NORTHWEST POWER AND CONSERVATION COUNCIL

IN RE: DRAFT SEVENTH NORTHWEST POWER PLAN

DOUBLE TREE INN
100 MADISON STREET
MISSOULA, MONTANA
TUESDAY, NOVEMBER 10, 2015,
6:32 P.M.

PUBLIC HEARING TRANSCRIPT

NORTHWEST POWER and CONSERVATION
COUNCIL MEMBER
PAT SMITH

IN RE: DRAFT SEVENTH

NORTHWEST POWER PLAN

PUBLIC HEARING

HELD ON

Tuesday, November 10, 2015

6:32 P.M.

MR. SMITH: Good evening. Thank you all for coming, very much appreciated. My name is Pat Smith. I am one of two members of the Northwest Power Council appointed by Governor Bullock as one of the two representatives. I actually grew up in Eastern Montana, but for the last 31 years I've lived just north of Missoula, here in the Jocko Valley.

The other Montana member of the Council is Jennifer Anders, who can't be here tonight. She's disappointed she can't be. She's had a loss in her family that allows her not to be here tonight. The Power Council itself consists of two members from each of the four Northwest states, so there's eight.

The agenda tonight is that I will give a very brief background on the Power Act and Council, and then I'll explain the process for tonight. And the main thing to know is, if you intend to offer

some testimony, please sign up. We're going to do this in the order that people sign up.

And then Tom Eckman, here, who is our Power Division Director, will give a high-elevation overview of our Seventh Power Plan, and then we'll proceed with the comments and testimony. So here's some brief background. The Northwest Power Act was passed in Congress in 1980.

It directs the Northwest Power and Conservation Council to prepare a 20-year electricity plan for the Northwest Region, and update it at least every five years. It requires that we prioritize resources to meet electricity loads based on cost-effectiveness. It also prioritizes energy efficiency and renewable energy, if they are cost-effective resources.

This is the seventh five-year update to the regional power plan, and we have been working on the draft plan for the last 18 months. By law, our planning process is transparent and reaches out to engage utilities, organizations, states, tribes and citizens of the region. In drafting this plan, especially in regard to our planning assumptions used in a lot of our modeling, we rely heavily on six technical advisory committees comprised of

utility, governmental and organizations with energy expertise.

In addition, for the first time this planning process has also relied on a high-level policy advisory committee consisting of policy leaders from these same sectors. No other region in the nation has anything like the Northwest Power Council or undergo such a collaborative, transparent electricity planning process as we employ at the Northwest Power Council.

The Pacific Northwest has the nation's largest hydro power resources, providing about half of the electricity needs for the region. Since the passage of the Northwest Power Act in 1980, and its emphasis on energy efficiency, energy efficiency has met more than half of the region's new electricity demand. In fact, the draft Seventh Plan we'll be talking about tonight, proposes that nearly all future load growth in the region in the next 20 years can be met with low-cost energy efficiency.

Because of the Northwest's enormous hydro power base, when combined with the 5,900 aMW of energy efficiency that has been acquired in the region since 1980 -- and 59 aMW (sic) of electricity is roughly the amount of electricity consumed by

five cities the size of Seattle -- the Northwest electricity is the cleanest in the nation. Energy efficiency surpassed coal a few years ago as the second largest resource the region relies on to meet electricity needs. Of course, hydro power is still first.

Primarily because of low-cost hydro power and low-cost energy efficiency, the Northwest also enjoys the lowest electricity rates in the nation. With the release of the draft Seventh Power Plan and the resource strategy proposed in it, we believe the Northwest will continue to have the lowest cost, cleanest electricity in the nation.

And let me now go into just the process tonight, that we'll be using this same format throughout the region, kicking off the hearings in Montana, and then they will proceed west of here for a number of weeks. Welcome to the public hearing held by the Northwest Power and Conservation Council on the Council's proposed Seventh Northwest Power Plan.

The Northwest Power Act Council directs the Council to develop a regional conservation and electric power plan, and to review that plan every five years. The Council is now engaged in its

latest five-year Power Plan review. As part of this effort, the Council released the draft revised Power Plan on October 20th for public review and comment. The Council will be accepting written comment on the draft power plan until December 18th.

The Council will also hold public hearings like this to receive oral comments on the draft plan in all four Northwest states in the next six weeks. If you'd like to comment on the draft power plan at this hearing, please sign in on the sheet at the door. You may also leave written comments with us this evening, if you desire.

Your comments tonight will be recorded by our court reporter and placed in the Council's administrative record for the power planning review, and most importantly considered by the Council as it makes its decisions on its final power plan in 2016. So I'll just emphasize that point: Every word said tonight will be in the transcript, and those Council members that can't be here will be reviewing those transcripts. So we really appreciate you coming here tonight to show enough interest to be here and personally testify.

For those of you who intend to testify this evening, your name will be called in the order

you signed up. Please begin your testimony by stating your name and organization clearly for the benefit of our court reporter, and feel free to summarize your testimony. Your full written statement will be included in the official record.

Just looking at the folks in here tonight, I think we'll have -- we won't need to put a time limit on testimony, so we won't do that. Hopefully, that doesn't become a problem, but I ask people to be a little bit efficient with your comments just in consideration of who is going to testify. I have 14 people so far as to who is going to testify tonight, so that's the number of people who will be testifying.

We will leave the official record for this hearing open for ten days following this hearing, to enable witnesses to submit additional written information, including any material that might be requested by Council members. That's just the transcript for this hearing. As I mentioned before, the full hearing record is open until December 18th. So you can submit comments whenever you want through December 18th, and as many times as you want.

All public comments submitted to the Council, including the oral testimony at tonight's

hearing, will be posted on the Council's website as soon as possible. So you can also go to that website and review what comments are coming in, if you're interested. At the meeting in Kalispell last night, there were interested folks doing that, so they knew what the public comment record was.

For more information on the proposed Seventh Power Plan, including the text of the draft plan itself, please visit the Council's website at www.nwcouncil.org. You may submit comments by using the "provide comment" link on the webpage devoted to the draft Seventh Power Plan.

There won't be time for questions and answers. But I did want to mention in addition to Tom Eckman here, I would ask our staff, who are here from Portland, to stand up, raise your hands, identify yourselves. So there's some in the back. Just be aware, if you want to talk to some folks who have been working on this for a long time, there's a lot of technical expertise. They are here, so feel free to do that this evening, especially after the meeting.

And so with that, we will now turn to Mr. Eckman who will give you kind of a quick highlight, a high-elevation overview. And then I will start

calling folks up in the order that they've signed up. Thank you.

MR. ECKMAN: Thank you, Pat. I'm going to stand up and point at things. I have about ten slides to go through here. They are basically the key findings from the plan that we developed from the analysis, and also a summary of the resource strategy that we're proposing as the draft plan.

There's a couple background slides I'm going to zoom through really quickly, because Pat covered that in his introduction. So as these go through, don't worry, I'm not depriving you of anything in particular. We're done with that.

All right. Key finding, the first one is energy efficiency and demand response. We can meet pretty much all load growth going forward. We don't see any need for new generation in the near-term. This is what it looks like.

On the energy side, on the left-hand side of this graph, on the vertical side, the vertical axis, is the aMW of resource that we anticipate being developed over the next 20 years. And the slices you'll see are the resource types. This first green wedge is the energy efficiencies, about 4,500 aMW across multiple futures. On top of that

there's some natural gas, some solar, and some wind.

The solar and wind development is largely being developed as a consequence of renewable portfolio standards in Oregon, Montana, and Washington. It's not being developed to fulfill adequacy requirements. The conservation and the gas generation are being developed because we need them to keep the lights on.

On the capacity side, this chart shows on the vertical axis MW not aMW. This is peak energy coming from various sources as we go forward in time. The big wedge, again, is energy efficiency. It contributes about 10,500 MW of capacity on winter peak times. On top of that we have about 700 MW, on average, of demand response resources being developed, and then some natural gas resources are at the tail end.

Wind and solar wedge are too small to see, but they are there. The wind and solar we have in this region doesn't contribute significantly to winter capacity needs. And so those resources don't meet that particular requirement. When we look at the need for new resources, this is the load forecast going forward, on average. This is the demand for the region starting at around 2016, and

around 21,000 aMW a year and ending up at about the same point in 2035.

This is the load growth before energy efficiency, about 4,500 MW, plus, of resource requirement. And that blue area is what we will actually have generation for. And it looks like it's basically the same today as it would be in 2035, after energy efficiency. On top of that, we've already subtracted the impact of federal standards that have been adopted since 2010. And that's another 1,500 aMW that disappear that we don't have to meet.

With new conservation programs, they will come in the form of efficient refrigerators, motors, transformers, and lights that the federal government now has established minimum efficiency standards for since 2010. When we look across, we test 800 specific futures, conditions. And in 80 percent of those, we meet 100 percent of load growth with energy efficiency.

So there are 20 percent of the futures where energy efficiency does not meet all load growth, but on average, it does. So in the high load growth conditions, we have additional resource requirements that need to be developed. Should we

see those, we will see gas generation primarily as the fill-in resource behind energy efficiency.

But upon the average case, across multiple scenarios, this first one is the existing policy case. This is the net load after efficiency that we see, basically a replication of the chart I just showed you. In a couple other scenarios, the carbon cost risk scenario, we raised the cost of carbon in the region starting at zero to a number of around $50 a MW, $12 MMTE by the time we get to 2035.

Did that develop more energy efficiency or other resources? The answer is, the same line appears. We didn't develop additional resources in response to that carbon price. We looked at, on the other side, low natural gas prices. We took the low end of the natural gas price forecast that we have and said all futures will be like that. Again, not very sensitive to low natural gas prices.

We still met virtually all load growth with energy efficiency in the average case. When we decided to build less conservation, that is, build conservation only up to the point where it would be below the price of wholesale market power, we did develop less because of a lower limit for cost-effectiveness. Under that case, we still maintained

no load growth for the first 15 years.

There's enough cheap conservation to offset load growth for the next decade and a half, even under very low gas prices, and under the conditions where we only buy conservation up to market price. That particular scenario, building it up to market price, raised the average cost of the total system by $14 billion. That's on a base of around 90 billion. So it was a significant underinvestment in cost-effective resources to follow that path.

When we look at what can replace existing coal plants, there are three coal plants in the region that already have announced their retirement, one in this state that's already been retired, the Corette Plant. We have the Centralia projects in Washington state, Boardman in Oregon and North Valmy in Nevada. This is the natural gas consumption for existing generation.

It would appear on the planet if we hadn't retired and don't plan to retire those coal plants. Since we are, they're already announced for retirement, existing gas generation will be utilized more heavily to make up for that differential in coal generation. Under other scenarios, where we

had the carbon cost risk and we imposed, again, the zero to $100 carbon cost on the power testimony over time, we see natural gas generation going -- being dispatched in greater amounts because it now makes more sense to generate with natural gas than it does with existing coal plants.

Because the carbon cost has been imposed on the coal cost, and that makes it more expensive than natural gas. In one scenario, we looked at the maximum CO2 reduction scenario. We retired all coal plants in the region. That would include Colstrip and Jim Bridger in Wyoming, as well as the coal plants already announced for retirement. That significantly bumped up the amount of natural gas generation that we would see in 2030 -- or by 2025 when we retire the coal plants.

So that hop up there in the middle is when we see a deviation from announced coal plant retirements on the blue line to those that haven't been announced. But if we took them out, we'd see, again, natural gas coming in and filling in the gap. If we add a higher renewable portfolio standard, 35 percent instead of roughly the 20 that we have today, we see a lot of renewable resources coming in, and the natural gas dispatch goes down.

The reason that happens is, if you add a lot of low-cost renewable generation to the system, natural gas is no longer competitive. And so renewables dispatch ahead of it, because they're zero cost dispatch. Whereas, natural gas has to pay for the fuel. You already own these plants, you just have to pay for the fuel.

This is the carbon generation we have going forward, if we don't have any coal plant retirements. It starts at around 34 MMTE, 32 MMTE for the system as whole, and stays flat pretty much through the entire time frame. That line embeds in at 3,500 MW of energy efficiency, so it's meeting some load growth with energy efficiency.

But the coal plants that we have today are very inexpensive to dispatch, and they continue to run. Some of them have been announced for retirement, those three. And if we impose that on the system, we see carbon generation dropping from about 32 MMTE a year down to around 22 to 23, simply from those coal plant retirements.

And that blue line embeds in it about 4,500 MW of energy efficiency to maintain load growths, so we're not building new gas-fired generation on top of it. If we impose the social

cost of carbon in 2016, one of the scenarios we looked at imposed a cost running from about $40 a tonne in 2016 up to $60 a tonne in 2035.

Again, CO2 emissions drop immediately because we just raised the price of carbon generation by coal or gas, and those plants now don't dispatch and more efficient plants and additional renewables come in, but not many. It's largely we're seeing a replacement of existing coal plants with gas generation on the red line.

If we take the gradual approach of raising carbon prices, we get that line. That's the zero to start with, and $50 to end. If we curb all of our appetite for coal entirely by removing it from the fleet, we get down to around 12 MMTE a year by removing all the coal and all the gas plants that are inefficient in the region. By that meaning, those that have a heat rate of 8,500 Btu/kWh. So all of those are not dispatched and we reduce, in the maximum scenario, about an 80 percent reduction in carbon production from the beginning case.

The renewables do about the same as the social cost of carbon -- or as the carbon cost risk by the time we see at the end of the 35 percent renewable. They get down to around 16 to 18 MMTE.

That is the EPA regulation that we have to satisfy. And if we don't remove the coal plants we already have announced for retirement, we don't meet it.

But since they are already scheduled for retirement by 2026, we fall way under in the scenarios that we looked at. So achieving this, EPA's carbon regulations under 111D and B is pretty straightforward, given the announced coal plant retirements we already have in the region. This is at the regional level. This does not speak to the state issues.

As I said before, at the regional level, CO2 emissions can be dropped by about 80 percent using maximum technology that we have available today that's existing. On the other hand, using the RPS to do that is expensive and not particularly effective, and I'll show you a chart that gives the comparisons.

This is a chart that rank orders the emissions that we have in our resource portfolio for the region to provide power. The average CO2 emissions across the entire region, four states, about 55 MMTE, between 2000 and 2012. That's the average. A bunch of water years they're good, some if they're bad, some cheap gas prices, some

expensive gas prices. The range is from about 40 MMTE a year up to 65 MMTE a year; on average, around 55.

With no coal plant retirements, that number drops to 45. If you take the existing policy where those coal plants are retired, we get to 34 MMTE by 2035. That includes energy efficiency. If we add a resource portfolio to that deck, we get down to 29 from 35.

All the way down to the bottom on the red bar is the 12 MMTE I mentioned earlier that happens if you extract all of the existing technology capability and you replace existing coal plants and inefficient natural gas. So about an 80 percent reduction from the 55 to the 12 is possible using existing technology.

Now, the price tag: To get from 34 to 29 is about $34 billion if we try and do it with an RPS. To get from 34 to 12 is about $20 billion incremental, if we do it simply by retiring the coal plants and inefficient natural gas plants. So that's a much more economical way to achieve those carbon reductions.

So, resource strategy is made up of energy efficiency, 1,400 MW target by 2021, 31 aMW by 2026,

and 4,500 aMW by 2035. So that's the energy efficiency portfolio. On top of that, we need to expand the use of demand response to meet our winter peak capacity needs. In the case of renewable development, we need to encourage development of renewable resources that provide winter capacity -- that's the bottom line -- and not necessarily increase the use of RPS with those existing resources that we have.

It doesn't provide winter capacity, because we still have to build gas generation to provide the winter capacity even though we build RPS resources. So that's a very expensive way to backfill resource needs for the region. Other elements, natural gas. We see increased use of existing natural gas, but a low probability to develop the need for new natural gas, because we've offset the need for resource development by mitigating that with energy efficiency. So no new load growth, not need for new resources.

In terms of regional resource use, we presently produce a surplus, on occasion, in this region. Making use of that surplus internally would be an advantage because of the need for less resource development in the region. There are some

issues about doing that: Some people will bear the cost of that, and others will get the benefit. So that's a difficult solution to have.

Finally, we need to expand emerging technology, particularly renewable resources, as I said earlier, that have less variable output, things like geothermal, wave energy, or other noncarbon bearing resources. So that's the strategy, and we'll take testimony.

MR. SMITH: Thank you, Tom. And as I mentioned before, please -- we'll call you in the order that you signed up. That list is now about doubled. So, again, I'm not going to set any time limits, because not everyone is going to use the same amount of time. We'll try to be flexible on that. But just if everyone did five minutes of who is signed up here, that will be two hours, if everybody -- and there's no time limit here.

We're willing to go as long as we need to be here, but we're trying to be as efficient as we can. So that's how we'll proceed. And when you come up, please, again, state you name. If you're representing an organization, please mention that for the court reporter. So we'll start off with Rex Griffin.

MR. GRIFFIN: Well, obviously, I'm Rex Griffin. I'm president of Western Montana Generation and Transmission. That's made up of members of the six co-ops in Western Montana, plus Mission Valley Power; starting with Vigilante, Monida Pass, to Townsend, Ravalli Electric in the Bitterroot, Missoula Electric, Mission Valley, Flathead Electric, Eureka is Lincoln Electric, and the Cut Bank/Browning area is Glacier Electric.

I appreciate the Council coming to Missoula and the opportunity to speak to you. We have a number of concerns. We will submit a more in depth written one to you. But I did want to address a couple of issues here out of respect for you people coming to us.

As I understand the Seventh Plan uses $3.50 for the price of natural gas in the model that they used to build this plan. The price is now closer to $2, and is not likely to increase dramatically in the near future, probably not even much in the long term. This is real relevant when you start comparing the cost to those renewable variable resources. The plan does not take into consideration the fact that we are, as co-ops, have aggressively embraced the energy efficiency.

Energy efficient is very similar to the fish program where the cost-effectiveness of the programs have already been taken that are worth doing. So you're now looking at huge investments for very small gains. I think that leaves a little bit of question to relying that strongly on energy efficiency being cost-effective until better technology has been developed.

On the demand response, in other areas of the country where there's more industry, it's probably more reasonable for looking at that. But you all realize that when you talk demand response in Western Montana, you're talking residences that are going to figure out a way to shut down power in those peak demands.

If preference customers that are forced to invest in new resources to meet compliance, even though they do not have load growth, and that's by mandates coming down to us, is going to result in huge rate increases for our members. We are deeply concerned that the Seventh Power Plan is creating a single-point goal for energy efficiency acquisition over the six years. A range would be more appropriate, given the uncertainty and the assumptions used by the Council in developing their

plan. And, again, I thank you for the opportunity to speak.

MR. SMITH: Thank you, Mr. Griffin. Next on the list is Tim Faber.

MR. FABER: Pass.

MR. SMITH: Next is Ellen Knight.

MS. KNIGHT: Well, I, too, thank you for coming. My name is Ellen Knight. I live at 5800 Roderick in Missoula. In the early days of the Northwest Power Plan beginning planning council, I was very lucky to be involved with the Northwest Conservation Act Coalition. We decided about stipulated energy priorities for our region, with conservation the number one alternative, along with alternative energy and with fuel production and nuclear following. I remain dedicated to that list of priorities, and it sure looks like you all are -- have been continuing to move in that direction.

While we didn't know about climate change at the time the first plan was implemented, we do now. Reducing our carbon footprint is extremely important. Those priorities fit very well with that goal as well. While no longer so heavily involved, I want to make my voice of support for those priorities continuing, along with the urgent need

for reduction in our regional carbon footprint.

And so here's what I'd like to see, which is kind of what you've laid out: Energy efficiency, the cheapest most effective immediately available resource. It's great to get efficient goals in the plan for all sectors, urban and rural. And it seems to me that energy efficiency gains require plenty of hands on labor. It's good for jobs.

Demand response, it seems logical to use this technique for obtaining more efficient use of the energy supply we have, forestalling the need to build more fossil fuel plants. Emphasizing new sources of renewable energy, Montana is ripe for more solar. Maybe there will be a new solar array coming to Missoula. And certainly for wind, please focus on that and plan for a need with cost-effective renewable energy resources for our region.

Reducing dependence on fossil plants should be a key goal. And it looks like you're moving in that direction too. We need to move away from these resources of the past and develop the conservation and renewable resources that will take us far more sustainably into the future.

I want to say further that I hear very little about decentralizing our power resources;

although, certainly that's what conservation actions do. That would reduce the energy loss through transmission. Another topic I did not hear much about in public discussion, but which has to be on the minds of energy planners, is the value of decentralized systems from the national defense standpoint.

Another topic I address very often, actually, big power plants and associated long transmission lines passing through wild or rural lands as well as urban areas are hard to defend. And these are unusual times for people, and disbursal of energy resources would be advantageous. Thank you for coming to Missoula.

MR. SMITH: Thank you, Ms. Knight. Next on the list is Harold Hoem.

MR. HOEM: Good evening, gentlemen. Thank you for having this here. My name is Harold Hoem. I live in the Rattlesnake here in Missoula. I formerly also lived in Washington state, so I'm familiar with "Whoops" and the problems that led you to form your Council. I also was a commercial fisherman, so I'm interested in the conservation end of things. That really is not mainly why I'm speaking here tonight. I'm president of the Montana

Elders for a Livable Tomorrow, but I'm speaking for myself here tonight.

The Seventh Plan seems really good on energy efficiency, and I applaud you for taking that to task. It's most important. You get a lot more bangs for your buck. As far as retiring existing coal plants, an analysis of this is paramount. Montana has also got the aging plants at Colstrip to consider.

The main customers are Washington and other states, and they have spoken up about wanting cleaner power, and I do too. These units are prime for retirement, being dirty, unreliable, and expensive to fix. What a change to the numbers in the plan when this happens.

To keep all of this effort from being an exercise in futility, I mean, as far as climate change issues are concerned, we must account for the C02 that's locked up in the coal rolling west through our region to Asia. You cannot ignore the negative side of this practice globally on climate degradation. We will all pay a higher price for this if it's not stopped. I mean, this is actually killing people over there in Asia. I don't know how many people I've talked to that have been to China

and seen the gagging air they have over there.

It's really uncogitable that we should be contributing to this. We can't just clean up our own back yard and transfer the mess somewhere else. If I had one broad suggestion, it would be for the Council to develop a plan that places a higher value on carbon-free energy and accounts for the true cost of fossil fuels without selling renewable short. And this can add up in things like increased forest fire costs, decreases in water.

Take a look out the window at the Clark Fork. It's pretty low. And that stuff goes on to the coast, which affects the power situation over there and the hydro power. The area that needs the most improvement, I think, in the plan concerns renewable energy and capacity needs. Montana's enormous wind reserves mix well with the wind already in the BPA system. And there's an explicit requirement to give priority to renewable energy.

Please preserve demand response as an important part of the plan. I understand there's some folks that want to see that go away. As far as natural gas is concerned, I've got a lot of questions about that, but I'll address them separately in writing. The gentleman said the price

is now closer to $2. It was $2.32 this morning.

That does affect things. I mean, but the other problem with natural gas is that it's very volatile, and your projections also account for it going to $10. So why would you invest in things that are -- that have this volatility? It's very hard to predict what the price is going to be five years, ten years, twenty years from now.

I want to mention one thing: Germany. This latest issue of the National Geographic has a great account of Germany and how they've dealt with their climate issues, and their nuclear issues, and their coal issues, and problems with monopolies. There's so many parallels with our region here, not totally, but there are a lot of parallels.

Nuclear troubles set them off on a policy to replace that with renewable energy, such as wind and solar. The national will translated into favorable laws. The National Geographic discusses this in some depth. Beginning in 1991 to 1994 with the Thousand Roof Project -- boy, we should have one of those here. Every city ought to have one of these -- there are now 1.7 million solar roofs. Talk about attitude making a difference. And I think we should all take a positive attitude on

this. We've got a huge problem with climate change.

And just to say we're going to have a transition period, it's not enough. We really need a revolution here. And those people in Germany realize this. They're working hard. They have offshore wind, hydro electric, and they have solar. Unfortunately, they also have an Achilles heel in its lignite coal. And they have stranded asset problems just like we have here in Montana.

We should look closely at Germany's effort to come to grips with the climate problem. There's so much to be learned from their mistakes, as well as their successes. They've really led the way, and it would behoove us to closely analyze what's happened in Germany and see if we can't use some of that information in developing our own plans. Thank you very much for taking our testimony.

MR. SMITH: Thank you, Mr. Hoem. And next is Jan Hoem.

MS. HOEM: Hello. Thank you so much for taking our testimony tonight. My name is Jan Hoem. I live at 16 Greenbriar Lane. I've always hated the game of monopoly. It's too much like life where the rich get richer and the poor get mad. This draft Seventh Power Plan with Idaho, Montana, Oregon and

Washington working together for common benefits has many unmonopoly qualities.

It brings us together as a region, which is good, even natural. If you look at the rivers, the roads, the trade we share, and most of us have family and friends to the west. It's not that profits don't matter; they do. But we can help each other out in their pursuit.

Energy efficiency is a no-brainer, easy and low cost. Thanks for making this a big element in your plan. I want to talk about the demand response part of this plan, where reducing the energy demand during high use times is good for energy companies. How can it also be good for us?

If you know that all of your energy used between 9 p.m. at night and 6 a.m. in the morning was free, would that change the time you use the clothes dryer, the dishwasher, the heater, or the air conditioner? It would make a world of difference to me.

In Texas, where 10 percent of their energy is from wind -- and wind does blow most strongly at night -- more than 50 retained electric companies are trying out this plan. They don't have any monopoly there in Texas, not in this realm, anyway.

Their goal is for customers to turn down the dial when wholesale prices are highest and dial it up when they are the lowest. By encouraging energy use at night, the utilities reduce some of the cost that an oversupply of wind energy places on the power grid.

There are other demand response applications. In Maryland, customers earn rebate credits on their bills for every kWh they use less during high demand times. Italy and Massachusetts have their own uses, and experts from Norway are helping companies.

No energy market has gone as far as Texas, however. Smart meters are in most of their homes, and they send information about electricity movement to and from the home and within the country -- within the state.

In Washington, Idaho, Oregon and Montana, let's set our goals high for renewables -- that's the part of the plan that I find the weakest -- and see how we can use demand response to our mutual advantage. That's one of the things this Seventh Power Plan can do for all of us. Thank you so much.

MR. SMITH: Thank you, Ms. Hoem. Next is Diego Rivas.

MR. RIVAS: Member Smith, Staff of the Power Council, my name is Diego Rivas, and I'm a Senior Policy Associate with the Northwest Energy Coalition, based here in Montana. Most of you are aware, but for the record, the coalition is an alliance of more than 100 environmental, civic and human service organizations, as well as businesses and utilities in Montana, Idaho, Washington, Oregon and British Columbia.

I want to first thank the members of our Montana delegation, Member Smith and Member Anders for all of the diligence on the Seventh Plan. The plan is a tremendous undertaking and provides a huge benefit for the region. The coalition appreciates all the hard work that went into the development of the plan, and we look forward to seeing some of the benefits come to fruition.

One of those benefits is the increased acquisition of energy efficiency, as we've heard here already. The Council's past leadership on this issue is already providing tremendous energy and dollar savings for the region, including those Western Montana co-ops taking advantage of BPA's energy efficiency programs. The region's continued and increased reliance on this cheapest and most

environmentally friendly resource will continue to pay dividends far into the future.

Piling onto the $3.5 billion per year we are already saving. We applaud the Council's recognition that energy efficiency is not only the most cost-effective energy resource, but that it also plays a critical role as a capacity resource as well, especially during the winter months. As such, the draft plans call for the region to acquire 4,500 aMW over the next 20 years is a great minimum goal.

As has been the case in the past, we are hopeful that the region can surpass this target. One of the key ways to do that is to ensure that everybody has the opportunity to participate in energy efficiency programs. That means all utilities, be it investor-owned utilities, rural electric co-ops, municipal utilities, east side of the region, west side of the region, all utilities must make every effort to acquire all cost-effective energy efficiency in their service territory.

BPA remains a critical part of this and must continue to be involved if the region is going to meet its energy efficiency goals. There remains a lot of low-hanging fruit, from lighting, to heating, and Western Montana is ripe for energy

efficiency acquisition.

Also speaking of everyone participating, I want to also highlight Action Item 1 in the model conservation standards, recognizing that all customer segments should participate in energy efficiency programs, and that EPA has a duty to ensure that benefits are disbursed equitably throughout the region.

MCS-1 looks to expand the reach of energy efficiency programs to low income customers and other hard to reach segments, including customers in rural regions, like much of Montana, small businesses and others. These customers already pay for energy efficiency programs, and stand to benefit the most by participating and reducing energy bills.

This is an extremely important piece of the plan, and we applaud the Council for its inclusion. Secondly, we applaud the Council's inclusion of demand response as a vital part of meeting the region's peak hour needs. Demand response programs, like energy efficiency, reduces the region's need for capacity resources, as evidenced by the draft plan signaling no need for construction of new natural gas plants for at least ten years.

Once again, this saves the region's customers money. A few of the region's utilities have experience with demand response, their programs overall having overwhelming success. We look forward to demand response becoming a bigger part of the region's portfolio. And to ensure this happens, we encourage the Council to include specific target numbers of between 700 and 1,100 MW over the next 20 years in the plan.

Having a specific target for the region's utilities to look to will further develop this important peak and call shaping resource. Lastly, I just want to mention, again, that the Seventh Plan sees no need to build new natural gas plants for at least the next ten years.

Gas plants are expensive, and reducing or eliminating new build keep costs low for Montana's consumers. It's important that the Council, BPA, and the region's utilities work together to create more efficient power markets, improved transmission, and take advantage of energy efficiency and demand response, as well as emerging technologies to bolster renewable energy contribution, such as battery and other types of storage to ensure that a rush to gas by individual utilities does not occur.

Again, thank you all for all of your work to improve all things energy in the Northwest Region. We're all better off because of it. Thank you.

MR. SMITH: Thank you, Mr. Rivas. Next is Mark Heileson.

MR. HEILESON: Hello. Thanks again for coming to Missoula. My name is Mark Heileson. I'm the Senior Field Organizing Manager for the Northwest Region of the Sierra Club, and I also work with the Montana Chapter, which has over 2,000 members in the state of Montana.

I'd like to start with continuing the applause for the energy efficiency. We think this continues to prove that this is a most cost-effective, abundant resource, and it continues to be abundant. And we believe that it should be something we should pursue as much as we can and aggressively as we can in this plan.

However, we do also feel that we should be learning from the past, and we should be backing away from climate pollution sources. We believe that this plan is a little light on emphasizing new renewable energy resources, and it's continued to rely on natural gas. We feel that actually Montana

has always been an energy exporting state, and it continues to be one. But it has to know what customers want.

And the customers outside of the state of Montana continue to want renewable, climate-friendly resources. And the first rule of good business is knowing that the customer is always right. And I think that something that would be more aggressive is renewable energy. It would provide more jobs, and also be better on the climate and health, speed up the retirement of coal, and get us away from more climate polluting resources.

Again, I really appreciate the opportunity to speak here tonight. My organization will be submitting detailed comments, and I just wanted to add just a few things just to say, thank you, again.

MR. SMITH: Thank you, Mr. Heileson. And next is Marta Meengs. Sorry about the pronunciation.

MS. MEENGS: Hi there. I'm Marta Meengs. I'm from Missoula, Montana. And I also appreciate how much thought you put into this plan. And my main concern is climate change, and that's why I'm here.

I have a quote that I just read, that "We

need to reduce carbon pollution 6 percent a year if we're going to keep rising temperatures below 2 degrees celsius." And that is something that I want to always be on the back burner when any kind of plans are made.

And I really do appreciate the efficiency part, that I'm actually learning about that. But what I want to see emphasized more is the social cost of carbon, and to increase your renewable focus.

I'm leery of a dependence on natural gas. And I read so much about the dangers, of extracting that to our water, to many other systems that are so important. And I don't think relying so heavily on natural gas is wise, even though we have to in this transition. So more emphasis on renewables.

And then making it affordable for low-income people. So, I mean, I'm reading about having solar co-ops where people can purchase a solar panel and it still goes into the grid, and even renters can be part of this. There's just a lot of great ideas out there, and I would like to see us really emphasize the renewables. So thank you again.

MR. SMITH: Thank you, Ms. Meengs. And next is Jim Morton.

MR. MORTON: Good evening, Member Smith, Members of the Council staff. First I would -- my name is Jim Morton. I'm the Executive Director of the Human

Resource Council. We're a community action partnership that serves three counties in Western Montana: Missoula, Mineral and Ravalli counties. As one of those who saw and participated in the development of the first model plan, I have to really compliment you, Member Smith, and your staff to see thirty some years later a plan that is emphasizing energy efficiency, that discusses the fact that we will meet the clean power plan.

I think it's just a tribute to the resolve of the citizens of the Northwest, the fact that they value the environment, they want to think outside the box, and they value what we have in this Northwest. Thirty some years ago people came out in droves to explain to elected officials how much they love this land, and how much they appreciated what God, the creator, had given us.

So I have to, again, compliment the work. I know staff spends a lot of time. Tom Eckman spent a few minutes on some slides, but I know hours, and hours, days went into this. But I want to speak

mainly to the action plan, the part of the model conservation standards, especially No. 1, the hard-to-reach segment. We administer and operate, and have since 1975, energy efficiency programs for low-income individuals.

I have actually been around long enough to have been involved in those plans, it was part of our attempt in the late '70s to install solar on low-income peoples' homes. The State of Montana had a program through the Coal Board using coal trust funds. And we applied and were awarded funds for that. The reason why I want to explain a little bit about the low-income conservation programs is, that in Montana the households that participate in the energy assistance program are automatically eligible for energy efficiency programs.

About two-thirds of the households that we serve, over 4,000 households, close to 10,000 people in our three counties, two-thirds of those household are earning income. And it's important for me to have people recognize that those low-income households and individuals are working. They are working multiple jobs. Montana ranks as one of the highest in the nation in terms of the number of jobs that are citizens that have to work to make ends

meet.

So in Montana, if a household qualifies for energy assistance, you're put on a waiting list. About 30 percent of the individuals in any one year do not apply in subsequent years, so we have households coming in and out of the program. To me that's important because we're weatherizing these households, the housing stock of our particular three counties. But this is replicated across all 56 counties in Montana.

So we have thousands of people on waiting lists just in our three counties for energy efficiency services. We have untold numbers, tens of thousands of housing stock, households, dwellings that qualify to have energy efficiency services. So over a time, we have a very large number of households waiting.

I think it is important that the Council continues to stress this program. Bonneville's low-income working group is certainly a part of that. But we're really dealing with housing stock in our communities. We have the means to address a whole lot of issues, from safety, to energy efficiency to make where we live much better for folks who are working, for the most part, and adding to our

economy.

And I know, Pat, you had a lot to do with this language, and I want to personally thank you for that. And I think people in our community really see you as a leader. And I'm not just saying that because you've been around a long time. But you've been a leader because you have practiced your convictions, and I'm really grateful that Governor Bullock appointed you as Council. So, thank you.

MR. SMITH: Thank you, Mr. Morton. Next is Claudia Narsisco.

MS. NARSISCO: Narsisco.

MR. SMITH: Narsisco, excuse me.

MS. NARSISCO: Thank you very much. My name is Claudia Narsisco. I live here in Missoula, Montana. Do I have to give my house address, or --

MR. SMITH: No.

MS. NARSISCO: And I have a copy that I'd like to leave you with also, Pat. I'm reading this. My comment has been drafted by the energy chair for the Montana Chapter of the Sierra Club. His name is Jonathan Matthews. He lives in Helena, so he's unable to be here tonight.

The more than 2,000 members and supporters of the Montana Chapter of the Sierra Club thank you

for the very good start on the draft of the Seventh Plan and strongly urge you to ensure that the final version of the plan prioritizes energy efficiency and demand response resources achieves the greatest possible reduction in carbon pollution, and provides a strong vision for developing the region's clean energy resources.

We support the Seventh's planned goal of meeting all new energy load growth with energy efficiency for the next 20 years. Energy efficiency is by far the least cost, least risk, and lowest carbon resource available. Efficiency protects customers pocketbooks from the high cost of new power plants. In Montana, energy efficiency resulted in over $78 million in net benefits for NorthWestern Energy customers between 2007 and 2011.

Montana could develop a lot more energy efficiency, and the draft Seventh Plan provides a blueprint for Montana utilities to pursue energy savings. Benefits of energy efficiency -- and this is mentioned a couple of times by the previous people giving testimony -- should be distributed equitably so that low-income, rural, and other hard-to-reach populations are better served.

The Council should preserve the demand

response as a high priority. Demand response measures are incentives that change when people use and don't use power, and reduce energy needs during peak times. Demand Response, like energy efficiency, saves consumers money because it prevents utilities from building costly natural gas plants that only run periodically.

Montana has tremendous opportunity for demand response because most utilities have not pursued it so far as a resource. The Council should identify a range of demand response goals or targets, and this will help the individual utilities pursue it as a key resource.

We believe that the Council's plan should achieve the greatest possible reduction in carbon pollution, which will require retiring costly coal plants. Renewable energy and energy efficiency investments have already put the four Northwest states on track for a 35 percent reduction in carbon pollution by 2015. The draft Seventh Plan estimates that we can reduce the region's carbon footprint by as much as 80 percent if we retire existing coal plants and the most inefficient natural gas plants.

Existing coal plants, as we all know, like Colstrip, are dirty and inefficient, and we

encourage their retirement. Pursuing energy efficiency while taking existing coal plants off line will allow for the deep cuts in carbon pollution that protect public health and save consumers money.

We believe that the Council's Seventh Plan should provide a stronger vision for developing the region's renewable energy resources. The draft plan falls short of identifying opportunities for renewable energy resources to meet carbon reduction goals cost-effectively. The Council should examine how Montana's tremendous wind resources and energy storage technologies can contribute to regional resource diversity and needs. And I know several people that pointed out other examples. And Germany, by Harold Hoem, I thought that was a really good comment, and we'd like to emphasize that.

The Council's Seventh Plan must enact our region's energy efficiency carbon reduction and clean energy potentials, because the situation that we are currently in regarding climate change is so grave. We don't really have time to waste on this anymore. This past March was the first month that CO2 levels in the atmosphere were above 400 parts per million for the entire month.

According to NASA, NASA's Erica Bovaird "CO2 concentrations haven't been this high in millions of years." And I'm not going to read some of the statistics here. But in the letter that we're submitting, you'll see them.

So, Mr. Smith, and Ms. Anders, who is not here, 13 of the 15 hottest years on record have all occurred since 2000. Also, this marks the 38th consecutive year with global temperatures above average.

I'll look through here. In 1960, the peak seasonal CO2 concentrations at NOAA's Mauna Loa Observatory Station was below 320 parts per million. Now, it is over 400. The average observed CO2 level has been rising in a straight line between 1960 when this monitoring began and now. Over the last 10,000 years, the average CO2 levels, as observed in Antarctic ice core samples, have been well below 300 parts per million, only to escalate sharply with the beginning of the industrial revolution and subsequent dramatic increases in human population.

Climate scientists estimate that we need to get atmospheric CO2 levels below 350 parts per million to avoid calamitous climate change that tips out of control and creates a runaway feedback loop

with no hope of arresting it. Clearly, we are in a crisis situation that demands bold, effective actions. We believe that this plan takes the steps towards those actions, and we certainly encourage, Mr. Smith, you as our representative on the Council, to do everything in your power to see that we cross that threshold.

The thousands of members and supporters of the Montana Chapter of the Sierra Club call on you to be leaders on the Northwest Power and Conservation Council, ensuring that the Council's Seventh Plan emphasizes energy efficiency, carbon reduction, and clean energy development. Thank you very much.

MR. SMITH: Thank you, Ms. Narsisco.

MS. NARSISCO: I'm going to give you a copy.

MR. SMITH: That's great.

MS. NARSISCO: And we might change it before it's final.

MR. SMITH: If you don't have any materials tonight, just get them into the record at any time and they'll be part of the record. Next is Jeff Smith.

MR. SMITH: My name is Jeff Smith. I live

at 105 Channel Drive in Missoula, and I'm cochair of 350 Missoula, which is an affiliate of the International Organization 350.org. Thank you for coming to Missoula. Welcome to Missoula. We really appreciate the ability to talk to you about energy future.

We applaud your reliance on energy efficiency, and we appreciate the clarity of the choices you laid out with your chart, particularly the low carbon charting that you did with the 12 MMTE of carbon, and the way that we get there. I could hear the pride that you have in your work, that this is the cleanest and cheapest energy infrastructure in the nation. I think we all feel that pride, and we appreciate your work in getting us there.

But we are making a great transition from fossil fuels to renewable energy. We have an opportunity to set an example for the rest of the nation. It sounds like we're part way there. But we have a big job ahead of us, and we've wasted far too much time dealing with climate denial and obfuscation. We can go further, and we can go faster, and I would encourage you to go there.

According to the International Panel on

Climate Change, we have a carbon budget. And three-quarters of the already identified fossil fuel resources need to stay in the ground if we're going to meet our goal of keeping rising temperatures below 2 degrees celsius. That's a big task. It's good that you're looking at a low carbon scenario, and that goal is in the right direction.

I would call your attention to the work of Robert Pollen, Ph.D., an economist at the University of Massachusetts. He has a school study that talks about the 1.2 percent solution. And it includes $200 billion a year for 20 years investment in this great transition from fossil fuels to renewable energy infrastructure. And the 1.2 percent refers to 1.2 percent investment of our gross national product.

1.2 percent of our gross national product per year for 20 years will get us an 85 percent renewable energy portfolio infrastructure. And I wonder what the proportional response of the 1.2 percent solution for this region would be? His work, incidentally, includes all the costs of retaining displaced fossil fuel industry workers, and that's part of the bottom line that he describes.

You've done some good work here. We would love a scenario where we have maximum incentives for solar and wind. That solar and wind are the priority where individuals can help in the generation of their own power, where communities can plan without penalty, and with incentives, to move to renewables and reduce their carbon emissions. Because every dollar that we spend on the fossil fuel infrastructure from now on takes that dollar from getting us where we need to go.

And I want you to take us further and faster with our budget that the IPCC describes, with the limits on the carbon emissions, the support systems of this plant impose on us. Our children and our grandchildren are calling to us. We need to go further, faster to this great transition. We need to keep all the temperatures below those 2 degree celsius. That's the goal. We build back the policy back from that goal. So thank you.

MR. SMITH: Thank you, Mr. Smith. Next is Robert Gentry.

MR. GENTRY: Thank you, Council Member Smith and Staff for your time and attention here tonight. I'm Robert Gentry. I'm a member of the board of directors of the Montana Environmental

Information Center. MEIC is a nonprofit environmental conservation organization based in Helena, Montana. We have -- we represent over 5,000 located in Montana and across the United States. MEIC appreciates the opportunity to submit some brief general comments on this draft power plan.

We will also be submitting written comments that will expand on these general points. So the Seventh Power Plan is, of course, of critical importance to Montana, not only because rural electric cooperatives of Western Montana buy their power from BPA, but the plan also factors into the resource procurement analysis performed by investor-owned utilities, primarily NorthWestern Energy.

The Seventh Power Plan can also prove useful for utilities in Washington and Oregon, with majority ownership of Montana's Colstrip Units 1 and 2, by helping these utilities determine what are the least cost and least risky resources to replace Colstrip in their portfolio. The BPA's service territory in Montana may only extend to Townsend, but the Seventh Power Plan influences energy decisions statewide.

MEIC supports the strong energy efficiency targets in the draft plan and encourages the Council

to maintain the interim and the final energy efficiency savings goals in the final plan. While some may consider energy efficiency targets ambitious, we know, and history has demonstrated, that these targets are achievable.

Energy efficiency is the cleanest, most reliable, and affordable energy resource. And, in fact, as pointed out by an earlier commenter, between 2007 and 2011, energy efficiency programs resulted in NorthWestern Energy customers net benefit of over 78 million.

And that amounted to $3.70 in benefits for every dollar spent on energy efficiency. Montana can realize much more energy efficiency benefits if electric cooperatives and investor-owned utilities use the strong efficiency goals in the Seventh Plan as a benchmark for their energy efficiency savings targets over time. MEIC also supports the draft plan's emphasis on demand response as the preferred resource for meeting winter peak needs.

Demand response strategies that reduce peak needs avoid the cost and risks associated with overbuilding our energy system. These additional and often unnecessary costs, of course, are borne by the region's consumers. A study just published last

week by Advanced Energy Economy found that every dollar spent on demand response in Massachusetts and Illinois saved consumers between 2 and $3.

This adds up quickly. And Montana has very few demand response programs, so there is a lot of low-hanging fruit available there, and low-cost opportunities that will benefit consumers statewide.

And MEIC recommends that the Council improve the draft plan by conducting a much more robust analysis of how the region's renewable resources and energy storage opportunities can contribute to carbon reduction and diversity and reliability of energy sources. Specifically, the Council should analyze how Montana's tremendous wind resources could contribute to the region's energy and capacity needs.

Montana's wind resource has above average capacity factors and matches up very well with the wind already delivering power to BPA's system. The Council should take the long view in this and future plans by considering how renewable resources and other emerging technologies can play a role in meeting peak needs, replacing existing dirty and costly coal generation while contributing to a low-cost, low-carbon energy grid. Thank you very much

for your time.

MR. SMITH: Thank you, Mr. Gentry. Next is Robert Baily.

MR. BAILY: I'm going to pass.

MR. SMITH: Okay. Next is Diana Maneta.

MS. MANETA: Thank you very much. My name is Diana Maneta. I'm the Executive Director of the Montana Renewable Energy Association, MREA, and we very much appreciate the opportunity to comment here tonight, as well as the Council's thoughtful and thorough efforts in preparing the draft Seventh Power Plan.

MREA is a nonprofit organization with a mission to expand the use of renewable energy in Montana and a focus on distributed and community-scale renewable energy systems, such as rooftop solar PV. Our members include dozens of Montana-based renewable energy businesses as well as organizations and individuals who share our goals of making renewable energy more affordable and accessible for Montanans.

MREA supports the draft plan's emphasis on energy efficiency and demand response as key strategies to save consumers money, improve reliability and reduce carbon pollution, and we urge

the Council to maintain the prioritization of efficiency and demand response in the final plan.

We also support the draft plan's endorsement of solar resources and its acknowledgement that the declining cost of solar and its potential to provide summer peaking services make it an increasingly valuable supply resource. Likewise, we support the draft plan's endorsement of cost-effective small-scale renewable resources, including distributed solar PV. We do believe, as several others have commented here tonight, that the draft plan would be strengthened by a more thorough consideration of energy storage, which has the potential to increase renewable energy's contribution to the Northwest's capacity needs.

And, specifically, I wanted to point out -- to call out one of the action items in the draft plan, ANLYS-2, I believe it was, and we urge the Council to implement that action item specifically to allow for the inclusion of rooftop solar with electricity storage in future modeling work.

Development of both utility-scale and distributed-solar resources in the Northwest will diversify our region's energy supply, will contribute to the long-term stability of customer

electric bills, and development of solar energy will also drive job creation.

I think it's important to mention that here. Solar development puts engineers, electricians, heavy equipment operators, and solar installation technicians to work in Montana and around the Northwest region. Thank you so much for the opportunity to comment.

MR. SMITH: Thank you, Ms. Maneta. We're doing good on time. I appreciate it. Next is Lee Tavennor.

MR. TAVENNOR: My name is Lee Tavennor. I'm from Missoula. I would like to encourage the Council to study and support net metering policies in the Northwest. Net metering is an important part of developing rooftop solar. Thank you.

MR. SMITH: Thank you, Mr. Tavennor. Next is William Flanery.

MR. FLANERY: My name is William Flanery. I live in Missoula. I'm a member of the Sierra Club and the Air Quality Advisory Council, Missoula City and County. I speak for myself and not for the organizations, however. I do endorse the emphasis on energy efficiency and demand response. And enough has been said on that already.

I want to suggest that natural gas ought to be given further consideration because it can serve as a bridge to the greater use of renewables. Renewables are limited in their applicability so far, and it will take a number of years before we can really have renewables be a major source of power for this region.

And I'm suggesting that we should make use of natural gas in the interim between getting rid of the coal-fired power plants, in addition to the ones that are already scheduled for retirement, Colstrip and the one in Wyoming also, because of the damage to our environment, and the effect on climate change. But not only that, but also the effect on human health.

We've seen how excessive use of coal and supplying energy in China is leading to a great number of illness and deaths, and we ought to keep that in mind, as well as the effect on climate of these coal-fired power plants.

Also, I would suggest that natural gas, while it does contribute less emissions that affect climate change, it has its own drawbacks, such as the fracking that is poisoning underground water in so many places. And it really is not a desirable

solution for the long term, but it can be useful in the short item. I want to thank all of you for your work on this important issue, and look forward to hearing further on it. Thank you.

MR. SMITH: Thank you, Mr. Flanery. Next is Claudia Brown.

MS. BROWN: Hello. I'm Claudia Brown from Missoula. I'm with Transition Missoula, which is a part of the National and International Transition Movement, which aims to develop local economies and resilient communities to better enable us to deal with climate change, and resource depletion, and economic uncertainty.

So I thank you very much for this opportunity to speak, and for your hard work. I was impressed with your graphing and your plans. However, I'm also very impressed with how late we are coming to this, to these solutions, that we're running out of time.

And so it will take the dedication of all of us. What Transition Missoula is doing, which is part of a national program, is a neighborhood program called Transition Streets. It's forming neighborhood groups to use a vetted manual to reduce household emissions and save money in energy, food,

water, waste and transportation. So we are aiming to engage local households, ordinary people.

And I do want to stress that I think that it's important to actually aim for the most CO2 emissions that we can, to aim for the greatest amount. And I'm concerned about the problems with natural gas, with the methane, which is so much more polluting than CO2, and also with the problems with water. And I'm not sure about fracking in Montana. But fracking, I think, has to be eliminated.

And, also, I want to mention that in terms of the cost of lowering emissions, to consider along with the cost, the cost of all of the flooding, and fires, and other effects of climate change and how that is going to disrupt everybody. Thank you very much.

MR. SMITH: Thank you very much, Ms. Brown. And next is Jerome Walker.

MR. WALKER: Thank you for the chance of making comments, and I appreciate you coming here to Missoula. I live here in Missoula in an 87-year-old house, a bungalow over in the university section. My wife and I bought that house two years ago. And we totally agree with your idea that efficiency is the low-hanging fruit and the first place to start.

So that's what we did, we had an energy audit. We added extra insulation, sealed all the cracks we could find, put in more efficient appliances, used nothing about LED light bulbs throughout the house. That was the first step. But before we moved into the house, we also added 18 photovoltaic panels up on the roof. I didn't have an optimum orientation on the roof. Part of the roof sloped to the west, part to the east.

So we put some panels on both sides, mainly on the west. And that has worked very well. I've monitored it now for a year, and I'm glad to say that seven months out of the year here we -- those photovoltaic panels produce more electricity than my wife, and I, and our dog use. And during the five months in the winter, of course, a little bit less. But the excess that we produce during the seven months more than compensates for the five months that we're in debit.

Some over all, we have a zero electric bill, except for the connection charge, which I think is ten bucks a month. Now, I have a lot of friends who have told me that they would like to do the same thing with photovoltaics and energy efficiency. But one of the disincentives -- and I'm

sure there are people here in the room that would like to probably have a zero electric bill as well, or a ten-buck electric connection charge. But there's a significant disincentive, and that's the up-front cost. In spite of the generous tax credit, federal and state, there's still that up-front cost which is a disincentive.

I was fortunate to be able to do this, but there are many people who would benefit, I think, from a plan that's been adopted by a lot of other utilities in other parts of the country who provide the solar panels and pay for them. And the customer pays for that -- in return pays that back over a period of time, the life expectancy of the solar panels, which is maybe 20 or 25 years.

That's a way of getting around that disincentive of the up-front cost. And I would certainly encourage utilities here in Montana to consider doing that. It makes sense to go solar over the long term, but getting over that initial hump of the up-front disincentive requires, I think, some creative solutions.

The other thing that I'd like to comment on is, as a retired physician, I'm greatly concerned about the health impacts of continuing to burn coal,

any coal. And not only the mercury emissions, which end up in our water in our streams, in the lakes here in Montana, but also particulates. When I practiced medicine I was a neurologist, and I can tell you that nothing is more toxic to a developing human brain than mercury.

And so I worry a great deal about this, and I would like to see this plan modified by adding Colstrip to the list of the three other aging coal plants that you plan to retire.

I appreciate the opportunity of commenting. Thank you.

MR. SMITH: Thank you, Mr. Walker. And next is Jim Monroe.

MR. MONROE: Pass.

MR. SMITH: Then Robert McKelvy.

MR. McKELVY: You know, I really can't add anything to what we've heard already.

MR. SMITH: Okay.

MR. McKELVY: It's quite amazing.

MR. SMITH: I would agree with that statement. It's been a great job, great evening, great comments. That's the end of the list that I have now. I would invite anybody else who wants to come up here. If you haven't signed up, feel free to

come forward.

UNIDENTIFIED AUDIENCE: Is it opened up for questions?

MR. SMITH: No, it really isn't for the purpose of question and answer. Let's go through the testimony. Afterwards, let's talk. I mean, as I said, we have a number of people from Portland here who have a lot of expertise. So we're willing to talk as long as you want up here about whatever you want to talk about. But let's get through the court reporter process with testimony first.

MR. YORK: My name is Randy York. I'm speaking on behalf of my family, my wife, my kids, and my grandkids. And I don't have an awful lot to add, because I agree wholeheartedly about energy efficiency. But what bothers me is we're all trying to fit new wrinkles into the same paradigm that we've been living with. And we really aren't going to pose a solution to global warming. We've got to create a whole new paradigm.

We can't be as much worried about the initial cost to society, because the costs that we're going to see down the road are going to be much more exorbitant than the initial costs we're facing today. And what really bothers me, in 1975

at the age of 25, when I was working on my environmental studies certification at the university here, my project and paper was on conservation alternatives, or the viable alternatives.

That was 40 years ago, and I hear everybody talking today about it. Conservation? We've got to be a little more efficient. What have we been doing for the last 40 years, people? We've got to 2035 for a reduction. We don't have 20 years to get behind the ball. We've got to do it within the next ten -- next decade. We've wasted the 15 years with obfuscation and the denial.

And we need to have programs and plans that are written that are going to hold these private utilities' feet to the fire, that they need to worry more about the environment and the people than their profits. So there's got to be something in stone where our people in this state, our political leaders, got to realize that we're going to have to make sacrifices.

We just can't worry about it. To be honest with you, we're not going to conserve our way out of this mess. Conservation should be paramount. But the next thing is getting us completely off of

fossil fuels, not in 20 years, but within 10 to 15. So thank you. I appreciate it.

MR. SMITH: Thank you.

MR. LOGAN: My name is Steve Logan. I'm a builder here in Missoula, and I wanted to comment on the power plan. Twenty-five years ago I was hired by Bonneville Power Administration to train 12,000 builders, architects, and engineers in the Pacific Northwest to do conservation in buildings, commercial and residential buildings. I was stunned by the amount of conservation opportunities there were in the Pacific Northwest.

So I wanted to put on the record that I'm stunned, still, to see that there's 4,500 MW of conservation energy that we still can save in this region. So that seems to indicate to me that the vast waste that I saw in buildings 25 years ago still exits.

We started a green box program here in Missoula four years ago and found out that the sample of 222 houses that we monitored, 40 percent of them didn't even have attic insulation. So the behavioral changes, I think, are paramount to the systemic changes that we need and that Bonneville Power is providing us.

All of us have the opportunity to go home and change the way we turn on lights and use energy. And all of those incremental changes will make a vast change in the energy requirements that we need. I don't think we need more wind. I don't think we need more hydro. We need to change our behavior so that we waste less of this distant resource that somebody else produces and sacrifices watersheds and air to get it to us.

So tonight we heard about a few people that have made significant changes in their houses, and their behavior can do this. So I'd like to say that as complex as the Pacific Northwest Power Plan is for all of us to utilize, the finger pointing goes back to all of us individually who use this grid and the distant impacts we don't really feel very much.

So I would thank you for identifying to us again on the graph tonight that there's 4,500 MW still of power that we can save without producing any more at all, but I'm just saying what we don't seem to know is there. So thanks, Pat.

MR. SMITH: Thank you, Mr. Logan. Is there anybody else? Feel free. So let me -- if there's no one else, just remember the record is

open to December 18th. Chad, over here to my left, is our web master. And it's really easy to submit comments on the webpage. You can get a lot of information there, and also understand what comments are coming in from the region.

Let me just mention what happens from here on out. After receiving the comments from the region -- and we actually proactively engage, as we're required to by statute, with the utilities, and stakeholders, and states, and tribes throughout the process to get maximum input here. Just before the holidays we'll kind of go dark and work on revisions to the plan. Based on those comments that we had, over the holidays we'll probably come up with a final plan at our February meeting.

And then that will be the plan that would, once approved, will lock in for the region really for the next five years. Even though it's 20-year plan, it will be revisited in five years, and things all change from what we thought. The future is forgot predictable. That's for certain. And I'd also mention that the plan that's adopted is in large part, at least in part of the substantive sort of goals that we adopt, are binding on a large federal agency called the Bonneville Power

Administration, which sells the power from the huge hydro power resources and one nuclear plant in the Northwest. So it really has an effect there.

But we also have a lot of interest in this plan for private utilities, such as NorthWestern Energy, those type of utilities. And they're involved in our plan all the way along in our committees and stuff. So they pay attention to it as well, because we dive deep into information, and so they use that, especially our scenario analysis when they do their two-year plans for their own utilities.

The reason, as was mentioned here earlier by one of the people who testified, the Council was created because of past problems with power planning in the Northwest, the reference to "Whoops," is where five nuclear plants were proposed and only one was built. And two of those went bankrupt in one of the largest municipal bankruptcies in U.S. history.

And the other three were backed by the Bonneville Power Administration, and only one of those were built. So consumers are still paying billions of dollars today in your utilities bills for the two plants that were not built, which were backed by the Bonneville Power Administration.

So the purpose of this planning that we're doing sort of arises out of that where we're trying to be cost-effective with the decisions going forward. So that's sort of the effect of how this came about, and what we do. And we pay very close attention to what folks say in the region.

And we work real closely with utilities and all folks to try to do the best we can with the plan, knowing the future, we won't get it right, because it's always different than you think, but we come as close as we can. We try to come up with the lowest cost resource strategies for the future. So that's it. We'll be around for questions and answers afterwards. Thank you very much for coming out.

(Thereupon, the hearing adjourned at 8:10 p.m.)

CERTIFICATE

I, David E. Hix, do hereby certify that I reported all proceedings adduced in the foregoing matter and that the foregoing transcript pages constitutes a full, true and accurate record of said proceedings to the best of my ability.

I further certify that I am neither related to counsel or any party to the proceedings nor have any interest in the outcome of the proceedings.

IN WITNESS HEREOF, I have hereunto set my hand this 18th day of November, 2015.

David E. Hix

B

F

G

H

I

M

Y

Z