreciate that and I would hope it works that way, too. My concern is if you have a structure that hasn't been working particularly well and that structure now begins to look out and worry about the changes that are coming, I'm afraid that it might induce some short term paralysis.

You're going to need some extraordinary effort to deal with this, I think.

Mr. HARDY. Let me ask Sue to speak to a couple of the specific things that we are doing.

Mr. DEFAZIO. If I was doing a job and someone had just come in and said, well, there's going to be reductions in force and you haven't been doing a very good job and this is all going to change in 12 or 18 or 24 months, just being somewhat aware of how organizations work, I'm afraid that what that means in the short term is that even less happens because people are jockeying and worrying about how they're going to position themselves to still be there when the changes come about.

That's human nature, but I think also as a manager, that's something you have to deal with very aggressively.

Ms. HICKEY. Actually, we've started a couple of things even as long as a year ago that were designed to deal with this problem. One of the most powerful ones was that we've asked each of BPA's area offices for the first time to develop a local utility plan for each utility that would talk about the kind of conservation they would be developing in their service territory over a ten-year period.

We're about a year into that and those things are coming to fruition over the next several months. That's going to enable us in a way that we have never had the capability to do before—to know

what kind of tailored mechanisms utilities need in order to proceed, and to give them the kind of flexibility that they're requiring.

We're also a year into decentralizing and trying to be clearer about the authorities and the responsibilities that the areas have to make decisions at their level.

In addition, this summer, as a part of the competitiveness project, we're starting into an overall review of how to alternatively deliver our conservation programs. There have been a lot of excellent ideas out there. Tiered rates is getting way too much emphasis today for my money.

But Pacific Power has an innovative way that they run programs in the region. They use an energy service charge. That's something that came up about a year ago that several of our customers are interested in. Energy service companies which you've talked about quite a bit are interesting to some customers.

We've been exploring a targeted acquisition program that lets the utility function as an energy service company and work on a performance basis. So, there are a wide variety of ideas that our customers have had. This different way of delivering conservation matches very well with what Randy just mentioned about the segmentation and the new marketing approach. This is because we don't have to have a one-size-fits-all conservation delivery approach anymore.

If we have five or ten different segments that we're going to be selling to, we can offer different products to different segments. So, if one segment likes the tiered rate approach, they can elect to be in that segment. Another segment might like the centralized programs approach because they don't have the capability to develop programs on their own, and there would be a whole range in between.

So, actually, in terms of people being demoralized, I think John Carr said it earlier, it's actually quite the opposite. It's a very exciting time and, believe it or not, there are people at Bonneville who sincerely are committed to getting this conservation resource. They see that now is the time to do it and they understand that they need to change.

So at this point we're too busy trying to get it done to get worried about whether we have a job tomorrow.

Mr. DEFAZIO. Okay. In terms of this approach, the new decentralized approach, I assume that—are you assigning goals or targets for acquisition to the different sub-areas so that you can measure them against—I mean, now they would have a goal of—instead of there just sort of being a lot of proposals that come in to the central office, and we don't know exactly why they didn't happen, but a lot of them don't happen.

Are you going to break it down by areas and goals by——

Ms. HICKEY. Each area has a megawatt target and a cost target and they are basically free to move money around from sector to sector to try to achieve that megawatt target at that cost level. I think it's beginning to work well for us. Some of the proposals that we had a difficult time with in the central office were the energy service company proposals in the competitive bid, and those are now being worked on in the areas, which is a more appropriate place for the decisions to be made.

Mr. DEFAZIO. Would you be prepared at this point to comment in any depth on Mr. Esteves' allegations about the comparative deterioration in the treatments between your program and what they might make available or would you rather do that in writing afterwards? How would you like to do that? Or both?

Ms. HICKEY. I'd prefer a combination. Basically, I think he's largely confused some occurrences over about the last six months and I'm not aware of any substantial deterioration of the kind that he's noting in our program. We've probably got the most rigorous evaluation of persistence over time of weatherization measures of any utility in the country and our experience has been that they do persist.

But there's a methodological issue I am aware of. We have consistently compared participant savings with non-participant savings to end up with the net savings from the program. We do this because you want to be sure that you're actually advancing savings over what would happen in the market without your program.

As time has gone on, different technologies are available. There are different prices for energy, and non-participants are doing more, and more. In addition, our statistical sample eroded to the point that we weren't sure that we were getting a valid evaluation of those results. So, we had to make some changes over about the last six months and responded to do that.

One of the most disturbing things that he said to you was that we get evaluations and find out that the savings are lower than we anticipated, and then we retain our estimates as the pre-evaluated savings. That is absolutely not true. We think we lead the country in evaluating our programs, coming up with reliable estimates, and then, in fact, putting those estimates in all of our back forecasts of what conservation we acquired.

So you might even see us saying we've got 15 megawatts in 1982 and three years later, it will look like ten megawatts because we got a lot smarter in that two-year period about what we actually acquired. So we're consistently updating as we go.

I'm not as familiar as I should be about the details of this latest evaluation we've done and I really would appreciate the chance to respond in writing, as well.

[The information follows:]

Bonneville is the only entity in the country that has operated and consistently evaluated a residential conservation program over a ten year period. High professional standards of methodological rigor have been applied in evaluating and utilizing program results. Since the Residential Weatherization Program began in 1980, and successive first year program savings results have become available, they have been used consistently to modify our program and planning estimates.

Our planning estimates are based not only on successive first year net kilowatthour savings, but on persistence of savings as well. This means that all Residential Weatherization program participants form 1980 to 1986 have been evaluated for a minimum of three years after weatherization. The 1983 program participants have been followed for a period of six years. These persistence studies have determined that net savings among program participants in a particular year (cohort) do decline, but they do not deteriorate by the 12 percent per year Mr. Esteves alleges. In fact, the 1983 program participants averaged only a 20 percent decline during the full six years they were followed. The decay rate used by BPA, then, is 20 percent and our planning estimates have been reduced accordingly.

In addition to averaging savings between and within cohorts to produce conservative planning estimates, a third element, savings from all buildings types, single-family, multifamily and low-income, is included and averaged. Based on these inputs, Bonneville recently adjusted its residential planning estimate to 2,500 kWh

per single-family residence in order to more accurately represent the expected savings due to weatherization. As can be seen from this explanation, evaluation results do inform planning estimates, and the two should not be confused or used inappropriately to characterize BPA's program.

It is important to understand that the 1988–1989 Oak Ridge National Laboratory evaluation results in question (ORNL/CON–323), while defensible and in accord with professionally accepted standards of program evaluation, may not be representative of Pacific Northwest region and thus, of Bonneville's overall program. The data from the Oak Ridge evaluation were taken from the Data Gathering Project (DGP) database. The DGP were originally designed to be representative of the Northwest region. However, in the last few years a number of utilities have dropped out of the DGP and the loss has not been symmetrical across the climate zones. For the 1988–1989 study under consideration, only 6 and 8 utilities, respectively, of the original 16 remained from which to draw data. While the savings estimates are methodologically robust, and in fact, corroborate a 10 year trend of declining first year savings, they are substantially lower than any previous year's savings.

Due to those developments affecting the representativeness of the 1988–1989 data, Bonneville decided not to modify its planning estimates but to continue to use the current estimates until a region-wide savings estimate is available.

Currently, a region-wide Residential Weatherization evaluation, not based on DGP data, is underway with final results due this fall. This evaluation is regionally representative and will revisit the issue of declining first year savings.

Mr. DEFAZIO. That will be helpful. There's been a lot of thought and testimony, but my recollection is perhaps it was Jane Van Dyke at Clark who was talking about when they get to the end point, one of the things on the table that couldn't be resolved was these sorts of treatments and that they wanted to continue the program as part of their project, and you wanted to change that.

Does that have anything to do, as I surmised, with your problems?

Ms. HICKEY. That's another one that I have to request to answer in writing. I know that we are not consistently requiring additional verification for utilities that are running on normal weatherization measures. So that was unusual to me, as well, and I'd like a chance to check into it.

[The information follows:]

BPA has acknowledged that Clark County PUD's (Clark) proposal for the conservation power plant did take longer to analyze than we would have liked. It is important to remember that Clark also had some issues that took time to review, and ultimately, it was Clark which withdrew the proposal. Our financial and Area staff were informed by Clark's general manager on March 2, 1993, that the power plant approach was not prudent for the utility to pursue because of potential fiscal impacts on the utility.

Clark's proposal suggested that "lost revenues will be viewed by Clark and BPa as a contribution to the program by Clark and its customer owners." This position was inconsistent with BPA's Energy Conservation Policies, since lost revenues are a utility contribution and do not constitute a stake in the success of the program. Because lost revenues is a very important issue to Clark, it probably would have been a major roadblock in the negotiation process, even if Clark had chosen to continue discussions.

The document to which Ms. Van Dyke refers in her prefiled testimony was a draft of the Master Financing Agreement for discussion purposes only, and was sent to the region's major utilities to solicit their comments. Since this was a draft for discussion purposes, utilities were not expected to sign the Agreement.

Ms. Van Dyke also makes reference to "a very simple amendment to our current residential weatherization contract [that] took six months." This is the Watt N' Water Savers contract that is a separate contract as opposed to an amendment to Clark's existing Residential Conservation Agreement. The Area negotiated this contract so that Clark could continue with their initial plans to blitz their service territory under the Appliance Efficiency Exhibit with efficient showerheads. This was an innovative effort by Clark and BPA to continue a cost-effective program while adjusting to BPA's financial constraints. Again, this was a cumbersome process that

did take too long, but it includes a one-month turnaround time on the draft contract from Clark's general counsel.

Ms. Van Dyke also states in her prefiled testimony that "BPA . . . is stifling resource development and conservation programs by its customers". BPA notes that last spring we provided two months worth of free inspection services from a contractor for Clark when they were not able to hire a replacement for their commercial lead who retired. In addition, we provide Clark with administrative reimbursement under Energy Smart Design (ESD). Also, during the ESD contract negotiation process last winter, administrative allowances were made for Clark so that they could afford to pursue commercial conservation with their subcontracted program provider.

Mr. DEFAZIO. Yes. I'd just be interested in that. It may point to another problem. Okay. I appreciate the Administrator spending so much time here with us today. I hadn't expected it to go quite this long, but I think a lot of the testimony was useful.

And it's hard to sit there and listen to people being critical, but I think that it certainly demonstrates to a lot of your customers that, as a number of people have said, you're serious about making some real changes.

I appreciate the time you've given and will look forward to further discussions. Thank you very much.

Mr. HARDY. Thank you, Mr. Chairman.

PANEL CONSISTING OF MATT DILLON, COMMISSIONER, SNOHOMISH COUNTY PUBLIC UTILITIES DISTRICT, EVERETT, WA; MARC SULLIVAN, DIRECTOR ENERGY MANAGEMENT SERVICES DIVISION, SEATTLE CITY LIGHT; AND IVAN JONES, PRESIDENT, BOARD OF DIRECTORS, CLATSKANIE PEOPLE'S UTILITY DISTRICT, OREGON

Mr. DEFAZIO. With that, we'll call up the last panel, Matt Dillon, Marc Sullivan and Ivan Jones. We'll go in the order we've got you listed here, so Matt Dillon would be first. There still will be BPA representatives here and I know that Snohomish has had some particular concerns or difficulties and they will be heard, although the Administrator had to leave. So go right ahead.

STATEMENT OF MATT DILLON

Mr. DILLON. Good afternoon, Congressman DeFazio. My name is Matt Dillon. I was first elected to the Snohomish County PUD Board of Commissioners in 1982. Snohomish is BPA's largest preference customer. We buy 80 percent of our power, about $120 million a year, from Bonneville and generate 20 percent.

We've been a BPA customer since 1949. Thank you for inviting me to testify today and staying so late. It's been 13 years since Congress passed the Northwest Power Act and I applaud your decision to hold these hearings. Your timing could not be better.

I have come here today to tell you that BPA could help us more by doing less. Perhaps Saul Alinsky said it best, "Never do for others what they can do for themselves. Never."

If Bonneville just had the right rate structure, it would not have to be in the conservation business. It would not have to support the expensive staff and the expensive programs. In the region, we get far more conservation. Utilities and their customers would have a clear choice. When their loads grow, they can pay an awful lot more for it or they can conserve what they have.

I can guarantee you every elected commissioner, like myself, will follow the least-cost path. Two years ago, we proposed an ambitious conservation plan to BPA. We called it a conservation power plant or CPP.

Our proposal was designed to conserve resources; not just electricity, but natural gas and money, as well. CPP was simple and easy to administer. Let me start with some hard facts.

Even though the population in our service territory is increasing faster than almost any other community in America, our consumption per capita is declining, thanks to better technology and the gas company. We proposed to cut our total load growth in half over the next 20 years by investing $872 million in conservation.

We believed that our investment would drive down per capita consumption faster and farther than our forecast. BPA, however, was concerned that it couldn't measure the results of our investment and that per capita consumption might go down that fast anyway because of the weather or the economy.

It feared it might pay us for something that it could get for free. BPA doesn't have a great deal of confidence in conservation. Snohomish does. We've been very successful at it for more than a decade.

BPA was afraid that Snohomish might spend the money unwisely, that our conservation measures might not work. BPA didn't want to take the risk and it didn't want Snohomish to take the risk, either. I can tell you this—if we had tiered rates, we'd be doing CPP today without Bonneville. BPA would not have to lift a finger or spend a penny.

But after 18 months of negotiations and an ever enlarging circle of BPA personnel who were not empowered to make decisions, CPP was ground down to one-third its original size and its scope was changed to beyond recognition. At this point, negotiations ended.

A centralized approach to conservation has not worked. First, there is no single vantage point where one can sit and know enough about the unique opportunities, circumstances and creative ideas of each utility and its customers. Second, conservation technologies are moving faster than the rule-makers.

Centralized programs take time to design, develop and implement, too much time to react to market forces. Third, a centralized approach to conservation requires multiple layers of administration. BPA has a big staff to tell our staff what to tell our customers to do or they won't get the money that another BPA staff collects from us to send back to us after deducting the expenses.

Finally, centralization has created conservation programs that waste energy, that hold on to electric load. In the northwest where gas is available, it is thermodynamically and economically superior to electricity for a number of uses. But instead of encouraging people to fuel furnaces and hot water tanks with natural gas, BPA wants to buy natural gas to fuel turbine generators to generate electricity to be sent over already loaded transmission lines, substations and distribution lines to heat homes and water and will even pay the homeowners $65 to buy a new electric hot water heater, even if they have gas heat.

In fact, BPA intends to spend hundreds of millions of dollars to acquire Tenaska, a power plant that will consume vast quantities of natural gas to generate electricity. That's not our idea of con-

servation. We want to promote the direct use of natural gas, where it conserves gas, electricity and capital. That's the wise use of our natural resources.

In conclusion, the most effective thing BPA could do to promote conservation is to confine its conservation endeavors to improving its transmission and distribution system and adopt tiered rates. Tiered rates would separate the cost of the Federal Base System from the cost of new resources.

When a utility's consumption rises above its FBS allocation, it would either solve the problem on its own or pay BPA to do it through a second tiered rate which would cover the full cost of building and operating the new resource.

Tiered rates will keep the decisions and the responsibilities for requiring new resources right where they belong—on the utilities. Tiered rates provide a strong incentive for conservation. They send the right market signal.

Adam Smith is not a myth. Thank you.

[Prepared statement of Mr. Dillon follows:]

SNOHOMISH COUNTY
PUD
PUBLIC UTILITY DISTRICT No. 1

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Remarks of **Matt Dillon**
Snohomish County PUD Commissioner
Before the Committee on Natural Resources
Bonneville Power Administration Task Force
July 12, 1993

Good afternoon, Congressman DeFazio, and distinguished members. My name is Matt Dillon. I was first elected to the Snohomish County P.U.D. Board of Commissioners in 1982. Snohomish is BPA's largest preference customer; we buy 80 percent of our power (about $120 million dollars a year) from Bonneville, and generate 20 percent. We've been a BPA customer since 1949.

Thank you for inviting me to testify today. It's been 13 years since Congress passed the Northwest Power Act, and I applaud your decision to hold these hearings. Your timing could not be better.

I have come here today to tell you that BPA could help us more, by doing less. Perhaps Saul Alinsky said it best, "Never do for others what they can do for themselves. Never!"

If Bonneville just had the right rate structure, it would not have to be in the conservation business, it would not have to support the expense of staff and programs; and the region would get far more conservation. Utilities and their customers would have a clear choice: when their loads grow, they can pay an awful lot for it or they can conserve what they have. And I can guarantee you, every elected commissioner, like myself, will follow the least cost path.

Two years ago, we proposed an ambitious conservation plan to BPA. We called it a "Conservation Power Plant," or CPP. Our proposal was designed to conserve resources: not just electricity, but natural gas and money, as well. CPP was simple and easy to administer. But let me start with some hard facts.

Even though the population in our service territory is increasing faster than almost any other community in America, consumption per capita is declining, thanks

to better technology and the gas company. We proposed to cut our total load growth in half over the next 20 years, by investing $872 million in conservation. We believed that our investment would drive down per capita consumption faster and farther than our forecast.

BPA, however, was concerned that it couldn't measure the results of our investment; and that per capita consumption might go down that fast anyway, because of the weather or the economy. It feared it might pay us for something it could have gotten for free. BPA doesn't have a great deal of confidence in conservation; Snohomish does. We've been very successful at it for more than a decade.

BPA was afraid that Snohomish might spend the money unwisely, that our conservation measures might not work. BPA didn't want to take the risk; and it didn't want Snohomish to take the risk either.

I can tell you this: if we had tiered rates, we would be doing CPP today without Bonneville. BPA would not have to lift a finger or spend a penny.

But, after 18 months of "negotiations," and an ever-enlarging circle of BPA personnel (who were not empowered to make decisions), CPP was ground down to one-third its original size and its scope was changed beyond recognition. At this point, negotiations ended.

A centralized approach to conservation has not worked. First, there is no single vantage point where one can sit and know enough about the unique opportunities, circumstances, and creative ideas of each utility and its customers.

Second, conservation technologies are moving faster than the rule-makers. Centralized programs take time to design, develop, and implement; too much time to react to market forces.

Third, a centralized approach to conservation requires multiple layers of administration. BPA has a big staff, to tell our staff, what to tell our customers to

do, or they won't get the money, that another BPA staff collects from us, to send back to us—after deducting its expenses.

And finally, centralization has created conservation programs that waste energy, that hold on to electric load. In the Northwest, where gas is available, it's thermodynamically and economically superior to electricity for a number of uses.

But, instead of encouraging people to fuel furnaces and hot water tanks with natural gas, BPA wants: to buy natural gas to fuel turbine generators, to generate electricity, to be sent over already loaded transmission lines, substations, and distribution lines to heat homes and water; and will even pay a homeowner $65 to buy a new electric hot water heater, even if they have gas heat. In fact, BPA intends to spend hundreds of millions of dollars to acquire Tanaska, a power plant that will consume vast quantities of natural gas to generate electricity. That's not our idea of conservation. We want to promote the direct use of natural gas: where it conserves gas, electricity, and capital. That's a wise use of our natural resources.

In conclusion, the most effective thing BPA could do to promote conservation is: to confine its conservation endeavors to improving its transmission and distribution system; and adopt tiered rates. Tiered rates would separate the cost of the Federal Base System from the cost of new resources. When a utility's consumption rises above its FBS allocation, it would either solve the problem on its own, or pay BPA to it, through a second tier rate which would cover the full cost of building and operating the new resource.

Tiered rates will keep the decisions and the responsibilities for acquiring new resources right where they belong—on the utilities. Tiered rates provide a strong incentive for conservation. They send the right market signal. Adam Smith is not a myth.

Thank you very much.

Mr. DEFAZIO. Mr. Jones. Wait a minute. Mr. Sullivan is next and then Mr. Jones. You're sitting in the middle. You confused me. Go ahead.

STATEMENT OF MARC SULLIVAN

Mr. SULLIVAN. Sorry about that, Mr. Chairman. My name is Marc Sullivan.

Mr. DEFAZIO. Well, you're on the left, so that makes sense, with Ivan in the middle.

Mr. SULLIVAN. It depends on your perspective. I think I'm on the right here. It's a pleasure to be here. I am speaking today not just for the Seattle City Light Department, but for the city of Seattle. You've received my testimony. I suspect you've read it and I think I will spare you a dramatic rendition of what you have already read and just hit on a couple of key points.

I'd like to briefly comment on fuel choice and speak to the issue of regionalism when it comes to resource development, and then take directly the question of whether Bonneville's and, by implication, its customer utilities' conservation programs are uniquely or unacceptably efficient.

On the question of fuel choice and inter-fuel competition, rather than announce any sweeping policies, I simply want to note several things that we are doing in Seattle. Bonneville has indicated that they are willing to run some fuel choice or fuel switching pilots around the region and willing to put up money for those.

Seattle was one of the first utilities to respond to that notice of inquiry and we're working closely with Washington Natural Gas, the local distribution company in our jurisdiction, to come up with a joint proposal for an experimental fuel switching program.

We think there's a substantial potential there, but we think that that potential has to be explored and demonstrated and that a variety of research efforts is the right way to go and we're looking forward to being part of that demonstration.

Last year, we ran a city-wide blitz showerhead distribution program. The timing and the speed were driven by a water supplied route, but there were obviously substantial energy saving benefits, as well. The program distributed energy-efficient shower heads and faucet aerators and other water-saving materials to everybody in the service territory, whatever their fuel, and for the first time, we had a conservation program that brought in contributions from both the electric utility and from Washington Natural Gas, a jointly-funded cross-fuel conservation program.

We think there are some enormous opportunities there for greater efficiency and effectiveness and we hope to find more chances to work together with the gas company so that when either of us gets into the home or business of a customer, we try to get all of the efficiencies that are in that home regardless of the fuel.

We think that by sharing those marketing costs, sharing those logistic and overhead costs, we can not only increase the efficiency of all fuel use in our service territory, but we can reduce both our program delivery costs and the cost of delivering gas efficiencies.

Finally, on the long-term Super Good Cents program, we are, to the best of my knowledge, the only utility in the region that made an affirmative decision that we would not offer the long-term Super

Good Cents program and incentives for single-family housing because of concerns that we would effect customer fuel choice.

We offered that program only in the multi-family sector where about 98 percent of the market is choosing electricity and where we didn't think that there was a noticeable chance of imperiling customers' market-driven fuel choice. We think that that was the right decision to make and we hope that Bonneville is going to exercise a similar discrimination in reviewing the cost-effectiveness of the long-term Super Good Cents program.

The second issue I want to talk about is regionalism. I think it is fair to say that one of, if not the most fundamental assumptions of the Regional Act was that there were major benefits to the coordinated regional development of resources to meet growing demands for electric power throughout the region.

It was based on a couple of premises, premises which Seattle believes are still valid. And I should add here that the Mayor is particularly emphatic in his support of this piece of my testimony.

The first of those premises which we believe is still valid is that the Pacific Northwest is a genuine economic region and that economic growth and the associated growth in demand for electric power anywhere in the region ripples out throughout the region and benefits the entire Pacific Northwest.

I recently had a confirmation of the continuing validity of that assumption in a negative example when one of my colleagues at Grant County PUD said to me, "You can bet your life that when 20,000 Boeing jobs disappear from Seattle, it is going to be felt in Grant County." And I think that the reverse continues to be true, that when new jobs are created, whether those happen in Seattle or Euphrata or Pendleton or Coeur d'Alene, the entire region eventually benefits.

So that those who would divide us into growers, into non-growers and set growers and non-growers against each other are doing this region no service, in our view. More specifically, I think that the Regional Act assumes that there were particular benefits within the electric power industry to the coordinated regional development of resources and pooling of risks and pooling of costs and in drawing up the unique capabilities of the system that we had already established.

Randy referred this morning to some of the resource development opportunities that Bonneville and only Bonneville has available to it by virtue of the system that it has available. You referred a little earlier, Mr. Chairman, to that 1991 Power Planning Council study which examined the question of whether those benefits still existed, whether a truly coordinated regional development of resources had financial advantages.

And the Council's conclusion was that if Bonneville and the private utilities were jointly and cooperatively developing resources, developing the least-cost resource, wherever it is located, to serve the first load growth to occur, wherever it is located, that the mean value of the net present value of that coordinated development would be $3.6 billion; that there would be positive benefits to coordinated resource development under every load growth scenario, from the lowest to the highest, and that the greatest value of co-

ordinated development would occur in the highest probability load growth—that is, from medium low to medium high.

So that we think that 11 years after the Regional Act assumed that there were benefits to coordinated regional development, that that assumption is still valid and still vindicated and that it would be a tragedy if the region walked away from those benefits.

The final thing that I wanted to chat about is this whole question of the efficiency of conservation programs. This is one on which I think any fair-minded person has to be at least two, if not half-a-dozen minds. We share a number of the frustrations that have been expressed here today.

We've been trying to put together a third-party conservation financing agreement with Bonneville since the day I arrived at City Light about a year ago. At the beginning of this year, there had been hopes that we would get that concluded and have bonds out on the street today.

In real life, it was only last week that we first received a draft financing agreement, contractual language from Bonneville. I wish that were moving faster. It took far, far too long for us to negotiate a multi-family targeted acquisition program agreement with Bonneville.

The uncertainty of future Bonneville funding continues to be a problem in planning our future resource developments and it continues to be a problem for our customers who cannot be certain whether or not we will be able to fund their projects.

But I've got to say that I think you have heard more than enough of that today and I do want to emphasize that, in our view, there is no case that this system is a total flop. I think we need to get down to some real basic facts and numbers here about what this resource acquisition system has produced in the way of conservation savings and at what cost.

Bonneville's conservation costs since 1981 in real levelized 1993 dollar mills per kilowatt hour by sector are as follows; agricultural conservation, 13 mills, that's 1.3 cents; commercial conservation, 20 mills; industrial conservation, seven mills; residential conservation, 36 mills, but I think it is worth noting that in every year since 1989, 1990, 1991 and 1992, Bonneville's residential conservation costs have been less than 25 mills and I think compared to the previous program performance, that's a substantial indication of the progress that has been made in making these programs more efficient and more cost-effective.

The overall total price of all of the conservation that Bonneville has developed since 1981 is 28 mills, and, again, indicating the increasing efficiency of that program. In every year since 1989, the total cost of Bonneville's conservation acquisitions has been under 20 mills. Think back, I ask you, to the costs that Sue Hickey gave you early in this hearing, about the costs of competitive generation and resources, and reconsider the question of whether we have a fatally damaged program here.

I would conclude that, of course, there are opportunities to improve the efficiencies of these programs. These programs would be more efficient today had we not underfunded capability-building activities in the 1980s, had we sufficiently experimented to learn what worked and what did not work. Instead, we're having to learn

on the run. We're having to simultaneously experiment and acquire, and that is imposing some costs.

But even with those handicaps, we and Bonneville, in partnership, are delivering and can and will continue to deliver highly cost-effective savings that benefit this entire region.

Thank you for the opportunity to testify. This entire proceeding, the series of hearings and this oversight is, I think, a landmark and really critical event. We energy junkies spend too much time talking solely to ourselves and I think it's always good for all of us who, in a larger policy perspective, is imposed on our narrow deliberations.

Thank you, Mr. Chairman.

[Prepared statement of Mr. Sullivan follows:]

ACQUISITION OF REGIONAL ELECTRIC POWER RESOURCES

Marc Sullivan, Director
Energy Management Services Division
Seattle City Light

Before the Bonneville Power Administration Task Force
House Committee on Natural Resources
Portland, Oregon
July 12, 1993

I want to thank you for this opportunity to testify before the Committee on Natural Resources Bonneville Power Administration Task Force. I believe you have asked an important set of questions, and we will be submitting a written response to each of them. Today I want to focus on Seattle's core interest in coordinated regional action to acquire the conservation resource -- the first priority resource mandated under the Act.

The 1980 Regional Power Act assigned several new responsibilities to Bonneville, including the acquisition of new resources to meet the growth of regional utilities and the protection and restoration of fish resources. But while the direct responsibility was to be Bonneville's, the Act makes it clear that Bonneville was to carry out these new responsibilities in cooperation with its customers and the newly-created Northwest Power Planning Council (NPPC). Many of the difficulties Bonneville has encountered in acquiring resources are not its responsibility alone, so despite the Task Force's explicit interest in Bonneville, my comments generally speak to the performance of Bonneville's partners as well, and on the adequacy of the Regional Act itself.

I offer several themes for your consideration:

1. The short term vs. the long term.

   Resource development must take a long-term perspective. Generation resources generally take many years to get on line,

and their operating life lasts for many more years. Conservation resources benefits from long-term stability in program offerings as well. New technologies, conservation or generation, need a long-term perspective to reduce their costs and increase our confidence in their output.

Yet as a region we have done very poorly at taking the long-term view in resource development. At every juncture since 1980 Bonneville and most of its customers have reacted sharply to short-term rate pressures in setting resource budgets. About the only long-term stability we have seen was in the 1986-91 view that the region was in a huge near-permanent surplus and that resource spending should be as low as possible. In conservation, the region fell short of meeting the Council's objectives of capturing all lost opportunity conservation and building the capability to deliver conservation in all sectors when needed. A 1989 Planning Council issue paper ("Assessment of Regional Progress Towards Conservation Capability Building;" Paper 89-8; March 13, 1989) reached the following conclusions about the region's conservation performance during the period of the surplus:

> "Even with the significant advances in new residential construction efficiency, the region is currently capturing less than half of the potential resource in this sector and far less in the commercial and industrial sectors." (p. 3)
>
> "Bonneville is continuing its efforts to develop an effective regionwide program in the retrofit commercial sector. Cost and savings data and a trained labor force are still lacking. While progress has been made, the region has no assurance that the conservation potential in the sector is available to the region." (p. ii)

> "Bonneville has gained little information about costs and savings in this [industrial] sector. Little is known about the ability of the private sector infrastructure to deliver significant savings... The current Bonneville industrial program is not designed to capture all cost-effective conservation or lost opportunities." (pp. 7-8)

Now we have the same people who urged the spending cuts which prevented adequate capability-building in the '80's criticizing Bonneville for alleged program imperfections today. It is, of course, the failure to use the grace period of the surplus to experiment and learn how to most efficiently and effectively capture the conservation resource which now necessitates our learning on the run in our conservation acquisition efforts.

As long as we respond to the rate crisis of the moment we can expect sluggish resource acquisition performance, <u>especially</u> under the divided responsibilities built into the Regional Act. It wasn't that long ago that Randy Hardy, as Seattle City Light's Superintendent, was writing to Jim Jura urging Bonneville to take the long-term perspective on resource acquisition. Today we have Seattle City Light Superintendent Roberta Palm Bradley writing the same kind of letter to Randy Hardy as Bonneville Administrator.

Because conservation acquisition requires direct arrangements with consumers, the Regional Power Act directs Bonneville to make the maximum practical use of utilities in acquiring the conservation resource. Of necessity Bonneville and the utilities must work in partnership with each other to acquire the conservation resource. Yet the seeming inability of Bonneville and its partners to adhere to the long-term perspectives on any kind of sustained basis for conservation

acquisition fundamentally undermines the partnership and the prospect for successfully carrying out the acquisition of the first priority resource mandated under the Act.

2. Policy stability

Conservation resources are usually acquired over a fairly prolonged time period. It simply takes time to weatherize most of the houses in a utility's service area, to retrofit the lighting in most office buildings and the motors in manufacturing plants, or to change construction practice in the residential and commercial sectors. As a consequence of the lengthy "construction schedule" typical of most conservation resources, these resources are peculiarly vulnerable to instabilities in regional policies over time. Over the past decade regional policies on such things as capability-building, acquiring all cost-effective conservation or all lost opportunities, contractual acquisition mechanisms, acquisition levels and targets, availability of funding to utilities of different types, cost-effectiveness tests and other conservation guidelines have been anything but stable. Instead, policies in these and related areas have been more volatile than the stock market or the weather.

The net result of the kinds of policy instabilities I am talking about is that utilities have not been able to plan for, market or operate conservation programs in a consistent manner. The fits and starts which have marked conservation delivery in the region are not conducive to achieving the megawatt savings targets the region has set for itself. For example, utility conservation staffing levels cannot fluctuate radically from year to year so there is a tendency for utilities not to staff up fully for planned ramp-ups in conservation activity because experience tells them that

today's ramp-up is all too likely to become tomorrow's plateau or ramp-down. It is also difficult in the extreme to build a sustained market interest in conservation programs when the terms on which the programs are offered are subject to frequent and abrupt changes.

3. Undoing the Regional Act

When the Regional Act was adopted by Congress in 1980 it reflected a broad consensus on the acquisition and sale of power in the Pacific Northwest. Today it sometimes seems as though little is left of the explicit and implicit assumptions upon which the Regional Act was premised.

There is nothing wrong with revisiting the premises of any such legislation -- far from it. Periodic evaluation and reassessment is particularly important in the case of an innovative, complex system such as that established by the Regional Act. This hearing serves a useful purpose in raising these fundamental issues concerning resource acquisition. Absent these hearings we could face the prospect of seeing the foundation beneath the Regional Act (and the NPPC's Regional Plan) erode away without the benefit of a public debate and considered review.

The act's preference for coordinated regional action to meet the region's load growth was based on a couple of premises -- premises which Seattle believes are still valid.

The Regional Act's most fundamental resource premise is that when it comes to growth of electric power use in the region, we are all in this together. Instead of declaring insufficiency, Bonneville is to work in partnership with its customer utilities to acquire new resources to meet the

region's load growth. The basis for this approach is the belief that the Pacific Northwest is a real economic region and that growth anywhere in the region ultimately ripples out and benefits all our communities and citizens. A negative example illustrates the continuing validity of this assumption. As one of my colleagues at Grant County PUD recently observed, "You can be sure that Seattle's loss of 20,000 Boeing jobs is going to be felt in Grant County." And the reverse is also true. The creation of new jobs -- in Seattle or Ephrata or Pendleton or Coeur D'Alene -- ultimately strengthens the whole region's economy.

More specifically, the Regional Act assumed that there were specific benefits to coordinated regional development of energy resources to support economic growth. The sharing of costs and risks and the systematic development of the cheapest resources -- wherever located -- to meet new demand for power -- wherever located -- were perceived to have substantial benefits to all utilities and their customers.

In its 1991 Plan, The Council reaffirmed that conclusion. They noted that BPA and investor-owned utilities were <u>not</u> jointly developing resources and asked what would be the financial benefit if such regional cooperation in resource development <u>were</u> occurring. As they reported ("1991 Northwest Conservation and Electric Power Plan;" Vol. II, Part II; p. 794):

> The Council performed a study to investigate the value of regional cooperation. This study assumes that all resource development can be coordinated through Bonneville and that public utility conservation potential and Bonneville's hydrofirming potential could be developed earlier than would be justified by public

> utility load growth... The mean value of this benefits distribution is $3.6 billion. Benefits are seen across the entire spectrum of load conditions and range from $1.6 billion to $7.2 billion. The maximum values occur in the higher probability medium-low to medium-high load conditions.

As the region considers ideas such as "unbundling" Bonneville's services (including the service of meeting load growth) and using wholesale tiered rates to encourage independent utility resource development, we should keep in mind the benefits of cooperative regional resource development. While there is no necessary conflict between these ideas and regional cooperation, there is the potential for losing the benefits of coordinated regional energy resource development through a misapplication of these ideas.

We speak from some experience in this regard. In the mid-'80s Seattle experimented for several years with a cost formula which allocated the costs of load growth to those customer classes which were experiencing growth. We ended up discarding that system on the grounds that it created at least as many inequities as it solved, that it introduced new and divisive complexities into rate-making, and that such an allocation of growth costs was fundamentally incompatible with our belief that a healthy and growing Seattle economy benefitted our entire community. On the other hand, Seattle established two tiered retail rates in the late '70s so that all residential customers would experience the marginal cost of resource acquisition. As a result, our residential customers have responded by installing energy efficient measures and decreasing consumption.

We urge this task force to reaffirm the potential benefits of the 1980 Regional Power Act for the whole Northwest. More efficient and effective approaches to regionally meeting load growth may well be available but this is no time to throw overboard the benefits of adhering to, and moving forward with, the "one utility" concept which has guided development and operation of the Northwest power system for decades. We shouldn't undo the Act unintentionally.

4. Conservation Program Efficiencies.

Bonneville is asking its utility customers to deliver their conservation programs as efficiently as possible. Bonneville's interest in the efficiency of program delivery is one we share wholeheartedly as it is our customers' dollars which fund all of Bonneville's conservation programs. We part company with Bonneville, however, in their unqualified assertions that is obvious we can acquire the resource at less cost. Until we have clearly identified efficiencies which will reduce costs without reducing acquisitions, we should not make sweeping cuts in conservation program budgets.

One must discuss the concept of program efficiencies with some care. The concept is tricker than it first appears. What do we mean by efficiency? We would consider as a program efficiency improvement only changes which reduce the total cost of acquiring conservation while continuing to meet megawatt targets. I emphasize "total" because we do not concede that shifting costs from Bonneville to utilities or from utilities to participating customers qualifies as an efficiency.

Seattle City Light has just implemented a 17% rate increase with the likelihood of more to come in the near future. We

find it hard to regard a simple transfer of costs from Bonneville's budget to ours or our customers' as an "efficiency".

I must tell you also that we cannot promise that we can take a reduction in our program support from Bonneville and still deliver the same number of megawatts we had planned on. Obviously we'll do our best to do the most with whatever resources we have available. But I am not at all prepared to concede that we have been running our programs in such an inefficient or profligate manner that a significant hit on our budget will have no effect on program production.

I understand that these calls for "efficiency" are being justified in some quarters by a perception that Bonneville conservation programs are costlier than those of other utilities and therefore have economies available which won't compromise the megawatt savings. We don't buy it. Consider our commercial sector conservation program, the Energy Smart Design program. Since incentives were added to our ESD program. the levelized costs for incentives have consistently been in the 15-20 mills/kWh range. With the addition of utility delivery costs at current levels, the total delivered cost runs in the low- to mid-20's. These numbers do not support the premise of an excessively costly resource. Either the costs are elsewhere (in which case the efficiencies are, too) or the premise is wrong.

Mr. DEFAZIO. Thank you. And our cleanup witness, Ivan Jones.

STATEMENT OF IVAN JONES

Mr. JONES. Thank you, Mr. Chairman. My name is Ivan Jones. I'm the president of the Clatskanie People's Utility District Board of Directors. We want to thank you for the opportunity to testify.

Our PUD offices are located in Clatskanie, Oregon. The PUD was organized in 1940. It is the seventh largest revenue producer for Bonneville in the region. The PUD provides electric service to the northwest portions of Columbia County and the northeast portions of Clatsop County and is currently debt free.

I will address my remarks to two subject areas; first, general comments concerning what we consider critical issues that will confront Bonneville and the region over the next few years, and, second, the Bonneville new resource acquisition policies and procedures.

My general comments have been developed by consultation with our entire board and our staff. Bonneville was established in the 1930s for the purpose of marketing power from the dams built and operated by the Corps and the Bureau of Reclamation.

As time passed, Bonneville was given new authority in legislation such as the Regional Transmission Act passed in the mid-1970s. This legislation made Bonneville a self-funded agency and allowed Bonneville greater flexibility in financing extensions and betterment to the regional transmission system.

In 1980, the Regional Power Act was enacted by Congress. In many respects, the Regional Act was a compromise among competing interests, including the different types of customers of Bonneville, with states and the region and other political entities.

We believe that the passage of the Act has resulted in significantly higher Bonneville rates and if the cost to Bonneville Power continues to increase at a rapid rate as predicted, certain of the industries served by public utilities in the region may be unable to remain competitive.

We feel that a rational approach to minimizing the projected Bonneville rate increases requires an examination of the primary factors that caused the increases, and we offer the following thoughts on this subject. The control over escalating rates is hindered by a political process set up by the Regional Act of 1980, and let's resolve these political issues and focus on controlling rates.

We must face the fact that Bonneville cannot fund all fish and wildlife programs that may be envisioned by either the Council or the environmental community out of rates. We are presently negotiating a new power sales contract with Bonneville. Some of the critical issues and our preliminary views on these matters include the following.

Number one is tiered rates. Each publicly owned utility should be entitled to purchase the amount of Federal Base System resources required to meet the loads of the utility. The needs of the utility to exceed its first year allocation above the new large single load definition would be met by one of two alternatives; the utility could build resources to meet the load or the utility could acquire more power from Bonneville. It is our opinion the Regional Act already sets out a tiered rate definition.

Conservation program funding. We believe that Bonneville should provide the utilities with programs. We also feel that each utility should be required to carry the costs. Number three, Federal debt payments. There is no reasonable rationale to change the terms and conditions under which the Northwest is required to pay for Federal facilities located in the Northwest.

The citizens of the Northwest are doing enough by paying for Federal facilities in the Northwest when other Federal facilities located throughout the nation, that add to the general economic wellbeing of a local area, are paid for all by United States citizens.

This matter needs to be resolved as soon as possible so that reasonable economic planning can be accomplished. Fourth, we feel that this Committee and Congress generally should return Bonneville to its original charter, that of marketing power from the Federal Base System and providing transmission from generating facilities to load centers.

On resource acquisition programs, the public power systems, such as the one I represent, are operated by grassroots elected officials. Our effectiveness is directly proportionate to what our customers desire from us. Our customers do not understand or accept edicts that come down from the top. Directives from regional councils or even from the state are looked at as infringements on their rights as citizens.

Conservation, for instance, serves large metropolitan areas well and their citizens support those efforts. The commerce and industry in these areas are in place. In our area, a very rural area, we are more concerned with developing commerce and industry just to have a job to feed our families. Regional planning, conservation acquisition, new resource rates for single loads, both new loads and existing, hinder, if not stop rural growth.

This is not acceptable to our customers and no amount of explaining and all the higher ideals changes their focus. How are we dealing with this issue? We are developing our own resources outside of this political arena. Our only fear is that some Congressman or Senator, for, yes, all the moral and just reasons, make our efforts futile.

By the way, our customers support our effort by an 82 percent favorable vote on our bonding authorization ballot measure held in November 1992. BPA can be a partner with Clatskanie in this effort. Recently BPA has been effective in assisting us in developing a cogeneration project that will not only help our industrial customers stay in business, but provides a relatively cheap, dependable power resource for the region. BPA is to be commended for its efforts with this project.

We believe that Bonneville has made a good start toward developing fair and realistic resource acquisition policies. We do not sense any desire on Bonneville's part to acquire more expensive resources than necessary to meet Bonneville's forecasted needs. Bonneville has and exhibits absolutely no motivation to pay more for new resources than Bonneville must pay, given market conditions and requirements imposed by law.

The problem is that so many new resources are being proposed to Bonneville that it is very difficult to fairly evaluate the choices. Furthermore, Bonneville is justifiably concerned about administra-

tive protests or judicial challenges to any Bonneville decision which may be brought by disappointed resource proposers.

What Bonneville needs to know is how much new output is required to meet Bonneville's contract demand under the existing and new contracts. Bonneville also needs to be given more ability to act quickly and efficiently in making its choices. For example, the procedures which determine whether Bonneville can acquire the output from a proposed resource without destroying the utility sponsor's ability to finance the construction of the resource with tax-exempt bonds, that should be streamlined.

Most importantly, it may be necessary for this Committee to examine what could be done to protect Bonneville from litigation concerning the choices Bonneville makes among various new resource proposals. I recognize that this is a complex subject, but, again, we feel that most of the inefficiencies attendant to the Bonneville resource acquisition process are the result of Bonneville's efforts to protect the agency from lawsuits which may result from any Bonneville choice.

In conclusion, Bonneville, a single-purpose Federal agency, has been put in a multi-purpose management role, competing with single-purpose generating entities. BPA has been saddled with goals not effectively planned and, in many ways, in conflict with other Federal agencies.

BPA has been considered a focal point for activity, such as fish and wildlife, a water management role that conflicts with other agencies with multi-purpose roles in water management, and in resource development that has always been exempted from BPA by law.

BPA has been and should continue to purchase output from resources that provide efficient, cost-effective power supply, but the development of resources, including conservation, should be left with others.

All of these challenges are hindered by a political process set up by the Regional Act of 1980. Let's get other political issues out of our life blood, electric energy, and get control of this resource back in the hands of the people who will pay for and benefit.

I'd like to add I am a retired engineer with the Corps of Engineers, a registered professional engineer in the State of Oregon, and I listened to Mr. Ron Wilkerson's comments and I support those wholeheartedly. He did a very fine job.

We want to thank you again for the opportunity to testify. The PUD is willing to provide any further information that might be helpful to the Committee and we'd appreciate your acceptance of a somewhat expanded version of the text of my remarks as the written testimony of the PUD.

Thank you, sir.

[Prepared statement of Mr. Jones follows:]

TESTIMONY
OF
CLATSKANIE PEOPLE'S UTILITY DISTRICT
BEFORE THE HONORABLE PETER DEFAZIO
BY
IVAN JONES, PRESIDENT OF THE CLATSKANIE BOARD OF DIRECTORS
July 12, 1993

My name is Ivan Jones. I am the President of the Clatskanie People's Utility District Board of Directors. Thank you for the opportunity to testify. The PUD offices are located in Clatskanie, Oregon. The PUD was organized in 1940. It is the seventh largest purchaser of Bonneville power in the Region. The PUD provides electric service to the Northwest portions of Columbia County and the Northeast portions of Clatsop County, and is currently debt free.

I will address my remarks to two subject areas: first, general comments concerning the critical issues that will confront Bonneville and the Region over the next few years; and, second, the Bonneville new resource acquisition policies and procedures.

General Comments

My general comments have been developed by consultation with our entire Board of Directors and our staff. I have also drawn on my background as a professional engineer for the Corps of Engineers. I am a retired Corps of Engineer employee who actively planned multi-purpose activities of the Corps operation of the dams on the Columbia River.

Bonneville was established in the 1930's for the purpose of marketing power from the dams built and operated by the Corps and the Bureau of Reclamation. As time passed, Bonneville was given new authority in legislation such as the regional transmission act passed in the mid-1970's. This legislation made Bonneville a self-funded agency and allowed Bonneville greater flexibility in financing extensions and betterments to the regional transmission system.

In 1980, the regional power act was enacted by Congress. In many respects, the regional act was a compromise among competing interests, including the different types of customers of Bonneville, the states in the region and other political entities.

I believe that the passage of the act has resulted in significantly higher Bonneville rates. The cost of Bonneville power has risen dramatically since 1980. These cost increases have contributed to some of the economic hardships which are being experienced in the Clatskanie area and the Region.

If the cost of Bonneville power continues to increase at a rapid rate, as is predicted, certain of the industries served by public utilities in the Region may be unable to remain competitive. It is no exaggeration to state that rapidly increasing Bonneville power costs will result in greater unemployment in our state and the Region.

I feel that a rational approach to minimizing the projected Bonneville rate increases requires an examination of the primary factors that cause the increases. I offer the following thoughts on this subject.

The current state of uncertainty is totally unacceptable. The Regional Power Council may be a sound theoretical concept and the Council members may be making all good faith efforts to meet their responsibilities, but it does not work. The control over escalating rates is hindered by a political process set up by the Regional Act of 1980. Let's resolve these political issues and focus on controlling rates.

We must face the fact that Bonneville cannot fund all fish and wildlife programs that may be envisioned by either the Council or the environmental community out of rates. Whose resources are the Federal Columbia River Power System, a System that provides flood control, irrigation, navigation and power generation? These dams benefit the entire country and therefore, are a federal asset.

I noted in the July 7, 1993, Oregonian, Section A3, under the Title "Mississippi River System Defies Corps" that "Despite billions of dollars spent ----------"

Who is paying these bills? Are they paid for by just the people on the Mississippi flood plain? Of course not. Yet, the Northwest is expected to not only pay back all Federal investments in the Columbia System but mitigate any damages that these facilities are perceived to have caused.

I have noted in the "Journal" July 1993, a BPA News Letter, that BPA is paying for a three year program to enforce habitat and harvest laws and to purchase a former ranch in Eastern Oregon to provide a wildlife wetland refuge. Isn't this stretching the purpose of a Power Marketing Agency beyond reason? Are other PMA's funding these kinds of programs? Realistic limits must be placed on the level of fish and wildlife expenditures which will be funded by Bonneville. Other sources of funding must be used to supplement Bonneville's contribution if the programs are realistic and scientifically justified. What has to end is acting on the assumption that the electrical rates can carry the expenses attendant to all environmental programs.

We are presently negotiating a new power sales contract with Bonneville. Some of the critical issues, and our preliminary views on these matters, include the following:

1. Tiered rates. If tiered rates are to be adopted, the first step is for Bonneville to allocate the power from the existing Federal Base System resources to the publicly owned utilities. Each publicly owned utility should be entitled to purchase the amount of FBS resources required to meet the loads of the utility as of the time when the new contracts are executed. Only the costs of these resources and related services should be included in the rates attendant to this first tier.

The needs of the utility that exceed its first tier allocation above the new large single load definition would be met by one of two alternatives. The utility could build resources to meet the load or the utility could acquire more power from Bonneville. If the utility bought the additional power from Bonneville, the Bonneville rate charged for this power would be based on the costs incurred by Bonneville to acquire the additional power. It is our opinion the Regional Act already sets out a tiered rate definition.

2. Conservation Program Funding. We believe that Bonneville should provide the utilities with programs which make funds available to the utilities to pursue conservation. However, we also feel that each utility should be required to carry the costs of the funds made available and each utility should be given more freedom in the administration of the programs. What the Region cannot afford is to incur high Bonneville overhead charges to oversee and administer the conservation programs which are also overseen and administered by the utilities.

3. Federal Debt Payments. When the dams were built in the Northwest, the agreement was that the people of the Northwest would repay the debt incurred to build the dams. This is a fairly unique situation. Other projects and public works built throughout the Country with "federal funds" are not paid for by only the citizens that are located in the same geographical area where the facilities are located.

There is no reasonable rational to change the terms and conditions under which the Northwest is required to pay for "federal facilities" located in the Northwest. The citizens of the Northwest are doing enough by paying for federal facilities in the Northwest when other federal facilities located throughout the Nation that add to the general economic well-being of a local area are paid for by all United States citizens. This matter needs to be resolved as soon as possible so that reasonable economic planning can be accomplished.

Fourth, we feel that this committee and Congress generally should return Bonneville to its original charter, that of marketing power from the Federal Base System and providing transmission from generating facilities to load centers.

Resource Acquisition Programs

The public power system such as the one I represent are operated by grass roots elected officials. Our effectiveness is directly proportionate to what our customers desire. Our customers do not understand or accept edicts that come down from the top. Directives from Regional Councils or even from the state are looked at as infringements on their rights as citizens.

Conservation for instance serves large Metropolitan areas well and their citizens support those efforts. The Commerce and Industry in these areas are in place.

In our area, a very rural area, we are more concerned with developing Commerce and Industry just to have a job to feed our families. Regional planning, conservation acquisition, new resource rates for single loads both new loads and existing hinder, if not stop, rural growth. This is not acceptable to our customers and no amount of explaining all the higher ideals changes their focus.

How are we dealing with this issue? We are developing our own resources outside of this political area. Our only fear is that some congressman or senator for; yes, all the moral and just reasons makes our efforts futile. By the way, our customers support our efforts by an 82% favorable vote on our bonding authorization ballot measure held in November 1992. BPA can be a partner with Clatskanie in this effort. Recently, BPA has been effective in assisting us in developing a co-generation project that will not only help our Industrial customer stay in business but provides a relatively cheap and dependable power resource for the Region. BPA is to be commended for its efforts with this project.

We believe that Bonneville has made a good start toward developing fair and realistic resource acquisition policies. We do not sense any desire on Bonneville's part to acquire more expensive resources than necessary to meet Bonneville's forecasted needs. Bonneville has and exhibits absolutely no motivation to pay more for new resources than Bonneville must pay given market conditions and the requirements imposed by law.

The problem is that so many new resources are being proposed to Bonneville that it is very difficult to fairly evaluate the choices. Furthermore, Bonneville is justifiably concerned about administrative protests or judicial challenges to any Bonneville

decisions which may be brought by disappointed resource proposers.

What Bonneville needs to know is how much new output is required to meet Bonneville's contract demand under the existing and new contracts. Bonneville also needs to be given more ability to act quickly and efficiently in making its choices. For example, the procedures which determine whether Bonneville can acquire the output from a proposed resource without destroying the utility-sponsor's ability to finance the construction of the resource with tax exempt bonds should be streamlined.

Most importantly, it may be necessary for this Committee to examine what could be done to protect Bonneville from litigation concerning the choices Bonneville makes among various new resource proposals. I recognize that this is a complex subject but, again, we feel that most of the inefficiencies attendant to the Bonneville resource acquisition process are the result of Bonneville's efforts to protect the agency from lawsuits which may result from any Bonneville choice.

In conclusion, Bonneville, a single purpose Federal Agency, has been put in a multi purpose management role competing with single purpose generating entities. BPA has been saddled with goals not effectively planned and in many ways in conflict with other Federal agencies. BPA has been considered a focal point for activities such as fish and wildlife, a water management role that conflicts with other agencies with multi purpose roles in water management and in resource development that has always been exempted from BPA by law. BPA has been and should continue to purchase output from resources that provide efficient, cost effective power supply, but the development of resources, including conservation should be left with others.

All of these challenges are hindered by a political process set up by the Regional Act of 1980. Let's get other political issues out of our life blood - electric energy - and get control of this resource back in the hands of the people who will pay for and benefit from this energy.

Thank you again for the opportunity to testify. The PUD is willing to provide any further information that might be helpful to the Committee. I would appreciate your acceptance of a somewhat expanded version of the text of my remarks as the written testimony of the PUD.

Journal

"What's New and How to Get Involved"

Bonneville POWER ADMINISTRATION

July 1993

BPA Announces About 15 Percent Rate Increase, Cost Cuts And Deferrals

Administrator Randy Hardy announced on July 2 a proposed 15.7 percent rate increase for preference customers. Other key rates include a 14 percent increase for industrial aluminum customers and a 13.4 percent exchange rate increase. The exchange is what utilities with higher system costs—mostly private utilities—pay to pass on BPA's cheaper power to their residential and small farm customers. The numbers are down dramatically from the 24 percent rate increase BPA and its utility customers predicted earlier this spring as a result of some of the worst water conditions ever in the Northwest. The projected rates would be effective Oct. 1, and reflects an additional $286 million in cuts and deferrals announced in recent weeks.

An announcement was also made on specific program cuts and deferrals. Reductions include a 30 percent decrease in the budget for acquiring generating resources, a 28 percent decrease for transmission system development, and a 8 percent cut for transmission maintenance. Fish and wildlife budgets will be cut 15 percent, and energy conservation will decrease by 12 percent. Hardy noted that no cuts had been made in measures directly related to weak wild fish runs and that the conservation cuts are not expected to impair BPA's ability to realize 660 megawatts of energy conservation within this decade, a target set by the Northwest Power Planning Council. Fish program cuts include reductions in a predator control program, law enforcement and hatcheries.

PIP Hears Of New Marketing Challenges Facing Utility Industry

BPA customers got a preview of the changing face of the industry as Programs in Perspective got underway June 7 with a symposium on "Competing in Today's Energy Market." Utility representatives and analysts agreed that big changes are afoot in how utilities conduct business in the new energy marketplace. Wall Street investment analyst Judith Sack delivered perhaps the strongest message when she said utility managers, including BPA, do not know what competition means, what it costs to provide a service or what the customer wants. The key to survival in the new business environment, she added, is to question every premise. Also at the meeting, U.S. Rep. Peter DeFazio, D-Ore, reaffirmed his support of the Regional Power Act, but added that Congress had been remiss in its oversight of BPA. The agency must achieve long-term financial stability and make its annual Treasury payments, he added. Administrator Randy Hardy reiterated his goal to make BPA more market-driven, cost-conscious, results-oriented and customer-focused. A summary of the day's proceedings will be available in print and video. (See back page.)

Task Force's Patrol Vessel Helps Deter Salmon Poaching

Salmon poaching on the Columbia River just became a high-risk activity. The inter-agency salmon law enforcement task force stepped up patrolling the river in June to protect spawning and migrating salmon. Working from their mobile command center – the Washington Department of Fisheries' 17 meter (56-feet) ocean-going vessel G.H. Corliss – the team coordinates aerial surveillance, boat patrols, ground patrols and covert operations. This is the second year of a three-year BPA-funded program to enforce habitat and harvest laws to help depleted sockeye and chinook salmon runs. (See June 1992 *Journal*.)

As well as deterring poachers, highly visible law enforcement activities help build public awareness of the plight of the salmon. The patrol boat left Astoria June 16 and arrived in Portland June 23. A news conference was held in Marine Park in Vancouver, Wash., June 24. Among the speakers were Rolland Schmitten, regional director of of the National Marine Fisheries Service; Ted Strong, executive director of the Columbia River Inter-Tribal Fish Commission; and Jack Robertson, BPA Deputy Administrator. The patrol will continue to Redfish Lake in central Idaho—the spawning ground of the endangered Snake River sockeye salmon.

Latest Refunding Bond Sale Will Save $35 Million

BPA and the Washington Public Power Supply System completed a refunding bond sale May 27. The sale will save the region about $35 million, bringing the total savings from the refinancing program to about $1.1 billion since it began in 1989. Some $795 million of WNP-1 and -2 bonds were sold to reduce interest rates as high as 7 percent to an effective rate of 5.83 percent. The bonds are rated AA by all three bond rating services.

Former Ranch In Eastern Oregon Is Now A Wildlife Wetland Refuge

After two years of discussions, BPA signed an agreement June 29 to acquire the 1157-hectare (2,860-acre) Conforth ranch in eastern Oregon as a wetland wildlife refuge. The Northwest Power Planning Council proposed BPA buy the acreage to rebuild wildlife populations and habitat lost through hydro development at McNary Dam. Trust for Public Lands, a non-profit environmental group, bought it for $800,000 in 1991 to hold while BPA negotiated its purchase. (See January 1992 *Journal*.) The property borders McNary reservoir on the Columbia River between the Port of Umatilla and Hat Rock State Park.

The Umatilla Confederated Tribes will serve as interim managers of the refuge until an environmental review is completed. BPA will work with them to develop a wildlife management plan that will likely eliminate cattle grazing and expand the wetlands. Over half the area is shrub steppe habitat, and the rest is wetlands. Natural potholes of hard basalt rock filled with water when the rancher periodically irrigated to maintain grass for his cattle. The resulting ponds range in size from about .20 hectare to about 2 hectares (half acre to five acres). The project will protect and enhance habitat for waterfowl such as widgeon, mallards and Canada geese and shorebirds such as avocets and spotted sandpipers. It will also maintain a home for shrub steppe species such as western meadowlarks and California quail, tree-dwelling downy woodpeckers and yellow warblers, as well as less common species such as the burrowing owl and long-billed curlew.

Endangered Snake River Sockeye Will Soon Be Spawned in Idaho

Some of the endangered Snake River sockeye salmon in the Sawtooth Valley captive broodstock project in the Sawtooth Valley should be reproducing this fall. The fish were trapped as they left Redfish Lake in 1991, when they were one to two years old. Some are the progeny of wild sockeye. Others may be offspring of the resident stocks of sockeye in Redfish Lake, kokanee or "residual" sockeye. The offspring of all three stocks in the broodstock are outwardly similar. Of the original 800, about 400 survive, most of which will be spawned artificially. Their young will be placed in net pens in Redfish Lake or other Stanley Basin lakes next spring and allowed to migrate in 1995. This will be the first opportunity to observe whether broodstock sockeye reproduce successfully. Researchers hope to perfect a non-lethal genetic test to distinguish migratory sockeye from the physically similar kokanee, a non-migrating species of sockeye. If all goes well, the first fish born and raised in the program could return from the ocean in the fall of 1997 as 4-year-old adults. The run migrates 1450 kilometers (900 miles) from the ocean to Sawtooth Valley.

Two other younger groups of sockeye will mature in 1995. These are the offspring of four adults captured at Redfish Lake in 1991. Recently the National Marine Fisheries Service moved one group of 771 fish from Seattle to larger tanks at the Big Beef Creek facility near Seabeck, Wash. An outbreak of bacterial kidney disease, now under control, reduced their survival rate to 79 percent. The second group of about 900, being reared by Idaho Department of Fish and Game at Eagle, Idaho, has a survival rate above 90 percent.

Summer Chinook Run May Be Listed Under ESA

The Mid-Columbia's summer chinook run may be the next salmon species to be listed under the Endangered Species Act. Last month 11 environmental groups petitioned the National Marine Fisheries Service for protection of the runs. BPA supports and will actively participate in efforts to protect and renew the stocks. Meanwhile, the U.S. Fish and Wildlife Service will decide soon whether to propose an ESA listing for the non-migrating Columbia River sturgeon. On June 11, BPA and the Corps of Engineers submitted a signed conservation agreement to the U.S. Fish and Wildlife Service to protect, research and evaluate Kootenai River white sturgeon.

Ross Complex Poses No Threat To Vancouver Drinking Water

BPA's Ross Complex does not pose a threat to Vancouver's water wells, but there is some surface soil contamination BPA has to clean up. These are the findings of extensive studies performed by BPA, helped by the U.S. Environmental Protection Agency and Washington Department of Ecology, as part of the Ross Superfund cleanup. BPA will now clean up or remove contaminated soil, using a plan proposed and circulated for public review last fall. (See November 1992 *Journal*.) Two years of groundwater monitoring, sampling and analysis reveal no significant source of potential groundwater contamination from the complex. The three agencies are developing a plan for continued groundwater monitoring that will be presented at a public meeting in July. BPA has invested about $7 million in the investigation. (See back page.)

Three CT Projects Chosen For Resource Contingency Program

BPA has selected two cogeneration and one gas-fired combined-cycle combustion turbine projects for final negotiation of energy options. The finalists were chosen from a short-list of 10 projects based on estimated cost, environmental issues and viability. They are the CRSS Chehalis project sponsored by CRSS Capital, Inc. (228 average megawatts); the Ida-West Hermiston project sponsored by Ida-West Energy (211 amw); and the Satsop CT project sponsored by Washington Public Power Supply System (205 amw). BPA received a total of 64 proposals for its Resource Contingency Program. (See January 1993 *Journal*.)

The program will secure energy options on new resources to head off possible future power deficits. Options give BPA the flexibility to defer power purchases from new power plants until more is known about future customer needs. They also reduce the remaining time needed to bring new resources on line if needed. Developers will now proceed with environmental studies, obtain necessary permits and start design work. BPA will prepare an environmental impact statement and work with the Northwest Power Planning Council to ensure the projects comply with the regional power plan.

BPA To Acquire Output Of PUD's Hydro Project

BPA has agreed to purchase the output of a hydroelectric project Northern Wasco County PUD is planning to build at McNary Dam. The agency will sign a 30-year power sales contract if the proposed 8.9-megawatt plant passes environmental review. Construction costs are expected to be below $41 million. The contract will require BPA to pay project debt service, operating and maintenance costs, and a fee for each kilowatt-hour produced. Voters approved a $54 million bond issue in March to pay for construction.

Ten Years Of Model Conservation Standards

Model Conservation Standards are ten years old this year — a decade in which these energy efficiency standards have redefined building practices in the Northwest. The 1980 Northwest Power Act declared conservation the region's preferred new resource. Lawmakers directed the Power Planning Council to set standards for new and existing buildings to captures all cost-effective energy savings. The Council published MCS in 1983. The City of Tacoma, Wash., was the first jurisdiction to adopt MCS as a local building code in 1984. Now virtually all of BPA's service territory is covered by MCS-level codes.

Over the past decade, BPA has offered many programs to move the region toward adopting MCS as standard building practice. The Residential Standards Demonstration Program solicited plans for energy-efficient houses, offered builder training and sponsored construction of 400 houses showcasing energy efficiency. The Super Good Cents program has sold the region's builders and consumers on the advantage of greater energy efficiency in electrically heated homes. Now all BPA's utility customers sponsor Super Good Cents or the new Long Term Super Good Cents program. The Early Adopter and Northwest Energy Code programs brought the advantages of MCS to entire communities through building codes. Energy Smart Design promotes commercial MCS. As MCS enters its second decade, the Council is working with BPA, the housing industry, utilities and governments to improve the standards with new measures and practices.

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Mississippi River system defies Corps

Despite the billions of dollars spent to control the great mid-American rivers, the rains fall how and where they will

by KEITH SCHNEIDER
New York Times News Service

ROCK ISLAND, Ill. — As the rain fell again Monday, S.K. Nanda, the chief hydrologist at the Army Corps of Engineers' district office here, punched the keyboards at a bank of computers and choreographed a watery balancing act involving three giant Iowa reservoirs and two Mississippi River tributaries that weeks ago had filled to capacity.

From this command post, just a few feet from where the Mississippi was cresting at levels not seen since 1965 and never seen in July, Nanda was making water management decisions unlike any he has faced in his 25-year career there.

Allowing the three reservoirs to fill much more could threaten the safety of the dams that hold them. But emptying them as fast as they were filling would cause the waters to rise more in the Des Moines and Iowa Rivers.

That not only could put Hills, Iowa, and other towns downstream from the control dams in peril of

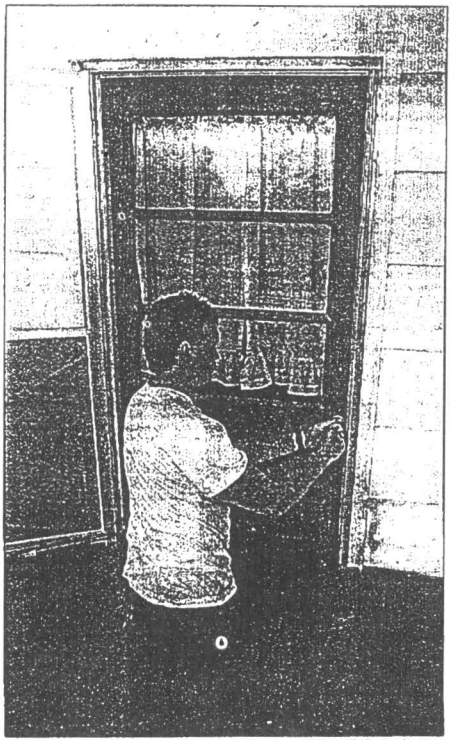
signed and built in this century to control the flow of the Mississippi River and its largest tributaries.

During the last 65 years, the United States has spent billions of dollars to build roughly 300 dams and reservoirs, construct thousands of miles of levees and flood walls and operate countless pumping stations to regulate water draining from parts of 35 states, an area covering 1.25 million square miles, more than a third of nation.

Along with the construction of the interstate highways, the Mississippi River flood-control project is one of the most enterprising civil engineering projects ever devised. Its primary purpose is to rein in a wandering river and keep it confined to a rigid, man-made channel.

Some have called the project a supreme act of human arrogance, and today it is easy to see why. The Mississippi continues to bound past its banks and to flood towns along a 400-mile stretch from southern Minnesota to Missouri.

But what is just as clear is that, after decades of hemming in one of the world's great river systems, only



JEFF ROBERSON/The Associated Press

Scott Neagles unlocks the door to his flooded house south of the Hannibal, Mo., downtown. He was making a trip by boat to retrieve possessions.

"

We deal with nature and
We try to make an exact

the

hope Koellner can offer prope
owners and city officials is that
gauges 50 miles upstream show
Mississippi's level falling.

In the meantime, the towns on
Des Moines and Iowa rivers ha
been more fortunate. The reservo
have prevented those tributar
from catastrophic flooding and
continue to do so unless extraor
nary amounts of rain continue
fall, Koellner said. And many
those towns also are protected
concrete flood walls and earthen
vees.

Along the Mississippi, the gove
ment built almost 500 miles of lev
north of St. Louis to protect far
and towns. How well they work
evident in this old river port city.

Most levees hold

The flood wall that protects R
Island has kept all but the low
lying areas dry. Across the ri
Davenport residents chose to
serve their river views and not
have any protections built, and
waterfront neighborhoods and b
ness districts have been ruined
water.

Despite the saturation, only a
earthen levees have failed. One
ure occurred on the Illinois side
the river, flooding 5,000 acres
corn and soybean fields just south
here, Koellner said.

"The whole thing has been ev
ing for five weeks, even earlier,"
said "Even in March and April

Mr. DEFAZIO. Thank you. No problem with that. Just a couple of questions here. Show this to Matt. That goes to his comment there at the beginning. It just happens that someone—I want that back. That's a cartoon that was given to me.

Mr. DILLON. I think, Mr. Congressman, this actually is a bunch of utility officials watching Adam Smith go over the hill.

Mr. DEFAZIO. It's a cartoon. Just because he had talked about the freehanded marketplace beforehand, someone had given me a cartoon that said—it has a large group of people all looking off into the distance in various postures, kneeling, bowing, praying, and it says "Utility leaders gather in a field outside Vancouver, Washington, where one of them claims to have seen the invisible hand of the marketplace." I just thought that went to your comment.

I'm a big Adam Smith fan. I studied him. I think that he was—his predictions and his prognostications were as great as anybody predicted things 212 years ago could have been, before we had modern transportation, communications and a few other things. I particularly like what he's done to our trade policies. We're becoming a colony because of his trade policies. The U.S. is the only country that follows it. But free trade will be here someday.

A couple of questions. Marc, I was interested in particular about the fuel switching cooperation and coordination that's going on in Seattle. That's interesting. I wonder—there was some earlier question or comment about—one of the witnesses—and, at this point, I'm afraid I have lost track of which one it was—but about the gas companies and when would they get to the point of looking at efficiencies in terms of adopting a conservation standard for new construction, efficiency standards above whatever percent. I think this person quoted 65 percent for thermal, for hot water, and others.

Is it not only a coordinated you both go into the house at the same time kind of approach? Are they adopting more rigorous standards than have traditionally prevailed in the gas industry?

Mr. SULLIVAN. I think we're making some progress, but I wouldn't conceal for a moment that part of my agenda is to drag them along with us. I do think it is likely that brought into some sort of coordinated planning and delivery process, that they're likely to move further and faster than they would have on their own, and that is part of my agenda.

I think City Light is near unique among regional utilities and the degree of its integration with its city government. We are just a department of city government, like the cops and the parks department. We are not insulated from our City Council or our Mayor by any special purpose board, so that we are very much aware of being part of a general purpose government which is supposed to serve the needs of the entire community.

I think that may be one of the reasons we're a little more out front on this is that the Mayor has no intention of consigning gas heat customers to the tender mercies of the gas company until such time as they see fit to do the right thing on their own.

Mr. DILLON. Mr. Chairman, if I may. It's always a risk to follow Mr. Sullivan on a panel, but Snohomish County has already run a small pilot program for which BPA did give us some funding to write a report. We did discover that by participating with the gas

company, we made a significant difference in the amount of conversion that took place.

Our presence and our engineering data gave validity to the claims that the gas company salespersons were giving in the field to our customers and we saw a significant increase in the number of conversions. Very, very successful at very, very lost cost.

We, at that point in time during the negotiations to go into this program, did leverage the gas company up from the 53 percent efficient hot water tanks to somewhere around a 63 percent, and we're looking at Mr. Sullivan to now leverage them up to 80–85 percent or wherever he can down there.

Mr. SULLIVAN. We'll hopscotch them, Matt.

Mr. DILLON. The difficulty they claim is that the market doesn't provide them, but the fact of the matter is the market provides what the gas company buys. It should be possible, either through efforts such as our utility and Seattle City Light is taking, to leverage them up or perhaps through the state legislature adopting better building codes.

Mr. DEFAZIO. Matt, in your ideal world that you talked about at the end of your testimony, where BPA would use one tool, which would be the tiered rates, is that—do you really truly see that as an ideal or is that because of this rather unpleasant or unsuccessful experience that you had after two years of negotiations for your conservation power plant?

If BPA—you obviously had something you wanted to do that made a lot of sense. I assume it was delivering a large amount of conservation at one cost, and maybe you can give me some numbers, what you projected with your CPP, what it would deliver at what cost, even though it all fell apart at the end.

If you could have achieved that, I assume you wouldn't have the same opinion.

Mr. DILLON. We learned many lessons as we went through the process and we're very grateful and the Board, my own Board is very grateful to the effort put forth by the Bonneville Power Administration, and our own staff that worked very, very hard to make the proposal come true.

We began negotiating for all the—for many of the principles that you've heard espoused by others today; long-term financing, flexibility at home, let us do our own thing and let us be flexible, set a fair market value, we'll go get the financing.

All of these kinds of things we thought would be very useful to us to be able to take the risk of signing a 20-year commitment to drive our load growth down below what we thought—we think it will otherwise be.

As time went on, it changed in concept from an output-based contract to a capacity-based contract, and, in fact, sitting in the Board member's chair, eventually I decided there was nothing there that we couldn't do under existing contracts and, in fact, it was a big step back from one of the existing contracts that we already had.

So we were not, in fact, advancing conservation in the region. We were about to go into contract negotiations on something that would be a setback. So the Board ended the negotiations.

It is uncertain at this point what kind of conservation reaction we are going to get to having to raise our rates after 10 years of

shielding our customers from even the effects of inflation. As I said in my testimony, we've been a BPA customer since 1949. We bid on BPA big time in the 1960s when we did not buy into the Mid-Columbia, and we bid on BPA again in the 1970s when we bought into the supply system projects.

Frankly, we're two for two and we think we just escaped another one. But the reality is that a market—the market forces do work. I've been supplied information from the Washington Natural Gas Company for our service territory and the numbers that they gave us indicated that there were 3,000 conversions in our service territory last year, electric furnaces and hot water tanks, for which we paid nothing.

At the same time last year, we ran a $12.5 million BPA prescription program which saved somewhere between 3.5 and 4.5 average megawatts. The conversions also saved between 3.5 and 4.5 average megawatts.

Now, you don't have to be a rocket scientist to figure out which way you ought to go. We have weatherized 50,000 homes that were electrically heated and very successfully with the BPA program and we now suspect the gas company is coming along right behind us and converting those homes where they are on the gas lines, increasing the savings and, I think very much to the region's benefit, substantially, but at no cost to us.

We have needs. We have growth needs. We have needs to modernize our system. We have needs now to pay BPA about $19 million or more and we just thought it was the time for us to take a pause and reexamine not our commitment to conservation, but the method for us to acquire it and the costs that we ought to be paying as a utility.

Mr. DEFAZIO. Ivan, you said something which intrigued me and I just wanted to get at it. You said that essentially you felt that the Act already sets out or mandates a tiered rate. Are you talking about the large new load requirement?

Mr. JONES. That's correct.

Mr. DEFAZIO. But are you saying that anything other than the large new load requirement of the Act—I mean, a lot of our growth isn't coming that way. So how would you deal with efficient growth?

Mr. JONES. Well, we have had experience with that in particular. It's a detriment to economic growth. In essence, if a proposed new large load comes into your region and they look at that, you either go get something else or you lose the load.

Mr. DEFAZIO. So you're saying that, therefore, you don't support tiered rates because you think that's an example of what we're headed toward.

Mr. JONES. Yes.

Mr. DEFAZIO. I would hope we could develop something. That's one of the keys, to me, in developing a tiered rate, is how do you distinguish between—I mean, you've got growth, economic development, those sorts of things. They're inevitable and desirable.

How do you construct a rate that distinguishes between—in developing tiered rates or multiple rates, whatever BPA is looking at here, and I'm always asking people to provide me with models. WAPA has done some small- scale stuff with tiered rates and there

are a couple other examples, but there's no real sophisticated examples that I've seen out there that go to my concerns.

How do you construct it that it—it isn't a barter growth. You don't want a no-growth policy—but that encourages responsible growth? If you're going to have a new load, that that load be as efficient as possible, but still develop—it's like a comment of another earlier witness. I'm sorry. I usually keep track of which witness it was.

But one person said—maybe it was Mr. Esteves, I can't remember—but someone was talking about there is a point at which a company might retrofit and that's the point at which you have to make the capital available for them to become more efficient or you've lost the expected life span of that equipment.

I would look at it the same way with new load growth. If someone wants to come in and do something and particularly in a state-of-the-art efficient manner, they might get one signal, and if they want to come in, move in an energy monster from some other place that just has high rates and bring in some inefficient technology, that they're going to get another.

I would think there would be some value to that, that we don't want to just attract indiscriminate use of power. Would you agree to that?

Mr. JONES. Yes. I would agree to that, but I have a hard time envisioning the tiered rate that would achieve the objective that you're talking about.

Mr. DEFAZIO. Well, that's to be revealed in the next hearing. I encourage you to attend. We're going to hear all about this from many perspectives how we're going to do this. I look forward to that.

I often wish things were less burdensome and complicated than they are. You talked about the debt and the fish and wildlife. One idea that I've looked at is if there is to be any refinancing of our debt or changes in terms of the Federal Government, I'd like to start getting some credit for fish and wildlife payments, because in other parts of the country, the Federal Government is carrying the burden for—that are created by regional projects as opposed to the region carrying the burden, in addition to which they want to put a hydro tax or btu tax on top of.

So we have some agreement there. But beyond that, I'm not sure. I guess you're suggesting that some substantial portion of that cost should be just shifted back to the Federal Government and away from the ratepayers

Mr. JONES. I would suggest that the proponent agencies, the fish and wildlife agencies that want these programs, support a—I don't know that it has to be substantial, but some of the costs involved in the programs to show that they have good conscience in what they're doing.

My perception is that the Bonneville Power Adminstration is considered a deep pocket for financing these programs. The state fish and wildlife agencies are having difficulties with funding from their home states and they're looking at Bonneville and they're picking up the chunk of the change, a large chunk of the change from the ratepayers. It's, indeed, a tax.

And if you compare it with cost to power the bus, which is where the economic comparison should be made, it's probably costing nearly as much for fish and wildlife as it is for the Federal dams to generate power at the bus.

So a large chunk of Bonneville's costs are in other things, transmission and the WPPSS thing and all these other things that are going on. So it just looks like it's inequitable to me and that they should be carrying a chunk of that. I don't think it would have to be a very large chunk, but it would have to be of some substance to indicate that they have assessed the programs and figured out those that are going to be of some benefit and provide achievement of the goals.

Mr. DEFAZIO. I assume you could also support the alternative which I'm suggesting, which is if we are looking at some sort of repayment restructuring, that we try and get some credit on the debt for these fish and wildlife payments and other payments that are related.

Well, I want to thank the panel. If you'll just sit there for a moment, I have some brief closing statements. But if I let you go, people will rustle around and people won't hear my sage words of summation.

I really want to thank those of you who hung in all day. This was, as people said to me, an impossibly long witness list, but this is such an important issue to the region and if I had a permanent standing subcommittee on this, which I think this issue merits and used to have before we adopted some so-called reforms in Congress which limited the number of subcommittees, which eliminated the subcommittee which I would have permanently chaired in this Congress.

Anyway, we're stuck with what we've got. So I've got to cram a lot into six months, thus the epic hearings. So I apologize for having kept everybody all day, but I think it's worth it to us as a region that we invest this little bit of time now and take a more deliberate look at what we want to do.

I think when we heard from the Administrator at the end there, he had a tough day, but I think that we also heard that not only did he sit here to receive the message personally, but that they are getting the message, and we heard that from some of the witnesses.

They need to streamline their acquisition processes. They've got to slim down. They've got to become a more results-oriented, less bureaucratic organization. We don't want to have the model process as our product. Progress is going to be the product and future orientation.

I think they've made some initial steps, but there's a lot more to be done and we've all got the responsibility as residents and ratepayers of the region to help them do that and keep moving them in the right direction.

It's my opinion that we're missing opportunities today. We've heard a variety of viewpoints and will continue to debate this, as we like to do in this region of the country, but I think there's cost-effective conservation out there that we're letting go by. We're talking about lost opportunities. I think there are lost opportunities there and I think BPA can do better.

The function-by-function review, we've heard some testimony about that. We'll hear more about it next time. I think that's essential and key to reinventing or rebuilding BPA and we're going to talk a lot more, as I said, in the next hearing about how we can help the agency begin to deliver its services more efficiently and what services it should most appropriately be delivering. There's, again, a variety of viewpoints on that. We'll discuss that some more.

I think that in response to one of the witnesses who said, well, it was good that I was talking about the next 50 years, but they're really concerned sort of about looking back. I talked about the next 50 years in terms of also looking back and I did—when I set out the objectives of this, I said that BPA had been the engine of growth for this region for the last 50 years and despite some views I hear, I believe it will be critical to the next 50 years in this region, although not quite as predominant as it has been.

That is the spirit in which I'm holding these hearings. When I opened the hearing in Washington, I said that none of us would probably be here 50 years from today to find out if we did the right things, but people will remember if we set the right course now and in the coming months and the coming years, and I'm confident we can do that. We need to do that because we do share a very common concern about the Northwest.

So I want to thank everybody again and look forward to seeing some of you at the next hearing in Seattle. Thanks very much. The hearing is adjourned.

[Whereupon, at 5:30 p.m., the task force was recessed, to reconvene at the call of the Chair.]

APPENDIX

JULY 12, 1993

ADDITIONAL MATERIAL SUBMITTED FOR THE HEARING RECORD

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BEFORE THE
BONNEVILLE POWER ADMINISTRATION TASK FORCE
OF THE
HOUSE OF REPRESENTATIVES COMMITTEE ON NATURAL RESOURCES
July 12, 1993

Statement In The Matter of:

AN ENGINEERING AND ECONOMIC ASSESSMENT OF
1,000 MEGAWATT CAPACITY CENTRAL-STATION

SOLAR PHOTOVOLTAIC GENERATION POWER PLANTS

IN THE ELECTRIC POWER RESOURCES OF THE
BONNEVILLE POWER ADMINISTRATION

Chairman DeFazio, it is a pleasure to appear before the Bonneville Power Administration Task Force to present an ENERGY GENERATION SOLUTION to the Regional contemporary crisis of ENERGY SHORTFALL, ELECTRICITY PARSIMONY, DECREASING REVENUES,and INCREASING ELECTRIC RATES.
I am Alfred H. Canada, an Electrical Engineer, Class of 1940 Oregon State University; since retiring in 1975 promulgating large-scale SOLAR PHOTOVOLTAIC ELECTRIC GENERATION as an avocation and in the public interest; including a period as a consultant on central-station photovoltaics with the Jet Propulsion Laboratory and Department of Energy. This followed an engineering career which included a time in power engineering and a

loan from industry to the Advanced Research Projects Agency in electro-optics and early-warning satellite systems.

This Testimony springs from over two years of analyses, data presentations, and testimony urging the NORTHWEST POWER PLANNING COUNCIL to revise the erroneous position on *SOLAR PHOTOVOLTAICS* adopted in their 1991 NORTHWEST CONSERVATION and ELECTRIC POWER PLAN (91-04). That COUNCIL position rejected any near-term consideration of *SOLAR PHOTOVOLTAICS* as a strategic generation resource for the Region in favor of what the COUNCIL euphemistically calls *A CONSERVATION POWER PLANT --- TO SECURE AT LEAST 1,500 MEGAWATTS OF CONSERVATION BY THE YEAR 2000*. The COUNCIL's reservations, made with scanty and non-existent documented support, extended to BPA under a "consistency" provision in the REGIONAL ACT (PL 96-501), perceived two *UNCERTAINTIES* --- TOO EXPENSIVE and QUESTIONED ADEQUACY OF SOLAR-FUEL IN THE REGION.

COUNCIL'S "NEGAWATTS" RESPONSE TO ELECTRICITY SHORTFALL

In preparing the 1991 POWER PLAN and taking commentary on the DRAFT, the Council ignored the engineering and economic analyses, based in the two decades of government and industry photovoltaics research, development and demonstrations, the data submittals,

conceptual power plant analyses, and lately a full-scale Mockup of a Portion of a SOLAR VOLTAIC GENERATION (SVG) power plant. That Solar Voltaic Generation potential, again advanced herein, shows near-term engineering and economic viability of strategic amounts of solar photovoltaic generation. Instead, the Council committed to an energy conservation mission to reduce or withdraw electric consumption and fuel-switching to offset imminent Regional energy deficits. Moreover, the *1500 average Megawatts of CONSERVATION* called for in the 1991 POWER PLANT is followed in the first decade of the next century with a similar amount of "conservation brownout" --- and then indication of a return to nuclear power, perhaps WNP 1, 2 & 3 being mothballed at a considerable fraction of the BPA annual budget.

The following Tables shows the 1991 POWER PLAN "Resources" response to the BPA projected Firm Energy Deficits; being to conserve, stop using the electricity in amounts comparable to the projected deficit and indications of back-to-nuclear after two decades of operation of the Northwest Power Planning Council's "Conservation Power Plant".

ANNUAL ENERGY PROJECTIONS IN average MEGAWATTS
(aMW = Megawatt-Year = 8,760,000 Kilowatt-Hours)

BPA/(D)EIS-3/92 FIRM ENERGY - Surpluses / (Deficits)
(No Resource Acquisitions)

	1992	2002	2012
Low-Loads	750	2100	1900
Medium Loads	(200)	(600)	(1300)
High Loads	(1090)	(2900)	(4850)

1991 POWER PLAN RESOURCES - Withdrawals / [Nuclear]
(1991 POWER PLAN Portfolios for "Medium-High Growth")

	2000	2010
P-1, Load Uncertainty	-1390	-2920
	[zero]	[330]
P-2, Nuclear & Coal Uncertainty	-1390	-2920
	[zero]	[zero]
P-3, Conservation Uncertainty	-1020	-2110
	[10]	[530]
P-4, Natural Gas Uncertainty	-1390	-2930
	[60]	[920]

S V G MEGAWATTS RESPONSE TO ELECTRICITY SHORTFALL

Rather than eighteen years of electrical energy belt-tightening and concomitant upward adjustments of electric rates to urge conservation and to maintain revenue, large-Scale SOLAR VOLTAIC GENERATION (SVG) is an available alternative. Thousand megawatt capacity SVG Plants can go on-line incrementally in this decade providing new electric generation to match or exceed the electrical energy short-falls. A non-proprietary and in the public interest generic SOLAR VOLTAIC GENERATION plant engineering and economics is shown

that can be implemented by BPA for start-up of several thousand megawatt capacity SVG POWER PLANTS before the turn of the century.

To lessen environmental impacts and regulatory siting delays, each thousand megawatt SVG Power plant occupies 5220 acres of tilled land in co-production of crops and kilowatts. This analysis of SVG POWER PLANTS in the BPA system shows plant investment and cost of SVG energy to be well within current Pacific Northwest rate structures. SVG POWER PLANTS capacity capable of supplying 1500 aMW annually require only a part of the $2.8 Billion the Bonneville Power Administration recently assigned to "acquiring conservation".

The 1000 Megawatt gross maximum capacity plant consists of two parts, 1) a BPA procured and operated INTERFACE SUBSTATION growing with electric demand to cover a little over eight Sections of land and 2) Independent Power Producer owned SOLAR VOLTAIC UNIT GENERATORS producing energy at thousands of standardized, interface "power slots". Such an INTERFACE SUBSTATION cost is conservatively shown at less than $168 Million. An energy options solicitation of the many worldwide manufacturers of Solar Voltaic Unit Generator modules can be expected to yield energy option offers at less than current BPA's *Avoided Cost* or *Preference Rate* of 2.27 cents per kilowatt-hour. A BPA Interface Substation fully provisioned with IPP owned Solar

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Voltaic Unit Generators, for example located at Redmond, Oregon, would produce about 205.8 aMW (average Megawatts) annually.

COST-EFFECTIVENESS: GENERATION vs.CONSERVATION

A study conducted of the costs of the Council's conservation program, per unit of energy saved, brings into question the cost-effectiveness of conserving or withdrawing that annual 1500 aMW by the year 2000.

> *BPA is spending $2.8 Billion to acquire all proven cost effective energy conservation available. (DOE/BPA InfoRelease 12/11/92)*
>
> --- and ---
>
> *We're going to have to spend $7 Billion by the year 2000 for conservation. (Ed Sheets, Executive Director, Northwest Power Planning Council, per McCall-AP 6/12/93).*

Acquiring energy conservation at a uniform annual rate over eight years toward the 1991 POWER PLAN's "call to action for 1500 aMW by the year 2000", equates to 1500 aMW for four years or 52.5 Billion kilowatt-hours* saved in the first of two conservation efforts called for by the Northwest Power Planning Council. Then BPA's $2.8 Billion of our revenue is 5.3 cents per kilowatt-hour unit of energy saved if all assigned to

---

*4 Yrs x 1500aMW x 8,760,000 kWh/aMW = 52.5 Billion kWh

the Council's electric conservation --- and two and a half times that cost per unit of energy saved with the COUNCIL's $7 Billion prediction.

The following Table suggests a more cost effective use of only a portion of $2.8 Billion to acquire new generation of 1500 average Megawatts of electrical energy --- and much more if using the Northwest Power Planning Council's estimate of the costs of conservation.

SOLAR VOLTAIC GENERATION - Supply / [Number of Plants]
(BPA Acquisitions of SVG Interface Substations)

	2000	2010
For $1.2 Billion	1500 [7.3]	1500 [7.3]
For $2.8 Billion	3420 [16.6]	3420 [16.6]
For $7.0 Billion	3420 [16.6]	8550 [41.5]

(Note: At $160/kW a 1053 MW-installed nameplate capacity, SVG Interface Substation investment is $168.48 Million in a 1000 MW-gross maximum capacity Plant. Then provisioned with Independent Power Producer's Solar Voltaic Unit Generator modules, that 980 aMW-gross dependable capacity SVG Plant at Redmond, Oregon levels of Solar-Fuel can produce 205.8 aMW annually.)

Cost of the conservation program is better spent on new revenue-producing generation that produces revenue than on thick-insulation, energy saving devices, conversions to natural-gas, and on replacing revenue lost on curtailed electric sales.

FITTING SVG GENERATION TO DEMAND

The sun doesn't generate at night. So what about storage? The HYDRO and SOLAR generation combination is a unique opportunity in the Pacific Northwest. The diurnal and seasonal variation of the solar photovoltaic resource can be balanced against water-budgets, pond-storage, pumped-storage, morning/evening fish-migration spills, and firming the nonfirm hydropower. Nonfirm energy --- that over and beyond the historic dependable flow of the river --- when available is prioritized first to the interruptible Direct Service Industries, second to displace Northwest thermal plants, and the remaining sold to Southwestern utilities. In the BPA system, the diurnal and seasonal variation in Solar-Fuel generation can be dispatched to firm a portion of the non-firm hydropower; here illustrated for one probability of availability of non-firm energy. Using solar-fuel weather models probabilities of availability can be determined just as hydrographic projections are now made for river-flow "hydro-fuel" and non-firm energy at BPA's Dittmer Control Center.

MONTHLY FIRMING THE NON-FIRM HYDROPOWER ENERGY - aMW
(50% Probability of Hydro Availability compared to the 41.5 Plants, 41,500 MW of SVG capacity)

	River	SVG		River	SVG
January	4200	360	July	8100	1057
February	5750	480	August	2300	996
March	7400	641	September	0	895
April	6000	795	October	300	663
May	8750	896	November	1250	439
June	8300	950	December	1750	395

THE 1991 POWER PLAN COST UNCERTAINTY

A REFERENCE PLANT model for cost analysis and for fuel availability is critical in an engineering determination of the cost and economics of a power plant. Ill-advisedly the Northwest Power Planning Council, was led to and adopted as their FUNDAMENTAL SOLAR EQUATION the abstruse Algorithm and Nomograph developed at the Electric Power Research Institute in 1983 for the Department of Energy 5-Year Research Plan-1984-88. The same 1983 values are shown in The *fundamental solar equation nomograph* in the Council's 1991 POWER PLAN uses the same 1983 "efficiency values" locations, although with extended ordinate and abscissa. Thus, the COUNCIL determined their *COST UNCERTAINTY* of 30¢/kWh levelized nominal cost for *Solar Photovoltaic* in their 1991 POWER PLAN. No references nor documentation are evident in the 1991 POWER PLAN, nor in incidental COUNCIL Issue Papers to support either the PV module or balance-of-plant costs used in the nomograph determination of a *30¢/kWh levelized nominal cost for Solar Photovoltaics*. There are no references to extant physical plants, demonstration plants, conceptual designs nor to some plant mockup upon which to analyze the costs used in the Council's determinations. The following Nomograph is the COUNCIL's "Fundamental Solar Equation"; hardly a

suitable reference plant on which to reject the *Solar Photovoltaics Resource* and fall back on their *Conservation Resource*.

Photovoltaic Flat Plate Goals

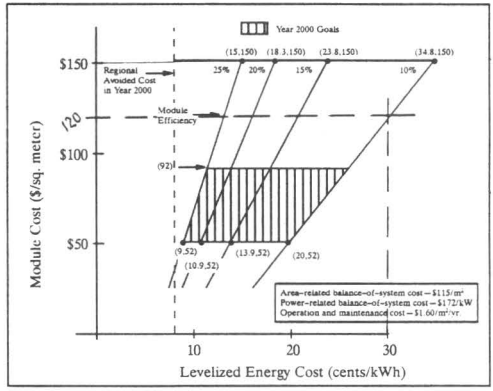


Figure 8–42
Photovoltaic Two–Axis Flat Plate Year 2000 Goals (1990 Dollars)

PER THE 1991POWER PLAN "FUNDAMENTAL SOLAR EQUATION"
(From NOMOGRAPH, DOE 5-YEAR PV Research Plan 1984-88 of May 1983)

PV MODULE (unit generator)	$120 - $150/m²	
At a 10% Fuel-Rate		$1500/kW-inc
BALANCE-OF-PLANT	(area) $115/m²	
	(power) $172/kW	
At a 10% Fuel-Rate		$1322/kW-inc
1991 POWER PLAN PV PLANT Total		$2822/kW-inc
OPERATION & MAINTENANCE	$1.60/m²/Yr	
In 20% Fuel Determined Capacity Factor		0.9¢/kWh
LEVELIZED NOMINAL COST		30.0¢/kWh

Note that in this 1991 POWER PLAN "costing model", higher efficiency goals are favored, apparently awaiting a very unlikely 25% flat-plate efficiency in $52/m² modules for 9¢/kWh cost of energy in order to approach a "regional avoided cost in the year 2000" of 8¢/kWh compared to the present 2.6¢/kWh. This DOE '83 Nomograph that has been used over the past decade to prompt the "efficiency race" and to send large-scale solar photovoltaics back to research and development in PV cell and PV module EFFICIENCY.

Improved efficiency is good, fewer unit generators being needed for a specific plant capacity. Since solar-fuel is zero-cost delivered at the site, there isn't the same persuasion toward efficiency or heat-rate improvements as for expensive fossil and mineral fuels with expensive pollution content. If saving fuel and pollution limitation doesn't drive PV efficiency, what does? In the 1991 POWER PLAN "fundamental solar equation" the high Plant cost of $2822/kW is largely dependent on per square meter costs of the balance-of-plant required to support a given capacity of solar photovoltaic generator modules. However, if the balance-of-plant is a low cost, say less than $160/kW, then a 50% improvement in unit generator fuel-rate, e.g., from 0.1 to 0.15 (10% to 15% efficiency), yields a balance-of-plant less than

$106/kW. This is much smaller impact of balance-of-plant than the Council's $1322 per installed kilowatt of unit generator capacity.

THE 1991 POWER PLAN SOLAR-FUEL UNCERTAINTY

The 1991 POWER PLAN overlooked the vast body of HOURLY SOLAR-FUEL predictive models, analyses, and measurement confirmation at numerous sites in the U.S., compiled in various Department of Energy Programs and the NATIONAL SOLAR RADIATION DATA BASE--1961-1990 at the National Climate Data Center. Rather, the Council subscribed to a BPA funded Pacific Northwest Solar Radiation Data Measurement Program conducted by the University of Oregon and to the notion that perhaps some fifteen years of specific site measurements would be required to establish adequate Solar-Fuel data at each Pacific Northwest location of interest.

The Solar-Fuel quantity, quality, availability and the dispatchability of resultant photovoltaic electric power at any Pacific Northwest location can be determined in advance as an operational part of the hydrographic and weather predictions at BPA's Dittmer Control Center. Similar is already standard practice at most photovoltaic power plant sites throughout the Country. Hourly and daily predictions based on locally adjusted atmospheric transmission and scattering models

are confirmed or further fine-tuned upon actual measurements. Southern California Edison at their two megawatt capacity Solar Photovoltaic Power Plant at the Lugo Substation in California has used days in advance satellite photos to predict solar-fuel availability and dispatchability, days in advance.

The following Table shows the potential monthly and annual generation from a 1000 Megawatt-gross maximum capacity Solar Voltaic Generation Plant at any of twenty-five locations in the Pacific Northwest. Also, generation is shown for the Solar Voltaic Generation Plant if placed at Daggett or Sacramento in California. This is generation for a Flat-Plate array with the Solar Voltaic Unit Generator panels tilted at the angles shown (approximating the site Latitude). The Annual Insolation and the Annual Fuel Dependent Capacity Factors are shown; approximating the Plant gross annual capacity factor if all of the solar derived generation is dispatched. Orientating these annual SVG PLANT capacity factors, the hydro-electric portion of BPA's resources operates at about 32% gross annual capacity factor, about a third of the energy that could be produced if all of the turbine-generators had water to operated at full capacity around the clock all year.

SVG ENERGY FROM A 1053 MW-INC, 980 MW-GDC SOLAR VOLTAIC GENERATION INTERFACE SUBSTATION

FROM 1980 DOE/JPL HANDBOOK OF SITE-WEATHER CORRECTED HOURLY SOLAR-FUEL PROJECTION DATA THAT COULD BE SUPPLIED BY DITTMER CONTROL CENTER COMPUTER FOR SVG PLANT OPERATING PLANS AND GENERATION DISPATCH

aMw. average MEGAWATT EQUALS ONE MEGAWATT-YEAR OR 8,760,000 KILOWATT-HOURS. FDCF. FUEL DEPENDENT CAPACITY FACTOR. GACF, GROSS ANNUAL CAPACITY FACTOR.

◊SITE DATA CONFIRMED WITH BPA/UNIVERSITY OF OREGON MEASUREMENTS, STANDARD-DEVIATIONS IN THE ORDER OF SITES, 0.058, 0.068, 0.110, 0.051. Also Sacramento Municipal Utility District PV-1 actual x 1000 for 1991.

LOCATION	ARRAY TILT °	ANNUAL INSULATION	FUEL-DEPENDENT CAPACITY FACTOR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
BOISE, ID	35 °	1985.5 kWh/m²	22.7%	8.35	12.61	17.10	20.82	23.58	24.54	27.13	25.49	23.85	18.54	11.72	8.38	222.46
LEWISTON, ID	45 °	1568.0 kWh/m²	17.9%	5.95	9.22	13.30	15.86	18.20	19.06	23.21	22.05	20.01	14.49	7.99	5.68	175.42
POCATELLO, ID	35 °	2037.8 kWh/m²	23.3%	9.41	13.19	17.96	20.65	23.52	24.61	26.86	25.87	24.16	19.60	12.95	9.17	228.34
BILLINGS, MT	35 °	1799.5 kWh/m²	20.5%	9.03	11.68	15.72	17.35	19.97	21.94	25.03	23.70	20.17	16.26	10.93	8.73	200.9
CUT BANK, MT	40 °	1716.3 kWh/m²	19.6%	8.24	11.27	15.52	17.12	19.61	20.42	23.93	22.50	19.27	15.45	10.48	7.93	192.08
DILLON, MT	35 °	1867.0 kWh/m²	21.3%	9.83	13.09	17.07	18.74	20.74	21.56	25.06	23.60	20.84	16.83	11.77	9.28	208.74
GLASGOW, MT	40 °	1674.8 kWh/m²	19.1%	7.68	10.81	15.02	17.06	18.90	20.33	22.81	21.96	18.93	15.40	10.20	7.75	187.18
GREAT FALLS, MT	40 °	1726.8 kWh/m²	19.7%	8.30	11.60	15.95	16.97	19.01	20.81	24.14	22.68	19.35	16.12	10.41	7.45	193.06
HELENA, MT	35 °	1711.2 kWh/m²	19.5%	7.72	10.98	15.37	17.19	19.70	20.86	24.88	22.89	19.66	15.51	10.29	7.62	193.06
LEWISTON, MT	35 °	1687.8 kWh/m²	19.3%	7.84	10.70	15.10	16.63	19.05	20.96	24.30	22.46	18.98	15.13	9.92	7.70	189.14
MILES CITY, MT	35 °	1773.3 kWh/m²	20.2%	8.52	11.51	15.75	17.66	19.86	21.70	24.14	23.26	19.90	15.99	10.93	8.39	197.96
MISSOULA, MT	35 °	1537.4 kWh/m²	17.5%	5.84	8.38	12.76	15.78	18.69	19.58	24.60	22.09	18.59	13.06	7.57	4.92	171.5
ASTORIA, OR	35 °	1300.0 kWh/m²	14.8%	5.83	7.67	10.93	14.12	16.70	16.36	18.19	17.07	15.64	10.96	6.79	4.51	145.04
◊BURNS, OR	35 °	1835.5 kWh/m²	20.9%	8.45	11.71	15.24	18.57	21.14	22.64	25.39	23.96	21.89	16.53	10.83	8.18	204.82
MEDFORD, OR	30 °	1729.4 kWh/m²	19.7 %	6.11	10.29	14.19	18.50	21.26	23.09	25.94	24.38	20.85	14.57	8.15	5.33	193.06
◊NORTH BEND, OR	30 °	1581.4 kWh/m²	18.0 %	6.99	9.91	13.27	17.03	19.51	20.32	22.15	20.42	17.85	13.20	8.85	6.58	176.4
PENDELTON, OR	35 °	1649.0 kWh/m²	18.8 %	5.67	8.90	13.53	17.09	20.08	21.61	25.15	23.35	20.66	14.61	7.88	5.27	184.24
◊PORTLAND, OR	30 °	1381.9 kWh/m²	15.8 %	5.38	7.63	11.28	14.89	17.69	18.34	21.78	19.43	15.95	10.73	6.41	4.94	154.84
◊REDMOND, OR	35 °	1837.7 kWh/m²	21.0 %	8.69	11.58	15.46	19.18	21.60	22.89	25.48	24.01	21.59	15.97	10.59	8.31	205.8
SALEM, OR	30 °	1461.3 kWh/m²	16.7 %	5.76	8.14	11.92	15.60	18.43	19.04	22.82	20.57	17.51	11.41	6.74	5.25	163.66
OLYMPIA, WA	30 °	1296.5 kWh/m²	14.8 %	4.66	6.91	10.65	14.36	17.42	17.59	20.55	18.00	15.28	9.42	5.61	4.25	145.04
SEA-TAC, WA	30 °	1365.8 kWh/m²	15.6 %	4.60	6.84	10.79	14.88	18.38	18.79	24.34	18.96	15.22	9.91	5.65	4.09	152.88
SPOKANE, WA	35 °	1629.3 kWh/m²	18.6 %	5.34	9.15	13.85	17.29	20.31	21.27	25.15	23.11	20.18	13.95	7.49	4.80	182.28
WHIDBEY ISLAND, WA	35 °	1392.0 kWh/m²	15.9 %	5.55	7.86	12.05	15.53	18.66	18.62	21.08	18.69	16.04	10.38	6.64	4.39	155.82
YAKIMA, WA	35 °	1703.9 kWh/m²	19.4 %	6.31	10.04	14.86	18.39	21.08	21.92	24.88	23.25	20.60	14.56	8.28	5.57	190.12
DAGGETT, CA	30 °	2358.1 kWh/m²	26.9 %	15.02	17.72	21.86	24.82	25.88	26.66	25.95	26.11	25.13	21.76	17.61	14.83	263.62
SACRAMENTO, CA	30 °	2097.2 kWh/m²	23.9 %	9.13	12.98	11.32	22.34	24.96	26.63	27.59	26.74	24.69	19.48	12.81	8.89	234.7
◊SMUD PV-1 1991-Actual, 1.175 MW-inc x 1000	0° E-W Tracking		(19.4% GACF)	7.62	7.07	7.08	22.05	22.54	24.53	30.32	27.81	27.81	10.40	6.96	6.02	194.0

Just as measured insolation is used to confirm and adjust the local atmospheric solar-fuel models, the University of Oregon measurement data is compared for four of the locations, showing good confirming *standard deviations*.

Further illustrating fine-tuning the solar-fuel model, the 1991-Actual generation from the Sacramento Munici-

pal Utility District's PV-ONE 1.175 Megawatt photovoltaic power plant is shown, multiplied by one-thousand to approximate a hypothetical SVG Plant at that location. SMUD PV-ONE uses East-West tracking that should gather more insolation --- minus of course the energy used in tracking. The PV-ONE actual performance data suggests that the atmospherics used in the prediction model for a similarly located SVG Plant needs local daily weather corrections in those five winter months of low output at the SMUD PV-1 location.

BPA AGREES WITH THE PLANNING COUNCIL'S UNCERTAINTIES

On May 8, 1992 the Solar Voltaic Generation Plant, basically as shown in these written comments, was proposed to the Bonneville Administration, in response to a BPA Solicitation, *Request for Energy Options: The Resource Contingency Program-March 1992*. The Proposal was pro bono in the public interest, readily engineered and conducted in-house by BPA, offering to supply only modest consulting if required. The caveat in the BPA Solicitation reads;

> BPA is only interested in taking options on resources that are cost-effective, reliable, environmentally acceptable, and CONSISTENT WITH THE OBJECTIVES OF NORTHWEST POWER PLANNING COUNCIL'S 1991 POWER PLAN. BPA is required by the Pacific Northwest Electric Power Planning and Conservation Act (PL 96-501) to conduct a public review of any decision to acquire a major resource to determine consistency with

> the Northwest Power Planning Council Power Plan that is in affect at the time. (emphasis added)

A Solar Voltaic Generation Proposal for 800 aMW at 2.8¢/kWh was obviously not CONSISTENT with 30¢/kWh cost and solar-fuel uncertainties of the 1991 POWER PLAN. BPA-RMGC by letter of June 30, 1992 rejected the Solar Voltaic Generation Proposal with;

> BPA agrees with the Council that solar has uncertainties which preclude it from being considered a reliable cost-effective resource at this time. For this reason it was not included in our request for energy options.

More recently, and curious in light of the 18.6% (Gross) of the FY 1994 Budget Obligations to debt service, operations and mothballing of WNP-1, 2 & 3, a BPA-RMG letter of May 7, 1993 declining an offer to the Administrator to Brief and set up the SVG PLANT MOCKUP for display at BPA Headquarters, responded;

> BPA is prohibited by Federal Law from designing, owning, constructing, operating, or maintaining generation facilities. This prohibition includes substations within generating plants, such as the ones (described in conceptual terms) which you have proposed that BPA design and construct. In addition, due to the current BPA fiscal crisis, occasioned primarily by the ongoing drought and resulting power purchases, we have had to cut back on many worthwhile programs and projects, and are not beginning any new ones for the foreseeable future. Therefore, no funds or personnel are available to engage in basic research concerning NON-VERIFIABLE CONCEPTS, such as your Solar Voltaic Generation. (emphasis added)

In a BPA-RMG letter of July 1, 1993, BPA illuminates the problem in attempting to realize strategic Solar Voltaic Generation for the Pacific Northwest and the need for a Task Force instigated evaluation of the viability of solar photovoltaics for bold power applications in the Region.

> From a technical perspective, BPA must rely on a combination of the knowledge and technical expertise of our engineers, our review of technical journals and publications, publications and advice from the ELECTRIC POWER RESEARCH INSTITUTE and on the advice of the REGIONAL POWER COUNCIL. Each of these sources uniformly indicates that solar voltaic generation is not yet commercially viable for bulk power applications. (emphasis added)

SVG POWER PLANT ENGINEERING AND ECONOMICS

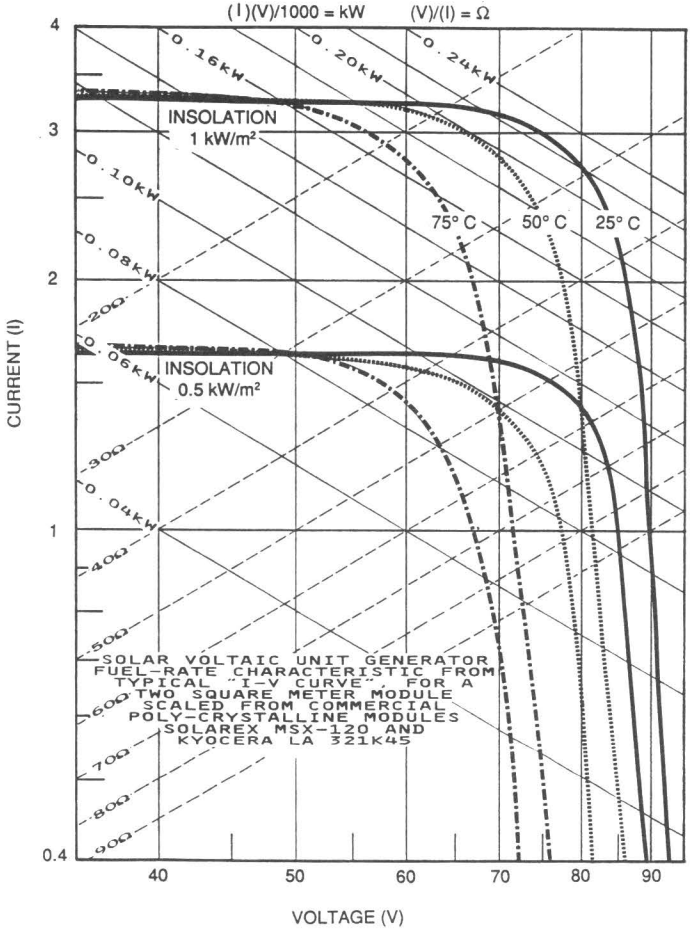
Analyses, data, conceptual plant characteristics, costs, solar-fuel tables and a full-scale mockup have been assembled showing a 1000 MW-gmc SOLAR VOLTAIC GENERATION PLANT. As shown in the following Figure, the SVG PLANT is divided into two parts. For the generator part of the SVG PLANT, each SOLAR VOLTAIC UNIT GENERATOR (SVUG) is isolated from the balance-of-plant by an induction coupler. This is a two part isolation transformer for energy and SCADA (Supervisory Control and Data Acquisition); being driven by integrated-circuits built into the SVUG module. The SOLAR VOLTAIC INTERFACE SUBSTATION (SVGIS) is owned and remotely operated by BPA from a facility such as the BPA Dittmer Control Center in Vancouver, Washington.

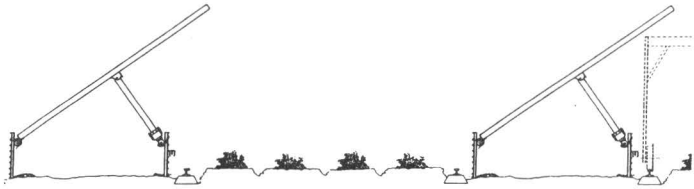
The Solar Voltaic Unit Generators using a standardized frame and Power/SCADA Coupler are Independent Power Producer owned and maintained. They are plugged into "power slots" in the Interface Substation. Electrically isolated, the SVUG can contain any advanced photovoltaic material that is developed in a competitive and proprietary Photovoltaic Module manufacturing industry. This encourages a successful manufacturer and energy options resource supplier to upgrade rated capacity and performance for "his" SVUGs plugged in to "his" energy-option "power slots", earning more energy option revenue. The Department of Energy sponsored "efficiency race" of the last decade will become highly proprietary and manufacturer funded.

Typical D-C electrical characteristics of photovoltaic modules in current commercial manufacture are scaled to a two meter square Solar Voltaic Unit Generator and shown in an *SVUG Fuel-Rate Characteristic* chart. As insolation input and temperature of the SVUG effects the output power level, the source impedance and the terminal current and voltage change as shown. Manufacturers of SVUGs will develop proprietary circuits to adjust to the maximum power point for insolation and temperature conditions and provide power at the primary of the secondary of the two-part power coupler transformer; in this generic plant example standardized at 100 volts, 480 Hz alternating current. With maximum powers of 200 to 300 watts integrated

circuits and power components are readily packaged in the support leg hold a clamping device. Converting to a low-voltage and higher frequency A-C output within the proprietary SVUG allows smaller transformer components in the coupler and in the balance-of-plant. It avoids the serious problems encountered in most current PV power plants of high-voltage D-C series groups of matched-sets of PV power modules.

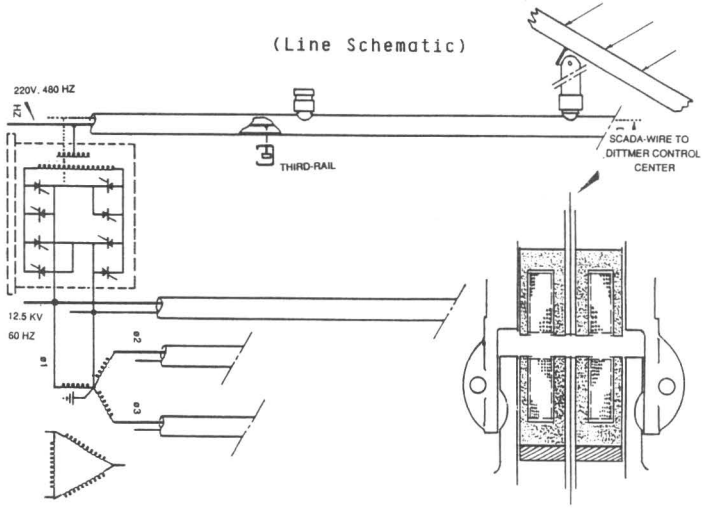
As shown in the following Photograph of a portion of the Interface Substation with one SVUG plugged-in at a Power/SCADA Coupler, the Interface Substation uses engineering, components, construction and maintenance common to the *power distribution engineering and service-yards* at a local power company. It is incrementally installed, perhaps on some local tilled land in a utility/farmer agreement. The SVG Plant can be supplemented and go on line as sections are added to meet some new local load or to earn more billing-credits for a preference-utility on the BPA system. It is not a turn-key plant waiting on a plant completion date while accumulating interest during construction costs; being engineered and constructed by an Architectural & Engineering firm. The gathering of electrical energy from thousands of SVUGs arrayed over a large area is similar in apparatus and energy-density to the distribution of electrical energy in an urban area.


(I)(V)/1000 = kW
(V)/(I) = Ω
0.16kW
0.20kW
0.24kW
INSOLATION
1 kW/m²
0.10kW
0.08kW
200Ω
75° C
50° C
25° C
0.06kW
INSOLATION
0.5 kW/m²
300Ω
0.04kW
400Ω
500Ω
600Ω
700Ω
800Ω
900Ω
SOLAR VOLTAIC UNIT GENERATOR
FUEL-RATE CHARACTERISTIC FROM
TYPICAL "I-V CURVE", FOR A
TWO SQUARE METER MODULE
SCALED FROM COMMERCIAL
POLY-CRYSTALLINE MODULES
SOLAREX MSX-120 AND
KYOCERA LA 321K45
CURRENT (I)
VOLTAGE (V)
4
3
2
1
0.4
40
50
60
70
80
90



SOLAR VOLTAIC GENERATION PLANT with 12 foot agriculture strip between 2" conduit supported on 3" highway-stakes. Service-car carries robotic equipment for servicing the SVG Plant and tending the crops.

SOLAR VOLTAIC GENERATION POWER PLANT line diagram showing the conduits, low-voltage power and SCADA signal-line and hi-voltage to area transmission. Supervisory Control and Data Acquisition and low-voltage power at each plug-in Induction Coupler, shown in the inset. Pad-mounted enclosure every 650 feet along row for a 480 Hz step-up transformer and frequency divider.



SOLAR VOLTAIC GENERATION PLANT FULL-SCALE MOCKUP showing a 9 foot section of array-row structure with single 0.20 kW Solar Voltaic Unit Generator plugged-in to a Induction Couple power-slot in this 0.56 kW portion of a row. For illustration, one foot sections of rails and 3rd-rail are shown in hangers on the three inch highway-stakes support.

COST RATIONALE

A generic design and costing is shown for a Plant using fixed-tilt, flat-plate Solar Voltaic Unit Generators (SVUGs) arranged in East-West rows with sufficient separation to minimize row to row shadowing for Pacific Northwest Latitudes. The electrical, mechanical and SCADA protocol external characteristics are standardized to ensure SVUG interchangeability for different manufacture photovoltaic materials techniques and improved performance, capacity and lifetimes. Isolating each SVUG at a power/SCADA coupler avoids problems of a failing or faulted PV module in a series string of eight or ten carefully matched PV modules, as in present practice for PV power plants and test sites. The isolation approach allows remote controlled maintenance and SVUG placement and replacements "plug-in" with robotic apparatus on rail-cars straddling the East-West rows.

Tracking the Sun with a flat-plate SVUG in daily E-W transits and possibly in seasonal N-S solar elevation, increases the amount of daily and annual energy that each square meter of SVUG aperture can gather. Concentrators with lens or mirror-dish collectors tracking the sun can in clear sky conditions deliver more energy to a photovoltaic cell at the focus, where the cell with some means of cooling can exhibit higher efficiencies. However, each of these tracking schemes

involves more complex mechanical apparatus, reduced lifetimes of mechanical parts, power to drive the tracking, additional operation and maintenance expense, and sky conditions with a high ratio of direct to diffuse irradiation. The energy/cost tradeoff is straight forward in the additional capital costs, tracking-power and O&M versus the value of the additional kilowatt-hours obtainable from the tracking PV receiver. In most cases examined through the years, this tradeoff has favored the economics of the simple fixed-tilt, flat-plate solar photovoltaic power plant.

The low-cost of SVG INTERFACE SUBSTATION part of the SVG Plant is apparent in the modest materials list and utility service-yard construction practices. Estimating factory cost of SVUGs in million quantities production might be based on manufacturing learning-curves beyond today's short-run prototype/R&D shop selling prices, or on a parts and operations computer model analysis like that at the Jet Propulsion Laboratory a decade ago in Department of Energy programs, or on the cost of a comparable electrical product in mass production --- comparable in processing complexity, in materials, in compatible packaging, and in required quantities.

Selling prices for small quantities, from what are essentially R&D prototype manufacturing facilities,

have been reported in the range of $4000 per kilowatt of modules capacity. Southern California Edison and Texas Instrument suggested selling prices of roof-top home units at $1500 to $3500, when the "Solar Spheral" Modules reach production in 1994. Ten years ago the DOE Program computerized cost-model at the Jet Propulsion Laboratories, projected $200/kW factory cost by 1991 in large quantity production. The on-going Department of Energy program "PVMaT-A Government and Industry Partnership for U.S. Competitiveness", currently funds several programs in industry to reduce costs and increase quantities in photovoltaic module production. When true mass-production is applied in lines producing a few hundred megawatts of PV modules annually, factory costs well under $500/kW appear likely.

The ubiquitous 4-foot fluorescent lamp is a "comparable" electric product, useful in a value-analysis factory-cost estimating of large quantities SVUG module production. A one-meter tube can hold about 0.005 kW capacity of various thin-film or amorphous materials as in the SOLAREX OR KYOCERA modules used to construct the *Solar Voltaic Unit Generator Fuel-Rate Characteristic* in a previous Figure. The material content, complexity of processing and needed production quantities in a photovoltaic "power tube" or in a fluorescent lamp are comparable. Some fluorescent lamps are produced on one of several

"horizontal machines" at the General Electric Lamp Plant in Bucyrus, Ohio, running from glass-furnace to finished lamps as fast as four per second ----- and often sell at 79¢ at the hardware store. Then following that "comparable" example, a modified "machine" might be able to produce 630 MW of capacity per year at $158/kW if the resultant "5 Watt Power Tubes" sold at 79¢ retail.

PHOTOVOLTAICS PROGRAM MODULE PRICE HISTORY

A "Solar Voltaic Unit Generator: Chronology of Technical Readiness" is Appendix A to these Remarks. It shows the progress in module efficiency and cost related to the various DOE Programs, DOE Program Plans, attempts for PV power plant, and Congressional actions on behalf of large-scale solar photovoltaic generation, from 1973 to the present. The various "goals" set by the Congress and DOE PV Programs, and often met in "technical readiness", provide a fair guide to factory-costs when mass-produced, upon which to anticipate energy option offers to plug in to a BPA Interface Substation and earn a return on the SVUG factory cost? Is Electric Power Research Institute's January 1978 Report anticipating $400/kW modules a valid current

factory cost estimation? The preponderance of accomplishment and costs during two decades of the "efficiency race" favors an under $500/kW factory cost for SVUGs in million quantities production runs.

Perhaps more interesting to this Congressional Task Force is that fifteen years after the Congress set a national goal in PL 95-590 for 4000 Megawatts of PV at an installed cost of $1000/kW by 1988, we are still languishing in R & D. Some experts now put accomplishing those goals out to 2010. And, there have been five more Acts of The Congress in the interim to spur utility-scale solar photovoltaic generation. It took only seven years from the "man on the moon" national goal to the Apollo Landing in July 1969. Solidstate devices in shirt-pocket calculators and personal computers went from a idea to market saturation and price wars during that fifteen years of photovoltaic research and the "efficiency race" still ongoing in solar photovoltaic power. Perhaps another push by the Congress to install thousand megawatt capacity Solar Photovoltaic Generation in the Pacific Northwest in this Century along with the incentive of 1.5¢/kWh direct payment for solar generation in the Comprehensive Energy Policy Act of 1992 can bring about that 1988 Goal set by the Congress to solve the contemporary energy crisis in the Pacific Northwest.

ENERGY OPTIONS SOLICITATION

On the argument that Solar Voltaic Unit Generators will emerge at factory costs well under $500 per kilowatt of capacity upon the market-pull of 1000 Megawatt Interface Substation in the BPA System, consider an energy purchase method, similar to the Independent Power Producer approach for most "wind farms", where a PV module manufacturer/IPP, a Direct Service Industry, or a Consumer Owned Utility can sell energy at a million power-slots in a power marketing agency owned and operated SVG Interface Substation "farm", earning a return on his factory cost.

SVUG MANUFACTURER/IPP ENERGY OPTIONS ECONOMICS

1.0 kW Unit Gen. Factory Cost	Annual kWh at 20% FDCF	% Gross Return at 2.8¢	4.3¢/kWh
$300/kW or $30/m² @ 10%	1752 kWh	16.3	25.1
$500/kW or $70/m² @ 14%	2453 kWh	13.7	27.1
$1000/kW or $136/m² @ 18%	3154 kWh	8.8	13.6

This is based on a selling energy at the Fuel Dependent Capacity Factor at the SVUG interface connector primary and on the nameplate capacity rating of the SVUG. The present "cost threshold" at BPA is 2.8¢/kWh. When the Congress funds the provision of the Comprehensive Energy Policy Act-1992 (PL 102-486, Sec. 1212) for direct payment of 1.5¢/kWh to IPPs providing PV energy at "power-slots" in a BPA Interface

Substation, there can be the 4.3¢/kWh for gross return on the IPPs unit generators. Arguably, competitive Energy Option Offers can come in under two cents per kilowatt-hour.

CROPS AND KILOWATTS

CROPS & KILOWATTS offers mutual benefits for either product from the land; electrical energy as a farm commodity! Sharing the necessary automated servicing access to miles of rows and rows of Solar Voltaic Unit Generators, provides a potential in automated, tracked-farming and an easing of environmental and regulatory problems. The array-powered rail-car with robotic SVG servicing equipment can as well provide automated agronomy for a food, feed or fiber crop located between solar-array row. Extensive automated agronomy is already practiced in parts of the country, including soil-preparation, planting, fertilizing, thinning, pruning, irrigating and harvesting . In the Pacific Northwest a fiber crop between SVG-rows could form the basis of a fully automated "synthetic lumber mill" with fiber and resin coming from the crop and microwave curing from the electric power --- making lumber while the sun shines. Establishment of some manner of automated agronomy institute at a University could develop new businesses and farm-implements industries

associated with forty or fifty Solar Voltaic Generation Plants each occupying 5222 Acres of tilled land.

CROPS and KILOWATTS IN CO-PRODUCTION

Collocation on already tilled land:-
- Mitigates Environmental Impacts
- Co-opts SVG's Large Area Needs
- SVG Benefits:-
  - Radiation Cooling to Cool Foliage
  - Shared Costs of Equipment and Access
  - Supplemental Income
- Crop Benefits:-
  - Wind, Frost and Shade Protection,
  - Automated Agronomy Tracked-Farming,
  - Central Data and Control on Each Plant,
  - Electric powered Access,Irrigation,
  - Cultivation, Harvest and Processing.

In addition to easing the environmental impact and regulation in siting new SVG POWER PLANTS, removing those problems from the owner of a few million unit

COUNTERING THE GREENHOUSE EFFECT

Comparative Carbon Capture / *Release*

Tropical Rain Forest	4.45 Tons/Acre/Year
Tropical Seasonal Forest	3.33
Temperate Evergreen	2.67
Temperate Deciduous	2.43
Boreal Forest	1.62
Woodland & Shrub	1.28
Cultivated Land	1.19
Other Terrestrial	0.67
SVG CROPS & KILOWATTS **	**30 Tons/aMW**
Conserving Hydroelectric	≈ Zero
/Gas Fired	*1394*
/Magnetohydrodynamic	*1647*
/1978 Generation Mix	*2076*
/Fluidized Bed	*2365*
/Conventional Coal-Fired	*2365*

** Based on "Cultivated Land"

generators located at some SVG POWER PLANT, consider the carbon dioxide reduction potential compared to other forms of new generation now contemplated in the Pacific Northwest.

SVG REFERENCE PLANT MODEL

SVG PLANT Characteristics For Redmond/Bend Area

Gross Annual Generation 205.8 aMW, 1.8 Billion kWh
Equivalent To: 3.0 M-BBLs of Oil-Fired Generation
2.4 Billion Electric-Vehicle Miles
At 0.75 Miles/kWh

SVG INTERFACE SUBSTATION (SVGIS). . . . .

SVGIS Power Apparatus and Capacity
220 v., 480 Hz Intermediate Bus
480 Hz Transformer/Divider to 12.5 kV 60 Hz Bus

1053 MW Installed Nameplate Capacity
Power Apparatus Losses
1000 MW Gross Maximum Capacity
Operating Out-of-Specs Losses
980 MW Gross Dependable Capacity

Array Field (Fixed-Tilt SVUGs)
322 SVUGs/Mile in E-W Rows, 4-Meter Spacing
400 Rows/Mile N-S, 5,265,000 SVUGs
5222 Acres, 8.16 Sections
129 MW-inc per Section of Land

SOLAR VOLTAIC UNIT GENERATOR (SVUG). . . . .

Independent Power Producer or Consumer Utility Owned

SVUG Size	1.0 x 2.0 meters
Installed Nameplate Capacity	0.20 kW-inc
Rated at Insolation	1.0 $kW_{(SOLOR)}/m^2$
SVUG Fuel-Rate	0.10 $kW_{(ELECTRIC)}$/1.0 $kW_{(SOLOR)}$

Integrated-Circuits in the SVUG
Maximum Power Point Tracking & SCADA
D-C to 480 Hz A-C Conversion
Supervisory Control And Data Acquisition
Standard Power/SCADA/Isolator Coupling Device
Zero-Cost-Fuel at Site (Redmond, OR)
Annual 1837.7 kW_{SOLOR}/m^2
Site Fuel Dependent Capacity Factor 21%
Earns 28 mills/kWh at Plug-In Slot in SVGIS
Plus 15 mills/kWh in Direct Payment, per Section 1212, Comprehensive Energy Policy Act of 1992, PL 102-486.

SVG PLANT LIFETIMES and COSTS

SVG INTERFACE SUBSTATION . . . . . .
SVGIS LIFETIME Approaching 100 Years
SVG INTERFACE SUBSTATION ≤ $160/kW-inc
1053 MW-inc CAPABLE SVGIS ≤ $168 Million

Note: One-Kilowatt Section Requires:-
32 ft. of 2 in. heavy-wall conduit
8 highway-stakes & hangers
16 ft. each of:-
#2 15kV or 25 kV hi-voltage cable
#2 UHF with 4-0 shield for low-voltage and for SCADA (Supervisory Control and Data Acquisition) signal-wire.
1/200th of a step-up/frequency-changing, pad-mounted power transformer.
5/1000th of an Acre in collocation on tilled-land.

SOLAR VOLTAIC UNIT GENERATORS **20-30 Years**
Sooner With Increased Capacity SVUGs Replacements
No Requirement for Impedance Matched Sets of SVUGs

SVUGs (In Million Quantities) less than $500/kW

Note: SVUG PRODUCTION COST MODEL, for packaged PV-Cells, the 4 ft. 79¢ at retail fluorescent lamp is a *Cost/Production Value-Analysis Model* with comparable materials, complex-Processing and quantities. A single Horizontal Lamp Machine (GE Bucyrus, OH Plant) processes four lamps (or adapted to "PV Power Tubes") per second, from glass-furnace to finished Lamps; an equivalent production of 630 Megawatts per Year. Then a value-analysis of 44 "Power Tubes" at 79¢, plus Frame, Integrated Circuits and Coupler-Transformer suggests a 2 sq.mtr., 0.20 kW-inc SVUG at $75 Each or $340/kW.

REMEDIES

Mr. Chairman, I respectfully submit the following as areas of concern that can benefit from remedial actions by this Task Force.

I. An evaluation by the OFFICE OF TECHNOLOGY ASSESSMENT of near-term Solar Voltaic Generation in the Bonneville Power Administration system and of the technical readiness of the Department of Energy Photovoltaic Program to transition to large-scale generation, can provide direction and energy planning for both the Northwest Power Planning Council and the Bonneville Power Administration.

II. Revision of the rulemaking in the NORTHWEST CONSERVATION and ELECTRIC POWER PLAN of 1991, TO ADMIT 1500 average Megawatts of Solar Voltaic Generation at under 2.8¢/kW and TO DEMIT 1500 average "Negawatts" of Conservation Power Plant at over 5.3¢/kWh.

III. Easing of the "Section 6(c)" proscription in the Regional Act PL 96-501 on initiating major resource acquisitions at the Bonneville Power Administration.

IV. Reconsideration of any prohibition on the Bonneville Power Administration that may limit the placement and operation of substations and interconnects within dispersed renewables generation units area such as wind-farms, small-hydro, geothermal and solar.

V. Reevaluation of the cost-effectiveness of expenditure of Bonneville Power Administration funds on reducing demand and revenue versus acquisition of new energy sources and increased revenue.

VI. Consider the early step of bringing solar-fuel forecasting from its R&D status to an operational use for solar-plant engineering and subsequent operation at the BPA Dittmer Control Center.

VII. Consider that development of a major market for Solar Voltaic Unit Generators in new Interface Substations operating in the Pacific Northwest can obviate Department of Energy R&D Programs such as fine-tuning the knowledge of terrestrial solar insolation and continuing the PV Cell and Module efficiency race.

VIII. Consider the role SOLAR VOLTAIC GENERATION can play in continuing and renewing the *Bonneville Promise* of sixty years ago:-

> This vast power can be of incalculable value to this whole section of the country. It means cheap manufacturing production, economy and comfort on the farm and the household. The St. Lawrence River in the Northeast, Muscle Shoals in the Southwest, the Boulder Dam project in the Southwest and finally, but by no means least of them, the Columbia River in the Northwest --- And from there, my friends, in each of the four quarters of the United States, there will exist forever a National yardstick to prevent extortion against the public and to encourage the wider use of that servant of the American people --- electric power.
>
> Franklin D. Roosevelt
> Portland, Oregon
> September 21, 1932.

CONCLUSION

Thank you for this opportunity to present the case for large-scale SOLAR VOLTAIC GENERATION in the Pacific

Northwest. This concludes my statement. I would be pleased to address your questions.

Respectfully Submitted,

July 12, 1993

Alfred H. Canada

APPENDIX A . . . . . .

SOLAR VOLTAIC UNIT GENERATOR: CHRONOLOGY OF TECHNICAL READINESS

SVG MODULE CHARACTERISTICS, TARGETS, GOALS, ACHIEVEMENTS

	COST(1)	EFFICIENCY	LIFETIME	PLANT BUSBAR
1973-Conference on PV Conversion of Solar Energy, Cherry Hill	$ .50 per watt	10%	20 Years	—
1974-PROJECT INDEPENDENCE	U.S. electric energy sized photovoltaic plant concepts responsive to possible $4, $7 or $11 OPEC oil.			
1975-1986-Flat-Plate Solar Array Project, JPL	.50 ['74$]	10%	20	
	$ 1.07 ['85$]	10%	20	
JPL *Achieved*	$ 1.45 ['85$] 13%	*Approaching 20 years, 10-Yr Warranty*		
		15.2% *A 75.2 watt Module in 1986.*		
1977-Federal Photovoltaics Utilization Program	$ .50 ['74$]	10%	20	

1977-"Solar Electrical Energy Development '77" (SEED'77) A ten-year program to build a public solar power project —— flat-plate, 10% conversion efficiencies, $300/kW Modules —— having an electrical energy output equal to the Nation's 1976 total electric generation, a 1.2 million megawatt plant needing only a 76 x 76 mile patch of southwestern desert. A.H. Canada, March '77.

1977-Invited testimony showing same plant area photovoltaic generation alternative to the annual generation of the SUNDESERT NUCLEAR PROJECT. A.H. Canada before the Assemble Permanent Subcommittee on Energy - California Legislature Within a few weeks the Project was killed. 11/7/77.

1977,1978-JPL Candidate $ .50
Factory Technology at $ .50 *Assumed EFG (2) at 250 MW/Year.*
at $ 2.00 *Assumed CZ Silicon Cells.*

1978-"Perspectives On Utility Central Station Photovoltaic Applications", Analysis indicates that flat-plate approaches without concentration or tracking have good prospects for commercial viability if device conversions efficiencies near ten percent can be combined with installed device costs under $20/m² ($400/kW) and lifetimes in excess of 20 years. Thin-film approaches have potential of achieving these costs and performance goals because of low material content and potentially low fabrication costs. E.A. DeMeo, P.B. Bos, EPRI RptER-589-SR, January '78.

1978-PL 95-590, Solar Photovoltaic Energy Research, Development, and Demonstration Act. Cumulative production by 1988 of 4000 MW of PV, reduce average installed cost to $1000/kW.

1978-PL 95-238, Department of Energy Act (Tsongas amendment). Promotes use of photovoltaic systems at federal installations and calls for studies of government support of the U.S. PV industry.

1978-PL 95-617, PURPA, Public Utility Regulatory Policy Act. Encouraged homeowners and other small users to generate all or part of their electrical energy; requiring utilities to supply backup or supporting power and buy back excess from such independent power producers at "avoided cost".

1978-PL 95-619 (Part 4) Federal Photovoltaic Utilization Act. Basis for federal program to procure photovoltaic systems for government use, one means for building up the U.S. PV industry.

1980-DOE NATIONAL PHOTOVOLTAICS PROGRAM: Electric Power from Solar Cells

NATIONAL GOAL: Replace 1 Quad per year of primary fuels with Photovoltaic by the year 2000. (One Quad equals 10^{15} Btus, about 170 million barrels of oil)

PROGRAM GOALS: PV Module, System, and Energy Goals, 1980 (constant dollars)

Year	Module Prices (fob)	System Prices	Energy Prices
1982	$2800/kW-inc	$6000-13000/kW-inc	50-90¢/kWh
1986	$ 700/kW-inc	$1600-2200/kW-inc	5.2-8.7¢/kWh
1990	$ 150-400/kW-inc	$1100-1800/kW-inc	4.2-8.1¢/kWh

1980-Intervention, PV ALTERNATIVE TO SCE's CALIFORNIA COAL PROJECT before the California Energy Commission; A.H. Canada, Intervener on Notice of Intention 79-NOI-3, 5/25/80. Commission Decision and Final Report and Conditions on SCE's Notice of Intention to file an Application for Certification of the California Coal Project 79-NOI-3, A Condition: "SCE should develop and carry out a long-term R&D management plan to implement 600 Megawatts (peak capacity) assuming that the 1986 DOE price targets are met. This plan should incorporate the following elements:

- A 1 - 2 MWp module on line by the end of 1985, for later expansion to a 50 - 100 MWp commercial demonstration.
- Completion of a 50 - 100 MWp commercial demonstration by 1980.
- Preconstruction planning for a 500 MWp installation to begin by 1985 and to be completed by 1988 [90].

SCE withdrew Licensing application for CAL-COAL, a 2.0 MWp PV plant was constructed at Southern California Edison's LUGO Substation, and in 1992 SCE and Texas Instruments announced PV rooftop units: TI sets 400,000 modules/year for 1994 goal.

1981 & 1982-Alfred and Laura Canada Shareholder Proposal on DEVELOPMENT OF PHOTOVOLTAIC GENERATION and substitute for CAL-COAL plan, Southern California Edison Annual Meetings April 16, 1981 and April 16, 1982; supportive Investor Responsibility Research Center 1981 and 1982 Analyses — opposed by the Board both Proposals got more than six percent of the Shares voted.

1982-JPL "TECHNICAL READINESS '82" $ 2.80 ['80$] *Modules in high-production quantities at $1070/kW, dropping to $700/kW in 1989, $500/kW in 1989 and $200 in 1991 ('80$) upon completion of a funded manufacturing technology program.*

■ ■ 1983 May, DOE FIVE YEAR RESEARCH PLAN 1984-1988

Tech.Targets, Late 1990s $40-75/m² ['82$S] 13-17% 30 Years 15¢/kWh
[*40¢-75¢/watt, 10%*]
[*27¢-50¢/watt, 15%*]

Balance of System, $50/m² plus $150/kW or [*at 10%, $650/kW plus $400/kW (modules)*]

1976-JPL Block I *Four Mfgs.*	$ 20-40	9.4-12.0 *At 1 kW/m², AM 1.5, 28°C Cell Temp.*
1976-JPL Block II *Four Mfgs.*	$ 18-25	9.6-11.7 *At NOCT(3), 41-47°C Cell Temp.*
1978-JPL Block III *Five Mfgs.*	$ 12-19	9.4-11.8 *At NOCT, 43-53°C*
1980-JPL Block IV *Eight Mfgs.*	$ 5-20 (est)	8.4(4)-12.6 *At NOCT, 46-58°C*
1984-JPL Block V *Five Mfgs.*	$ 3-5	8.4-11.2 *At NOCT, 47-65°C*

JPL FSA Field Testing - 16 Sites

Extreme Weather: Ft. Greely-AK, Ft. Clayton-Canal Zone; Marine: Key West-FL, San Nicolas Is.-CA, Pt. Vicente-CA; High Desert: Albuquerque-NM, Dugway-UT, Goldstone-CA; Mountain: Mines Peak-CO, Table Mt.-CA; Urban Coastal: New Orleans-LA, New London-CT; Mid-west: Crane-IN; Upper Great Lakes; Houghton-MI; Northwest: Seattle-WA; Urban Southwest: Pasadena-CA.

JPL FSA Application Experiments - 3 Sites

Indian Village Power-3.5kW, LeRC; Boston Edison-7.5kW, Carlisle-MA; Irrigation and Crop Drying-28kW, Mead-NE.

DOE/JPL PRDAs Program R&D Announcements - 11 Flat-Plate Sites [≈ 880 kW]

Lovington, NM-100kW, ElPaso-20, Oklahoma City-150, Beverly, MA-100, Mt.Laguna, CA-60, Natural Bridges-100, Georgetown U-300kW.

1986 JPL FSA FINAL REPORT

"IMPACT OF SHIFTING PROGRAM GOALS:- In May 1983, the U.S. Department of Energy (DOE) Photovoltaic Energy Technology Division issued a *National Photovoltaic Program Five-Year Research Plan, 1984-1988* that significantly altered the original goals of the FSA Project. The goal since the Cherry Hill Conference in late 1973 had been $0.50/Wp ($1.07l/Wp in 1985 dollars). Thus, a PV system would have to produce electricity at a cost of $0.263/kWh in 1985 dollars, using the energy cost methodology in the DOE Five-Year Research Plan. (derived from 10% module efficiency and 20-year service life, as originally specified at Cherry Hill). With the Five-Year Plan, National Program goals changed to reflect revisions in the outlook for conventional energy resources and progress made in understanding the potential of PV technology. Current program goals call for 15% module efficiency and a 30-year module service life. Expressed in 1985 dollars, the price goals correspond to an energy cost of $0.17/kWh, making them much more demanding than the original values." (Flat-Plate Array Final Report,v. VIII, p.5)[emphasis added].

■ ■ 1987 May, DOE FIVE YEAR RESEARCH PLAN 1987-1991

Goals Early 1990s	$90-240/m² ['86$] 10-20%		30 Years	6.0¢-12¢/kWh (5)
	[*90¢-240¢/watt, 10%*]			
	[*60¢-160¢/watt, 15%*]			
Balance of System	$50 - $100/m² plus $150/kW			
Goals 2000	$45-80/m² ['86$] 15-20%		30 Years	6¢/kWh (6)
	[*45¢-80¢/watt, 10%*]			
	[*30¢-53¢/watt, 15%*]			

1989, PL 101-218, Renewable Energy and Energy Efficiency Technology Competitiveness Act
"Specific Goals:- Improve operational reliability of photovoltaic modules to 30-years by 1995; Increase photovoltaic conversion efficiency by 20% by 1995; Decrease new module direct manufacturing costs to $800/kW by 1995; and Increase cost efficiency of photovoltaic power production to 10¢/kWh by 1995."

1989-PVUSA *(A manner of a "Block VI")*

EMT-1 Six Mfgs.	3.3, 3.5, 3.7, 8.6, 11.1 & 15.1%	*At PTC* (7)
EMT-2 Three Mfgs.	5.3, 5.5 & 7.4%	*At PTC*
US-1 Three Mfgs.	3.4, 7.4 & 10.3%	*At PTC*

■ ■ DOE PHOTOVOLTAICS PROGRAM FY 1991-FY 1995

In 1990 Module prices about $4000 - $4500/kW, efficiencies 11%-17%.

Current achievements	5-15%	10-15 Years	25-50¢/kWh
Goals 1995-2000	10-20%	20 Years	12-20¢/kWh
Goals 2010-2030	15-25%	30 Years	5-6¢/kWh

Flat-Plate Thin Films - 1991 12-14% lab cells
4-6% commercial modules
- 1995 15-18% lab cells
8-10% commercial modules
- 2010-30 › 20% lab cells
› 15% commercial modules

1991-California Energy Commission, Energy Technology Status Report, Appendix E,
Relative Cost of Energy Technologies
Central Station Photovoltaics:-

Era	*In-Service Capital Cost*	*Levelized Cost of Electricity, ¢/kWh Capital*	*O&M*	*Total*
Utility Ownership Central-Station . .				
1987	$7464-$7502/kW	21.9-30.5	0.8	22.7-31.3
1997	$2975-$2990/kW	7.9-11.0	0.4	8.4-11.5
2007	$1919-$1929/kW	5.1-7.1	0.4	5.6-7.6
Dist.(8)	$10632-$10658/kW	43.8-54.7	0.7	44.5-55.5
Government Ownership Central-Station . .				
1987	$7042-$7070/kW	16.1-21.2	0.8	16.9-22.0
1997	$2807-$2818/kW	5.8-7.7	0.4	6.3-8.1
2007	$1811-$1818/kW	3.8-5.0	0.4	4.2-5.4
Dist.(8)	$10030-$10050/kW	18.4-24.3	0.7	19.2-25.0

1991- NORTHWEST CONSERVATION and ELECTRIC POWER PLAN
Solar Photovoltaics, bottom of "Resource Supply #46" — Levelized Nominal Cost 30.0¢/kWh; Levelized Real Cost 15.0¢/kWh
BPA agrees with the Council that solar has uncertainties which preclude it from being considered a reliable cost-effective resource at this time.

1991- Conceptual 1000 MW-gmc Plant, Redmond, OR
$50/m² ['91$] 10% 20 Years 2.35¢/4.7¢/kWh (8)
A cost/production model; 14¢-21¢/watt for 10% efficient, 6.9-4.5 watt, 464 cm² PV surface packaged similar to 4-Foot Fluorescent Lamp a comparable product ON-SALE in the Nation's Hardware Stores regularly at 99¢ retail — '91 at 79¢.

1992-DOE/NERL Program, PVMaT, A Government/Industry Partnership for U.S. Competitiveness.

■ ■ 1992 February, DOE SOLAR 2000, A COLLABORATIVE STRATEGY 16.5¢/kWh (9)
Projections are presented in linear coordinate "screening curves" (Data from SOLAR 2000.

1992-Energy Options Proposal to BPA
Conceptual 1000 MW-gmc Plant, Redmond, OR
$50/m² ['91$] 10% 20 Years 2.80¢/kWh (8)

1992 PL 102-486 Comprehensive Energy Policy Act
Renewable energy receives support to make solar thermal, photovoltaics, wind, geothermal, and biomass competitive, including a direct federal payment of up to 1.5 cents per kilowatt-hour for their electricity. It authorizes federal/private joint ventures in these areas and promotes technology export to developing countries. The law makes a permanent tax credit for solar and thermal energy and for wind and biomass energy production.

Notes:

(1) To convert to Cost per Square Meter of Module = ($/watt)(Eff.)(100)
(2) Edge -Defined, Film-Fed silicon crystal Growth and CZ "Czochralski" crystal process.
(3) Normal Operating Cell Temperature: Cell Temperature In Open-Circulated Module Exposed to 0.8 kW/m² Insolation In Ambient of 20°C, 1 m/s Wind Velocity [58]
(4) Semi-crystal.
(5) Federal/Industrial Near-Term (Early 1990s) Technical Goals.
(6) Federal/Industrial Long-Term (Year 2000) Technical Goals.
(7) PVUSA Test Conditions same as NOCT [3], 15.1% is 22x linear concentrator.
(8) California Energy Commission, "Distributed Use Application".
(9) From "Screening Curve" DOPE SOLAR 2000 ($435/kW-Yr/2636 Hrs=16.5¢/kWh).

Revised July 3, 1993
Prepared by Alfred H. Canada
Grants Pass, Oregon
From References now on deposit
at the Library of the
NORTHWEST POWER PLANNING COUNCIL

Journal

"What's New and How to Get Involved"

Bonneville POWER ADMINISTRATION

July 1993

BPA Announces About 15 Percent Rate Increase, Cost Cuts And Deferrals

Administrator Randy Hardy announced on July 2 a proposed 15.7 percent rate increase for preference customers. Other key rates include a 14 percent increase for industrial aluminum customers and a 13.4 percent exchange rate increase. The exchange is what utilities with higher system costs—mostly private utilities—pay to pass on BPA's cheaper power to their residential and small farm customers. The numbers are down dramatically from the 24 percent rate increase BPA and its utility customers predicted earlier this spring as a result of some of the worst water conditions ever in the Northwest. The projected rates would be effective Oct. 1, and reflects an additional $286 million in cuts and deferrals announced in recent weeks.

An announcement was also made on specific program cuts and deferrals. Reductions include a 30 percent decrease in the budget for acquiring generating resources, a 28 percent decrease for transmission system development, and a 8 percent cut for transmission maintenance. Fish and wildlife budgets will be cut 15 percent, and energy conservation will decrease by 12 percent. Hardy noted that no cuts had been made in measures directly related to weak wild fish runs and that the conservation cuts are not expected to impair BPA's ability to realize 660 megawatts of energy conservation within this decade, a target set by the Northwest Power Planning Council. Fish program cuts include reductions in a predator control program, law enforcement and hatcheries.

UP Hears Of ew Marketing Challenges Facing Utility Industry

BPA customers got a preview of the changing face of the industry as Programs in Perspective got underway June 7 with a symposium on "Competing in Today's Energy Market." Utility representatives and analysts agreed that big changes are afoot in how utilities conduct business in the new energy marketplace. Wall Street investment analyst Judith Sack delivered perhaps the strongest message when she said utility managers, including BPA, do not know what competition means, what it costs to provide a service or what the customer wants. The key to survival in the new business environment, she added, is to question every premise. Also at the meeting, U.S. Rep. Peter DeFazio, D-Ore, reaffirmed his support of the Regional Power Act, but added that Congress had been remiss in its oversight of BPA. The agency must achieve long-term financial stability and make its annual Treasury payments, he added. Administrator Randy Hardy reiterated his goal to make BPA more market-driven, cost-conscious, results-oriented and customer-focused. A summary of the day's proceedings will be available in print and video. (See back page.)

Task Force's Patrol Vessel Helps Deter Salmon Poaching

Salmon poaching on the Columbia River just became a high-risk activity. The inter-agency salmon law enforcement task force stepped up patrolling the river in June to protect spawning and migrating salmon. Working from their mobile command center – the Washington Department of Fisheries' 17 meter (56-feet) ocean-going vessel G.H. Corliss – the team coordinates aerial surveillance, boat patrols, ground patrols and covert operations. This is the second year of a three-year BPA-funded program to enforce habitat and harvest laws to help depleted sockeye and chinook salmon runs. (See June 1992 *Journal*.)

As well as deterring poachers, highly visible law enforcement activities help build public awareness of the plight of the salmon. The patrol boat left Astoria June 16 and arrived in Portland June 23. A news conference was held in Marine Park in Vancouver, Wash., June 24. Among the speakers were Rolland Schmitten, regional director of of the National Marine Fisheries Service; Ted Strong, executive director of the Columbia River Inter-Tribal Fish Commission; and Jack Robertson, BPA Deputy Administrator. The patrol will continue to Redfish Lake in central Idaho—the spawning ground of the endangered Snake River sockeye salmon.

test Refunding ond Sale Will Save $35 Million

BPA and the Washington Public Power Supply System completed a refunding bond sale May 27. The sale will save the region about $35 million, bringing the total savings from the refinancing program to about $1.1 billion since it began in 1989. Some $795 million of WNP-1 and -2 bonds were sold to reduce interest rates as high as 7 percent to an effective rate of 5.83 percent. The bonds are rated AA by all three bond rating services.

Former Ranch In Eastern Oregon Is Now A Wildlife Wetland Refuge

After two years of discussions, BPA signed an agreement June 29 to acquire the 1157-hectare (2,860-acre) Conforth ranch in eastern Oregon as a wetland wildlife refuge. The Northwest Power Planning Council proposed BPA buy the acreage to rebuild wildlife populations and habitat lost through hydro development at McNary Dam. Trust for Public Lands, a non-profit environmental group, bought it for $800,000 in 1991 to hold while BPA negotiated its purchase. (See January 1992 *Journal*.) The property borders McNary reservoir on the Columbia River between the Port of Umatilla and Hat Rock State Park.

The Umatilla Confederated Tribes will serve as interim managers of the refuge until an environmental review is completed. BPA will work with them to develop a wildlife management plan that will likely eliminate cattle grazing and expand the wetlands. Over half the area is shrub steppe habitat, and the rest is wetlands. Natural potholes of hard basalt rock filled with water when the rancher periodically irrigated to maintain grass for his cattle. The resulting ponds range in size from about .20 hectare to about 2 hectares (half acre to five acres). The project will protect and enhance habitat for waterfowl such as widgeon, mallards and Canada geese and shorebirds such as avocets and spotted sandpipers. It will also maintain a home for shrub steppe species such as western meadowlarks and California quail, tree-dwelling downy woodpeckers and yellow warblers, as well as less common species such as the burrowing owl and long-billed curlew.

Endangered ake River Sockeye Will Soon Be Spawned in Idaho

Some of the endangered Snake River sockeye salmon in the Sawtooth Valley captive broodstock project in the Sawtooth Valley should be reproducing this fall. The fish were trapped as they left Redfish Lake in 1991, when they were one to two years old. Some are the progeny of wild sockeye. Others may be offspring of the resident stocks of sockeye in Redfish Lake, kokanee or "residual" sockeye. The offspring of all three stocks in the broodstock are outwardly similar. Of the original 800, about 400 survive, most of which will be spawned artificially. Their young will be placed in net pens in Redfish Lake or other Stanley Basin lakes next spring and allowed to migrate in 1995. This will be the first opportunity to observe whether broodstock sockeye reproduce successfully. Researchers hope to perfect a non-lethal genetic test to distinguish migratory sockeye from the physically similar kokanee, a non-migrating species of sockeye. If all goes well, the first fish born and raised in the program could return from the ocean in the fall of 1997 as 4-year-old adults. The run migrates 1450 kilometers (900 miles) from the ocean to Sawtooth Valley.

Two other younger groups of sockeye will mature in 1995. These are the offspring of four adults captured at Redfish Lake in 1991. Recently the National Marine Fisheries Service moved one group of 771 fish from Seattle to larger tanks at the Big Beef Creek facility near Seabeck, Wash. An outbreak of bacterial kidney disease, now under control, reduced their survival rate to 79 percent. The second group of about 900, being reared by Idaho Department of Fish and Game at Eagle, Idaho, has a survival rate above 90 percent.

Summer Chinook Run May Be Listed Under ESA

The Mid-Columbia's summer chinook run may be the next salmon species to be listed under the Endangered Species Act. Last month 11 environmental groups petitioned the National Marine Fisheries Service for protection of the runs. BPA supports and will actively participate in efforts to protect and renew the stocks. Meanwhile, the U.S. Fish and Wildlife Service will decide soon whether to propose an ESA listing for the non-migrating Columbia River sturgeon. On June 11, BPA and the Corps of Engineers submitted a signed conservation agreement to the U.S. Fish and Wildlife Service to protect, research and evaluate Kootenai River white sturgeon.

oss Complex Poses No Threat To Vancouver Drinking Water

BPA's Ross Complex does not pose a threat to Vancouver's water wells, but there is some surface soil contamination BPA has to clean up. These are the findings of extensive studies performed by BPA, helped by the U.S. Environmental Protection Agency and Washington Department of Ecology, as part of the Ross Superfund cleanup. BPA will now clean up or remove contaminated soil, using a plan proposed and circulated for public review last fall. (See November 1992 *Journal*.) Two years of groundwater monitoring, sampling and analysis reveal no significant source of potential groundwater contamination from the complex. The three agencies are developing a plan for continued groundwater monitoring that will be presented at a public meeting in July. BPA has invested about $7 million in the investigation. (See back page.)

Three CT Projects Chosen For Resource Contingency Program

BPA has selected two cogeneration and one gas-fired combined-cycle combustion turbine projects for final negotiation of energy options. The finalists were chosen from a short-list of 10 projects based on estimated cost, environmental issues and viability. They are the CRSS Chehalis project sponsored by CRSS Capital, Inc. (228 average megawatts); the Ida-West Hermiston project sponsored by Ida-West Energy (211 amw); and the Satsop CT project sponsored by Washington Public Power Supply System (205 amw). BPA received a total of 64 proposals for its Resource Contingency Program. (See January 1993 *Journal*.)

The program will secure energy options on new resources to head off possible future power deficits. Options give BPA the flexibility to defer power purchases from new power plants until more is known about future customer needs. They also reduce the remaining time needed to bring new resources on line if needed. Developers will now proceed with environmental studies, obtain necessary permits and start design work. BPA will prepare an environmental impact statement and work with the Northwest Power Planning Council to ensure the projects comply with the regional power plan.

BPA To Acquire Output Of PUD's Hydro Project

BPA has agreed to purchase the output of a hydroelectric project Northern Wasco County PUD is planning to build at McNary Dam. The agency will sign a 30-year power sales contract if the proposed 8.9-megawatt plant passes environmental review. Construction costs are expected to be below $41 million. The contract will require BPA to pay project debt service, operating and maintenance costs, and a fee for each kilowatt-hour produced. Voters approved a $54 million bond issue in March to pay for construction.

Ten Years Of Model Conservation Standards

Model Conservation Standards are ten years old this year — a decade in which these energy efficiency standards have redefined building practices in the Northwest. The 1980 Northwest Power Act declared conservation the region's preferred new resource. Lawmakers directed the Power Planning Council to set standards for new and existing buildings to captures all cost-effective energy savings. The Council published MCS in 1983. The City of Tacoma, Wash., was the first jurisdiction to adopt MCS as a local building code in 1984. Now virtually all of BPA's service territory is covered by MCS-level codes.

Over the past decade, BPA has offered many programs to move the region toward adopting MCS as standard building practice. The Residential Standards Demonstration Program solicited plans for energy-efficient houses, offered builder training and sponsored construction of 400 houses showcasing energy efficiency. The Super Good Cents program has sold the region's builders and consumers on the advantage of greater energy efficiency in electrically heated homes. Now all BPA's utility customers sponsor Super Good Cents or the new Long Term Super Good Cents program. The Early Adopter and Northwest Energy Code programs brought the advantages of MCS to entire communities through building codes. Energy Smart Design promotes commercial MCS. As MCS enters its second decade, the Council is working with BPA, the housing industry, utilities and governments to improve the standards with new measures and practices.

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Mississippi River system defies Corps

Despite the billions of dollars spent to control the great mid-American rivers, the rains fall how and where they will

by KEITH SCHNEIDER
New York Times News Service

ROCK ISLAND, Ill. — As the rain fell again Monday, S.K. Nanda, the chief hydrologist at the Army Corps of Engineers' district office here, punched the keyboards at a bank of computers and choreographed a watery balancing act involving three giant Iowa reservoirs and two Mississippi River tributaries that weeks ago had filled to capacity.

From this command post, just a few feet from where the Mississippi was cresting at levels not seen since 1965 and never seen in July, Nanda was making water management decisions unlike any he has faced in his 25-year career there.

Allowing the three reservoirs to fill much more could threaten the safety of the dams that hold them. But emptying them as fast as they were filling would cause the waters to rise more in the Des Moines and Iowa Rivers.

That not only could put Hills, Iowa, and other towns downstream from the control dams in peril of

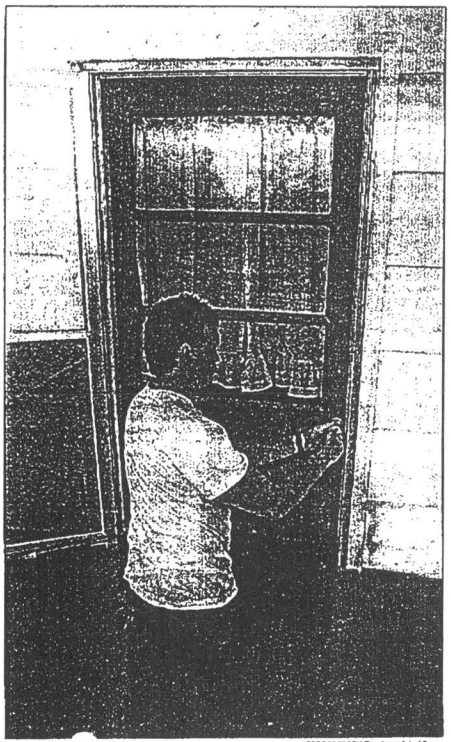
signed and built in this century to control the flow of the Mississippi River and its largest tributaries.

During the last 65 years, the United States has spent billions of dollars to build roughly 300 dams and reservoirs, construct thousands of miles of levees and flood walls and operate countless pumping stations to regulate water draining from parts of 35 states, an area covering 1.25 million square miles, more than a third of nation.

Along with the construction of the interstate highways, the Mississippi River flood-control project is one of the most enterprising civil engineering projects ever devised. Its primary purpose is to rein in a wandering river and keep it confined to a rigid, man-made channel.

Some have called the project a supreme act of human arrogance, and today it is easy to see why. The Mississippi continues to bound past its banks and to flood towns along a 400-mile stretch from southern Minnesota to Missouri.

But what is just as clear is that, after decades of hemming in one of the world's great river systems, only a supreme act of nature — such as



JEFF ROBERSON/The Associated Press

Scott Neagle unlocks the door to his flooded house south of the Hannibal, Mo., downtown. He was making a trip by boat to retrieve possessions.

"We deal with nature and
We try to make an exact

the c

hope Koellner can offer prope
owners and city officials is that
gauges 50 miles upstream show
Mississippi's level falling.

In the meantime, the towns on
Des Moines and Iowa rivers ha
been more fortunate. The reservo
have prevented those tributar
from catastrophic flooding and
continue to do so unless extraor
nary amounts of rain continue
fall, Koellner said. And many
those towns also are protected
concrete flood walls and earthen
vees.

Along the Mississippi, the gove
ment built almost 500 miles of lev
north of St. Louis to protect far
and towns. How well they work
evident in this old river port city.

Most levees hold

The flood wall that protects R
Island has kept all but the low
lying areas dry. Across the ri
Davenport residents chose to
serve their river views and not
have any protections built, and
waterfront neighborhoods and b
ness districts have been ruined
water.

Despite the saturation, only a
earthen levees have failed. One
ure occurred on the Illinois side
the river, flooding 5,000 acres
corn and soybean fields just soutl
here, Koell aid.

"The wl hing has been ev
ing for five weeks, even earlier,"
said "Even in March and April

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BEFORE THE
BONNEVILLE POWER ADMINISTRATION TASK FORCE
OF THE
HOUSE OF REPRESENTATIVES COMMITTEE ON NATURAL RESOURCES
July 12, 1993

OVERHEAD PROJECTION CHARTS TO ACCOMPANY

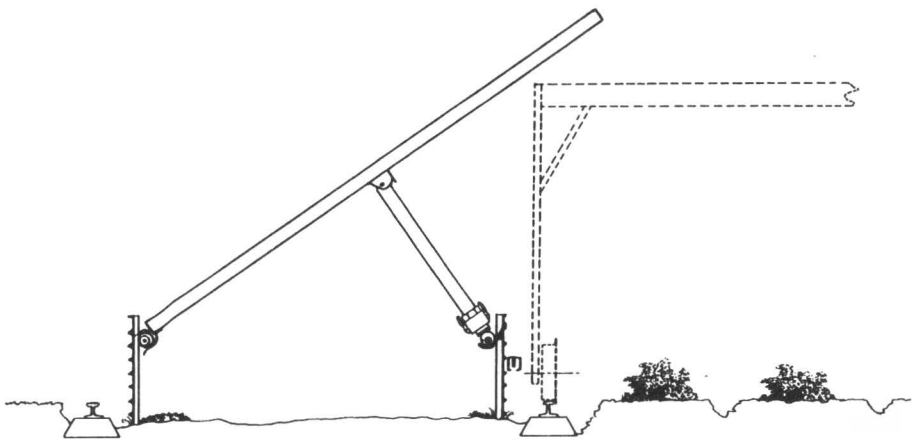
Statement In The Matter of:

AN ENGINEERING AND ECONOMIC ASSESSMENT OF
1,000 MEGAWATT CAPACITY CENTRAL-STATION

SOLAR PHOTOVOLTAIC GENERATION POWER PLANTS

IN THE ELECTRIC POWER RESOURCES OF THE
BONNEVILLE POWER ADMINISTRATION

SOLAR VOLTAIC GENERATION POWER PLANT
1053 Megawatt-installed nameplate capacity (1000 MW-gmc)
5.2 Million Solar Voltaic Unit Generators, 1 mtr. x 2 mtr., 0.20 kW
8.16 Sections, SVG Interface Substation, 129 MW-inc/Section
4 mtr. E-W Row Spacing for Collocated Track-Farming Agriculture



MEDIUM HIGH LOAD GROWTH ANNUAL ENERGY PROJECTIONS - aMW
(average MEGAWATT = 8,760,000 Kilowatt-Hours)

	1992	2002	2012
BPA FIRM ENERGY - Surpluses / (Deficits) (No Resource Acquisitions)			
Medium Loads	(200)	(600)	(1300)
1991 POWER PLAN RESOURCES - Conservation Withdrawals / [Nuclear]			
¶-3, Conservation Uncertainty		-1020	-2110
		[10]	[530]
¶-4, Natural Gas Uncertainty		-1390	-2930
		[60]	[920]
SOLAR VOLTAIC GENERATION - Supply / [Number of Plants]			
For $2.8 Billion		3420	3420
		[16.6]	[16.6]

SOLAR-FUEL IN THE PACIFIC NORTHWEST
average Megawatts GENERATED BY A 1000 MW-gross maximum capacity
SOLAR VOLTAIC GENERATION POWER PLANT on 8.16 SECTIONS of LAND

AT:-	First	Second	Third	Fourth	Annual
Boise, ID	38	69	76	39	222 aMW
Pocatello, ID	40	69	77	42	228
Helena, MT	34	58	68	33	193
Missoula, MT	27	54	65	26	172
Redmond, OR	36	64	71	35	206
Salem, OR	26	53	61	23	163
Whidbey Is., WA	25	53	56	22	156
Yakima, WA	31	61	69	29	190

MONTHLY FIRMING THE NON-FIRM HYDROPOWER ENERGY - aMW

50% Probability of Hydro Availability
compared to
41.5 SV6 Plants, 41,500 MW of SV6 capacity)

	River	SV6		River	SV6
January	4200	360	July	8100	1057
February	5750	480	August	2300	996
March	7400	641	September	0	895
April	6000	795	October	300	663
May	8750	896	November	1250	439
June	8300	950	December	1750	395

CROPS & KILOWATTS IN SOLAR VOLTAIC GENERATION
COUNTERING THE GREENHOUSE EFFECT

Comparative Carbon Capture / *Release*

Tropical Rain Forest	4.45 Tons/Acre/Year
Tropical Seasonal Forest	3.33
Temperate Evergreen	2.67
Temperate Deciduous	2.43
Boreal Forest	1.62
Woodland & Shrub	1.28
Cultivated Land **	1.19
Other Terrestrial	0.67
SVG CROPS & KILOWATTS **	30 Tons/aMW
Conserving Hydroelectric	≈ Zero
/Gas Fired	*1394*
/Magnetohydrodynamic	*1647*
/1978 Generation Mix	*2076*
/Fluidized Bed	*2365*
/Conventional Coal-Fired	*2365*

BPA TASK FORCE HEARINGS, 7/12/93, A.H. Canada

1991 POWER PLAN REFERENCE PLANT FOR *SOLAR PHOTOVOLTAICS*
From Nomograph DOE FIVE-YEAR PHOTOVOLTAIC RESEARCH PLAN -MAY 1983
Solar Photovoltaics at 30¢/kWh-levelized nominal cost

Photovoltaic Flat Plate Goals

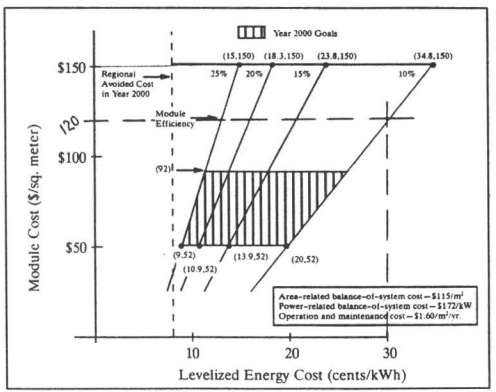


Figure 8–42
Photovoltaic
Two–Axis Flat Plate
Year 2000 Goals
(1990 Dollars)

SOLAR VOLTAIC UNIT GENERATOR . . . . . .

LIFETIMES 20-30 Years
Sooner With Increased Capacity SVUGs Replacements
No Requirement for Impedance Matched Sets of SVUGs
SVUGs (In Million Quantities) less than $500/kW
Solar-Fuel at Redmond, 21% Capacity Factor 1840 kWh/Year

SVUG PRODUCTION VALUE-ANALYSIS MODEL

4 ft., 79¢ at retail fluorescent lamp
Comparable materials, complex-Processing and quantities
Single Horizontal Lamp Machine can processes
from glass-furnace to finished lamps ----
4 lamps/second or comparable "PV Power Tubes"
Equivalent production of 630 Megawatts per Year.
SVUG value-analysis, 44 "Power Tubes" at 79¢,
plus Frame, Integrated Circuits and
Coupler-Transformer suggests a 2 sq.mtr.,
0.20 kW-inc SVUG at $75 Each or $340/kW.

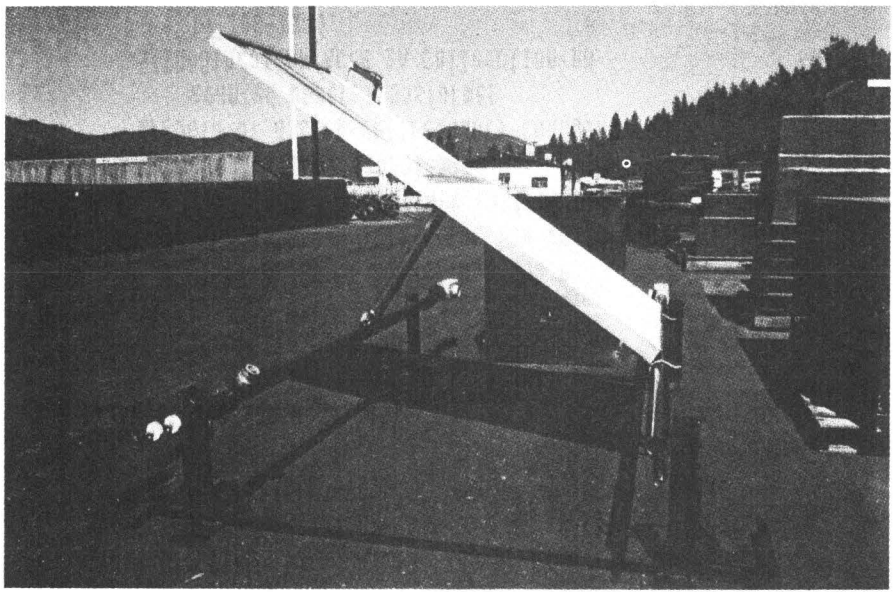
SVG INTERFACE SUBSTATION . . . . . .

SVGIS LIFETIME	Approaching 100 Years
SVG INTERFACE SUBSTATION	≤ $160/kW-inc
1053 MW-inc CAPABLE SVGIS	≤ $168 Million

One-Kilowatt Section Requires:-

- 32 ft. of 2 in. heavy-wall conduit
- 8 highway-stakes & hangers
- 16 ft. each of:-
  - #2 15kV or 25 kV hi-voltage cable
  - #2 UHF with 4-0 shield for low-voltage and for SCADA (Supervisory Control and Data Acquisition) signal-wire.
- 1/200th of a step-up/frequency-changing, pad-mounted power transformer.
- 5/1000th of an Acre in collocation on tilled-land.

FULL-SCALE MOCKUP-SOLAR VOLTAIC GENERATION PLANT
A Nine Foot Section of a Row with One Solar Voltaic Unit Generator
Plugged-In to an SVG INTERFACE SUBSYTEM POWER/SCADA COUPLER



BPA TASK FORCE HEARINGS, 7/12/93, A.H. Canada

COLUMBIA RIVER PUD
A customer-owned people's utility district

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(503) 543-6000

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July 2, 1993

The Honorable Peter DeFazio
Representative
United States Congress
1233 LHOB
Washington D.C., 20515-3704

Dear Mr. DeFazio:

Thank you for this opportunity to comment on Bonneville Power Administration and its relationship with its customer-owned electric utilities. We were formed in 1940 and energized in 1984. We have seen our region go from a power surplus to a power shortage.

Our relationship with BPA has changed over the years. With the increasing emphasis on conservation and energy efficiencies, we responded by participating in and locally funding conservation activities from installing energy efficiency measures to educating our community.

We now need to address the barriers that are keeping us, BPA and its other customers in working together to acquire environmentally sound and cost-effective energy resources while retaining the economic vitally our community needs to keep our nation competitive.

We hope this comments are helpful to your task force.

Very truly yours,

Richard Sahagian
President, Board of Directors

Attachment: Columbia River PUD Comments to the Task Force on BPA

CC: Senator Mark Hatfield
Senator Bob Packwood
Representative Elizabeth Furse
Representative Ron Wyden
Representative Mike Kopetiski
Governor Barbara Roberts
Christine Ervin, Director, Oregon Department of Energy
George Bell, Lower Columbia Area Manager, BPA
Bill Drummond, Public Power Council
Sue Hickey, Energy Resources, BPA

Board of Directors
Donald Nys
Agnes Petersen
Richard Sahagian
Richard Simpson
Arnold Tarbell

General Manager
Fergus A Pilon

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COMMENTS SUBMITTED BY THE BOARD OF DIRECTORS COLUMBIA RIVER PUD, ST. HELENS, OREGON TO THE DEFAZIO TASK FORCE ON BPA AND NORTHWEST POWER ACT

JULY 12, 1993

Thank you for the opportunity to provide testimony to your task force. As a full requirements preference customer of Bonneville Power Administration (BPA), an active participant in regional and state energy issues and planning, and a small customer-owned utility with 7500 metered accounts located along the Columbia River, *we feel we are representative of public power and can make constructive comments in regards to BPA, its relationship with its customers, and the role we both play in the competitiveness of our nation.*

Governed by a board of five elected customer-directors, Columbia River People's Utility District serves over 18,000 people in the eastern portion of Columbia County, Oregon. The District's service area is approximately 230 square miles along the Columbia River. Our border stretches from the Multnomah-Columbia County line in the south to the Alston area just north of Rainier.

Our major industries in Columbia County include pulp and paper, chemical, lumber, building materials, food processing, and light manufacturing. Our overall growth is at three percent per year in kilowatt hour sales. Our commercial and retail business sector is growing and is predominated by small businesses of 35 or fewer employees. Our residential sector is also growing as a result of our proximity to Portland and Beaverton, Oregon. We directly compete with three publicly owned utilities and two investor owned utilities.

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The basic question that your task force needs to address is:

How to structure a regional power system that:

1. develops efficient, timely, cost-effective and environmentally sound resources,
2. provides safe and reliable transmission and distribution services, and
3. meets its obligations for fish and wildlife management.

BPA, Public Power, and the federal dams in the Columbia River Basin began the industrial and agricultural development of the Pacific Northwest in the 1930s. Public Power accepted the responsibility of rural electrification in order to provide electricity for the production of food, jobs, products, and services to the nation and the global market.

BPA was formed to distribute the dams' electric resource into the Northwest's undeveloped rural regions and areas investor owned utilities (IOU) did not find it cost effective to build electric systems.

Our local and regional growth and competitiveness depends on BPA's ability to effectively and competitively manage the equitable distribution of the Columbia River Basin system electric resource and the acquisition of new resources.

Rural electrification worked. With abundant cost-effective hydropower, the Northwest developed a diverse base of manufacturing, agricultural, and service businesses and provided power to our homes. In many areas of the rural Northwest and in our service area, electricity remains the only energy source for our homes and businesses. It is for these people and businesses that customer-owned public power utilities continue to serve and represent.

The proposed BPA wholesale rate places Public Power utilities dependent on BPA in competitive jeopardy with IOUs and independent power producers (IPP). Moreover, the manner in which BPA has managed and paid for resource acquisition places Public Power customers from chemical to pulp and paper plants to farms at risk of remaining competitive in the global market.

If we and our customers are to remain competitive, BPA must change how it acquires resources. All phases of resource acquisition from how BPA policies and procedures are developed, to how it interacts with its customers, to signing resource contracts need to be changed.

The Northwest's cheap power days are over. We need to learn to make good choices in acquiring resources, allocating the power available, and keeping our economy vital during this period of change. The Northwest may very well lose some of its manufacturing and agricultural base industries. As a small utility, we need to position ourselves as an attractive and competitive partner in developing business and jobs for our communities.

We will discuss:

1. BPA's role in resource acquisition
2. Tiered wholesale rates
3. Developing resources
4. Debt financing and treasury repayment
5. Endangered Species Recovery
6. Residential Exchange
7. National Energy Tax
8. Inter-dependent recommendations

RESOURCE ACQUISITION

Public Power and its customers want to stay competitive. The region's economic vitality depends upon a stable and competitively priced supply of power. *How can we achieve these goals?*

Our resource mix needs to diversify in order to provide a stable base of power. If one resource's cost rise dramatically, then we can mitigate a sharp rise in electric rates with the costs of other resources including conservation, gas-fired turbines, wind, geothermal, and cogeneration.

BPA is "out of direct control" in holding down the cost of power due to all the competing users and uses of the Columbia and Snake Rivers, a pending endangered species recovery plan, and mother nature's weather. We need to decrease our reliance on hydropower which supplies 62 percent of the region's power. Endangered species listing for salmon and drought conditions are not in the direct control of BPA and its customers. We need more stable and less environmental and weather dependent resources.

Assume BPA remains in the role of acquiring resources. Then,

BPA must streamline its resource acquisition process and facilitate the development of resources by utility and independent power producers. BPA must develop, within its own structure, clear and flexible policies and procedures which pave the way for utilities, energy service companies and IPPs to acquire resources. Currently, the process is encumbered with internal contradictions and policies which appear to change overnight. BPA needs to open the decision process to its customers and become a reliable and consistent negotiator.

When acquiring the 660 average megawatts of conservation, make acquisition decisions based on the pace and rate of acquisition, who will benefit, and the cost. A conservation acquisition policy that only directly benefits business and industry ignores the prime directive of customer-owned utilities to define and fulfill the need of our residential customers.

Assume BPA no longer acquires resources. Then,

Determine who or what will coordinate and enforce regional energy planning. Establish energy planning which incorporates the power needs of the region, regardless of the resource fuel.

Determine the best use of electricity in the region. Electrically intensive and inefficient manufacturing sites may close as a direct result of global price competition. This is not a call to close Direct Service Industries (DSIs), it is a call for us to encourage energy efficiency through the effective use of our limited electric resource in our homes and businesses.

Make BPA's resource acquisition process competitive with other power suppliers. Utilities then could establish partnerships with their customers, IPPs and/or BPA to acquire those resources that the customers need in accordance with the regional energy plan and sound business practices.

TIERED WHOLESALE RATES

What is the objective of a tiered wholesale rate? Is it fair?

A tiered wholesale rate places full requirements and growing utility customers of BPA at a competitive disadvantage. With the Northwest economy restructuring from the new federal budget and forest plan, changes in the global market, and increasing environmental regulation, new business and industry needs to know how they can plan their future.

- What costs do they need to consider?
- What tools do they have to reduce their need for electric energy?
- What role can the utility play in attracting new business to replace jobs lost from plant closures?

Tiered wholesale rates can act as a price signal to use energy efficiently. Yet, with current drought conditions, the Northwest Power Planning Council's fish plan, and the endangered species act (ESA), BPA's wholesale power rate will send a price signal to encourage energy efficient decisions. Already in our service territory, the proposed 1993-94 BPA rate increase has stimulated participation in conservation projects by our industrial and commercial customers. We are currently working with the following businesses in installing energy efficiency measures:

1. Scappoose School District, Scappoose
2. Scappoose Airport / Port of St. Helens, Scappoose
3. Chevron Chemical, St. Helens
4. Armstrong World Industries, St. Helens
5. St. Helens School District, St. Helens
6. Semling Storage Center, St. Helens
7. True Value Hardware, St. Helens
8. St. Helens Rural Fire Department / City of St. Helens, St. Helens
9. Calgary Church, St. Helens
10. Taco Bell, St. Helens
11. Head Start, St. Helens
12. South Columbia Learning Center, Deer Island
13. Rainier School District, Rainier
14. Neighborhood Nursery Restaurant, Rainier
15. Rightline Equipment and Manufacturing Inc., Rainier

Tiered rates would require an allocation of the Federal Based System (FBS). We feel that an allocation should only be to BPA's public preference customers. Use the mechanism of the re-negotiation of the power sales contract to achieve the allocation. DSIs would not receive a firm FBS allocation. The costs included in the base tier would include all present BPA obligations except resource acquisition.

If BPA were not acquiring resources, tiered rates would offer an effective price signal for utilities and IPPs to buy or develop competitive resources. The price signal hits the end-user only if the tier is reflected in the retail rate. The retail rate is not in direct control of BPA, and may ultimately be absorbed in budgets and rates which the end-user does not see.

Again, the BPA wholesale rate for 1994 - 1995 may already be the only price signal necessary for the end-users to change their behaviors and energy choices. The proposed wholesale rate places BPA rates on the brink of not remaining competitive.

DEVELOPING RESOURCES

We propose that BPA and its customers form the question before they decide that a tiered wholesale rate is the answer. We propose the question is:

> **How does the region develop efficient, cost-effective and environmentally sound resources?**

The options we have limit competitive acquisition of energy resources because of BPA's inability to effectively implement the Regional Act's billing credits process and sustain conservation acquisition funding, barriers in our power sales contract, and the State of Oregon's siting requirements.

One method of decreasing BPA's resource acquisition costs is to shift the billing credits process to utilities. The utilities wanting to develop resources would then issue their own Request for Proposal (RFP), evaluate the projects, select the one(s) best suited for their needs, and submit the final projects to BPA. BPA would evaluate and award the contract(s) to the cost-effective and environmentally sound projects.

In the BPA billing credits example, a small utility may have an independent power producer propose a generating plant in their service territory. How does the utility work with the IPP, BPA, state and regional bodies to get the resource on-line and remain competitive? We suggest a few questions to stimulate solution finding:

1. How does Oregon determine a "need" for the resource under Energy Facilities Siting Council (EFSC)?
2. Will EFSC hamper Oregon utilities in developing resources because we have to "demonstrate need"?
3. How can we bring state, regional and federal rules and regulation together in acquiring competitive and environmentally sound resources?
4. Which entity will oversee the development of state and regional resources?

DEBT FINANCING AND TREASURY REPAYMENT

BPA needs to identify new financial resources.

The present U.S. Treasury cap should not be raised. BPA should not be granted access to the private debt markets. If BPA's need to acquire resources is limited, much of the capital needs evaporate.

BPA should expand its use of third party financing. To facilitate third party financing, local governmental entities, such as P.U.D.s, need to have their ability to issue tax exempt bonds returned to at least pre-1986 Tax Act standards. Additionally, we continue to oppose the acceleration of debt repayment. Treasury financing is not a subsidy, it is a loan. BPA and its customers remain committed to keeping our end of the bargain, we want Congress to uphold its promises.

In the area of transmission and distribution, BPA should transfer the ownership of 115,000 volt transmission facilities and related distribution substations (115 kV / 15 kV) to the utility customers served by these facilities. These lines are in our service territories, and it may be more feasible and economical if we maintain these facilities.

ENDANGERED SPECIES RECOVERY

We recommend that BPA be required to fund only one salmon recovery plan.

BPA and its customers should not be expected to fund both the Northwest Power Planning Council's "run doubling plan" and the National Marine Fisheries Service (NMFS) salmon "recovery plan." When NMFS plan is complete, there may be conflicting requirements with the Council's plan. It does not make environmental or economic sense to fund both plans.

We must focus our attention on the plan required by law. The plan's objective must be the recovery of an endangered species and based on scientifically effective solutions which include habitat, water and harvest components. Habitat needs to include stream beds.

A portion of the National Energy Tax from the Northwest should be used to fund the salmon recovery plan.

RESIDENTIAL EXCHANGE

Eliminate the residential exchange.

The residential exchange started as a mechanism in the 1980 Regional Power Act to give residential and small farm customers of IOUs access to the FBS. The principle is that since federal tax payers were subsidizing BPA wholesale rates, these customers deserved a pay-back for their investment. Things change.

BPA is current on all U.S. Treasury payments. Any subsidy that may have existed has been eliminated. Three of the region's IOUs are currently not, or soon will not be, receiving cash subsidies from the residential exchange. Only Portland General Electric and Puget Power will remain recipients of residential exchange dollars.

Continuing the residential exchange at a time when BPA's customers are paying for salmon recovery, and when wholesale tiered rates are being considered presents a situation where the subsidy is reversed. BPA preference customers are "buying down" or subsidizing the residential customers of IOUs. This "buy down" paves the way for the IOU residential rate to be less, in many cases, than the public utility's residential rate.

If the residential exchange remains intact and tiered wholesale rates becomes a reality, then the payments should be based on the second tier in order to send a price signal to the IOUs and their customers.

ENERGY TAX

An energy BTU tax on hydroelectricity must accurately reflect the proper scientific equivalency between BTUs and a kilowatt-hour.

Establish energy tax credits for renewable resource development and investments in conservation. *Allocate a portion of the national energy tax for ESA compliance and low-income energy assistance including conservation measures and energy use counseling.*

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INTER-DEPENDENT RECOMMENDATIONS

The issues affecting BPA and its customers are interrelated, some more than others. Resource acquisition, tiered wholesale rates, and the residential exchange are closely related. Tiered rates may be acceptable if the residential exchange were either eliminated or tied to the second tier, and not to the priority firm rate as the Regional Act requires. And, BPA's resource acquisition costs should be place in tier two and not in the priority firm rate. A tiered wholesale rate scheme would also require BPA to be more flexible in offering load shaping and scheduling services to utilities who choose to develop their own resources instead of buying from tier two.

BPA and the multiple federal and state agencies it works with need to coordinate their efforts, agree on priorities, and determine their actions in concert with each other. We are at a point in our history when the Northwest needs to come together and revitalize our region.

Thank you for this opportunity to share our views.

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A customer-owned people's utility district

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July 13, 1993

The Honorable Peter DeFazio
United States House of Representatives
c/o Committee on Natural Resources, BPA Task Force
1328 LHOB
Washington D.C., 20515-3704

Dear Mr. DeFazio:

Board of Directors

Donald Nys
Agnes Petersen
Richard Sahagian
Richard Simpson
Arnold Tarbell

General Manager

Fergus A Pilon

You are to be commended on your July 12 hearing in Portland, Oregon, on BPA's acquisition efforts. Your questions cut to the pivotal issues.

We would like to testify at the next BPA Task Force hearing to be held in Seattle, Washington, on competitiveness and efficiency. Columbia River PUD is acutely aware of competitiveness issues. We are in direct competition with three customer owned utilities as well as having Portland General Electric serve the island cities in our district. In addition, Columbia County needs to be able to diversify its industrial base from pulp and paper, forest products and chemical manufacturing.

BPA's cost-effectiveness and pricing have a direct impact on our ability to competitively serve and attract family wage jobs to our depressed county. Since the closure of the Trojan Nuclear Plant, the listing of the spotted owl as an endangered species and increasing regulations which protect the environment, Columbia County unemployment rate has become one the highest in Oregon. Wholesale rate design issues, such as tiered rates, have a direct impact on our ability to assist our business customers in competing in the global economy, as well as attracting new industry and business.

Adjacent to Multnomah and Washington counties, Columbia County is just now beginning to grow. We want it to be an environmentally and economically attractive option to new industry and residents. We want to assist our community in attracting new industry and family wage jobs. The cost of power and regional approaches to energy (share the shortage) are competitive issues for Columbia River PUD as well as Columbia County.

We want to offer your committee our views and experiences in how to encourage business diversification and serve our rural electric residential customers by being competitive and working cooperatively with northwest utilities in defining and finding solutions to our regional energy issues.

Thank you for your consideration. We look forward to hearing from you.

Very truly yours,

Jeannie Dodson-Edgars
for

Fergus A. Pilon
General Manager

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CC:Senator Mark Hatfield
Senator Bob Packwood
Representative Elizabeth Furse
Representative Ron Wyden
Representative Mike Kopetski
Christine Ervin, Director, ODOE
George Bell, Lower Columbia Area Manager, BPA
Bill Drummond, Public Power Council
Bill Kittridge, SUB
Governor Barbara Roberts

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY DEVELOPMENT
Ninth & Columbia Building, P.O. Box 48300 • Olympia, Washington 98504-8300 • (206) 753-2200

July 12, 1993

The Honorable Peter DeFazio
Chairperson, Bonneville Power Administration Task Force
House Committee on Natural Resources
1324 Longworth House Office Building
Washington, D.C. 20515

Subject: **BPA's New Direction--The Business Model**

Dear Congressman DeFazio:

As chairperson of the Bonneville Power Administration Task Force, we ask that you pay special attention to how the proposed new business direction for Bonneville may cripple the low-income weatherization program.

Please include these comments in your official record of the July 12, 1993, Task Force Public Hearing in Portland, Oregon. We are distressed by the new business model for BPA. Although laudable for cost-efficiency, this new business model may diminish BPA's responsibility to provide socially-responsible programs, such as the low-income residential weatherization program.

"In our every deliberation, we must consider the impact of our decisions on the next seven generations." This is the Great Law of the Hau De No Saunee--a standard noted by the acting BPA Administrator at the 1991 Programs in Perspective meeting. In less than two years, BPA has changed from quoting a Native American adage promoting long-term social and environmental commitment, to proposing a market-driven, cost-conscious business model.

If BPA can succeed in pursuing a businesslike model without sacrificing long-term and socially-responsible values, we applaud its efforts. Market forces, however, rarely result in equitable programs to the elderly, physically challenged, or to families with young children. Homelessness, unemployment, or inability to pay utility bills are often the direct result of market forces. BPA, as a government entity, has the responsibility to temper the brutality of market forces with fairness through special programs.

We are reminded by BPA often, however, that low-income weatherization is not as cost effective as other alternatives. Is it fair to use the same standards to compare the energy efficiency of an industrial motor to the benefits to an elderly person for a warm house and lower heating bills? BPA's cost effectiveness determinations also do not consider the benefits to a neighborhood for saving a house, or the benefits to society for preventing homelessness.

There are other values tied to low-income weatherization, such as homelessness prevention, housing preservation, utility bill arrearage reduction, and health and safety improvements.

The cost effectiveness of BPA's low-income weatherization program is hindered by BPA's reluctance to incorporate newer, energy-saving technologies into its program. Blower door guided air sealing, duct repair, and air pressure balancing are among the proven, cost-effective measures that are currently not allowable or promoted in the BPA Weatherwise Program. BPA does not need to research or evaluate these technologies since there are studies of low-income weatherization in Wisconsin, Minnesota, Virginia, South Carolina, and New York State that show that these new technologies greatly improve the cost-effectiveness and energy savings of weatherization programs.

Please refer to the enclosed paper, which summarizes Washington State's low-income weatherization programs. We will gladly provide further information to your Task Force.

The Northwest Power Planning Council recognized the many worthwhile benefits of low-income programs in its regional power plan. The Council clearly stated that BPA should **fully fund** low-income programs. The benefits of the low-income conservation program justify a generous interpretation of cost-effectiveness.

BPA should not lose sight of its mission as a public agency to serve the best interests of the social network of the Northwest, and not just the power structure. The power delivery system was built to enhance the economic opportunity of the Northwest for all.

The Honorable Peter DeFazio
July 12, 1993

Page Three

We urge the Task Force to help guide BPA, as a governmental agency representing all people, to embrace socially and environmentally responsible values in addition to cost-effectiveness and market forces.

Sincerely,

Michael C. Piper
Assistant Director

MP:jmh
Enclosure

cc: Washington State Senator Slade Gorton
Washington State Senator Patty Murray
United States Representative Maria Cantwell
United States Representative Norm Dicks
United States Representative Jennifer Duran
United States Representative Tom Foley
United States Representative Jay Inslee
United States Representative Mike Kriedler
United States Representative Jim McDermott
United States Representative Al Swift
United States Representative Jolene Unsoeld

h:\wickham\defazio.ltr

March 18, 1993

Department of Community Development
Low-Income Weatherization Programs

Every year, over 4000 homes of low-income persons are weatherized through the Department of Community Development's (DCD) programs. DCD's low-income weatherization programs have a number of goals:

- To prevent homelessness
- To provide a secure and safe environment to low-income persons
- To preserve housing stock
- To reduce energy usage (our most important goal).

Homes are made more energy-efficient by installing insulation, caulking, weatherstripping, tuning furnaces, and by energy conservation education.

Our BPA funding is specifically targeted for the most cost-effective energy conservation measures. The BPA program is essential to our conservation efforts and serves a broader vision and holistic approach to this segment of our society.

Community Based Organizations

The weatherization work is performed by twenty-six community-based organizations throughout Washington State. For example, work in the Longview-Kelso area is performed by the Lower Columbia Community Action Council. These agencies represent their community well and are knowledgeable about the needs of low-income persons. In addition to weatherization, these agencies also perform a variety of services for low-income persons, such as energy assistance, Head Start, food programs, and budget counseling. They can competently make referrals for their clients to other helpful programs when necessary. These agencies are not only well qualified, but are also the most empathetic and understanding entity available to serve low-income persons.

The Delivery System

The Bonneville Power Administration has funded one of the Department of Community Development's low-income weatherization programs for over ten years. Annual funding has ranged from $500,000 to over $2.5 million, weatherizing from 340 to 1100 homes per year.

Acquiring conservation -- especially low-income weatherization -- requires consistent, stable, predictable and adequate funding. This may be the most important element of Bonneville Power Administration's acquisition efforts. Northwest utilities have also sounded the plea for stable and adequate funding to maintain staffing levels for their conservation programs.

- Community-based organizations have experienced and competent professional energy conservation staff

  The community-based organizations have been installing residential energy conservation measures for a long time, and have some of the best trained energy conservation workers in the state. In fact, Northwest utilities often hire staff trained at DCD agencies because of their qualifications. These experienced conservation workers are a valuable resource to utilities and BPA. They have educated others in innovative, cost-effective conservation measures such as blower-door-guided air sealing work and in mobile home weatherization techniques. Utilities and BPA benefit from our long-term experience in residential weatherization through information sharing and technical assistance.

- Other funds are not available for necessary operating costs

  Up to 30% of the administrative costs of the utilities' BPA conservation programs are paid for by the utilities. The utilities have resources for administration and program support that are not available to the community-based organizations. Rates can be set to generate funds to supplement BPA conservation programs.

  The community-based organizations do not have the option of supplementing the BPA program with other administrative resources. These agencies are dependent on a variety of grants and contracts. Each grant has its own goals and statutory limitations.

  There are four basic weatherization programs funded through DCD:

  - Weatherization Assistance Program (federal Department of Energy funds) DOE
  - Low-Income Home Energy Assistance Program (U.S. Department of Health and Human Services funds) LIHEAP
  - Energy Matchmakers Program (state funds and matching utility contributions)
  - Bonneville Power Administration (federal funds)

  Agencies are constantly strapped for ways to pay their capable and qualified staff, who are not highly paid.

By federal law or contract, DCD weatherization programs can only charge a fixed percentage of ten percent for administration for DOE, LIHEAP and BPA funds. Administrative funds are shared with the delivery agencies. The average top administrative percent available to local agencies is seven percent, and DCD retains three percent to support its administrative costs. If the BPA contract does not pay for the full administrative costs of the program, the agency cannot use other funds to cover its administrative costs for the BPA program. Each program has statutory limits on how much administration and program support can be charged.

Agencies creatively combine the variety of funds to perform complete weatherization on houses. For example, if BPA funds are allocated to the most cost-effective measures, then DOE or LIHEAP funds are used to pay for other needed measures such as air sealing or furnace repair. DOE or LIHEAP administrative funds can only be used for the portion paid for by those funds.

- **Operating costs include program support and administration**

  Program Support is a category of reimbursement used for state low-income weatherization programs. Program support covers essential costs of running a weatherization program that are not strictly administrative or labor/materials costs, such as paying for energy auditors, inspectors, and outreach workers (who determine a person's eligibility for the program).

  Administrative costs cover costs for operating an office, such as for accounting and clerical staff, rent, phones, and supplies.

- **The Energy Matchmaker Program leverages conservation investment, full weatherization, and low-income targets**

  The Energy Matchmaker Program has indirectly pushed utilities to meet their required BPA low-income weatherization goals. Through the commitment and encouragement of community groups, Washington State's utilities have contributed millions of dollars to the low-income Energy Matchmaker Program. But before the utility can participate in the Matchmaker Program (where dollars for conservation are doubled), the utility must first accomplish its basic obligation under the BPA program to weatherize low-income homes.

  By combining and leveraging a variety of funds through the Energy Matchmaker Program, low-income houses can benefit from complete weatherization jobs not possible with only one funding source.

- Agencies perform outreach and eligibility services

  Low-income households are often difficult to identify and obtain participation. The community-based organizations perform excellent outreach and are prepared to work with the special needs of low-income persons and housing stock. BPA's requirement to serve low-income populations is accomplished through DCD's delivery system. Utilities alone cannot serve the same number of low-income persons in the comprehensive way that community-based organizations can.

  Many utilities rely on the community-based organizations to determine low-income eligibility, or to identify low-income households for their conservation programs.

- Agencies perform consumer education

  The Department of Community Development has been a leader in the field of consumer energy conservation education. Most DCD agencies have an education component and trained energy conservation educators. Many studies have shown that the combination of weatherization and consumer energy conservation education result in more effective and long-lasting energy savings than measures or education alone.

  Funding is the biggest obstacle facing implementation of consumer education.

<u>The Power Plan directs BPA to pay for low-income weatherization programs -- background on BPA Low-Income Programs</u>

The Northwest Power Planning Council, in its 1986 Power Plan, requires BPA to fully fund its low-income weatherization program. The Council stated:

> "... that Bonneville should provide for 100 percent of the cost of all measures installed in low-income homes. Data indicate that many low-income home weatherizations funded by Bonneville in the state of Washington require financial supplements from other federal programs. These other federal programs, with limited budgets, are required to serve homes using all fuels. The Council believes that these tax-supported programs should not have to bear costs that the region's electric power system should be assuming for the purchase of conservation resources.....Bonneville's low-income program should not require the use of financial supplements from any other source."[1]

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1 Northwest Power Planning Council. <u>Northwest Conservation and Electric Power Plan</u>. Volume 1. 1986. pages 9-11 through 9-12.

BPA staff have suggested that other DCD funds should supplement the BPA low-income weatherization program. The above paragraph from the Northwest Power Planning Council clearly states that BPA should pay for 100 percent of the costs, and that other federal programs should not pay for BPA's conservation programs. These costs include costs for energy analysts and inspectors, and weatherization coordinators (Program support cost categories).

BPA Proposal

BPA proposes that DCD change to the percent savings option for the Weatherwise Program. With the percent savings option, only a percentage of the total cost (such as 90% for site built homes and 85% for mobile homes) would be paid for by BPA. This option formalizes a method that BPA would not pay 100 percent of the costs. This option seems contrary to the Power Plan's direction to fully fund low-income weatherization. DCD is willing to look at this option, if its true operational costs are covered.

DCD's programs have helped BPA meet its low-income weatherization targets both directly and indirectly

The Northwest Power Plan also directs BPA to deliver conservation programs to low-income persons in the same proportion that low-income persons are found in the population.[2]

Prior to 1986, the Council found that Bonneville and participating utilities were not adequately serving low-income persons in their residential conservation programs. The 1986 Power Plan states:

> "experience indicates that Bonneville is still not succeeding in reaching these two target groups (low-income and rental housing) in proportionate shares to their presence in the population in many of the service territories of utilities operating the Bonneville program. There appears to be difficulty in identifying eligible low-income households in some service territories.

DCD's low-income weatherization program helps BPA meet their required low-income conservation targets both directly and indirectly. Over 5300 low-income homes have been weatherized through DCD agencies with BPA's funds.

The Energy Matchmaker Program has also encouraged utilities to meet their low-income weatherization goals. Prior to the State Energy Matchmaker Program, utilities were not meeting their low-income weatherization obligations.

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2 Northwest Power Planning Council. Northwest Conservation and Electric Power Plan. Volume 1. 1986. pp. 9-11 through 9-13.

Summary

The 1986 Power Plan asked BPA to look for other ways to implement low-income weatherization programs than through utilities alone. The partnership of DCD and BPA resulted in the weatherization of thousands of low-income homes. The community-based agencies, funded by the Department of Community Development, have helped BPA to fulfill its obligation to deliver conservation programs to low-income persons.

Utilities throughout the region recognize that serving low-income persons can be done effectively and competently through the DCD agency network. Grant County PUD and Chelan County PUD actually donate all their residential conservation budget to the local community-based agency. Other utilities contribute funds to the Energy Matchmaker program to help achieve their low-income conservation targets.

There are still many more low-income electrically heated homes which need energy conservation measures throughout Washington. DCD asks BPA to continue its commitment and obligation to weatherize low-income homes by providing a program that provides the best quality service to low-income persons and pays for the true costs of conservation measures.

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KEN L. HARRISON
CHAIRMAN OF THE BOARD
AND CHIEF EXECUTIVE OFFICER

July 16, 1993

The Honorable Peter DeFazio
Chair, Bonneville Power Administration
Task Force
Committee on Natural Resources
U. S. House of Representatives
Washington, D.C. 20515-6201

Dear Chairman DeFazio:

Thank you for the opportunity to submit this written statement to be part of the record for your July 12, 1993 hearing in Portland, Oregon on the Bonneville Power Administration's (BPA) new resource acquisition strategy.

The Northwest Power Planning Council (NPPC) is charged statutorily with overseeing BPA's resource acquisition plans. As well, regional interest groups are intensely involved in this process through BPA's public hearing process. Since Portland General Electric Company (PGE) is one of the few entities in the region also actively acquiring new energy sources, we have a keen interest in BPA's new resource activities. A brief statement on my part might shed some light on the issues BPA is facing in implementing its own resource acquisition strategy.

By way of background, you are well aware that in January 1993, PGE accelerated its decision to permanently close the Trojan nuclear power plant. PGE made this decision after determining that closing Trojan and replacing the power with other resources was the least-cost alternative for our customers. As a result, we have accelerated our own new resource acquisition activities.

As an aside, one benefit of our new supply portfolio will be the diversity we gain from utilizing multiple smaller resources rather than one large single-shaft turbine resource. While I believe nuclear power is a clean energy producer, PGE's future energy mix will be generally more consistent with the energy and environmental values of our customers. The enclosed "pie chart" visually illustrates the 20-year Integrated Resource Plan we have submitted to the Oregon Public Utilities Commission.

Impacts to the federal hydro system from the prolonged drought and endangered species mitigation efforts have presented BPA and its customers with many of the same questions PGE faced during our deliberations on Trojan replacement resources.

These questions include: What are the least cost energy alternatives for the region?; Should we purchase more expensive resources if they are perceived to have lower "environmental externality" costs?; What additional requirements should be considered beside direct costs (ie. power reliability, rate equity)?; and What will be the effects on the electric power industry of deregulating the transmission system? These questions will impact BPA's future competitiveness and we may comment of these questions on the August hearing in Seattle.

My first observation on BPA's resource acquisition is that BPA and the NPPC have identified the same mix of energy resources as PGE -- natural gas-fired combustion turbines (cogeneration and stand-alone), renewable energy resources, and demand-side management. That PGE and BPA are pursuing the same resources confirms, I believe, the technological, financial, and operational viability of the options available to our region.

My second observation is that the costs proposed to BPA for new supply side resources is within the same range PGE has found. I must qualify this by adding that as a federal agency, BPA often is bound to different statutory and public obligations that might add to the program delivery costs. But as a whole, the price of new resources that are bid to BPA by private contractors is consistent with what is being offered to PGE.

BPA and PGE intend to pursue the same general timetable for acquiring new energy resources, beginning with natural gas-fired combustion turbines in the next one to two years. Renewable resources such as wind and geothermal power will contribute to the region's energy supply in the next three to five years. This roll-out of new supply-side resources reflects the additional challenges of bidding, siting, and constructing alternative resources that are relatively rare in the region.

If there is a difference in the strategies of PGE and BPA, it would be the question of whether BPA's financial constraints will allow it to pursue all cost-effective demand-side management (DSM) savings within its customer's service territory. I am hopeful that implementing the suggested changes to encourage third-party financing and decentralized DSM programs will allow BPA to be successful in acquiring these important energy savings.

At PGE, assuming moderate growth within our service territory, we intend to satisfy about 30 percent of our new load growth, or about 10 percent of our total requirements, with cost-effective demand-side management resources. PGE is working hard to keep the costs of acquiring DSM low so that they can compete with supply-side resources.

On this point, I bring to your attention a recent guest editorial by Maura O'Neill which appeared in the May 1993 issue of *The Electricity Journal* in which Ms. O'Neill compares the cents per kWh saved of various utility-sponsored DSM programs, including four utilities in the West. (Copy enclosed) The cost varied between 12 cents/kWh and 56 cents/kWh for first year costs. Obviously, the amortized costs would be smaller depending on the lifetime of the efficiency measure. There was almost no relationship to the total dollars invested in DSM programs and the unit cost of those savings. (See Table 1)

Our experience at PGE suggests it is possible to acquire DSM savings at the low end of the range identified in this study. Ms. O'Neill appropriately acknowledges that there is no "right" level of investment for each utility, but she sums up my general thinking when she says, "Utilities today exist in a world unlike any they have ever known. Succeeding in the still-new DSM arena may prove to be the very thing that gives tomorrow's utility a competitive edge..."

Thank you for the opportunity to comment on BPA's planned resource acquisition strategy.

Sincerely,

Ken Harrison

Ken L. Harrison
Chairman and CEO

GUEST EDITORIAL

Maura O'Neill

DSM — It's a Contact Sport

Electric utilities are dramatically accelerating their acquisition of demand-side resources. And as need for new power resources has picked up, utilities are finding many demand-side management programs to be competitive with traditional supply options. At the same time, there is growing awareness that DSM programs are not standard off-the-shelf items but can vary markedly in their cost and energy savings.

Knowing this, our firm decided to focus on the 1992 DSM program results of a small number of electric utilities to try to measure, in the most fundamental way, how they compared at the bottom line: in cents per kWh saved.

We were fortunate enough to find a score or so of utilities willing to work with us, on condition that we not identify them by name. After eliminating those companies whose 1992 data were not yet complete and those whose data did not include all direct and indirect program costs, we ended up with 12 utilities. They provided a good sampling of what's out there — large systems and small, public and private, peak-constrained and energy-constrained.

We sought only three data points for each utility: its 1992 DSM program expenditures, its annualized energy savings for those measures installed in 1992, and its retail residential rate.

The essence of what we found astonished us. Trimmed to the core in **Table 1**, the data say simply this: the cost of energy saved in the first-year varied by almost a factor of five — as high as 56 cents per kWh at the highest-cost utility and as low as 12 cents per kWh at the lowest. Stated another way, for every 1000 GWh of DSM to be acquired by utilities, this would indicate that utility investment may vary by nearly half a billion dollars. Multiplied by the enormous DSM investments expected in this country over the next decade, such differences and their cost implications are staggering.

Since the cost of a compact fluorescent bulb is roughly the same in Minneapolis as in Miami, what was the cause for the nearly 5:1 spread? Was it the rebate level, the program delivery mechanism, or the mix of measures offered? Clearly, factors unique to each utility can help explain some such differences, but can they account for *such* a difference?

Compare, for example, utilities **D** and **G**. They share similar residential rates, a similar level of DSM expenditures, similar program selection and electricity demand constraints, as well as a similar regulatory climate. Yet there is almost a 2:1 ratio in the amount they spent to achieve about the same amount of energy savings. Or look at utilities **A**, **F**, and **I**. They also share similar regulatory and social environments, yet their per-unit DSM expenditures differ by over 3:1.

From our own experience in helping Pacific Northwest utilities, we know there can be vastly different results from one utility to the next — even when they operate exactly the same program, offering exactly the same incentives. These differences often stem from variations in management, marketing, and program delivery mechanisms.

Maura O'Neill *is president of O'Neill and Co., a Seattle-based consulting firm.*
She thanks **Lisa Fitzhugh** *and* **Kari Nelson** *for their work on this article.*

Highlighting the utilities with the lowest cost ratios may seem to disparage the efforts of those whose costs were much higher. This is not our intention: 15¢/kWh for first-year savings (or, say, 2¢/kWh in levelized annual cost) is not the "right" level of investment for each utility. For many the number may be much higher, depending on persistence of savings, the customer's avoided cost, environmental constraints and other factors. Insistence on acquiring DSM at the lowest cost doesn't have to lead to cream-skimming or poor installation; there's still a lot of room for cost and quality improvements.

Utilities today exist in a world unlike any they have ever known. Succeeding in the still-new DSM arena may prove to be the very thing that gives tomorrow's utility a competitive edge — *with its customers*, by virtue of the range of services it offers at costs that are attractive; and *with shareholders*, by earning a superior return from superior performance.

How can they do it? By being aggresssive and sensibly experimental in all their internal and external processes.

Internal Improvements

1. ***Management.*** Program managers and field staff have valuable information on how to improve DSM acquisition in ways small and large. Companies need better, more regular internal mechanisms — formal or informal — to address the tough questions and focus on improvement.

2. ***Cost-Effectiveness.*** Utilities must place more emphasis on acquiring the least expensive resources and less on customer equity objectives. Residential programs should be those that yield the greatest savings at the lowest costs. If the industrial market is the most cost-effective to mine, put most of the resources there.

External Improvements

1. ***Goal Setting.*** Many DSM financial and savings targets have emerged from a collaborative process, which allows those involved to sift through the information and decide on a reasonable set of goals. Regulatory staff should be part of this process so they can "own" decisions when they are made.

Table 1: DSM Savings and Expenditures

Utility	Cost of savings* (¢/kWh)	Total cost ($millions)
A	12	$13
B	13	$47
C**	14	$27
D**	15	$95
E**	17	$77
F	24	$58
G**	30	$171
H**	37	$4
I	39	$133
J**	41	$63
K**	46	$52
L**	56	$5

* These are *first year costs only*. The amortized costs of savings would likely be much smaller, depending on the lifetime of the program and the period over which costs were incurred.

** Capacity-constrained utilities. Such utilities can spend a great deal on peak reduction programs, which may yield little or no corresponding energy savings

2. ***Networks.*** Learning about DSM practice is growing fast. Utilities must avoid reinventing the wheel and seek solid information on what is and isn't working by the many means available to do so.

3. ***Market Feedback.*** DSM relies on a host of trade allies, vendors and customers for its success. Feedback from these sources is critical, as is making the indicated adjustments to programs relatively quickly. Too often, an excellent review process is allowed to drag on, causing unnecessary delay.

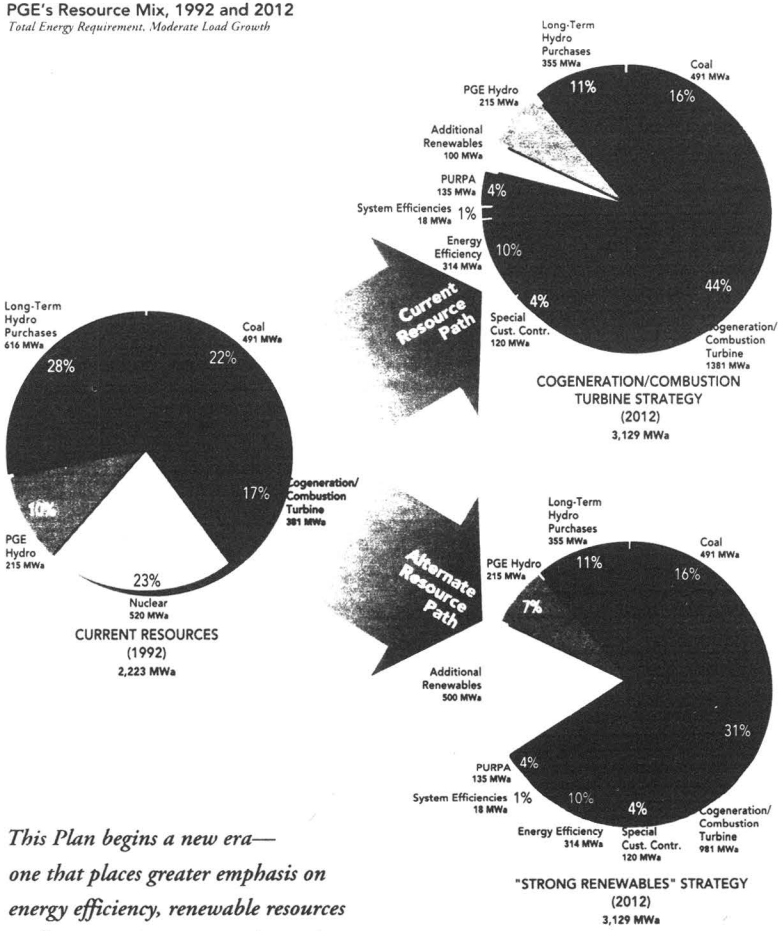
4. ***Benchmarks.*** Utilities should compare their own DSM performance and costs with those of others, just as firms in more competitive industries would. In designing the Saturn, General Motors did not focus solely on the new car's performance and cost to the disregard of what its competition was doing.

Two imperatives require a much more vigilant, tuned-in approach to utility DSM: (1) the prospect of much greater regulatory scrutiny for DSM programs, pushed largely by industrial firms who feel disadvantaged by it, and (2) growing competition at all levels of the energy business.

In an increasingly deregulated environment, utilities must focus on becoming the lowest-cost provider. Keeping in mind the wide differences embodied in the Table 1 data, rough as it is, should remind utility managers, regulators and the public of what's at stake and spur improved performance at the increasingly important bottom line. ■

PGE'S POWER FUTURE

PGE's Resource Mix, 1992 and 2012
Total Energy Requirement, Moderate Load Growth



This Plan begins a new era—one that places greater emphasis on energy efficiency, renewable resources and cogeneration to serve the needs of our customers.



AUG 0 3 1993

WASHINGTON

August 2, 1993

The Honorable Peter DeFazio
Chairman
Task Force on Bonneville
Committee on Natural Resources
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman DeFazio:

On behalf of the Public Power Council (PPC), I respectfully request that the enclosed statement be included in the hearing record for the Task Force's July 12 hearing on the resource acquisition efforts of the Bonneville Power Administration.

The hearing provided a valuable overview of the strengths and shortcomings in past Bonneville acquisition efforts as well as the steps Bonneville is taking to overcome its problems and inefficiencies. PPC would like to contribute to the discussion of four specific issues: 1) the role and authority of the Regional Council in resource acquisition, 2) the concurrent development of generation and conservation, 3) the role of fuel switching in regional power planning and the role of the natural gas utilities in meeting the region's conservation and efficiency objectives, and 4) the history and purposes of regional curtailment planning and the Share-the-Shortage Agreement.

I look forward to continuing to work with you and the Task Force staff in your efforts to ensure that Bonneville continues as an efficient and economic provider of energy services.

Sincerely,

William K. Drummond
Manager

Enclosures
HS:dfcomments

Public Power Council 500 N.E. Multnomah, Suite 729 Portland, OR 97232 (503) 232-2427
Representing Consumer-Owned Utilities in the Pacific Northwest

Role of the Power Planning Council

One of the central questions raised during the hearings relates to the role of the Northwest Power Planning Council (Council) in resource acquisition, the strengths and weaknesses of the Council's resource acquisition activities, whether the Council has adequately exercised its responsibilities under the Act, and whether Bonneville is in compliance with the Council's Energy Plan.

The Council's ultimate value to the region in power planning is that it calculates the cost of planning and operating as a region versus on an individual, utility-by-utility basis. The resource cost estimates done by the Council help to provide a benchmark against which all resource decisions can be judged. The world envisioned by the Act, with Bonneville acquiring resources for everyone, including investor-owned utilities, is very different from the world we now have. Although it is unlikely that we will experience "single utility" planning and operation any time soon, it is still valuable to estimate the costs of pursuing that course. In addition, the Council brings an element of public involvement that helps to make all utility resource decisions more acceptable.

It must be recognized that the Council's role is planning, not implementation. Congress never intended for the Council to directly implement the power plan, that job was left to Bonneville and the region's utilities. The Council's mission is to develop a power plan, establish model conservation standards and determine that the Administrator's actions are consistent with the plan. Congress did not envision an enforcement role for the Council. It is not a regional public utilities commission. It is, of course, appropriate for the Council to track Bonneville's implementation of the plan.

Concurrent Resource Acquisition

The Council's priorities for resource acquisition are descriptive, not prescriptive. Under the Regional Act, conservation and renewables are granted a preference in resource acquisition. While we support this prioritization, it must be recognized that this system -- or any other "externalities" mechanism -- does not presume that one resource type will be pursued to the exclusion of all others. Those that would suggest that the region must exhaust all available conservation before considering other resources do not sufficiently understand the Act's intent, the concept of least-cost planning, or utility resource planning.

First, it is important to remember that the priorities in the Act are intended to provide a system for screening resources during the development of a least-cost plan. The Act's priorities are designed to acknowledge the comparative economics of conservation and renewables. Ultimately, however, BPA is to select the resources that are least-cost. If, after "tweaking" the economics under the Act's priorities, the costs of certain conservation resources are not clear or are not "least cost," then the Act directs BPA to acquire alternative resources.

Second, prudent utility planning argues against acquiring conservation or any resource to the exclusion of all others. The WPPSS experience demonstrates all too well the potential risk of placing too much emphasis on one resource type. New York State Commissioner Peter Bradford, a strong conservation proponent, has warned against turning conservation into the "nuclear" resource of the 90's.

In addition, factors other than price enter into utility resource acquisition decisions. For instance, a utility may be willing to pay more for resources that are dispatchable -- a characteristic not attributable to conservation.

The Council has established an appropriately aggressive target for conservation acquisition. BPA and the region are on schedule to meet that target. Also, the Council's review of BPA's conservation costs suggests that BPA can eliminate conservation program overheads without reducing the amount of conservation acquired.

As we eliminate overhead and reduce the cost of acquiring conservation, it is possible that more conservation can be cost-effectively acquired. This is precisely the system of resource review and selection the Act intends -- not the blind pursuit of a single resource option.

Fuel Switching

For the past two years the topic of fuel choice has been the subject of much discussion in the Northwest. The origin of this debate has been the marketing plans of the retail natural gas distributors and the need for new electric generating resources in the region after a decade of energy surplus. Natural gas, because of its availability, moderate environmental impacts and current low price has been the fuel most often proposed for new generating resources. The question of whether that fuel could be more efficiently used to displace electric end-uses such as water and space heating arises in this context.

There are four points that should be considered regarding fuel choice. First, there are a variety of issues that need to be addressed before a regional policy on fuel choice is implemented. Second, there are BPA pilot programs aimed at improving our knowledge about the fuel choice issue. Third, because of regional diversity, fuel choice is best addressed at the local utility level. Finally, natural gas utilities must begin to demonstrate an increased commitment to conservation and the efficient use of natural gas.

Although the direct use of natural gas for space and water heating may be more efficient than using the same fuel in a combustion turbine to produce electricity, there is more to the public policy debate than this simplified technical analysis. It is important to realize that combustion turbines in the region would be displaced by nonfirm hydroelectric energy or used in conjunction with high-efficiency ground source heat pumps. Both of these options improve the overall efficiency of gas use as a generating fuel. Thus, the argument for fuel switching for efficiency's sake becomes less compelling.

The decision to encourage the use of natural gas as a substitute for electric end-uses is also a complex business decision. Many questions surround the implementation of a regional fuel switching policy. Among them: The extent to which measures beyond current market price signals are necessary? Currently, 95% of the new housing market choosing natural gas over electricity to serve household heating needs. Given this level of gas penetration, one wonders what additional steps would be economically effective.

Other questions arise in any effort to proceed with a regional fuel choice policy. What is the appropriate level of contributions from the three parties involved: the electric utility, the gas utility and the customer? Should the transaction be viewed as a deferral of the need to purchase new generating resources by the electric utility or the transfer of a revenue stream to the gas utility? Given that customers are already responding to the price differentials between natural gas and electricity, what is the likelihood that electric utilities would be paying for a consumer decision that would have occurred anyway? What is the correct incentive to pay if all you are achieving is the acceleration of a market trend? What assurances do electric utilities have that consumers will not reverse their decision and return to the electric utility at some point in the future, should the price of natural gas escalate? These questions put the fuel choice issue in a broader and more comprehensive perspective.

Public power is not opposed to efforts to answer fuel choice questions. We fully support the BPA fuel choice policy as outlined in the 1992 Resource Program. We support the responsible evaluation of programs to determine whether any of the existing policies, regulations, procedures or conservation program incentives provide mixed or contradictory price signals about fuel choice. We also support the notion of assistance for customer-initiated pilot projects. We believe that it is important that all parties participate in the funding of the program either through direct financial or in-kind contributions. This should insure that the electric and gas utilities as well as the "switching" consumer have all contributed to an effort that stands to benefit them all. We believe BPA should take a limited approach to this issue, removing conflicting pricing signals from its incentive structure without jeopardizing our conservation goals.

The third point deals with regional diversity. The member utilities of the public power community have diverse business viewpoints and operating environments. Some utilities are located where natural gas is not even available. Others are in direct competition with natural gas or dual-fuel utilities. Many find themselves in extremely competitive environments with no access to bulk power suppliers other than BPA. Despite this diversity, public power has spoken with a united voice about a regional fuel choice policy. We continue to believe that fuel choice issues are best addressed at the local level. The limited availability of natural gas on a regional basis itself speaks for a policy that is local in its focus and implementation.

Finally, while it is comforting to talk about improving the efficiency of use of natural gas through fuel switching, one must confront the fact that natural gas is a fossil fuel whose supply is ultimately limited. While it is expected that the current supply of natural gas will outlast this generation, we do not have the luxury of continuing to ignore efficiencies that are available today but are not installed. Encouraging fuel switching without also insisting on the most efficient water and space heating equipment available is a halfway measure that makes the fuel switching issue look more like a market share grab than the efficiency argument that is so often invoked by proponents. Efficient use of all fuels must be our goal.

The state of least-cost planning in the natural gas industry lags far behind that seen among electric utilities. The three retail gas utilities in this state are regulated by the Oregon Public Utility Commission (OPUC). In 1992, OPUC reviewed the conservation performance of each of the companies and made several recommendations. In general, the companies were encouraged to assess the conservation potential available to them and to begin staffing and budgeting to acquire it. This is in contrast to the regions electric utilities which have spent the last ten years promoting improved building codes (with strenuous objections from the natural gas industry), operating programs for residential, commercial and industrial customers, educating consumers about the benefits of wise energy usage, and spending over one billion dollars to develop nearly 400 aMW of conservation resources.

In summary, there are many questions regarding the use of natural gas, but we are committed to finding out if fuel switching is a viable resource. We further believe that the most effective solutions will arise as a result of local rather than regional initiatives and are hopeful that the gas industry will improve its commitment to energy efficiency in the future.

Share-the-Shortage Agreement and Regional Curtailment Planning

For the last few years, BPA, the region's utilities and states, and the Direct Service Industries (DSIs) have been working on two closely-related projects: a Share-the-Shortage Agreement and a Regional Curtailment Plan. These two efforts are designed to work together, to help ensure that electrical demand or load in the Northwest is met in an orderly and economic manner during a prolonged shortage of electrical power, lasting at least several months. The 1992 Regional Curtailment Plan is a guide for the states, BPA, and the region's utilities to use in managing reductions in loads, which are designed to allow available resources to cover loads. The Regional Curtailment Plan is intended as a guide for the four individual Northwest states (Washington, Oregon, Idaho, and Montana), who are expected to adopt state plans that will govern load reductions and information exchanges. It is the states, not Bonneville, that have the authority and responsibility to call for and implement curtailments. The Share-the-Shortage Agreement is a formal contract between the region's generating utilities, publicly-owned, privately-owned, and BPA which contains notification requirements, prices and some terms of delivery for the electrical energy that is available during a shortage. It is intended to get all generating resources on line as the final step before curtailments. The contract will be filed with the Federal Energy Regulatory Commission (FERC), and BPA and the region's investor-owned utilities will also file rate schedules, or tariffs, that will govern the actual sales of power during a share-the-shortage situation. The maximum price allowed by the contract during a period of actual curtailments is expected to be about 100 mills/kilowatt-hour.

On three occasions during the 1970s the region's electrical resources were projected to be unable to meet Northwest loads (1974, 1977, and 1979). In these three cases, reactions across the region varied, with some states ordering certain reductions in load (e.g., no outside lighting) and other states allowing the same load to continue in operation. Perceptions of inequity arose, because some of the region's utilities experienced reduced energy use and thus lower revenues while other utilities made no curtailments and lost no revenues. In the wholesale power sales contracts signed in 1981, BPA and the region's utilities agreed to negotiate a share-shortage agreement to cover these situations, and BPA agreed to compensate most of the publicly-owned utilities for "lost retail margins" if state-ordered curtailments occurred. The rationale for these payments is to regionalize the costs of curtailment and to temper the effects of differential levels of curtailment among states.

About three years ago, the region's publicly-owned utilities, through the Public Power Council, raised a concern about dwindling energy supplies and the increased likelihood of a recurrence of the share-shortage situation. Negotiations began on both the Share-the-Shortage Agreement and the Regional Curtailment Plan. The Regional Curtailment Plan was finished in 1992 and the four states have moved toward individual implementation. The Share-the-Shortage Agreement is near completion, and BPA has prepared a tariff (the "Power Shortage rate", or PS-93) to enable sales of energy during shortage situations. There is substantial consensus, but not unanimity, among the region's utilities about the exact form of the Agreement. We expect the Share-the-Shortage

Agreement to be filed at the FERC this fall, to be ready for the 1993-94 winter heating season. There is an immediate need for the arrangements: not only has the Northwest hydro system not refilled, it has been significantly derated for salmon mitigation and we no longer have the Trojan plant to help meet load. Additional transmission capacity to California may allow imports to help meet energy demand, but there is the possibility of interruption of that capacity, which could cause a physical shortage of electrical power in the region.

During a shortage and curtailment situation, it is expected that power will be exchanged at prices up to 100 mills, compared with BPA's average wholesale firm power rates in the mid-20s and retail rates ranging up to the mid-50s. Wholesale rates to BPA's DSI customers could continue in the low 20s. Why would any utility, or BPA, pay prices of as much as 100 mills/kWh when it can only earn 25-55 mills? Because the alternative is worse: during an actual shortage, there is the real possibility of not meeting load, of brown-outs or black-outs. Such interruptions in the supply of electricity to retail consumers could pose serious problems of human safety, health, and welfare. Curtailments would almost certainly have the effect of reducing economic output and quite possibly translate into lost jobs. In these circumstances, the social cost of <u>not</u> meeting each kilowatt-hour of load could easily exceed 100 mills. BPA and the region's utilities, as well as the states and the DSIs, recognize these costs, and thus have committed to both the Share-the-Shortage Agreement and the Regional Curtailment Plan as reasonable ways to ensure that loads are reduced in a controlled manner and that available energy does go to meet those reduced loads. The Regional Curtailment Plan should help ensure that there are no brown-outs or black-outs, and the Share-the-Shortage Agreement should help direct the financial consequences of the power exchanges necessary to keep the region's lights on.

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Representative Peter DeFazio
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Dear Peter,

I would like this letter included in the record of the hearing on BPA held in Portland on July 12, 1993. I would also ask that a further testimony be considered for your next hearing.

The BPA's analysis of alternative energy sources, like that of most utilities, fails to take account of advances in modern electronics that affect the nature of the load and the ability of alternative systems to power present and future loads. Thus, BPA plans to spend more than is necessary to condition conventional power generating systems to accommodate modern electronics, plans to make inefficient use of alternative solar and wind generating systems that could be much better adapted to power the critical fraction of these loads, and does not plan to provide back up power in the case of grid power failures for the fraction of the load which most affects public health, safety and well being.

The BPA, like most utilities, assumes that the general electric power system must consist of one grid carrying alternating current, AC, at high voltage. The reason for this assumption is historical. High voltages reduce transmission losses when power is transmitted long distances from large generators to the load. Transformers have long been able to convert very high voltage AC power to the 120 V AC that is now the standard delivered to customers. Also, previously the most efficient and practical electric motors and generators have been AC devices. It used to be that DC generators and motors required brushes, which wore out rapidly. Thus, high voltage AC used to be the most practical way to generate, to distribute, and to consume electric power.

However, developments in modern solid state electronics have changed the historical reality. In particular, modern transistors make practical direct current, DC, generators and motors that do not require brushes. We also now have very efficient transistorized circuits that can transform DC power from one voltage to another. Finally, a rapidly expanding fraction of modern devices, i.e., the load, require low voltage DC power to operate. These include:

Transistorized electronics (5 volts soon to be 3 volts standard)
Flat panel displays (liquid crystal displays), e.g. HDTV
Light emitting diodes
Solid state lasers
Cathodic protection systems against corrosion
Vidicons
Burglar alarms, security systems
Battery chargers
Fluorescent lights (DC devices that can be operated from low voltage sources)
DC motors

The devices which are most important for the health, safety, economic well being of the public are among these DC loads. These include burglar and fire alarms, computers, information systems (telephones, radio, etc.), adequate lighting, gas fired furnaces and stoves, etc. Even though BPA and utilities have invested very heavily trying to prevent power outages, they still do occur and the public is spending considerable additional money on "noninterruptable power supplies" for the devices they deem critical.

The present method of powering these DC loads is to rectify and transform the 120 V AC. However, many of the loads, particularly the transistors, are very sensitive to fluctuations in their power. The rectifiers that connect them to the grid are very nonlinear devices which perturb the AC power grid. Many other loads also perturb the AC power grid. Thus, BPA and utilities now spend a lot of money trying to maintain a pure sinusoidal AC power grid for the benefit very sensitive loads, which generally require low voltage DC.

Among the alternative energy sources, solar panels naturally produce DC and wind power generators can now be made about equally practically as AC or DC sources. Both types normally use batteries for energy storage, which are DC devices. However, BPA and most utilities plan to integrate what alternative energy source they do acquire into their single AC grid by converting the DC to AC, conditioning and phase matching it. None of these conversion steps is very efficient or inexpensive.

It makes more sense to provide customers with two power systems: the present AC and a new DC system. The new DC source might run at either 12 or 48 volts (the present or the future automotive standard). Just as the previous two prong household wiring was converted to the three prong system, it would be possible to replace the present three conductor wiring with five conductor wiring and three prong sockets replaced with five prong sockets. DC loads would be powered from the DC service and AC loads from the AC service. This would make the task of conditioning power for sensitive, low voltage DC devices (transistors) less expensive. Much less conditioning of the AC system would be required. Solar panels and wind generators would be connected into the DC service, which would be also be provided with battery back-up. When necessary, battery chargers could transfer energy from the AC grid to the DC system. When the AC power fails, critical loads would be run off the DC system with its batteries. It would be a simple matter to sense interruption of the AC power and then to disconnect nonessential DC loads from the DC system. Less money would have to be spent trying to prevent AC grid power outages.

Wind and solar panels are also sustainable devices that can be decentralized so that an individual consumer can generate his or her own power. If each generating household was attached to the power grid there would be less need for batteries and households could generate some or all of their power needs. Individual power would mean the intriguing future world in which a customer could receive a check from the power company rather than the traditional relationship.

I would ask that your next hearing take into account the fact that new technology could and should change the future direction of BPA. The current possibility of building new fossil fuel plants is totally unacceptable to a world of global warming. We must find ways of reducing power needs and reducing CO_2 emissions, not increasing them.

Sincerely,

Peggy Bradley

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CEO

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