

**THE ROLE OF TAX INCENTIVES IN ADDRESSING  
RURAL ENERGY NEEDS AND CONSERVATION**

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**HEARING**

BEFORE THE

**COMMITTEE ON FINANCE  
UNITED STATES SENATE**

ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

(BILLINGS, MT)

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AUGUST 24, 2001  
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**FRIDAY, AUGUST 24, 2001**

U.S. SENATE,  
COMMITTEE ON FINANCE,  
*Billings, MT.*

The hearing was convened, pursuant to notice, at 9:30 a.m., in the auditorium of the Fortin Hall, Rocky Mountain College, Hon. Max Baucus (chairman of the committee) presiding.

Present: Matt Jones, counsel; Carla Martin, chief clerk; Elizabeth Paris, tax counsel; Cary Pugh, tax counsel; Amber Williams, deputy clerk.

Also present: Karen Bridges, Elizabeth Chung, and Sharon Peterson, office of Senator Baucus.

**OPENING STATEMENT OF HON. MAX BAUCUS, A U.S. SENATOR  
FROM MONTANA, CHAIRMAN, COMMITTEE ON FINANCE**

The CHAIRMAN. The meeting will come to order.

First I want to thank everybody for coming today. It's a wonderful August summer day. A lot of us could be out doing different things, but I very much appreciate everybody taking the time to be here.

This is the third in a series of hearings the Finance Committee is holding with respect to energy issues. We will hold one more in September. I don't have a date set yet. But the basic point of today's is to get a western perspective on energy issues, whether it's energy or electricity issues, whether it's coal development and whatnot, but just make sure that we have a good western perspective so we can kind of get ahead of the game and not be playing catchup when certain western issues arise at a later point.

I might also mention that I hope that some of the issues we discuss here are relevant to and dovetail with our economic development efforts in our State.

A couple years ago, actually it was last year, I held an Economic Development Summit in Great Falls with a view toward helping us, in Montana at least, get more jobs, higher-paying jobs, just basically in a broad-based cooperative nonpartisan basis, just figuring how we can boost our State's economy. And it is my thought, and it is my hope that some of the issues we address today will be a part of that effort so that the two can help each other.

Because obviously we want a sustained economic development nationwide clearly, and also most especially for our State, and that

very much depends on a healthy U.S. energy industry, one that clearly must be balanced with effective energy conservation measures and also using efficient renewable resources and with due consideration to the environment.

Increased energy prices are felt acutely in our State, as in other parts of the country, and sometimes rural areas are slow to see the benefits of competition because suppliers sometimes don't fight for a small number of customers.

This is particularly important to me because very often rural States don't get all the benefits of competition. Examples can be airline deregulation, lots of examples where urban areas tend to get the benefits of competition, and rural areas, the more there's a free market, and the more there's deregulation, don't get the same benefits that the urban areas get. And I think it's important for all of us to focus heavily, almost aggressively, on that point, that question, to make sure that the benefits are balanced throughout the Nation.

Last winter we saw how fragile our energy markets can be with California's failed foray into competition which touched most western States, including ours. We have been more cautious with State deregulation, but it still is a very difficult matter to address. Energy prices have risen in our State and threaten to go higher, and there are various entities struggling with how to find the right balance with energy price increases to make sure it doesn't go up so much that it deters our State's economic development.

Congress this year pressured the Federal Energy Regulatory Commission to rein in wholesale prices that had skyrocketed in response to market failures in California. These were short-term measures; these were emergency efforts, and I think Congress must also seek ways to improve energy markets over the long term.

Innovative tax policy may be a key to our long-term energy solutions. We all know that energy markets are driven by supply and demand, and that the Federal Tax Code can influence those market forces. For example, the research and development tax credit can, and does, drive technology or overcome barriers to development in general, but there are a lot of other ideas as well.

Montana boasts enormous coal reserves, yet most new electricity generation is natural gas-fired. We will today hear about current proposals to increase investment in advanced clean coal technologies. Appropriate tax credits will help generators use the most advanced and cleanest technologies for coal-fired generation.

Indian Country is another example of unrealized potential. Tribal lands hold a wealth of untapped resources. Natural gas, coal and wind are energy resources abundant in the region. Montana's tribes, however, also offer the most important input for development, that is, an eager labor force. But there are barriers to development in Indian Country. Tax incentives could lower these obstacles and spur investment on tribal lands.

Earlier this year, along with Senator Bingaman, who is Chairman of the Senate Energy Committee, I sponsored an energy tax package to boost energy supplies and promote conservation. It included increased tax incentives for wind-, solar- and hydro-generated power. The bill expands the ethanol producers tax credit,

and expands the credit for electricity derived from the burning of wood or agricultural products to create energy.

These are just some of the possibilities open to us. Today's hearing will explore even more ways to lessen the impact our energy shortage is having on folks across the State.

But tax incentives are only one part in what needs to be a national energy policy. Regulatory burdens, dysfunctional markets and many environmental issues may not be covered today, but I will be concentrating on those issues as well in the full Senate and other Committees and with the Administration, as well as with our State.

That said, today's hearing will explore energy development issues of particular importance to our State and other western States, essentially rural States. We will hear about energy tax provisions affecting rural electric cooperatives, transmission infrastructure and development on Indian lands. Panelists will discuss targeted incentives directed toward clean coal technologies, renewable and alternative energy sources, energy efficiency and energy conservation. They will also discuss incentives for the oil and natural gas industry.

So, we have to be realistic, realistic about what tax incentives can and cannot do. And we will face limits on the size of the tax incentives that we can enact. In short, we will need to prioritize, and that's why I think this hearing is so important.

I look forward to hearing Montanans and others in the region about when they feel tax incentives are appropriate and which are the most appropriate to particularly rural States.

Three panels make up today's hearing. We will hear brief testimony from each witness, followed by questions from myself, I guess. The first panel will address infrastructure needs of Montana and other rural Western States, and the second panel will focus on regional energy production issues. These first two will set the stage for a discussion on energy development issues on tribal lands, and the third panel will be on tribal lands.

I would like now to—actually I invited many people to come and participate in this hearing. Senator Grassley is the ranking member of the committee in Iowa. He just could not make it. He sent Elizabeth Paris.

Elizabeth, could you stand?

Elizabeth is here in Montana. She is here representing Senator Grassley. She is also spending some time in the State.

I might say Elizabeth is really excited. I talked to her a while ago. When the hearing is finished, she is heading for Yellowstone Park.

Ms. PARIS. Wolf watching.

The CHAIRMAN. Pardon me?

Ms. PARIS. Wolf watching.

The CHAIRMAN. Oh, wolf watching. That's great.

I also asked Conrad Burns and Dennis Rehberg to participate. We all know with our schedules, that is really tough, and they could not make it, but I do have a letter from Senator Burns. It is a little lengthy, but I will read it:

Dear Senator Baucus and members of the Finance Committee:

I want to thank Senator Baucus and the Finance Committee for inviting me to take part in today's hearing to address rural energy needs and energy conservation. A commitment I made several months ago to help raise money for leukemia keeps me from attending.

There is a very important role for tax incentives in addressing our Nation's energy crisis. As I have said repeatedly, this is a time of opportunity for our resource-rich State. We need to use these resources to help fill State coffers, to provide for better teachers' salaries, better health for our children, and better jobs for all Montanans. I see a chance of a lifetime before us. This is why I hope future legislation will address tax incentives for reaching resource reserves. Montana can be a part of the solution to our energy problems, but we need incentives to accomplish it.

In order to address our Nation's energy needs, we must first agree on one issue of vital importance. Energy supply has not kept up with demand. The Northwest region of the United States has seen a nearly 24 percent increase in energy and electricity consumption since 1992, while only seeing an increase of generation of 4 percent. If you add California to the mix, the discrepancy grows larger. Further, the Electric Power Research Institute recently found that there's going to be a 20 to 25 percent growth in electricity demand in the next decade, but only a 4 percent increase in power lines and electric-grid equipment. The statistics speak for themselves. If more generation and transmission are not brought on-line, high energy prices are here to stay. If we want to continue to grow our economy, a tax incentives bill cannot overlook the importance of these statistics.

The first logical step that would benefit Montana is common sense public land access. The Federal Government currently manages 650 million acres of land; more than 90 percent of this is west of the Mississippi. Nearly 95 percent of undiscovered oil and 40 percent of undiscovered gas are estimated to be located under these lands. Part of our solution to energy dependence on foreign sources must come from a plan that allows common sense development of our natural resources on public lands.

We know that in the next two decades, our country's demand for oil will grow by a third. Yet, we are producing less oil today than we were in 1970. We make up this difference with imports, relying ever more on the good graces of foreign suppliers. Think of this: During the Arab oil embargo of the 1970's, 36 percent of our oil came from abroad. Today, it is 56 percent and growing steadily.

What's the state of natural gas? By 2020, our demand will rise by two-thirds. This is a plentiful, clean-burning fuel, and we are producing and using more of it.

We must also build more generation, which is something that can be accomplished in an environmentally friendly manner. All new plants must be built to safe environmental standards, and as President Reagan once said, and as Vice President Cheney recently reminded us, no one wants to treat this last American Frontier as we treated the first.

But oil and gas drilling has changed enormously, especially in recent years. Three-dimensional seismic readings now have pinpoint accuracy, greatly improving the success rate and minimizing the occurrence of dry holes.

Improvement rate in the vast majority of drilling over the past decade has been horizontal, allowing much more oil production to go literally unnoticed and habitats undisturbed.

President Bush and Vice President Cheney are Westerners. They understand us, and they understand our needs. The West is a region where stewardship is a serious matter. People rely on the land, not only for the livelihood it yields, but for the life it offers.

We must also not dismiss or discount the importance of using our coal bed methane and coal reserves located here in Montana. Coal bed methane extraction holds great promise not only as an energy source, but also as a source for new good-paying jobs in the Powder River Basin. I helped secure a \$700,000 research grant to help Montana State University study coal bed methane extraction.

We can also safeguard the environment by making greater use of the cleanest methods of power generation we know. We have, after all, mastered one form of technology that causes zero emissions of greenhouse gases, and that is nuclear power. Fortunately for the environment, one-fifth of our electricity in America is nuclear-generated. But the government has not granted a single new nuclear power plant permit in more than 20 years, and many existing plants are shut down.

Another part of our energy future is power from renewable sources, some known, others not. I recently found a statistic on the Department of Energy website that brings great hope. If all of the wind potential in Montana—we all know what parts they are—were to be developed with utility-scale wind turbines, the power produced



each year would equal one billion megawatts, or 7525 percent of the entire State's electricity consumption.

That's ripe for all kinds of comments, which I will resist.

In the last Congress, I cosponsored legislation to provide tax incentives to help bring wind power to market faster, and I assure you I look for to similar measures in this Congress.

The final principle I will address today that should be part of any energy strategy is to make better use, through the latest technology, of what we take from the earth. No one can dispute that it is a good thing to conserve. I urge all of us to do so.

Sincerely, Conrad.

The CHAIRMAN. I didn't read the entire letter. I read the first couple of sentences of various paragraphs to give everybody a feeling of what this letter is all about, but the entire letter will be included in the record.

Okay, let's get on to business here.

The first panel, I would like to introduce them. They are from your left to right, Bob Anderson with the Montana Public Service Commission. Bob is going to give us a perspective on the state of investment in the electricity industry. He has been involved in the transmission industry for many years. He will offer an oral review of regional infrastructure and comment on the need for tax incentives to improve investment.

Next, Bill Pascoe. Bill is Vice President of Energy Supply for the Montana Power Company. He will address current issues relating to investment in electricity transmission from an industry perspective. He will touch on the establishment of regional transmission organizations, known as RTOs, and include information about the tax consequences of transcos, which can be a type of RTO.

Next, Terry Holzer, who is General Manager of the Yellowstone Valley Electric Co-op, which serves a good part of Billings. He will tell us about the specific tax issues faced by Montana's electric cooperatives.

Next, Darwin Subart, who will identify tax incentives afforded by the gas industry to enhance pipeline investment.

And finally, Nancy Hirsh, who will discuss alternatives to infrastructure development. She will identify tax incentives to promote energy efficiency and distributed generation.

I remind all witnesses and all of you testifying today that your entire statements will be included in the record, however lengthy. So, let's get started, and I urge each of you to get to the heart of the matter and your testimony be succinct.

I would like to stick within about 5 minutes, if you could.

Commissioner ANDERSON. I promise not to take any more time than Senator Burns did.

**STATEMENT OF COMMISSIONER BOB ANDERSON, MONTANA  
PUBLIC SERVICE COMMISSION, HELENA, MONTANA**

Commissioner ANDERSON. Good morning, Senator Baucus and all good Montanans. It's a pleasure to be here this morning.

I'm Bob Anderson. I have served on the Public Service Commission for over a decade, and I just want everybody to bear in mind that experience in no way makes me a taxation expert. I do have some experience, though, with utility matters, and that's what I would like to share with you today.

Senator Baucus, I really applaud your and the Committee's interest in these issues simply because energy, especially electricity, is

so vital to the lifeblood of everything that we do and everything that we are.

It is no news that in 2000 in Montana and throughout the West, especially in California, there were enormous price increases and rolling blackouts. Those things affected Montana, and there are literally hundreds of people out of work in Montana because of high electricity prices in the West.

Electricity is back on the front page of the newspapers. It's a front-burner issue, and policy-makers all around the country, including in our Montana legislature, are paying a lot of attention to these serious issues.

I'd like to call your attention to one example of a policymaking process, and I'd like to submit this document for the record. These are electricity policies that were issued by a couple of dozen State utility regulators in May of this year, and I have a reference to this document in my testimony so you can find it, and I would like to have you include that in the record, if you would.

Senator Burns and in your opening statement reflected one of the responses that many people have had to this situation, and this is, the infrastructure simply hasn't kept up with demand. There is some truth in that, but that really doesn't tell the whole story.

It's true that investment has lagged in recent years in generation and transmission, but in California, a system that met a 53,000-megawatt peak demand in the summer of 1999 failed to meet a 29,000-megawatt demand in January of this year. The infrastructure was there. It simply didn't perform.

So, what's wrong with this picture? It really wasn't a lack of investment in generation; it was a dysfunction in the market that California created.

That dysfunctionality enabled generators to exercise market power, and they did. They didn't need to collude. All they had to do was follow the rules and withhold and operate their generators in a way that drove up their prices, and they laughed all the way to the bank as a result of that.

A bigger problem than infrastructure investment was this market dysfunction. The best solution to this market power isn't to create incentives for new generation; it's to fix the market. We need a market that has a number of important fundamental characteristics, the most of important of which is good price signals for producers, for transmitters and for customers.

It needs real competition among producers. It needs a balance of risk and reward for investors. It needs a robust supply portfolio for all suppliers, and that portfolio should include, and this would apply to Montana Power, conventional resources as well as distributed and renewable resources and an effective demand response mechanism.

We need alignment of authority and responsibility in all governmental and quasi-governmental entities.

The subject of this hearing is tax incentives, and targeted tax incentives can play a vital role in this matter, and I'll get to that in a minute, but there are no substitutes for the basic characteristics of a well-functioning market and a good, sound regulatory framework.

In fact, there's reason to be cautious of tax incentives, especially for generation, because today's incentives can lead to tomorrow's stranded costs.

One of the things we've learned with restructuring is that there have been all kinds of unanticipated and unintended consequences, and we need to be wary.

Senator Baucus, my time is running down, but let me just highlight some things.

The CHAIRMAN. Already? Take a little more.

Commissioner ANDERSON. All right, thanks.

The CHAIRMAN. I'll give everybody a little more time.

Commissioner ANDERSON. Generators, new generators in the West have responded to price signals. In the past year, 2800 megawatts have been brought online. Another 20,000 megawatts have been permitted, and another 12,000—or pardon me, 20,000 are under construction, and another 12,000 have been permitted; another 65,000 announced. Clearly tax incentives are not needed to stimulate the market for new natural gas-fired generation.

But, there is a place for tax incentives, and one place is in clean coal, and your opening statement referred to that. But, I urge that any tax incentives for a clean coal program should include not just the regulated pollutants today, but also carbon dioxide. This is an enormous political issue internationally, and clean coal programs and incentives should address mitigation of carbon dioxide production.

Tax incentives are important for renewable resources to provide the diversity and resource portfolios that every supplier should have.

Our most economical energy source is efficiency. Just getting more out of our existing system is actually the most cost-effective, economical way to meet customer needs.

But there are market barriers, market barriers having to do with access to capital and irrationally short payback periods required by customers. And this is a place where targeted tax incentives can really work.

Transmission is a seemingly attractable issue. Most of the transmission in the Northwest is owned by the Bonneville Power Administration. And Bonneville doesn't need tax incentives. What Bonneville needs is an increase in its borrowing authority so it can go to the Treasury and invest in the infrastructure improvements that it has identified.

For investor-owned utilities, tax incentives won't solve the problem. There are two kinds of problems. One is siting, and this is really not the subject of the Committee's jurisdiction, but I urge the Congress to resist giving FERC sweeping siting authority as it has the natural gas pipelines. I think the States through reasonable institutions can solve that problem.

But even if siting is solved, the biggest problem in transmission is uncertainty for cost recovery. And there, what we need are good, functioning regional transmission organizations that will establish tariffs that give investors assurance of cost recovery.

Finally—not finally, almost finally, there's a role for tax incentives in research and development. And Senator Baucus, I know you have been a champion of R&D for many years, and it's pro-

duced wonderful results for the American people, and I urge that the R&D tax credit should be renewed when it expires; that it be increased to further stimulate new, innovative technologies, and if necessary, expanded so that it applies to technology such as FACTS technologies in transmission.

And finally, Senator Baucus, I have listed four points that our National association has enunciated with respect to tax policy. I won't read those. I'll just refer you to my testimony.

But just let me summarize by saying that we should be very cautious with tax incentives; that many of our problems need to be solved with fundamentals of markets rather than tax incentives.

Thank you for your time.

The CHAIRMAN. Thank you very much, Bob. That was a very provocative and interesting points. I appreciate it very much.

Mr. Pascoe.

**STATEMENT OF WILLIAM PASCOE, VICE PRESIDENT,  
MONTANA POWER CO., BUTTE, MONTANA**

Mr. PASCOE. Good morning, Chairman Baucus. Thank you very much for conducting a field hearing in Montana and for inviting Montana Power Company to offer its views on tax incentives for addressing rural energy needs and energy conservation.

I'd like to use my 5 minutes to talk about two sets of topics. One is transmission issues affecting transmission and distribution, or tax issues affecting transmission and distribution, and the second subject I'd like to spend a few minutes on is tax incentives for energy efficiency and for renewable resources.

As far as transmission and distribution tax policy go, Montana Power supports the tax agreement reached by Edison Electric Institute, the American Public Power Association, and the Large Public Power Council. Those measures are included in S. 389 introduced by Senator Murkowski, which will be considered by your Committee this year.

Most of the measures that I'm going to talk about that were in that agreement also were part of H.R. 4, which was passed by the House in July. I'd like to touch on three of those briefly.

The first has to do with regional transmission organizations, which we will talk about this morning. Others we will mention too I'm sure.

RTOs are FERC's response to trying to put together regional grids that make markets function better. But to have RTOs truly work, they have to be inclusive, and every one who owns significant parts of transmission systems need to be involved, and that includes public power entities.

So, part of the tax agreement includes relief for public power entities who participate in RTOs so that their private use status isn't jeopardized with the possibility that they would lose their tax exempt status, and Montana Power supports those private use modifications.

We would also support similar modifications to tax provisions for rural electric cooperatives, so if they choose to participate in RTOs, they are not penalized for doing so.

Second measure that's in the tax agreement that is an important one is to remove tax disincentives for utilities that want to take

their transmission systems and move them into stand-alone transmission companies.

A regional transmission organization that we're talking about for the Northwest is called RTO West. And RTO West will operate the grid and provide nondiscriminatory open access. But RTO West will not have capital to build transmission lines. That capital will have to come from other sources.

Some of it certainly will come from the Bonneville Power Administration, and Montana Power supports an increase in their borrowing authority. But when it comes to private investment, I think the source of that capital is uncertain. And I think the reason for that is vertically integrated utilities, who own most of those transmission lines, see generation and distribution as better places to invest.

In contrast, in the natural gas industry, there are stand-alone interstate pipeline companies who are focused purely on long-haul transmission service, and who are competing with each other to build new gas pipelines from producing areas to consuming areas. So I believe that we need stand-alone transmission companies for electric transmission that will want to invest and actively pursue opportunities to do so.

But currently there are tax disincentives to doing that, and rather than go into those right now, I'll just reference my written statement and suggest that it would be wise to remove those disincentives.

The third thing I'd like to talk about on the T&D side is something called Contributions in Aid of Construction. These are advances paid by customers who want to connect to a transmission or distribution system when the cost of that connection is high enough that the traditional transmission and distribution tariffs don't adequately cover the costs. So in those situations, utilities go to the customer who is trying to connect and ask them to put in the difference.

Currently under IRS rules, those contributions by customers are not treated as in effect capital payments; they are treated as operating revenues and taxed as ordinary income.

So in Montana Power's case, when we have a customer that wants to connect to our facilities, and we ask for that contribution, we have to gross it up 33 percent to cover the income tax consequences of that. That's a significant source of frustration for our customers. What, you know, the IRS sees as a tax on utilities in effect becomes a tax on customers, and we would certainly like to see some movement on Contributions in Aid of Construction, which makes an acronym CIAC, which you hear referred to as CIACs. It's also important for remote generations sources that are distant from the grid and that need reinforcements in order to integrate.

So, those are the tax measures we're interested in for T&D.

I'd like to talk for just a minute about energy efficiency and renewables.

First on the subject of energy efficiency, Montana Power supports the provisions in S. 207 that deal with energy efficiency measures. Those are measures that it's my understanding you, Mr. Chairman, and Senator Burns supported last year, and we would hope that you would continue to support those.

As Commissioner Anderson said, getting supply and demand in balance really has two components. Part of it is supply, and while I do not agree necessarily with everything Commissioner Anderson said, and I think there is some need for new generation and transmission infrastructure, it's also important to find reasonable ways to curtail demand, and energy efficiency is certainly a part of that and something that the Committee ought to continue to encourage.

Finally, with respect to renewable generation, in Senator Burns' letter, he cited some statistics about wind power potential in Montana. The one that I think is the most eye-catching and easiest to understand is that Montana has the third greatest wind potential of any State in the United States, and if all of that wind potential was developed, it would serve 15 percent of the electricity needs for the entire United States. So, the potential is substantial, but there has been little development to date.

Montana Power has announced its intention to buy 150 megawatts of wind power. We have gone through a request for proposals, and we have developed a short list, and we're very encouraged by the results of that.

Now, our solicitation will lead to the first commercial scale development of wind power in the State of Montana. And one of the things that has made it possible for us to do that is production tax credits.

With the existing level of production tax credits, those wind projects stand on their own, and they are competitive with traditional sources of generation. Without the production tax credits, those projects will fall by the wayside because they just will not be economic. So, we certainly hope that the Committee and the Congress will extend the production tax credits for renewable resources.

Thank you.

The CHAIRMAN. You bet. Thank you very, very much.

Next, Mr. Holzer.

**STATEMENT OF TERRY HOLZER, GENERAL MANAGER, YELLOWSTONE VALLEY ELECTRIC COOPERATIVE, HUNTLEY, MONTANA**

Mr. HOLZER. Good morning, Mr. Chairman. I'm the General Manager of Yellowstone Valley Electric Co-op, and it's located in Huntley, Montana.

And just to give you a little background about our cooperative, we serve about 14,000 meters in Yellowstone County and five other counties. We're the second largest cooperative in Montana, and much of our consumer growth is occurring around the city of Billings as it expands into our service area.

We also have, we are 100 percent hydro system, receiving power from Bonneville Power Administration and Western Area Power Administration.

And I really appreciate the opportunity to appear before you today and to represent the 26 electric cooperatives in Montana.

Thank you very much for your support of S. 794, the Rural Electric Tax Equity Act. We appreciate that greatly. This legislation is important to Montana cooperatives as we continue to struggle in

this new energy environment to protect and work for our consumers' best interests. And I also would like to thank you for your strong support that you have given to co-ops, especially in Montana, over the past years.

I would like to focus a little bit on an issue dealing with not only generation but also as supply, but also as consumption dealing with the use of electricity. And as stated earlier, electricity is the lifeblood of our Nation's economy, and we witness what's happened in our State's economy as we have seen market prices go up, and some industrial consumers had to shut down, and we've had layoffs.

And we really are experiencing some serious challenges nationally when we look at the aging of our transmission system and somewhat being quite undercapacity and able to meet the needs of our electric consumers.

And all segments of this electric equation need to be addressed, the supply side and the demand side, I feel. So aside from the capital investments and incentives that can be put into added generation and transmission and distribution, I think new efficient energy products need to continued to be developed, and this will then focus on the demand side of the technologies over where the consumer is actually using the product.

There are really two main components of this energy equation. I mentioned the generation side, which is the production, or the supply side and the end user side, or the demand side.

And while increasing our Nation's production of power and efficient transportation of that power is critical, also it's very important on the consumer end to have new emerging technologies which will help to reduce, then, the rate of growth that is needed in new generation and capacity.

Recently at EPRI, the Electric Power Research Institute, concluded that a 2.5 percent reduction in electricity demand in California alone could reduce the wholesale spot price in California by as much as 24 percent. This is because more added power would be available for consumers to use.

Our co-op is currently constructing a new headquarters in Huntley. We are using the latest heating and cooling technologies. We are installing a four ground source heat pumps, and the ground source loop itself consists of 3300-foot wells. And in our analysis, we're going to be able to heat and cool that building about a third of what it's going to cost under a conventional heating and cooling system.

We offer financial incentive to our consumers to encourage them to install ground source heat pumps and high efficiency air conditioners and water heaters. And we really see that in the future, we want to get involved in the fuel cell marketing for our consumers as well.

And we would encourage that the Federal Government then take a leading role in developing tax incentives for consumers that help to lower the cost of buying these new technologies and to use electricity more efficiently, as well our co-ops then can probably be in better stead to market these products to our customers. We really are natural marketers for our consumers trying to do actually what they want us to do.

So I think greater efficiencies would also enable the utility to use its power system much more efficiently, which would help control the cost of the demand that they are having to buy that could pass across their system, and that might lessen the line capacity upgrade costs.

I would like to talk a little bit about the 85/15 rule that affects co-ops quite dramatically. As you're aware, under Section 501C(12) of the IRS Code, electric co-ops are exempt from Federal income tax so long as 85 percent of their income comes directly from their members. The new regulations or the restructuring in Montana and some of the emergent things nationally are going to have a challenge to that.

Since 1924, when the 85/15 test first came about, there have been very few changes made. So for the last 77 years, it's basically been untouched. But given today's ever changing electric industry, it needs to be modernized so that the co-ops can fully participate in this competitive environment. And there are a couple of examples in Montana where co-ops now are being affected by this.

If we were to open up our systems for competition in Montana, we have to form a for-profit subsidiary company to do so in order to sell power across another utility's line. And when we do that, the revenue coming in from that commodity sale that the customers are paying to this subsidiary company, they would not be a member of that co-op, the parent company, so that revenue coming to the co-op would not be considered member revenue. Therefore, the unrelated business income coming into the cooperative could affect that 85/15 rule.

Additionally, electric co-ops in Montana who become obligated to wheel power from outside entities or participate the RTOs might receive significant wheeling revenues coming across their transmission systems, and this would also be nonmember revenue and could affect that 85/15 rule.

Our co-op, in particular, has been receiving a number of calls from Montana Power consumers who would like our cooperative to serve them because of the pending rate increases coming about July 1, 2002. And I was happy to hear yesterday that Bill had mentioned that the rate increase will not be as large as MPC first thought.

However, I think for our cooperative to fully participate in customer choice in the future, the 85/15 rule needs to be addressed so we can take away that pending tax liability that our co-op customers may see, if we, in fact, open up our system for competition.

In conclusion, Senator Baucus, when considering tax relief or tax incentives legislation, whether it be on the supply side or on the demand side, we continue to ask for your support for electric cooperatives. Really we do the work, good work that our consumers ask us to do. We are Montanans helping Montanans, and I think that's very important.

We would like you also to resist any efforts that might increase the cost of doing business by adding unnecessary regulations on to the operation of our business.

And thank you very much for inviting me to this very important meeting.

The CHAIRMAN. You bet, Terry. Thank you very, very much.



Okay, Mr. Subart, you're next.

**STATEMENT OF DARWIN SUBART, EXECUTIVE VICE PRESIDENT AND GENERAL MANAGER, WBI SOUTHERN, INC., DENVER, COLORADO**

Mr. SUBART. Good morning, Mr. Chairman. I'm Darwin Subart. I'm representing MDU Resources Group, Inc. and its subsidiaries.

MDU is a publicly traded company headquartered in Bismarck, North Dakota. We are members of the American Gas Association and the Interstate Natural Gas Association of America.

MDU provides energy, value-added natural resource products and related services that are essential to our country's energy, transportation and communication infrastructure. MDU includes electric and natural gas utilities, a FERC-regulated interstate pipeline, nonregulated natural gas gathering systems, natural gas and oil production, utility services, construction and mining and energy services.

MDU has been a producer, transporter and distributor of natural gas in the State of Montana for 75 years. Our production company, Fidelity Oil, or Fidelity Exploration & Production Company, is the second largest producer of natural gas in the State of Montana.

We believe that Congress is on the right track with the tax changes proposed which have been passed in the House and which will provide substantial future economic and consumer benefits.

Customer demand for the natural gas is expected to grow by about 55 to 60 percent during the next 20 years. This is in large part due to America's growing awareness of the economic, environmental and operational benefits attributable to this highly efficient and environmentally friendly fuel.

The best estimates are that the natural gas utilities and pipelines will have to invest \$150 billion over the next 20 years to simply keep up with the increased demands for natural gas deliverability. In order to attract capital to support this massive effort, Congress should allow transmission and distribution pipelines to depreciate the cost of the infrastructure investments over 10 years instead of the 15 and 20 years which is in current tax law and to clarify, that is 7-year depreciation for natural gas gathering property is appropriate.

The shorter depreciation life will allow for the expansion of natural gas delivery systems in order to continue to safely and reliably meet America's growing demand for this clean-burning, domestically produced, highly efficient energy at long-term economic prices.

The regional natural gas industry must substantially expand its existing delivery infrastructure in order to meet the growing demand, while at the same time continuing to maintain its current infrastructure, especially here in the States of Montana, North Dakota, South Dakota and Wyoming. Critical to the economic viability of this particular region is reliable, economically priced energy, of which natural gas is a key component. The tax policy we support will assist in achieving this long-term goal.

A challenge we face in our rural areas in the natural gas side and in general in the economy is retaining our younger people and attracting industry to provide jobs to allow these younger people to stay. In our particular operating area, we're seeing the rural,

smaller rural communities declining in population, either through the younger people moving away, age attrition or people retiring and moving to the few large communities that do exist within this region.

What effect does that have on the natural gas distribution business? It leads to facilities in these small communities becoming less viable as there are fewer and fewer customers to serve.

However, in the majority of these communities the cost of continued distribution service is increasing. This is due to the fact that the distribution infrastructure is aged, and we are constantly repairing or replacing facilities in order to provide safe and reliable service.

Likewise, as more and more people relocate from the smaller communities to a Billings, Montana or like a Bismarck, North Dakota, additional infrastructure is required to provide service in these cities. Thus, you end up with the same number of customers, but with more facility investment to operate and maintain. The proposed change in tax depreciation life for the distribution property from 10 years, or to 10 years will assist in securing capital for facility investment and ultimately minimizing the costs to the consumer.

The limited local market for natural gas in the States of Montana, North Dakota, South Dakota means that the new natural gas supplies that are discovered in these areas, additional interstate natural gas transmission infrastructure is needed to transport the gas to other interstate pipelines and get it to the markets.

The existing regional interstate transmission pipelines suffer the same issues as the distribution companies—increasing costs with fewer customers. Congress needs to also allow interstate transmission pipelines to write down the cost of infrastructure investments over 10 years. This would have a positive effect on Montana and enhance future natural gas industry development within the State.

To meet the projected demand growth will require development of nonconventional sources of natural gas, like tight sands, coal seam and shale.

Our region has untapped resources, but individually the wells are not high-volume producers, which means we need a lot of wells; we need a lot of gathering pipeline; we need a lot of compression to get that gas from the wellhead to the interstate pipe line systems and to the market. A 7-year tax life for the gathering pipeline infrastructure will encourage development for these nonconventional natural gas sources.

Finally, the proposed extension and modification of the credit for producing fuel from a nonconventional source, the Section 29 credit, would also greatly benefit this region to encourage additional development of nonconventional natural gas sources.

We support the language in House Bill 4, as passed by the House. We strongly believe this legislation would provide significant and economic and industry development opportunities for rural Montana and this region.

To conclude, Federal tax policy plays a critical role in directing capital to flow toward the natural gas industry for production and transmission, gathering and distribution infrastructure develop-

ment. Congress can take steps to seek a more stable energy supply to preserve Montana's and the Nation's economic stability by approving these tax modifications. The proposed modifications are good for the long-term economy of this region and the entire Nation.

And we thank you, Mr. Chairman, for this opportunity to represent them.

The CHAIRMAN. Thank you very much, Mr. Subart. I appreciate that.

Next and our final is Ms. Nancy Hirsh, who is a Director of Northwest Energy Coalition in Seattle.

**STATEMENT OF NANCY HIRSH, POLICY DIRECTOR,  
NORTHWEST ENERGY COALITION, SEATTLE, WASHINGTON**

Ms. HIRSH. Good morning, Mr. Chairman.

The CHAIRMAN. Nancy.

Ms. HIRSH. Thank you for the opportunity to be here.

The CHAIRMAN. You bet.

Ms. HIRSH. The Northwest Energy Coalition is a regional coalition of over 100 organizations based in Seattle with offices also in Portland. A list of our 100 members of consumer, environmental, electric utilities and energy-efficient businesses is attached to my testimony for your review.

Many concerns have been raised about the need for new transmission infrastructure across the country. We certainly agree that maintaining a high level of reliability is important. It's good for customer service and for ensuring that the environment is protected.

However, I resist the notion that simply building more poles and wires is the answer to all of our problems. We need to look at our infrastructure needs through a least-cost lens that gives equal consideration to alternatives on both sides of the transmission constraints that we face or with the transmission limitations that we see.

Too often when we look at transmission issues, we look, as I say, at building more poles and wires, whereas there are demand site options, load management options, distributed renewable generation and strategically placed renewable resources that can solve our transmission issues without providing new incentives for transmission development.

Energy efficiency is the quickest, cheapest and cleanest resource we have available. And we thank you for your support over the last numbers of years in supporting energy efficiency measures, both on the policy side and on the tax side. Those have been critical for expanding energy efficiency needs, although we see a strategic need for more targeted financial incentives.

Where economic incentives have been promoted aggressively, they have proven to be an effective mechanism for driving technology advancements and for helping consumers get over market barriers, such as the ones that Mr. Anderson mentioned earlier, to get them to try new products and services.

For the past two decades, Northwest Utilities and the Bonneville Power Administration have been national leaders in investments in energy efficiency. But in the last 6 years or so, there has been a

dramatic decline in those investments due to uncertainty in the marketplace. And then in the past year, there's been a beginning of an increase in those investments because of rising market prices. Energy efficiency is cheaper, so more utilities and Bonneville has begun investing in that.

But what we need are long-term, consistent incentives that prevent this roller coaster ramping up and down of investments in energy efficiency. The energy efficiency industry in the region says that they have 10,000 jobs delivering energy efficiency services in the Northwest, and that they have suffered dramatic reductions in employment due to the decline and the up-and-down roller coaster effect of changing investments in energy efficiency.

Montana, with its adoption of a system benefit charge, has been able to stabilize its energy efficiency investments, and we have been very supportive of that effort.

In addition to improving efficiency, you can shift load and do load management opportunities as an option for stabilizing energy demand and reducing your need to build more transmission or build more supply.

We used to in the Northwest say that we were "energy constrained," not "peaked constrained." But in fact, now we are having trouble meeting our peak demands at certain times of the year.

Load management is a critical tool in reducing demand on one side of a constraint where we're having trouble meeting peak and getting electricity to that constraint, and Congress can provide incentives to encourage more load management activities by utilities and industries.

Distributed renewable generation and distributed generation in general, which are fuel cells, solar photovoltaic systems, wind turbines, natural gas microturbines, they can provide clear benefits to the energy system. These technologies reduce energy losses in transmission and distribution lines, defer substation upgrades, defer the need for new transmission and distribution capacity.

For example, if you apply a distributed generation technology to one side of a transmission bottleneck where there's congestion, you reduce the need to upgrade that system by putting the supply where the demand is and not having to transmit power through an area where a transmission is constrained.

But all distributed technologies are not created equal. Some have significant environmental impacts, and some are cleaner, those that use renewable energy resources, and we strongly urge that financial incentive packages that Congress is considering focus on the clean renewable, clean renewable distributed generation technologies and to take into account the environmental consequences of the generation sources that you are promoting.

One quick note before I get into our five priorities for legislation.

The CHAIRMAN. Remember to summarize, now.

Ms. HIRSH. Yes. I'm getting there.

The CHAIRMAN. Okay.

Ms. HIRSH. I want to focus on the transportation side for just a brief minute.

The CHAIRMAN. Okay.

Ms. HIRSH. Oil production and oil pipeline issues are certainly something that are on your radar screen, and we would strongly

support rather than providing incentives for pipeline expansion, we ask what will increase, and what tax incentives will really benefit consumers and the environment?

And we first look at fuel efficiency standards for automobiles and for tax incentives for new hybrid electric vehicles, fuel cell vehicles, and that Congress needs to focus on incentives for clean vehicle and fuel efficiency technologies rather than on expanding oil production.

To summarize, we urge you to support five financial incentive packages. One is S. 207. It's not often that Montana Power Company and the Northwest Energy Coalition get behind the same legislation, although it's becoming more common. But we strongly support S. 207. This tax bill provides incentives for energy efficiency for residential and commercial buildings, solar hot water and photovoltaic systems and efficiency in cooling and heating water.

Energy use in buildings can be cut in half with these technologies. And this bill is a little bit different than some of the others in that it uses a performance-based approach instead of a price-based approach for incentives, and that performance-based approach really prevents goldplating of energy efficiency measures, and that's something that we strongly support.

A new analysis by the Florida Solar Energy Center comparing the different buildings efficiency tax bills showed that S. 207 provided the most energy and consumer savings for the least impact on the treasury.

Next we support S. 1333, the Jeffords Bill, which establishes a renewable energy portfolio standard and a system benefit fund for investments in energy efficiency and low income energy bill assistance.

Third, we support the production tax credit that Mr. Pascoe also mentioned as critical, but in addition to that, there's the complementary renewable energy production tax credit for publicly—it's a production incentive for the public utilities. And Senators Cantwell and Smith have just sponsored Senate Bill 1211, and that's the complement for the public utilities to the production tax credit for investor-owned utilities.

Next we support S. 686, which is Senator Lincoln's bill, which provides tax credits for the purchase of energy efficient clothes washers and refrigerators. While it's a limited application for appliances, it's a key provision for incenting advancement in new technologies.

And in fact, the Northwest has been a leader in providing tax incentives for clothes washers, and through efforts of utilities like Montana Power Company and the Northwest Energy Efficiency Alliance, they have increased the penetration of energy efficient clothes washers in the Northwest from 1 to 13 percent.

Thank you very much. We appreciate your time.

The CHAIRMAN. Thank you. Thank you very much, Ms. Hirsh.

I think a fundamental question on the minds of a lot of people is, at least on the production side of all this with the energy concerns that we all have and with the demands seemingly so great, why do we need any tax incentives in the first place? Why can't the market just form these transcos, you know, construct the transmission lines?

I'm referring now just to the tax incentives. I'm not referring to regulatory issues, just tax incentives.

If the demand is there, why do we need tax credits? Why do we need tax incentives? It's somewhat the point that Mr. Anderson made.

And it's not by design that you're all sitting so close together there, but it is my hope we can reach some agreement on where tax incentives are probably more important than elsewhere on the production side, we'll get to conservation a little bit later, and also maybe prioritize a bit. Because as I mentioned at the outset, we don't have a lot of dollars here for tax incentives. It's going to be quite limited.

The House Energy Bill provided for I think 35, roughly, billion dollars in tax incentives over 10 years, and with the national economy not as robust as it was a couple 3 years ago, and with Federal budget surplus projections softening significantly, it's going to be a problem, and competing with lots of other dollars, you know, national defense, for example, it's going to be—there's going to be a limited number of dollars available for tax incentives.

And so one fundamental question is, to what degree are tax incentives needed on the, generally, on the production side when the demand is pretty high, and if they are needed, what priorities?

And my hope is that maybe we can get some agreement among the panelists here. If not, we don't, but if we do, that's better.

Mr. Pascoe, do you want to take the lead there?

Mr. PASCOE. I would separate the answer into two parts. One is for generation; the other is for transmission.

The CHAIRMAN. Okay.

Mr. PASCOE. For generation, I agree with the point Mr. Anderson made in essence, which is perhaps you don't need tax incentives to cause new generation to be built if you're satisfied for all that new generation to be natural gas-fire.

I think the key question for the Committee to consider is whether they want to rely on a single fuel strategy, or whether they want to do some things that will help other sources compete.

Renewals in particular, as I said in my prepared statement, wind is in the money with the production tax credits, but without, it's out of the money.

And coal needs help, and you will have another panel here that will talk about coal in a few minutes, but it's hard for coal to compete with gas right now because of the lead times to be build the plants and because of the environmental issues. Perhaps there's some help needed for coal. That would be my answer on generation.

Now, on transmission, you see that there isn't much new transmission being built, and BPA is ready to step into that void for the areas where they are the predominant transmission provider.

The CHAIRMAN. On that, do you agree, though, Mr. Pascoe, Mr. Anderson said that perhaps BPA just needs more borrowing authority as opposed, and that's really what they need.

Mr. PASCOE. Yeah, I think BPA is ready to step forward and make the reinforcements in their part of the grid, which is really Washington and Oregon. It really doesn't cover very much of Montana and Idaho and Wyoming and other States that are our neighbors.

But I think Bonneville's ready. But in the areas where there isn't a Bonneville, you have to have somebody that's willing to step up and look at that as a business opportunity.

In the vertically integrated utilities right now, those companies see their opportunities in generation and distribution. They're not all that excited about investing in new transmission infrastructure.

If you had stand-alone companies whose primary focus was transmission, then you would have people actively pursuing opportunities to reinforce the grid, I believe.

Unfortunately, in order to take a transmission system from a vertically integrated utility, like Montana Power, and set it up in a separate company and combine it with other transmission systems to make a bigger stand-alone company, there's adverse tax consequences to doing that.

And, you know, when you think about how much is available in the way of tax incentives, I'm not sure that doing some things with those tax incentives actually costs anybody money, because I think without those tax modifications, those stand-alone transmission companies aren't going to form, so it's not as if the government's going to get that tax money in any event. But if some things could be done to remove the disincentives, I think those companies would be formed, possibly at no cost to the taxpayer.

The CHAIRMAN. Just playing devil's advocate for a second, you know, if FERC encourages the creation of RTOs and transcos, wouldn't that encouragement, plus the rate of demand, be enough to encourage vertically integrated utility companies to transfer or sell their transmission assets to an RTO or a transco, however that works out?

Why do you need tax incentives when FERC is pushing on the one end, and demand is pushing on other end?

Mr. PASCOE. We don't need tax incentives. What we need is the removal of tax disincentives.

And let me, because I'm an engineer, give a numerical example—

The CHAIRMAN. Okay.

Mr. PASCOE [continuing]. That I hope will explain this.

Montana Power's transmission system has a book value of about \$300 million. That's the original cost minus the depreciation for rate-making purposes. And so right now, we earn a return on that \$300 million investment through regulated rates established by the Public Service Commission and by FERC. But for tax purposes, that system has a book value of, say, \$200 million because of accelerated depreciation rules.

So, if we were to sell that transmission system to a stand-alone transco, and we recovered the 300 million that's the book value, we would have \$100 million taxable gain; 40 million of that would go to Uncle Sam, and so the net left over for Montana Power's investors would be 260 million. And so you've taken an asset that's worth 300 million to our shareholders now, converted it into one that's only worth 260 million. And because of that tax consequence, you won't find utilities willing to sell their transmission systems to these stand-alone companies at book value.

The CHAIRMAN. Anybody else want to comment on that?

Commissioner ANDERSON. Yes, Senator Baucus.

Let's get to the heart of the matter, not about transmission, but about generation. It's coal. Montana has the biggest coal resource anywhere in the world.

But, talk about a single fuel strategy. Over half the generation in this country is from coal. The new generation is natural gas, but that's not a single fuel strategy. It's adding diversity and balance to the nation's portfolio.

Coal, although abundant, and in some cases cheap, is also the most polluting energy source that we've got. So we shouldn't be providing tax incentives to develop more coal-fire generation unless it cleans up its act. And that's where R&D comes in.

We should invest tax credits to provide incentives to develop new technology, not old polluting technology, but new, cleaner technology that addresses the production of carbon dioxide from coal.

The CHAIRMAN. Yes, there are really a couple three issues here.

Do all of you agree that it's important particularly, I do not want to load the question, but we are after all in Montana, it is our State, we've got lots of coal, and we have an economy which needs a little bit of a boost.

Do you agree if the environmental side of it is addressed, that is, whether it's carbon dioxide and/or other pollutants and so forth, that it does make sense to develop and have tax incentives for clean coal technologies so that we have both coal and natural gas, plus other nonconventional sources, plus we're going to get to the conservation side a little bit later. I mean, does that make sense or not? Do you agree or disagree?

Commissioner ANDERSON. Yes.

Mr. PASCOE. Agree.

The CHAIRMAN. Everybody agrees.

Ms. HIRSH. Yes.

The one caveat I would throw out is that controlling carbon dioxide is not as easy a challenge—

The CHAIRMAN. That is right.

Ms. HIRSH [continuing]. As possible, as—

The CHAIRMAN. As it may seem.

Ms. HIRSH [continuing]. As controlling other criteria pollutants. You just can't scrub it out like you can other pollutants. So, creating clean coal plants is not necessarily going to reduce the carbon dioxide issues.

The CHAIRMAN. Well, let's go back to the earlier question of transmission, then.

Mr. Pascoe, you mentioned why tax incentives are helpful to transfer it to avoid a huge tax consequence that investor-owned utilities would otherwise pay, and I understand that.

I just wondered if, Mr. Anderson, you have a response to that?

Commissioner ANDERSON. I agree with that.

The CHAIRMAN. You agree with that.

So you think that those tax incentives are helpful there so that IOUs can avoid, and ultimately the ratepayers can avoid a large, you know, hit, if you were.

Commissioner ANDERSON. But I disagree with Mr. Pascoe that the stand-alone transmission company is a good model as it is in the natural gas system. We should remove the barriers so that the



owners of those assets have the opportunity and can exercise that choice, which I think is in the customer's interest.

Mr. HOLZER. Senator, might I add something too?

The CHAIRMAN. Yes.

Mr. HOLZER. A couple comments. One is that we're talking about some incentives issues and some dollar issues with existing transmission.

Something else we have to look at is that we have an undercapacity in our transmission across the country, so we have to really rebuild a lot of our infrastructure, and who is going to take the risk to do that?

There has to be some type of surety that those transmission systems are going to be fully funded and fully paid for, and I think the Federal Government can play a key role in that.

Related to generation, Montana, as alluded to by Mr. Anderson, sits on about 420, I think million tons of coal, and with that as a large resource, we've got to develop coal as a resource for continuing generation. And in fact, coal has actually come down in SO<sub>2</sub> output over the last 5 years, and yet generation has not decreased.

The CHAIRMAN. Well, that's probably because of scrubbers of lots of other—

Mr. HOLZER. That's exactly right. Some Federal legislation has been there, and the companies themselves have taken—

The CHAIRMAN. Right.

Mr. HOLZER. And you will hear from Mr. Harper about some of the things that we have done as well.

The CHAIRMAN. Right.

Mr. HOLZER. So I think new technologies in coal, circulating fluidized bed systems and others, really can utilize the resource that we have in Montana and utilize it as efficiently as we can and not pollute.

The CHAIRMAN. One of the questions I think a lot of Montanans ask ourselves is, my Lord, we produce a lot of energy, and we potentially can produce a lot more, why in the world are we shipping so much of this out of State?

Mr. HOLZER. The call of the dollar.

The CHAIRMAN. I'm sorry?

Mr. HOLZER. That's really what it is, where is the market, and who is going to pay the most for it.

The CHAIRMAN. Well, I understand that's the first answer, but that doesn't really satisfy a lot of folks.

So, still, you know, my gosh, why can't we keep a lot of it for ourselves here and a lower price for ourselves?

You know, Montana used to be what, one of the lowest cost energy States in the Nation, and I think at one time our energy costs were about 30 percent lower than the national average, about that, maybe even lower.

Commissioner ANDERSON. Lower.

The CHAIRMAN. 40 percent lower.

Mr. ANDERSON. 50.

The CHAIRMAN. Sorry?

Commissioner ANDERSON. 50.

The CHAIRMAN. 50 percent. A lot lower. Keep going.

And anyway, well, say 50 percent lower than the national average.

Do you know what it is today?

Yes, Bill?

Mr. PASCOE. I would like to comment on, you know, the reasons why there is a lot more energy produced in the State than consumed in the State, because I think the numbers that you typically hear are that in the State of Montana, there's 5,000 megawatts of generation and 1,800 megawatts of demand. So, you know, roughly a third of the energy that's produced in the State is consumed here, and the other two-third is exported.

You know, the reasons are not too mysterious. One is that a lot of that generation comes from Federal hydroelectric plants—Libby Dam, Hungry Horse Dam, Fort Peck, Yellowtail, Canyon Ferry—and most of that is designated for customers in other States, and that's unfortunate.

At Montana Power, we have very limited access to Federal hydro power. We would certainly like to have greater access.

With the recent process that BPA went through to allocate their power, for the first time we actually ended up with some power, but it's a relatively small number, and anything that you or other the members of the Montana delegation could do to secure more Federal hydro power for Montana Power's customers would be appreciated.

But the second reason that a lot gets exported is because the investments were made by utilities in other States. You know, Colstrip, for example, roughly two-thirds of the power that's generated at Colstrip is designated for customers in other States, but that's because utilities in other States stepped up back in the 1970's and eighties and made the investments, and they're entitled to the power.

The CHAIRMAN. But, what do we do about this? Is there anything we can do? You mentioned a little bit about more hydro for, say, Montana Power, but still, do we just say okay our generators should charge and get whatever the market will bear, and if that's a high-priced market, California or somewhere, well, so be it, and that's reflected in the cost that our customers, or residents pay as well, or is there something we can do about this?

Mr. HOLZER. Senator, may I respond to that?

The CHAIRMAN. Yes.

Mr. HOLZER. This past legislative session, Montana legislature I think did a yeoman's job in passing incentives to bill cost-based generation in Montana, tax holidays and other types of incentives. And I think that's really a key to Montanans helping Montanans, is to utilize the resource that we have here first for Montana's preference, and then when there's a profit to be made or sales to be sent out of State, we do that, and there's a margin then to be had.

And I think the priority is to help protect Montanans and keep that infrastructure and that generation in the State to meet our needs first, and then beyond that, it can go out of State.

Commissioner ANDERSON. Senator, in 1997, the Montana legislature made a policy choice to part company with the old cost-based generation system that we'd had for decades and rely instead on

markets based on the theory that markets can do better than a regulation can in the generation of electricity.

Over the short-term, in the last few years, that hasn't worked well, because the western market upon which we cast our fate has been dysfunctional and high priced and unreliable. That's an irreversible decision probably by the Montana legislature.

So, the solution is to fix the western market, and that means fixing California; it means getting the market fundamentals right that I referred to in my testimony, and it means things like RTOs so that the system can work. The Federal Energy Regulatory Commission has a big role to play in that, as does the State of California.

But, we've got to fix the western market, and that's beyond the scope of what we in Montana can do. It's a regional and a Federal—

The CHAIRMAN. Okay, can we get some agreement here as to what that entails? What does "fixing the western market" mean? What are some of the specifics?

RTOs, as you mentioned, is one. What else?

Commissioner ANDERSON. Fixing California.

The CHAIRMAN. How?

Commissioner ANDERSON. Well, that's up to California. California, I think is beginning to fix itself. It can't stand the high electricity prices and poor reliability that it's had, and so California is doing a lot. It's citing powerplants; it's doing a lot. I cannot give you the whole litany.

The CHAIRMAN. Okay, so fixing California is the second component.

What's the third?

Mr. HOLZER. Make it rain. I think that would really help—

The CHAIRMAN. Say, someone did a rain—I was up in, where was that, Scobey and up there, and they paid—no, Glasgow, they paid, the farmers there paid \$15,000 to a guy to make rain, and it rained.

Mr. HOLZER. We need it all over the Northwest.

Commissioner ANDERSON. That's a good investment.

Mr. HOLZER. But, you know, a lot of this is beyond our control. Weather has a big variability in the Northwest—

The CHAIRMAN. Correct.

Mr. HOLZER. With most of it 80 percent of—

The CHAIRMAN. So how much of the current problem is weather-related?

Mr. HOLZER. Right now, a lot of it.

The CHAIRMAN. Generally the western energy problem, how much of that's weather related?

Mr. HOLZER. A third.

The CHAIRMAN. A third, roughly.

Commissioner ANDERSON. It's also part of the solution. We dodged the bullet this summer because it was cool in California, and demand was lower than normal. So, it works both ways.

The CHAIRMAN. Well, then, why do we need all this? If the solution to the western energy problem is weather, not much we can do about weather. And if it's also California, there's not much we can do about California. California, you say, is fixing itself.

The only thing I have heard thus far is RTOs. And why can't—why isn't just the simple creation of an RTO sufficient to solve the, if those are three components, to solve the western energy problem?

Commissioner ANDERSON. Well, there are more than those three components.

The CHAIRMAN. Well, let's go down the line.

Commissioner ANDERSON. There's another one, and that's the demand response. Customers need to have the right price signals so that they can manage their own energy consumption, and that's customers large and small.

The CHAIRMAN. Right. And so how do we address that and get more stability and reliability? How do we do that?

Commissioner ANDERSON. Well, you have good pricing, pricing through regulation where regulation applies, and good functioning markets where markets apply, and that's on the supply side.

And we have better technology. We have better meters. We have better information for customers so that customers can respond.

Ms. HIRSH. We also, I think, need to expand more on the demand side in building more infrastructure in our energy efficiency delivery services, and then with distributed generation where we are not as dependent.

Talking about local Montanans serving Montanans, distributed generation technologies can provide those—

The CHAIRMAN. Well, that's a good point.

How much can those points that Ms. Hirsh is mentioning, you know, the distributed generation, plus the conservation measures, be a part of the solution, like roughly what, you know, portion, percent? Can there be some agreement?

Basically we're all Montanans; we're all Americans; we're all just basically trying to get, you know, solve, reasonably price but with reasonable stability and reliability, you know, let's get energy for our people. There's probably a lot of agreement here in different people at different parts of all that, so how much of all this is probably conservation, energy conservation?

Mr. HOLZER. Senator, I'll give you one example. I don't think raising the prices to the consumer to have them where forced conservation is the right answer.

The CHAIRMAN. No, I'm not saying that, but how much is with the incentive side?

Mr. HOLZER. In our case, we are the largest ground source heat pump installer in Montana. We have 450 ground source heat pumps in our little 10,000 membership cooperative.

And I think those things, as Ms. Hirsh indicated, to help the consumer to use power more efficiently is a real key, and co-ops can help do that, investor-owned utilities can help do that. We need to market those things for consumers, but they need to—the price signal there needs to be that they need to be affordable. And I think however many layers we have of this, whether it be Federal, State, or local incentives to put these products in use, I think is very important.

And I know in some cases where we actually have, like in our office I mentioned we'll reduce our bill by two-thirds over a conventional heating/cooling system. And we've seen many cases in

ground source heat pump installations where we can cut the heating cost at least in half for the member. And those are pretty quantifiable.

The CHAIRMAN. So, I got to push you a little more. What portion, do you think, of the solution is on conservation demand side? 10 percent?

Commissioner ANDERSON. Over half.

The CHAIRMAN. Over half.

Ms. HIRSH. Yeah.

The CHAIRMAN. Over half. Do you all agree that half of it—

Mr. SUBART. No.

The CHAIRMAN. Mr. Subart disagrees.

Mr. SUBART. We will disagree with that.

The CHAIRMAN. How much? What do you think, Mr. Subart? Just a gut guess.

Mr. SUBART. You know, there has been substantial improvements made in conservation. So for efficiency of appliances over the last 20 years, you can look at average gas consumed per customers on our system has declined substantially. So, improvements are being made on an ongoing basis.

Is conservation an important point? Yes, we believe it is. Is it the only answer? We do not believe it is.

We are proponents that we have to encourage development in the industry, and part of it, part of the increased, the incentives for industry to develop is the tax incentives or the reduction, from our standpoint, reduction of the depreciation laws, which, in essence, what it does, it allows you to track lower cost capital, which in the long run leads to lower rates, lower cost to the consumer.

Outside of this hearing, outside of the tax issues, there's other, I think other regulatory, environmental, other items that can be, at least for Montana, that can be more proactive to encourage industry to move here, create jobs and to increase the economic viability of the area.

The CHAIRMAN. This doesn't really fall, you know, in the taxation issue per se, but some might say that with the creation of the RTOs and the transcos, that that in and of itself could be a bottleneck down the road, that is, sort of a monopolistic bottleneck that would—I assume it is going to be investor-owned requiring a rate of return, and I just don't know how all that's going to—how can consumers be assured that at one level a much more efficient system where transmission company where things are rationalized and so forth, doesn't in and of itself create a price problem for consumers, like generators, to some degree, have in California? Sir?

Mr. PASCOE. Senator, you know, a transmission is, and will continue to be, a service that's best provided through a monopoly, and so it will continue to be a regulated service.

Where the RTO helps with this problem is right now in the Pacific Northwest, for example, there's seven investor-owned utilities, plus the Bonneville Power Administration, each of which operates a transmission system. And public power operates some transmission systems in the Northwest.

So right now, if you are a generator, or you are a large industrial customer that's trying to buy off the grid, if you want to buy your power from a source that's remote, you might have to cross two or

three or even four transmission systems and pay pancaked wheeling tariffs.

What the RTO seeks to do is to put that all under common control, not necessarily common ownership, but common control so there would be, in effect, one control center for the entire Pacific Northwest and Northern Rockies, and that control center would set the tariffs, and they would operate the grid and be sure that it's operated reliably and control access to the grid. So it's a nonprofit corporation, and it has to be in the Northwest in order to accommodate public power, particularly BPA.

So, you've got the operator role that would be in the RTO, and by having one operator rather than by many, you would get a more efficient system.

The second level of this is new investment, and that's where the RTO doesn't necessarily hold the key. The investment will have to come from someplace else. In the case of BPA, the areas where they dominate the infrastructure, it would come from BPA, and they need more borrowing authority to get that done.

In the areas where the transmission systems are owned by the investor-owned utilities, you would expect them to put up the money.

But I would say right now, those utilities are reluctant investors at best in transmission. They just don't see it as the best opportunity to place their capital, and that is why I believe so strongly that we need to at least create the opportunity for stand-alone investor-owned transmission companies that will want to get after it and invest.

The CHAIRMAN. As we enter this new era, what are some of the concerns with respect to rural areas that come to mind? That is, I mentioned at the outset how, you know, the more we deregulate where it's free market, to some degree, the more urban areas with competition get lower price, and conversely, the more it is rural, less competition, there's not only not a price reduction, sometimes there's a price increase to cover the cost.

How do we in Montana, the Western States deal with that.

Ms. HIRSH. Well, one of the greatest opportunities in rural areas are our renewable energy resources. New wind projects are going in in rural areas. Ranchers and farmers are very enthusiastically supporting that. It becomes a second crop for them. All the developers pay royalties to the landowners, and so it's a real opportunity for new generation on the renewable side helping rural communities with economic development. And that, for us, is a great link. If you marry those economic, local economic development needs with Federal financial incentives, you're really helping rural communities in a way that they haven't been helped before.

The CHAIRMAN. Other thoughts?

Mr. PASCOE. Senator, one other place where I think the RTOs would help rural areas is as you look right now, transmission rates in rural areas are higher than they are in urban areas just because of the concentration of customers.

You know, for example, if you look at Montana Power Company, we own about 7,000 miles of transmission lines and serve about 300,000 customers through those facilities.

Idaho Power Company, our neighbor, has maybe half as many miles of transmission line and twice as many customers, and so their rates tend to be lower than ours.

Regional transmission organizations, as they are being promoted by FERC, would go to a single rate for transmission for an entire region of the country, and so eventually, those rates would get blended into a single rate, which would be to the advantage of rural customers.

Commissioner ANDERSON. One more point.

Senator, I think you're right on the money when you say that rural areas tend not to benefit from deregulation.

To mitigate that, you can really do two things. One is to regulate, which is the other direction of deregulation, and the other is to subsidize. But, if those aren't available, if government funds or other customer funds aren't available for that, there's another option, and that is improved efficiency. If the prices go up, it's just more economical to use energy more efficiently—better insulation, better appliances, better management, better meters, better information, and so on.

Mr. HOLZER. Senator, can I add something as well?

Some people would see Montana, the whole State, as a rural area, and as such, there isn't a big market in Montana when you look at the other States and the other urban centers, and so I don't think when we try and bring competition to Montana, a lot are going to want in to our borders and sell us power.

Though I think we have a great opportunity here, however, because we are a naturally rich resource State where we can utilize both, and I agree with Mr. Anderson on the demand side of things, but also on the supply side, we can do a lot of things for ourselves to help ourselves initially and for the next, say, 10 years with the State incentives that we have for generation as well.

So, if we really look not only in Federal programs, but also State programs to do good things that we can do for ourselves to help ourselves first over the next 10 years, I think those are important, whether it be conservation or generation and added transmission capacity, because I don't think we're going to have a lot of people knocking at our door. We sell more power going to West than we do coming into Montana.

Ms. HIRSH. Well, Senator, you asked about how much conservation can play a part in this, and I would say up in the 30 percent range as far as the potential.

And I would disagree with Mr. Subart in that conservation, one of the great benefits of it, is it's a constantly evolving resource. You're always building new buildings; buildings turn over with new ownership, and the last owner didn't make energy efficiency improvements. You have a new opportunity when you have a new owner. So there's a constant need.

And then technology is changing, and we're having new advances in technology. But getting those technologies into the marketplace, overcoming financial barriers, economic barriers that industries and homeowners face is the crux to maximizing the amount of energy efficiency we have.

We have done a good job in the past, but the potential that's still out there is really tremendous.

The CHAIRMAN. I'm uncertain as to how we can get a little more stability and reliability in energy prices, availability in prices for consumers. I think that's what most people want. Most businesses abhor uncertainty. You know, they are going to want to know, hey, what's my price going to be? Is it reasonable? And then they go on and just deal with other issues. Like I say, a small business in Montana, for example.

Or a household, that's a little different because you got to consume the power, and you try to conserve where you can and so forth.

But what can we do, and is there a role for the tax code, and maybe there isn't, but is there, in helping to assure, you know, reasonable liability and stability to consumers?

Tell us again in two sentences.

Commissioner ANDERSON. Well, fix the market first of all.

The CHAIRMAN. You keep say "fixing." You know, that's an awfully big word.

Commissioner ANDERSON. I know it is. And that's happening. There are incentives, price incentives to do that.

But beyond that, target tax incentives, first of all with R&D.

The CHAIRMAN. All right, you mentioned R&D.

Commissioner ANDERSON. New technology develops, and there are innovations that drive down the prices of things and add things that technology does.

And secondly, do taxes incentives for renewables to provide diversity and cleaner environment and efficiency.

Mr. HOLZER. Senator Baucus, I hate to simplify it, but this is really basic economics. It's a matter of supply and demand. And when the supply goes up, and the demand stays the same, the price comes down conversely.

And we saw this last market increase that no one is bigger than the market. No one had control over the market. And it was an issue where we had deficient supplies, and we had consistent or increasing demands, and I don't know, outside of these basic equations of the supply side being generation, the demand side being usage where we can try and keep those in balance, that then stabilizes the prices. Outside of that, the market is going to be almost uncontrollable.

The CHAIRMAN. Okay.

Well, this has been very helpful. Anybody want to say anything that should be said or to respond to somebody who said something that was outrageous or needs a response to?

Commissioner ANDERSON. To Senator Burns?

The CHAIRMAN. Well, we're not going down that road. No, no.

Thank you all very much. This has been very, very helpful. And it's a never-ending quest clearly, but thank you very much for helping this part of the process. Thank you.

[Break taken.]

The CHAIRMAN. Let's get back to work.

I received a series of letters which will automatically be included in the record. And I might say to anyone else who has a letter or a statement that he or she would like to submit for the record, please do so, and if you could have those all in by the 7th of September, that would be greatly appreciated.



Okay, we are now going to move on to our next panel. I thought the last panel's discussion was pretty good.

We have a little smaller panel at this point. First, Mr. Ron Harper. Ron is the CEO of Basin Electric. As we know, Basin serves, oh, this area, not too much exactly here, but over a little bit to the east of us. It serves a large area; it's a very important producer, energy producer in this area. He will discuss and address proposed tax credits for clean coal facilities.

Next, Mr. Dale Horton, for the National Center for Appropriate Technology. He will generally discuss, tell us about technologies to produce electricity from renewable resources and identify tax incentives to promote use of those resources.

Our third panelist is Gina Sewell. Ms. Sewell is the Tax Manager for the Devon Energy Corporation and Chair of the Domestic Petroleum Council Tax Committee. She will provide us some background on her company and will identify incentives supported by the Domestic Petroleum Council to promote oil and gas production, and my guess is that each of the three will also have other things to say.

So why don't we begin here, and Ron, why don't you begin.

**STATEMENT OF RON HARPER, CHIEF EXECUTIVE OFFICER  
AND GENERAL MANAGER, BASIN ELECTRIC POWER COOP-  
ERATIVE, BISMARCK, NORTH DAKOTA**

Mr. HARPER. Okay, thank you Mr. Chairman.

The CHAIRMAN. Let's try to hold ourselves down to about 8 minutes. Five didn't work last time, so let's try 8. Who knows if that will work. We'll see.

Mr. HARPER. I think we can do that.

The CHAIRMAN. Okay.

Mr. HARPER. Thank you, Mr. Chairman.

My name is Ron Harper. I am the Chief Executive Officer of Basin Electric Power Cooperative headquartered in Bismarck, North Dakota.

I am pleased to testify here today before this Senate Finance Committee field hearing on behalf of Basin Electric, which delivers approximately 1700 megawatts, primarily of coal and lignite-based generation, to its 121 member cooperatives, serving over 1.5 million consumers. Those customers are located in Montana, North and South Dakota, Wyoming, Nebraska, Iowa, Minnesota, Colorado and New Mexico.

Basin Electric provides supplemental power to Upper Missouri G&T Cooperative and Central Montana Power Cooperative, two Montana generation and transmission cooperatives that serve 17 distribution cooperatives here in the State of Montana. We also own and operate joint transmission facilities with Western Area Power Administration, or WAPA, in the State of Montana, including the Miles City DC tie facilities which interconnect and move power from West to East through the power grids.

As a generation and transmission cooperative, Basin Electric's mission is to provide low-cost, reliable power to serve our cooperative needs. At this time, in conjunction with our cooperative members, we are conducting engineering studies to explore the feasi-

bility and determine the location of coal-based generation here in Montana.

Construction of such electric base load units requires capital investment of many hundreds of millions of dollars which would need to be recaptured over 30 or more years, while also anticipating the considerable investment necessary to ensure compliance with current and future environmental requirements and transmission constraints.

Many new coal-based generating plants that would be capable of using coal are not being built. This is largely due to the uncertainty about new environmental requirements from EPA, coupled with the risk associated with large investments and as the utility industry becomes more diverse and more competitive.

I believe the development and commercialization of more efficient and lower emitting clean coal technologies is required to meet the new electricity demands while continuing to improve the environment.

The newest clean coal technologies are, however, more expensive to install and maintain. This is clearly an area where taxation and other government incentives can be of great public benefit to further reduce the cost and risk of such projects ensuring that the energy and environmental needs of the future will be met.

As the subject of this hearing is specifically on the changes of the Federal Tax Code, I will now focus on how to use the Tax Code to accelerate the development and use of technologies that limit harmful emissions from coal-based generation facilities.

Priority could be placed on rewarding those utilities, including electric cooperatives, that invest in the cleanest and most up-to-date technologies.

Senator Byrd, along with several of your colleagues, introduced the National Electricity and Environmental Technology Act, otherwise known as NEET, as Senate Bill 60, which would reduce environmental impacts and increase efficiencies when converting coal to electricity.

Tax changes proposed in the NEET proposal include, number one, for existing coal-based generating units, NEET proposes to amend the Internal Revenue Code to provide a 10 percent investment tax credit on the first \$100 million of investment in a qualifying system of continuous emission control retrofitted on an existing coal-based generating unit.

No. 2, for advanced clean coal technologies installed on a new generating plant, NEET proposes to amend the Internal Revenue Code to provide a 10 percent tax credit and a variable efficiency-based 10-year production tax credit for investments in advanced clean coal technologies.

Mr. Chairman, S. 60 makes tradable tax credits available to electric cooperatives and publicly owned utilities which enable us to also utilize the financial benefits of the NEET bill.

Many rural electric cooperatives and publicly owned utilities do not have sufficient Federal income tax liability against which to apply the tax credit. Therefore, in order for Congress to provide all rural electric cooperatives and publicly owned utilities with useful incentives, we will need the ability to trade or sell our tax credits to private entities that can use them.

The Federal Government has made it a public policy to provide investment incentives to encourage IOUs, or investor-owned utilities, to build these clean coal technology facilities. The rewards are cleaner, more secure, independent and diverse energy sources.

Without comparable incentives, however, rural electric cooperatives and publicly owned electric utilities are not afforded the same opportunities to use the investment.

We hope you agree that cost-based power production, such as offered by the cooperatives, should also be entitled to incentives associated with the development and implementation of clean coal technologies and renewable energy productions.

I want to thank you for the opportunity to appear before you today and will address questions as they may come about.

Did I beat the 8 minutes?

The CHAIRMAN. I think you did.

Mr. HARPER. All right.

The CHAIRMAN. You're efficient. I bet you got a good bottom line too.

[Supplemental information was subsequently received for the record, see page 137 of the appendix.]

The CHAIRMAN. Okay, Mr. Horton?

**STATEMENT OF DALE HORTON, SUSTAINABLE ENERGY PROGRAM MANAGER, NATIONAL CENTER FOR APPROPRIATE TECHNOLOGY, BUTTE, MONTANA**

Mr. HORTON. My name is Dale Horton. I'm with the National Center for Appropriate Technology. NCAT is a national nonprofit organization based in Butte, Montana with a focus on community-based approaches that promote individual economic self-efficiency.

Let's take just a moment to create a sense of perspective. In the last century on a worldwide basis, the population has increased four times. Life expectancy has doubled. The world economy has expanded by a factor of 17. And most of these improvements, of which we're all grateful, were made possible by the harnessing of fossil fuels.

Fossil fuels have created the quality of life that we all enjoy. On the other hand, we're just now realizing the environmental consequences of that terrific economic development.

The set of circumstances we see today with electric utility restructuring, distributed generation technologies, increasing costs of fossil fuels and steadily falling costs of renewable technologies, create a situation where in the next century, we'll see as radical a change in our energy system.

The United States has a long history of government support and development for energy resources. The pattern of subsidies for traditional energy resources—coal, oil, gas, nuclear fission—have skewed the energy marketplace against renewable resources, such as wind, solar and biomass, and that includes energy conservation. The playing field needs to be leveled. Tax incentives is one way of leveling that playing field.

We have terrific opportunity in rural Montana with renewable technologies. One benefit of developing solar, wind and biomass is fostering economic growth. Dollars spent in local economies through energy conservation and renewable energy will benefit our

Montana economy more than the development of traditional energy resources.

Self-sufficiency is important to rural Montanans. Whether you are a rancher or a homeowner, the ability to minimize the impacts of price fluctuations makes energy conservation or generating your own energy that much more inviting.

Reliability of the electric grid is a national issue. The use of solar and wind technologies to provide a buffer against increasingly unreliable central generation systems, has terrific potential. We're increasingly seeing economic activity, especially with regard to solar electric technologies, going overseas. Domestic companies are being bought out by German and Japanese companies. Domestic growth in our solar electric industry will spur more domestic economic development in that area.

Montana has a substantial solar resource that can be tapped. Solar electric technologies convert sunlight directly to electricity. Solar thermal technologies produce heat for water and buildings.

NCAT has recently had experience with over 50 applications of solar electric technologies in schools and home. Solar electric or photovoltaic technologies are now two or three times the cost of what a typical Montana Power customer will pay. As the cost of traditional electric resources increase and the cost of solar electric systems decrease, there will be a crossover, and at that point, solar electric systems will become an extremely important part of our energy system. It's worth devoting tax credits and other incentives to developing that marketplace for the future.

There is literally a stampede to wind in Montana, for good reason. The wind farms are one approach. With wind farms come the cost of the transmission and ancillary services necessary to transmit that electricity. Localized small-scale distributed wind generators have an opportunity to provide economic development and self-sufficiency for ranchers and farmers in Montana.

We shouldn't forget small-scale applications of wind in Montana. Our experience in working with ranchers and farmers has demonstrated their interest and enthusiasm for that technology.

Biomass is an attractive energy resource. It provides an opportunity for local and regional self-sufficiency. Agricultural waste, animal waste, wood waste and forest waste are all potential sources of energy, and we believe that it's important to our diversified energy system to promote biomass development through the extension and expansion of production tax credits, for example.

NCAT believes that the support through tax incentives of investment and production tax credits is critical for the development of renewable technologies and energy conservation. We do, however, have a caution about overzealous tax incentives.

In 1978, there were Federal tax credits for solar systems. There was inadequate infrastructure to provide backup and about 7 years later, when those tax credits were removed, the industry crashed. We prefer a more balanced, careful, cautious approach to incenting that industry so that the infrastructure can grow at a healthy and controlled rate.

Energy efficiency and distributed renewable resources can power our homes and ranches in Montana. We believe that we need to take advantage of this opportunity.

I'd like to close with a final thought. Often the conventional assumed answer to the question of energy is how to create, find, and develop more energy. I would suggest that instead, the appropriate question to ask is how to accomplish social goals, such as lighting and heating and process needs, eloquently with a minimum use of energy. Supporting distributed wind, solar and biomass technology is a way to start solving the real problem. Thank you.

The CHAIRMAN. Thanks, Mr. Horton.

Next, Ms. Sewell.

**STATEMENT OF GINA SEWELL, TAX MANAGER, DEVON ENERGY CORPORATION, OKLAHOMA CITY, OKLAHOMA**

Ms. SEWELL. I am the tax manager with Devon Energy Corporation. I'm here today to testify on behalf the Domestic Petroleum Council, where I am the chairman of the Tax Committee.

The Domestic Petroleum Council is made up of the 22 largest exploration and production companies in the United States.

I have been asked to address currently proposed tax incentives and how they will help companies in their search for additional natural gas and oil, but especially natural gas.

As probably every one in this room knows, natural gas is the fuel of choice. As it's already been mentioned, that's because it's clean, reliable and abundant.

In keeping with the letter that you read at the beginning of this hearing, a recent National Petroleum Council natural gas study projects that demand for natural gas will grow by more than one-third over the next decade. Nearly half of that demand growth will come from new electricity generation capacity. The same study estimates that capital expenditures of over 600 billion will be needed between now and 2015 to meet the Nation's growing demand for natural gas.

Our industry produces natural gas and oil from many types of geologic formations. Whether those are offshore or onshore, it takes expensive high technology, like 3-D seismic, petrophysical logging and hydraulic fracturing to produce natural gas and oil. All of these require enormous outlays of capital before the company even knows if it has a commercially viable well.

It's a very big challenge, but not the least of our challenges is the Tax Code. The Domestic Petroleum Council and other industry trade associations have gotten together and agreed this year that the key tax incentives for our industry were the following: Allowing geological and geophysical costs, which are known as G&G, and delay rental payments to be deducted when incurred; alternative minimum tax reform.

In keeping with the previous panel, we would agree with changing natural gas gathering lines, and actually it's clarifying the natural gas gathering lines to 7-year property; providing a marginal tax credit for marginal wells, and certain percentage depletion enhancements which help smaller operators.

While the DPC continues to support all of these measures, the items of greatest importance for our members at this time are the allowance of a deduction for G&G and then delay rentals.

G&G costs are the costs incurred at the very initial stage of exploration to gather and process seismic and other data in an effort to locate natural gas and oil deposits underground.

The deductibility of G&G will be important as companies such as Devon take the first steps in analyzing new exploration areas, including those here in Montana.

To state the case for G&G deductibility yet another way, G&G is the research and development costs of the energy industry. The majority of G&G costs incurred end up condemning properties as having no potential, and thus, they are completely sunk costs to the companies, yet we are not allowed a deduction for this.

The minority of costs result in arriving at viable candidates that we can see their potential further through drilling.

And E&P company, like any business, must generate a reasonable after-tax rate of return on its capital to ensure that it will have access to new capital. Since G&G costs are incurred early in an exploration effort, and a recovery on that G&G investment is often delayed over many years, it is very challenging for companies to generate acceptable after-tax returns on this capital.

In addition, given the complexities of the current tax rules, a large amount of taxpayer administrative time and effort is expended to track and properly account for G&G costs.

Further, it's always a point of time and effort between the industry members and the IRS. In joint industry and IRS meetings, the IRS has acknowledged a need for change in this area.

Delay rentals are payments that are generally required to be made on an annual basis by the lessee to the lessor to extend the lease past its primary term. As the name implies, they are in the nature of rent. They are paid, say, annually to extend the lease an additional year.

If a lessee begins operations on a lease, typically by drilling a well, the obligation to pay delay rentals ends as long as the operations on the lease continue.

Over the past decade or more, the IRS has become more aggressive in requiring delay rentals to be capitalized under the Uniform Capitalization Rules. Taxpayers and industry believe that delay rentals continue to be deductible since they are costs that are paid to postpone the improvement of property and not costs actually to actually improve the property.

Adding to the confusion, there has been a regulation out since 1933 that allow for the deduction of delay rentals, and just in the year 2000, the IRS proposes changing those.

In conclusion, while the Domestic Petroleum Council supports all of the industry recommendations mentioned earlier, the tax treatment of G&G and delay rental payments are our highest priority to the items—our highest priority items to our members this year. We believe they will give us continued access to additional capital.

The CHAIRMAN. Thank you. Thank you all three very much.

In the first panel, I asked the question about the utilization of credits or tax incentives to help encourage greater supply, and part of the answer was we have a single fuel, dual fuel, triple fuel, whatever solution, and that the panelists agreed that coal is a large part of the solution, that is in addition to natural gas, to try

to fire generators to produce more electricity, and I think most people agree with that. At least, I do.

And I'm wondering if to kind of help the development of, and the proper development, because we all want to develop coal properly, but if you can, Mr. Horton—Mr. Harper, excuse me, give us a little better sense of what those clean coal technologies are and how they would help minimize adverse environmental impacts and yet be efficient so that it is another choice of fuel to powerplants more than it is even today.

Just give us a better sense of what some of those are and how they work, and why they're pretty helpful; they are pretty good.

Mr. HARPER. Well, Mr. Chairman, I would love to be able to do that, but that's the engineering group in our company.

The CHAIRMAN. Well, you have a sense, though, of what they are.

Mr. HARPER. Well, you got the scrubbers that you can put on your existing plants or obviously new plants; bag houses that help take out the particulate matter and so on.

When you look at, you know, installing scrubbers in today's facilities, you looking at an investment of anywhere from 100 to \$200 million. It's a proven technology, although my people tell me that there are enhancements that can be made and are being made through R&D development, which has been talked about earlier that I hope you continue to support, that can make process even better.

Pulverized coal bed, you know, generators or fluidized beds, that's just, again, indications of technologies that have developed. Fluidized bed is a technology that is being more and more used. They're more costly obviously because clean coal technology is part of it, but they are working.

We just had an opportunity to view with some of our people yesterday in a meeting looking back to the mid-seventies and all the way coming forward. It was mentioned earlier, because of technologies being applied, the emissions level have come down, but yet we're still generating more power to fuel the growing economy of the United States.

So, they are out there. They need to be explored more in-depth that can, again, benefit the environment.

The CHAIRMAN. Well, I certainly hope that you increase your technology in scrubbers. I have, I call workday projects. I work at some job here at home about, a little less, though, than 1 day a month. Show up at 8 o'clock in the morning, got my sack lunch; I'm there to work all day, not to watch, but to work.

And 1 day I was down at Colstrip, and they put me in a scrubber. Now, I tell you, this is pretty low technology. It was me with a shovel and a wheelbarrow trying to dig up—

Mr. HARPER. Clean it out?

The CHAIRMAN [continued]. This sludge.

Mr. HARPER. Yeah.

The CHAIRMAN. It's heavier than the dickens.

Mr. HARPER. Where did you dump it?

The CHAIRMAN. In the wheelbarrow.

Mr. HARPER. Okay.

Mr. HARPER. Where did you dump it after the wheelbarrow?

The CHAIRMAN. I was afraid you were going to ask that question.

Mr. HARPER. Okay.

The CHAIRMAN. I didn't dump it in the river. But I dumped it outside someplace, I don't know where; that's where they had me dump it, outside.

And man, that was tough work. And I'm glad you're working on new technologies, because that's—that will be helpful.

Mr. HARPER. We would be more than happy to respond back to you if we could do an additional filing.

The CHAIRMAN. If you could, I would appreciate that very much.

With the demand here for energy and so forth, how important are the tax incentives, deductions or credits, et cetera, to utilize these technologies? Why isn't the market sufficient?

Mr. HARPER. Well, first of all, let's talk a little bit about competition. Competition is a good thing if it's balanced, and by that I'm saying that you need to have a diversity in suppliers. You can't have—just like we're talking about fuel sources, you can't have it all to coal or gas or renewables, whatever the case may be. There has to be a balance there. That's how you develop a good economy.

And I think that diversity—I'm sorry, I lost track of the question there because I was on a point.

The CHAIRMAN. Just, why isn't the market sufficient?

Mr. HARPER. The fact that the generation that's in place now is being utilized to fuel markets outside, let's say, the State of Montana, North Dakota is the same way, Wyoming is the same way. They're export States.

But there is sufficient generation in the major areas in the Midwest. It's in the growing areas like California that there's not adequate generation. Yes, there's a hydro problem due to weather and so on, but the real issue comes down to transmission.

As you well know, transmission was not developed for the purpose under which it is being used today. It was developed to take the load—or excuse me, the capacity to the loads in the areas. Now we're trying to take that transmission and use it for super-highways. Therein lies the major problem.

Yes, there are constraints, there's bottlenecks, but as you heard earlier, utilities aren't willing to invest in infrastructure because there's an uncertainty of being able to recoup the dollars that are invested there.

And cooperatives in particular, cost-based, we heard the words earlier, but that's what cooperatives are all about, is cost-based and providing that low-cost and reliable service to that member at the end of line. And we're focusing on the lowest possible cost, you know, to keep the customers there.

If we install technologies or build transmission lines, whatever the case may be, to increase the capacity, those costs have to be borne by our consumers, and so obviously as cooperatives we're going to work our tails off to try to get the lowest cost that we can. Incentives come into play there.

The CHAIRMAN. Right.

Now, why aren't you interested in more gas? I mean, gas is cheaper. Canada thinks it's got a lot of gas it could ship down to the United States. And Ms. Sewell talked about what, \$600 billion costs, an additional 30 percent need something like that?

I mean, I'm just playing devil's advocate here.



Mr. HARPER. Right.

The CHAIRMAN. Why not just, you know, hey, gas is cheaper; let's use gas?

Mr. HARPER. It all depends on what time of the year.

Basin Electric is looking at gas facilities. We're also looking at coal. We believe coal is here in abundance. It's here in Montana, it's in Wyoming, so on and so forth, in North Dakota, and it's a proven. It helps economic development. We also have an abundance of gas. So, yes, we are looking at those diversity things.

But I think it all comes back to, and I look around the audience, and I see a number of people in the upper age group that went through the oil embargo in the Seventies, and we shifted our emphasis to coal, and now we see a shift going back to gas and so on.

I think at some point in time, we have to realize, and I know that Congress is working on a balanced energy act and program, I think that's what we have to look at. Let's not move so far in one direction that we are again dependent upon one fuel source. That's a big concern that I've got.

The CHAIRMAN. Right.

Now, how—I know this is a hard question to answer, but can you give us some guidelines that we can look at or approach we can take to kind of help minimize the pendulum swinging too far, so we got kind of a reasonable balance?

Mr. HARPER. I wish I could, but I'm not even going to try to throw out a concept.

But, you also heard earlier that 50 percent, plus 50 percent of the electricity today is fueled by coal. I don't know what it is in terms of gas today, but we all know the numbers are rising because a lot of people are putting in gas turbines, if they all come to fruition.

I don't know what that mix will be when it's all said and done. My only caution is that we not go too far.

The CHAIRMAN. We're all for that, not go too far.

Mr. HARPER. There's one way I think that we can look at that, though, is if we look at as gas is becoming for prevalent or electric generation, we then focus back on clean coal technologies that help us to keep that balance going, so again we don't go too far in one direction.

And renewables and conservation have to play a part in that as well.

The CHAIRMAN. Right.

Now, we're talking about clean coal technologies and tax incentives, et cetera. Is there any—what's the difference between western and eastern coal here? Is there a difference or not? I mean, do clean coal technologies have a greater application to eastern coal or western coal, or does it matter?

Mr. HARPER. Well, I think it does matter. You have got varying levels of—

The CHAIRMAN. I mean, does the technology per se. Say we have a credit of 10 percent, as you mentioned the retrofit and another 10 percent for advanced and so forth, now is that generally going to help both, or is that going to tend to help one more than the other?

Mr. HARPER. I would think it would tend to help both, but it will all depend on where the limits of qualification are set, you know, in other words, omittance of how many SO<sub>2</sub>, or how much NO<sub>x</sub>, so on and so forth, that's put into the bill, because one level, one variety of coal will be able to achieve it quicker or less expensive than the other one, I would think.

The CHAIRMAN. What about, I notice you didn't say CO<sub>2</sub>.

Mr. HARPER. No.

The CHAIRMAN. What about CO<sub>2</sub>? I mean it's a rising concern in the country. You know, people are looking at climate change, and it gets all involved in the Kyoto Treaty and lots of larger issues.

But in addition, you know, the weight of scientific evidence I think is clear that the climate is changing, and that a lot of this is man caused; it's not all natural. And one of the biggest contributors to the greenhouse effect is CO<sub>2</sub>. There are other gases, but certainly CO<sub>2</sub> is one of the big ones.

And I do think that we're going to have to address appropriately CO<sub>2</sub>, and that's the question, what's appropriate?

Can you give me your thoughts a little on that, because as someone mentioned earlier, it's a harder gas to deal with, and technologies are a lot more complicated compared with NO<sub>x</sub> and SO<sub>2</sub> et cetera, so now what are your thoughts on this? Because I think it's something we're going to have to get our hands around and wrestle it somehow in some way.

Mr. HARPER. I didn't do well in chemistry in high school, so I'll try not to get too deep.

The CHAIRMAN. Neither did I, so we're together here.

Mr. HARPER. Okay, good.

Basin Electric owns the Great Plains synfuel plant located in Buelah, North Dakota. It was a plant that was developed by partnership with DOE back in the early—late Seventies, early Eighties, and they take lignite coal and produce—or we take lignite coal and produce synthetic natural gas. As an outpouring of that process, CO<sub>2</sub> is created.

Two years ago, we entered into an agreement with Pan-Canadian Corporation of Saskatchewan, Canada to pipe CO<sub>2</sub> as a result of our process to an oil field in Wayrenen, Saskatchewan.

The CHAIRMAN. And you can separate that out pretty easily?

Mr. HARPER. Yes.

To enhance the oil recovery of a field that they have up there.

As a part of that, we entered into an agreement with the government of Canada in conjunction with Pan-Canadian to this as kind of an R&D, you know, how does sequestration really work?

We've also been working with DOE on similar projects here in the United States to try to see, again, what are some of the methods that we can utilize to deal with that issue there.

But, again, we are pushing CO<sub>2</sub> up into the Canada oil fields, and it is enhancing oil recovery, which again is a win/win for everybody.

It's too early to tell the real benefits or where that might go, but we just started pumping fuel up there, or CO<sub>2</sub>, I should say, early, low pressure, I should say, about September of last year, and we've had our ups and downs because we have serial numbers 1 and 2 on our compressor units. So again, it's an R&D project.

The CHAIRMAN. Okay.

One reason the last Clean Air Act worked a bit, because SO<sub>2</sub> credits were traded. There's a market for SO<sub>2</sub>, and I don't know if that's possible with carbon dioxide or not, but I know it's a lot more difficult, but it did help up there too.

What about gas? I mean, you talked—again, I apologize for asking somewhat provocative questions, but, for example, you talked about G&G. Why do we need a deduction today when we didn't have a deduction—why do we need a deduction in the future to meet future needs when we don't have that deduction today, and if I might add, it's my understanding that the exploration technology is getting a lot more sophisticated, and so I would guess logically that, you know, that companies, they could choose a little more carefully as to where they're going to start to explore and so forth. And why tomorrow, if not today?

Ms. SEWELL. Actually on the G&G cost, you're right, there has been a lot of technology over the last few years. We used to go from just having seismograph loggings, which are very—studying pieces of paper, to now we have 3-D seismic, which are computer-generated—I can't think of my word—but images, computer-generated images. It's much more advanced. It's also much more expensive, incredibly more expensive.

We have been hoping for a G&G deduction for many years, so it's not just a this year or last year type issue. It's becoming more important to us because it's much more expensive than it used to be.

It also ties up a lot of our capital that we feel could be regenerated, recycled and put into new drilling. And I think I have an example that I think points to our problem in very simple terms and somewhat realistic numbers.

If one of our companies, say Devon, were to go out and spend \$10 million doing a 3-D seismic study over 1000-acre lease, and that's probably a fair number, and after we do that study, we spend months analyzing the study, and we determine that out of the 1000 acres, we're only interested in 250 acres, we have to assign the entire 10 million cost to the 250 acres, where actually in reality, the largest part of that cost was in eliminating properties that had no—had no potential.

We feel that if we had a deduction for the ten million, that we would have about four million more in the capital that we would save in paying the taxes related to that for additional drilling, additional studies. It's another way to have capital for additional development and exploration.

The CHAIRMAN. Well, can you help me out a little bit? I read stories about a glut in natural gas, then I read about a shortage of natural gas. You know, what's going on, I mean over the last, say, several months or roughly? I just pick up the papers, and we got all this gas, and then it's not so, and so forth.

Ms. SEWELL. Well, I can make a few comments, and then you help me out.

It's kind of interesting, and I think that we did some market and some market mechanics work this past spring as the concerns over the needs in California were being worried over in March and April especially. I think you saw a real rush to put natural gas online and get it to the market.

With the milder summer in California, I think that the need for that was not as great as anticipated, so now you're hearing of this glut.

The energy industry has always been a cyclical environment, and so there's always matching the exact need to the exact demand at any moment in time is never a perfect world, so I think what we're seeing now is the rush to put the natural gas online in the spring, and then the need not be as great this summer as anticipated.

The CHAIRMAN. Mr. Harper, are you going to address that?

Mr. HARPER. Well, yeah, we sell gas obviously out of the gas plant and so on, so we kind of keep track of that stuff.

But what we were seeing is, number one, there wasn't enough rigs out drilling for gas because oil, the price of oil was going up, so they turned the rigs from one side to the other, and therefore, the gas supply started to deplete, and so they weren't building back up the reserves.

Then the concept of all this electric generation came about, and so that was a big fear, and so they tried to shift back. And right today, there is, you know, the storage is up there where it needs to be. But that was a lot of impact of the gas prices back in the early part of this year, latter part of last year.

But gas right now, at least in the markets we deal with, are below the \$3 range, so, you know, reality has come back in. But it's the supply and demand issue again.

The CHAIRMAN. Realistically, how much additional coal production, you know, will there probably be, just being realistically, maybe even a little bit conservative, if the tax credits that are contemplated in the House bill and also in the Senate bill are enacted? How much of an increase? And let's just say for home, here in Montana?

Mr. HARPER. Well, I know the project that we're looking at, we're probably looking at least a 300-megawatt facility at a minimum.

The CHAIRMAN. Where would that be?

Mr. HARPER. We're not certain yet. As I mentioned earlier, we're doing this in the process of this study mode.

I do know from my colleagues in other States that they are also looking at coal-based generation, average of a 500-megawatt unit. Total, you know, it's hard to say. But I know they're out there, they're looking at it, they think it's the right direction to go.

The CHAIRMAN. The first, what did you say, 300?

Mr. HARPER. Yes.

The CHAIRMAN. How much coal does that consume?

Mr. HARPER. About a million, million tons a year, a million six, somewhere in there?

The CHAIRMAN. A million six?

Mr. HARPER. Yeah.

The CHAIRMAN. Okay.

What about the basic question on the other side, about conservation, how much of this energy problem can be solved with more, you know, conservation, more distributable—what's the word?

Mr. HARPER. Distributed generation.

The CHAIRMAN. Distributed generation, biomass, solar, et cetera, that Mr. Horton talks about?

I'm asking you not Mr. Horton.

Mr. HARPER. Oh, okay.

The CHAIRMAN. I'll get to Mr. Horton later.

Mr. HARPER. As you asked that question a while, I was sitting there trying to rationally think of a percentage, and I really couldn't.

Having started on the distribution cooperative side and done energy audits myself on houses and commercial buildings and so on, I know that conservation and efficiencies work. But I never really put it in terms of percentages. I think the gal indicated a while ago, 10 percent, 30 percent. I don't know as I would put it that high.

The CHAIRMAN. We heard ranges from 50, 30 and 10. Where are you?

Mr. HARPER. I would be something less than 30, and I say that because of this: When you have a low price, nobody really worries about it. When you have a high price, it drives you to start thinking about these things or cutting back and not doing things you would want to.

At the same time, we rush in the cycle. Conservation measures, regardless of what we think about, costs money. You know, Terry Holzer mentioned the ground source heat pumps. What are they, \$6,000 in installation now still?

Mr. HOLZER. They're probably about 10 to 12.

Mr. HARPER. Okay, 10 to 12 \$1,000.

That's a long time payout period for a consumer. Yeah, they can make it a part of their home loan, and I suspect Terry helps them out financially too with loans, low-interest loans, but the customer, the individual really has to understand what the benefits are and buy into it, because it takes a pretty good investment to look—

The CHAIRMAN. Well, I've asked you the question because clearly we and the Congress have to prioritize here and say where are we going to get the biggest bang for our buck. You know, is it how much—certainly some of it is production, some of it's conventional, some of it's nonconventional, some of it's conservation, and, you know, we don't want to waste tax dollars.

Mr. HARPER. No.

The CHAIRMAN. We want to be as efficient as possible, so we're trying to figure out, you know, gee, where do we spend our money.

Mr. HARPER. Yeah.

The CHAIRMAN. Where do we spend taxpayers' monies in terms of tax expenditures, that is, tax incentives.

Mr. HARPER. I would go back to what I said a while ago about a balanced energy policy. I think you have to figure out how can you take a dollar and spread it to get the best bang for the duck—buck. Yeah, duck—you know, across the board.

And I'm very serious about that, because I think you've got to focus on supply, and you got to focus on the demand side.

The CHAIRMAN. Right. But again, we got to still force ourselves a little and ask the second and third level of questions, like where is that balance?

Do you have any thoughts there? I'm trying to push you a bit here—

Mr. HARPER. Yeah, I know.

The CHAIRMAN [continuing]. Because you're closer to it than I.

Mr. HARPER. Well, I can't say "buck" and "duck," so I don't know where I want to go.

But, from my perspective, I would say two things. First of all, I have asked our people to do energy audits of all of our facilities, because I was very pleased to see in the draft policies that I've seen so far that conservation is a part of the overall concept. And I think we as Basin Electric have to be a leader in that field, so we're doing those things.

But again at the same time, I think we've got to look at what is driving our economy. It's computers, it's Internet, it's all these other things, and we have to be able to look at it as a utility through conservation, through new supply and demand.

The CHAIRMAN. Right.

Mr. HARPER. So I think we also have to look at the supply side.

The CHAIRMAN. Mr. Horton, I'll let you deal with this question.

Mr. HORTON. Well, first let me address the definition of "conservation".

The CHAIRMAN. Sure.

Mr. HORTON. In the dialogue that we've seen in the last year or so, curtailment and conservation has gotten confused and often used poorly by a number of people. "Curtailment" means you do without.

The CHAIRMAN. Right.

Mr. HORTON. I use "conservation" to mean you're doing what you want to do more efficiently with less energy, and so what I want to talk about is conservation.

The CHAIRMAN. I think we all agree with that. I don't think anybody has talked about curtailment as a goal. Nobody wants to curtail.

Mr. HORTON. Well, when you talk with—

The CHAIRMAN. Yes, I understand.

Mr. HORTON. Okay.

The CHAIRMAN. I got you.

Mr. HORTON. The other question about wanting a single number is not easy because the cost of the competing fuel determines what is cost-effective for energy conservation.

When you evaluate the economics of a measure, it depends on what you're competing against. If you want a number to say current Montana Power residential rates, for example, I might pick a number like 25 or 30 percent that you could save in that sector cost-effectively.

If you ask what it's going to be next August when costs go up somewhere 40, 50 percent, who knows exactly, that number will go up with the cost of the competing fuel, and the availability of the resource of demand side management is directly tied to the fuel that you're talking about.

If you talk about where we go in 50 years as we anticipate fossil fuel generated electricity to increase over that time, then I think again, the conservation potential increases. Technologically we advance, and we can do more. So I think the number is somewhere in there between 25 and 50 percent.

The CHAIRMAN. Now, a lot of people say that, and I'm just asking the question, and I'll give you a chance to respond.

How realistic is it that these new concepts are going to amount to much? You know, a lot of people say, gee, solar, we've heard about solar for quite a while, you know, wind, and it's kind of there, not there, and all these windmills around, some are broken, don't work, and then the market kind of fluctuates up and down, so sometimes the incentives are there for wind farms, sometimes not. And it's sort of like, you know, putting a lot of investment in something that's pretty iffy.

So, if you could give us a little sense of why you think that investment tax incentives in these areas really are going to make a significant difference, because that's a basic question I think that's on the minds of a lot of people.

Mr. HORTON. Sure.

The CHAIRMAN. It sounds good, but is it really there, you know. It's kind of like a bird in the hand is worth two in the bush. We know that coal works.

On the supply side, and we know that gas works. And we know there's a little solar, but what guarantee is there or what assurance is there, what compelling reason is there for us to think that around 30 percent of this can be solved by much more investment in the conservation side?

I don't mean to—

Mr. HORTON. No, that's fine. That's a fair question.

I guess an example may help, compact fluorescent lights provide the same light for 25 percent of the energy as standard incandescent light fixtures.

We have got more efficient ways of producing heat for a house from natural gas. The more efficient furnaces are now over 95 percent efficient compared to what my house is, which is 15 years old at 80 percent.

Technologically, I could make a roster of specific technological fixes that allow us to use energy more efficiently, and you add to that the electronic control systems that allow us to control how we use energy very efficiently. So there are specific technological advances that allow us to reduce the amount of energy we use.

The question about renewable energy, wind generation I think is a proven technology. The cost-effectiveness in the last few years suggests that it's competitive with conventional fuels, electricity generated from conventional fuels.

I think the question has to do with understanding the technology, how it applies to specific locations and applications. And for a range of costs for distributed wind, small wind, less than 50kW in size, I think we can be sure that we can do it in 7 to 15 cents per kilowatt hour. And that's because we have probably at least two dozen examples in Montana that we can go out and put a meter on and read and understand how they work and why they work.

There are major issues on how we inter-tie distributed generation—

The CHAIRMAN. Right.

Mr. HORTON [continuing]. With existing grids, and whether those existing grids will, in fact, welcome those distributed generation alternatives or, in fact, be a hindrance to the development.

Now, we have some good examples in this State. Montana Power specifically, who has played a major role in developing some of those technologies.

The CHAIRMAN. Could you address that question a little more, because I hear that with some frequency, that is, whether these concepts are embraced or discouraged.

My guess is that we want to encourage it.

Mr. HORTON. Well, you can compare the co-ops with Montana Power. Montana Power was required by legislation to provide net metering, so they have a very progressive excellent net metering program where if you go out and purchase a photovoltaic system or a wind generation system, you can hook on to their system.

There are protocols, national standards of safety that have all been worked out so that we can feel comfortable that we're neither going to harm their workers working on the lines and poles, nor harm ourselves in terms of the safety in operation.

So, that's one example where the utility is a positive force, I think, at least the way it's been implemented so far.

The co-ops, on the other hand, weren't required by legislation to do it, and they don't offer net metering, meaning that you can't roll your meter backwards, and they all deal individually with how they deal with self-generators.

That's just one example of how—and it's not saying anything negative against the co-ops, because there are co-ops who are represented in this room who have been leaders in utilizing solar technology for stock water pumping and other purposes in rural Montana. It's a matter of working together so that the system, the infrastructure is a positive influence on developing these technologies.

The CHAIRMAN. Mr. Harper, your comment on net metering, is that a good idea?

Mr. HARPER. That's a tough one.

The CHAIRMAN. That's why I asked it.

Mr. HARPER. I know it.

Experience on my own part, I don't agree with it.

The CHAIRMAN. I'm sorry?

Mr. HARPER. I don't agree with it.

The CHAIRMAN. You do not agree with net metering?

Mr. HARPER. No.

The CHAIRMAN. And why is that?

Mr. HARPER. Because you're basically shifting the cost to the other ratepayers of that utility.

Let me be a little clearer for you.

The costs associated with all of the infrastructure that it takes to provide that kilowatt hour to that customer are all rolled into the rates that the customer pays.

Therefore, if alternative fuel is creating this kilowatt hour over here, then it's shifting the cost responsibility that this customer did have over to the rest of the customers.

Is that clear?

The CHAIRMAN. I understand what you're saying, but isn't there some way to deal with that, that is, on the amount of power that's sent back? It seems to me there ought to be a formula to deal with



that, and I would think that on a net basis, you have more—the co-op would have more power, and therefore that helps.

Does that mean more power?

Mr. HARPER. No, because the net power is being utilized by the facility that was otherwise—

The CHAIRMAN. I guess I didn't understand that.

Mr. HARPER [continuing]. Being provided by the base load unit.

Mr. HORTON. Well, in net metering, basically you generate your own electricity. When you have a load that requires that electricity—

The CHAIRMAN. Correct.

Mr. HORTON [continuing]. You use it in-house.

The CHAIRMAN. Correct.

Mr. HORTON. If you don't have a load that requires that electricity, it rolls your meter backwards.

The CHAIRMAN. Correct.

Mr. HORTON. And the power moves into the—

The CHAIRMAN. The system, correct.

Mr. HORTON [continuing]. System.

Now, we don't want to get technical, but net metering is a policy developed to promote distributed generation, and specifically renewable generation as it is applied most of the time.

So, admittedly there's going to be some cross-subsidization within the sectors it's applied to. But if you get into cross-subsidization in terms of rates and tariffs, that's a whole other world.

The CHAIRMAN. One issue, yeah.

Mr. HORTON [continuing]. Where that's addressed. So the cross-subsidization I think is a real issue. The purpose of net metering is to promote the technology.

Net metering is not a long-term solution. Net metering is a short-term solution to promote a technology, an experience within the industry to deal with distributed generation in a positive way.

Ultimately there needs to be much study and understanding of how distributed generation resources impact the grid overall. Yes, you don't need more generation right here, and in fact, you may not need as much transmission or distribution, depending on where the self-generator is.

On the other hand, it creates potential imbalances and other things within the workings of the distribution utility that need to be dealt with, and those costs need to be dealt with.

The CHAIRMAN. Will solar and wind and biomass and other technologies get to the point where a production tax credit is not necessary? Will they be developed to the point where—

Mr. HORTON. It depends on where tax subsidies or other fuels go, in part.

The CHAIRMAN. Yes. All right.

Mr. HARPER. Mr. Chairman?

The CHAIRMAN. Yes.

Mr. HARPER. Just so that I don't paint either myself or my organization, Basin Electric is a nonrenewable friendly individual, or company.

Basin Electric is installing two 1.3 megawatt turbines in Chamberlain, South Dakota, in conjunction with our cooperative membership, so we are experimenting in those areas.

Mr. HORTON. And I don't mean to be critical.

Mr. HARPER. No, no.

Mr. HORTON. There are great examples in the State and outside the State of public utilities and private utilities who are moving and understanding the advantages and potential for those technologies.

The CHAIRMAN. Okay, anything else any of you want to say? I mean this is your chance.

[No response.]

The CHAIRMAN. Sure? Okay. Thank you very much. Appreciate it. We will now go to the next panel.

The CHAIRMAN. Let's now turn to our third and final panel. The first two panels provided a backdrop for the discussion of energy development on tribal lands, and I want to now thank my friends on the third panel for being patient while we had the first two panels.

Starting from my left is Ray K. Eder, who is the Vice Chairman of the Fort Peck Tribal Executive Board.

The Fort Peck tribes have worked over the years in developing their oil and gas reserves quite effectively, and most recently they began working on a large-scale energy, wind energy project that is encountering some of the same issues with transmission we've already heard about. They are also exploring fuel cells.

This is a tribe that has a lot to offer the energy sector, and I hope there are ways we can help out.

Next, Wes Martel from the Eastern Shoshone Business Council of Wyoming. Wes, as many of you know, is actively involved in the Tribal Economic Development Coalition that we have put together in our State. He's a dedicated guy, and he does a good job.

Wyoming also has done significant energy development, and Wes will share with us just how the Wyoming tribes have taken advantage of the existing incentives to further energy development on the Wind River.

And to his left, your right, sits Councilman Leo Kennerly with Blackfeet Tribal Business Council. Leo is involved in the Tribal Economic Coalition in the State, and proven to be a leader to his tribe. I'm looking forward to continuing to work with you, Leo, over the years.

The Blackfeet Tribe is currently carrying out an environmental impact statement with SeaWest of California for a wind energy project scheduled to break ground in May, 2002. This is one of its kind in our State, and it would be a great benefit to the tribe, and Leo will share with us how the tribe entered into the partnership and what could have been done to make the deal even more enticing.

So Ray K., it's all yours.

**STATEMENT OF RAY K. EDER, VICE CHAIRMAN, FORT PECK  
TRIBAL EXECUTIVE BOARD, POPLAR, MONTANA**

Mr. EDER. Thank you, Senator, and members of the panel. As the Honorable Senator said, I am Ray K. Eder, and I'm Vice Chairman of the Fort Peck Assiniboine and Sioux tribes.

The Fort Peck Reservation is one of the seven reservations in the State of Montana. And generally I think of the seven reservations,

one-third of our population are people and individuals under the age 16 years of age.

And I think tribal leadership is trying to do something for the posterity of our people in addressing the economic and social needs of our up and coming maybe leaders in the future.

And I believe that development of our natural resources has been something that we need to advance the tribal economies on our reservation.

You know, on our reservation, we have an unemployment rate of 60 to 90 percent. And as you probably all know, that on reservations nationwide, 10 percent of all the natural resources that are produced in our country come from the reservations, at least 10 percent. And we have resources, you know, that are still untapped and undeveloped, because we are part of what we call the Williston Basin. Even though we are on the upcline of the Basin, we still have a lot of potential there.

And then we have another problem on our reservation that's called dual taxation, which was original—which originated from the Cotton Petroleum case that was held in New Mexico several years ago, and wherein the Supreme Court allowed States to tax trust lands within our reservations, and they also taxed fee lands, and it's caused a problem to where oil companies coming on the reservations to come in and do work there because of the double taxation problem.

A lot of times they'll come—when they do come in, they'll say, well, why drill on that tribal land when I got to pay the State taxes, and then I also got to pay the tribe taxes, so I will go drill on this fee land over here, and I don't have to pay the tribe nothing.

The CHAIRMAN. Fee land on reservation or off?

Mr. EDER. On the reservation.

The CHAIRMAN. Okay.

Mr. EDER. See, we don't tax—we don't tax the production on the fee land. And that's a problem.

Just like I mentioned the other day when you were up in Fort Peck, you know, what's good for the goose is good for the gander. You know, if they can tax our lands on our reservation, why can't we tax fee lands within the exterior boundaries of our reservation? That's the way we look at it—or I look at it, I should say. That's a private opinion.

And then in conjunction with the Cotton case, you know, the recent Supreme Court in the Ninth Circuit Court have made decisions which are contrary to the tribal economies as I see the government wanted us to have.

You know, they passed the Self-Determination Act so that tribes can be self-sufficient and take care of their future and their lives and their people. And I think that this dual taxation thing has been a detriment because of that. Oil companies are reluctant to come on and drill on our lands.

And I think that's another reason we are supporting tax credit incentives to offset that double taxation problem.

You know, we didn't cause the double taxation problem. The United States Supreme Court did that. And I don't think that they

had their caps on straight when they made the decision, because dual taxation is a no-no in anybody's country.

But nonetheless, we believe in the tax credit thing to entice oil companies to come in and develop a lot of our resources up there. And I think we have a lot of potential in our country. We really do.

We don't have much time here, so—

The CHAIRMAN. No, go ahead. Don't worry about it. You got more, use it.

Mr. EDER. The tribes also have made a feasibility study on wind energy projects. And things that, if we ever get the capital and we get our economies back where they should be, we think that we can be able to produce an energy and create jobs for our communities and for the people and also to provide the extra energy.

And it's not a—it's not like coal or oil or anything else, which is a nonrenewable energy. This is something that goes—the wind blows up there all the time. In fact, it blew my roof off here a couple weeks ago. But it blows.

The Chairman. You got a windmill up there?

Mr. EDER. Well, I wished I had one.

But we need, I think we need something in that area too, because we have a feasibility study that's completed, and we are looking for—seeking partners into maybe a joint venture of some type to develop that venture, and I think if we have tax incentives there to appease these people and help them to see that there's an advantage to doing business on the Indian Reservations.

We have a lot of tax exempt provisions that we can offer them, you know, because of trust money. It depends on what kind of contractual agreement we enter into with them. And I think that that's a plus for us in that area, but we still need our Congressional delegates and Congress itself to promote a lot of these tax incentives bills.

There's quite a few of them listed in here, and I'm not going to go through all of them because it would take too much time to go through each one and discuss it.

Also, we believe that these Federal tax credits are an important incentives for businesses to locate on our reservation and it helps that way.

And we also are proposing a refinery on the reservation. We haven't made any contacts on acquisition of the oil potentials we need to supply that refinery. Before we had our refinery, they had contracts with individual companies to provide the amount of oil they needed, but we're working on the possibility of Foscana Pipeline to provide that oil for our refinery. And it can be a lucrative business if you run it right and depending on what kind of oil and stuff you're using there.

But we need feasibility funds to get this project off the ground. In fact, we need feasibility funds for a lot of our projects on the reservation, and I think that the legislators in Washington, D.C., you know, they talk about Indians, you know, being self-sufficient and being able to sustain themselves under their own government. I think that if they could, the Department of Energy provide some incentive funds to get a feasibility study done, that there are not

insufficient amounts nationwide to address the problems on every reservation.

The CHAIRMAN. You're just about done.

Mr. EDER. So I think that's something that you people in the Congress can look into. I would appreciate that.

The CHAIRMAN. Thanks an awful lot. I appreciate it, Ray R. very much. Oh, I'm sorry, you got more.

Mr. EDER. They are considering, too, that maybe to kind of help out, they were thinking about tax exempt bonds, and we would need help in that area too also. And we need probably feasibility funds to develop a new infrastructure to address the problems that we have, and sometimes through the issuance of tax-free bonds, that's possible to do that. And the only thing is that we don't have a system in place now to—when you issue bonds, you have to have a source of income—

The CHAIRMAN. Right. To finance bonds.

Mr. EDER. To be able to pay the bonds back. And like I said, the Cotton Petroleum case and the courts have taken a lot of that, our revenue away from us because of fact that we cannot tax.

I don't know of any government that doesn't tax. And I think we are comparable with like even the State of Montana, like a sister State. If they have the power to tax, why shouldn't we. We had that sovereign power to govern ourselves long before the White Man ever came here, and we still have that power. They've done all kind of things to erode that sovereignty through the court systems, I think. And I think that in some way, that should be restored to us, given back to us.

You know, we gave away a whole bunch of this land that we call America. We are very proud of that.

The CHAIRMAN. Thank you Ray K., very much.

Mr. EDER. Thank you.

The CHAIRMAN. Appreciate it. Thank you.

Wes, you're next.

**STATEMENT OF WES MARTEL, SHOSHONE BUSINESS  
COUNCIL, FORT WASHAKIE, WYOMING**

Mr. MARTEL. Senator Baucus, good morning—or good afternoon. I appreciate the opportunity to be here, and we're glad that the tribes are recognized as having potential to be a major player in the energy policy of this country. We look forward to working with the distinguished Senators on the Committee, including our own Senator Thomas.

It is critical that Tribal Governments and Alaska Native Corporations, at their election, be in position to promote nonrenewable and renewable energy resources on their land to create economic development.

This development will have a double benefit for this country, alleviating both Indian poverty and the country's energy shortage. And the kinds of things that we are looking at here fall into three categories. Number one, would be tax incentives to overcome the present triple taxation a company faces when it develops energy at Wind River; financial assistance so that tribes can develop administrative, technical and legal capabilities to develop their resources,

and then three, relief from regulatory burdens that slow down, and thus, discourage companies from working on reservations.

A lot of the permitting processes and those things that go through BIA and BLM just take months, sometimes 7 years, on reservations. That really is a big roadblock to adequate development of energy resources on tribal lands.

And at last count, there were about 16 bills in Congress with energy policy as a part of their focus. And one of the bills that a lot of tribes supported in the house was H.R. 2412, which was entitled "The Tribal Energy Self-Sufficiency Act," and that was meant to establish programs to improve energy development of Indian lands and for other purposes.

That bill has met its demise, but we're hopeful that we can still revive provisions of that bill, and we thought tribes were finally going to receive due recognition for the role they play in the energy policy of the country.

One of the bills that we look at that's been drafted is H.R. 224 to permanently extend the Indian employment credit and accelerated depreciation rules for property used predominately on reservations. Energy companies and tribes support this because these companies need the long-term certainty that these credits can provide as they attempt to develop reservation lands.

Ray touched on a point regarding the taxation, and he talked dual taxation, and at Wind River, it's triple taxation. We have 8½ percent severance tax, there's a 6 percent State severance tax, and a county mineral property tax in the area of about 7½ percent.

One of the things that we've talked to our Congressional delegation about is the possibility of including tribes under the PILT formula, which all other Federal lands are under except Indian reservations, and we think this is a possibility to alleviate legal battles between tribes and counties and give the tribes the opportunity to arrive at some tax dollars or some type of revenue to develop their physical and governmental infrastructure.

Right now, the tribes at Wind River are generating about \$178 million a year in economic activity. That's after you consider the dollar turnover at Riverton and Lander and the border towns that we have.

This year, the Shoshone and Arapaho tribes, they collect about \$16 million in severance tax. Fremont County will collect about 14, \$15 million in mineral property tax from our production, and the State of Wyoming will collect about \$12 million. So that's—that's over \$40 million in taxes that are collected from the Wind River Reservation resources. A lot of that, again, does not come back to that, and we really could use a lot of that money to develop our physical and government infrastructure.

To compound the problem, Senator, the school district boundaries of the Wind River reservation under the State school system are gerrymandered so that most of the valuation from our oil and gas goes to the non-Indian school districts, and our three predominantly Indian school districts on the reservation get a very small portion of that.

The grants and loan provision of H.R. 2412 follows tribal recommendations and would prove extremely helpful in helping us develop our administrative, technical and legal capabilities. However,

most of these provisions and parts of the bills of the Tribal Energy Self-Sufficiency Act, we need the appropriations, and there's a lot of authorizing going on, but we need the appropriations to make some of these provisions a reality.

One the other areas that we talked about was the transfer of ownership of water and power projects located on Indian lands back to the tribe. The language of the bill would discourage transfers because it holds the United States harmless for liability; does not permit a change in purpose or operation of the project and does not include authorization for funding for improvements prior to transfer.

Additionally, the bill as proposed, did not seem to change current Department of Interior authority, because it makes the transfer subject to all applicable Federal laws, which would probably include FLPMA, the Federal Land Policy Management Act.

Language in the proposed bill related to Indians Mineral Development Act of 1982 must identify impediments that disallows tribes from obtaining the highest opportunity to develop nonrenewable energy resources. An analysis of the barriers must be undertaken and solutions must be found for the best means to remove these barriers. Broader regulatory authority must be given to tribes in the permitting, inspection, enforcement, production accounting and royalty auditing aspects of tribal energy development.

Appropriations for critical staffing and technical needs in the natural resource area is key and essential to our tribe's ability to move forward economically. Putting our land to productive use requires Federal approval for almost every individual action. However, lack of manpower in key areas has severely limited wise use of the natural resources, and in some cases, creates burdens on the land which make it nearly impossible to use. Therefore, we're requesting a specific appropriation for the addition of a geologist, petroleum engineer and other field inspection staff with the expertise to expedite the permitting, processing and administrative requirements of existing proposals as well as assist the tribes with long-term planning for wise use of our mineral resources.

Things that I wanted to touch on quickly was the ability to facilitate new generation and transmission. And some of the panels here this morning talked about some of the issues that they face, and that's some of the same issues we face as tribal governments.

You know, the 2412 language in H.R. 2412 is very important regarding BIA processes, looking at Federal rights of ways and all of those requirements that we have to follow on reservations.

The investment tax credits are a very important part of us developing. Production tax credits, renewable production tax credits, we want the authority, the ability to be able to purchase tax credits. We want the transfer ability of tax credits.

As I mention in my testimony, accelerated depreciation is something that we're very supportive of. And we really need to clarify the regulatory and taxing authority. Ray talked about some of the court decisions that have befallen us in the past.

You know, the 6 percent severance tax that I mentioned that Wyoming collects from our oil and gas, very little of that ever gets back to us. We would like some either Federal legislation that allows 100 percent credit, or 100 percent of that to be returned back

to the tribe because our governmental infrastructure and physical infrastructure is in much worse shape than other parts of the State.

You know, the access to other Federal resources, the Buy Indian Act provisions for Indian oil and gas and resources must be strictly adhered to, we believe.

Federal water projects, we're thankful for the things that have happened with WAPA on some of the Federal power allocations to tribes. Under WAPA's system, one of the things we always stress is that a lot of this water flowing through the Missouri River Valley Basin and generating power is Indian water, and yet we receive very little recognition or any preference back for that.

So, tribes are in a unique position to assist the Nation in meeting energy needs, and the millions of acres of land under our ownership and control make it imperative that the United States recognize the trust relationship and contribution tribes and native Alaskans can make to this country.

Congress must establish and appropriate such sums as necessary to adequately support a senior level office at the Department of Energy to promote development of tribal energy programs and encourage relevant interagency and intergovernmental coordination.

I thank you for this opportunity.

The CHAIRMAN. Why, thank you, Wes, very, very, much. Okay, Leo?

**STATEMENT OF LEO KENNERLY, III, BLACKFEET TRIBAL BUSINESS COUNCIL, BROWNING, MONTANA**

Mr. KENNERLY. Greetings from the Blackfeet Nation. Mr. Old Person sends his regards and also the Blackfeet Tribal Council. I am here today with our secretary also, the secretary of our Tribal Council, Mr. Gordon Monroe.

We're here today to talk a little bit about incentives and talk about our project, and if we get to where I don't hit some of the parts, you can always ask questions for us.

The subject of this hearing today is timely for the Blackfeet Tribe. As Mr. Baucus is aware, the Blackfeet Tribe has been working towards the development of a large-scale wind farm on our reservation with SeaWest Wind Power Corporation that would generate approximately probably 50 megawatts of clean and renewable energy for the residents of Montana. When constructed, this wind farm will be the first commercial scale project of its kind located on tribal lands.

For several years, the development of our wind resource has been a priority of our tribe. To date, there have been two small wind pilot projects successfully constructed on our reservation with the assistance of the Department of Energy that remain in operation. The information gathered from these projects has demonstrated that a tremendous wind resource exists on our lands. An opportunity is now before the tribe to develop its renewable resources in a way that is beneficial to the tribe and Montana.

It has been our experience that although our lands may generate a tremendous Class 5 and 6 wind resource, according to the National Renewable Energy Laboratory, the development of this resource depends heavily upon tax incentives from Congress. The re-



newal of current incentives is important, as they will ensure that projects like ourselves get constructed.

Historically, the wind industry has relied on the production tax credit and forms of accelerated depreciation to finance wind development. These incentives are not available to Indian tribes but can be used by private developers to develop Indian lands.

I would also encourage this committee to support tax incentives specifically designated for Indian tribes that want to participate in the financial ownership of wind projects.

Our tribe and many others are looking at wind development as a source of economic development. These tax incentives would encourage tribes to invest in renewable energy development using their own resources.

Currently there are no meaningful incentives earmarked for tribes to own their own wind projects. Because of this void in the law, we have found that tribal ownership of our own project would be economically prohibitive. Without access to tax incentives such as the production tax credit, tribes are placed on an uneven playing field when compared to other investors. This void would continue to prevent tribes from realizing the greatest potential from wind development and diminish the promise and hope of tribal self-sufficiency.

During the session in Congress, legislation has been proposed that would encourage tribal ownership of wind farms by establishing a production tax credit, tribal tax exempt bonding authority and enterprise zones for tribes that want to participate financially in the generation of power using their own resources. Our tribe supports these efforts and would encourage the Committee to seriously consider them and the importance they will bear on the economic future of tribes.

In this testimony, you know, we've talked, and we have been through, like you said, through the parts of trying to develop our own program of wind farms, which is probably—it's not going to happen because it wouldn't be feasible for the companies to come in and do, and our energy would cost a lot more, and energy companies would not want to buy it.

Which we are going on with our project now with other investors, SeaWest, for instance, and we are going to have this reality by next year starting with the project.

We, as a tribe, looked in every way and along with other, you know, with the people we worked with in trying to find ways of the Blackfeet to own this project, and it just isn't feasible for us to do it that way.

I would like to thank the Committee for its time today and would encourage your continued support of energy-related tax incentives in Indian Country. Thanks.

The CHAIRMAN. Thank, Leo.

And I know I have seen this, but there's this article that was in the "Wall Street Journal" July 11th, with Earl.

Mr. KENNERLY. Yes.

The CHAIRMAN. If everybody could see it.

I used this article at a Finance Committee hearing and raised it up just like this to try to give you a boost—

Mr. KENNERLY. Well, thank you.

The CHAIRMAN [continuing]. So you would get a lot more interest.

Mr. KENNERLY. Well, thanks a lot. That will help us out a lot.

The CHAIRMAN. So I mean, how is it working? Are you getting interest in it? That is, is SeaWest really—

Mr. KENNERLY. Well, SeaWest is, you know, we have our agreement now. We just have an amendment to put into it, and we're going on with it, and we got a reassuring letter that we are, you know, going to start the construction next year.

We are in the middle of the EPA studies right now on the migration, and we have some simulated photos out there of where we are going to put our project.

We look at 50 megawatts, which Glacier Electric right now can handle on their lines. If we get any bigger, we will be looking more towards, you know, bigger transmission lines. But that's in the future where we hope that us as a tribe can own that project. But it looks good.

The CHAIRMAN. You know, this hearing is really focused on tax incentives with respect to energy production and development. And I wondered if the three of you could generally from your own tribal councils or even for Indian Country generally, give us a sense of what the priorities of those tax incentives are.

We can't do it all. And so which one, which either an incentive that's already in a bill that's been introduced or a concept, if you can just kind of think out loud, you know, the four of us for a while here as to what's most important and then second most important and then third, fourth and fifth to the great big heads?

We're only going to have a limited number of dollars here. We can't do it all, and obviously we want to do what's most effective first, not last. And so as you're thinking about all this, you have a lot of great ideas. Are there some that kind of jump out first or second or third, recognizing that we do not have unlimited dollars, so if what you choose as No. 1 is going to cost a lot of dollars, it kind of limits No. 2.

I know it's hard to answer these kinds of questions, but we do need some sense of a feel and some guidance, frankly, as to which ones to focus on first, second and third. I want everybody to take a crack at that.

Mr. KENNERLY. Well, obviously for the Blackfeet, you know, through our trying to get economic development, we feel that, one, you know, we're not having a very friendly court system in this country towards Indian country. We're looking for economic development in other ways right now going away from the decisions that were made recently which actually devastated a lot of tribes that are nongaming development-wise.

We look at tax incentives towards our resources. And our sources are abundant with, like we said, wind, you know, oil and gas. We need incentives to gear maybe towards that more to develop more in that area.

So tax incentives for us would be able to, for us to own it and be able to bring in more revenue for development.

Right now, you know, currently is at us being a government and not paying the income tax as a government, you know, we're not eligible for these incentives. We are actually distanced away; we're

negatively affected big time by the law now because we're a government.

And as everybody knows, tribes are mainly land-rich. They want to get their land back; they want to keep their land together, and tribes themselves keep large land bases where these oil developments is easier to come in, oil and gas developments, and also wind projects are easier to come in. But we don't have the incentives through tax incentives, especially in wind power, to compete with other wind people with the incentives on the outside of reservation lines.

The CHAIRMAN. Or to state the same question differently, where do you get the greatest bang for the buck? I mean, if there's one tax incentive that the Congress would enact this year that would really help, because, you know, we basically have to apply the law nationwide. You can't have one tax credit for Blackfeet and another for Fort Peck and another for Wind River and so forth, so we're going to have one that—we don't have to have one, but if there were one, what comes to mind? What area?

Mr. MARTEL. Probably the Wind River, it would be the production tax credit, but that also ties into looking at the taxes that are being presently collected by the State and county.

And we've got to look at ways of alleviating these other jurisdictions interfering with our authority, taking these dollars, because the numbers I quoted earlier, there's about \$27 million in taxes that are going to other jurisdiction, which if we had that \$27 million coming into Wind River, we probably wouldn't be sitting here talking about some of these issues, because that would be giving us a lot of ammunition to develop some of our infrastructure, developing economically, solving some of the problems that we have.

The CHAIRMAN. That solves a lot of the unemployment problems.

Mr. MARTEL. That's right of the.

The CHAIRMAN. Methamphetamine drug problems, that solves a lot of problems.

Mr. MARTEL. And the PILT formula would come under that, to solve some of that.

You know, if we go to the State—we talked to Governor Geringer about this already on the, 6 percent tax. He says, all right, if the tribes are going to collect that 6 percent tax, then you should provide all the services.

Great. We would love to do that. We would love to have our people driving those snowplows and those State highway patrol cars and doing all of those jobs now that the State performs for us on a limited basis.

Under the county property tax, we think going under PILT formula would enable us to have a provision that hopefully the County Commissioners would support and the Governor would support our Congressional delegation, because if we don't, if we go to battle on that, all we're doing is helping attorney cash flow.

The CHAIRMAN. If PILT's a problem—I understand what you're saying about PILT, but over the years presidents, it doesn't make any difference which party it is, in all their annual budget submissions to the Congress, dramatically underfund PILT, expecting the Congress to kind of bring it back up again.

And there are lots of people from my State, from Montana, come back and see me all the time, particularly school district board members and, like I say, Malmstrom Air Force Base or near Forest Service land or BLM land, boy, they really rely on those PILT dollars, and I can understand how the tribes really could rely on PILT dollars too.

My only point is that, boy, there would be a lot of competition given the limited number of dollars we have. Of course, the answer is we'll try to find more dollars so that both the tribes and also the counties that have a lot of Federal land in addition to Indian land also benefit.

I hear what you are saying, the concept, I think it would make a good point. It's just that there would be a lot of competition for dollars.

Mr. MARTEL. Well, if things like that don't happen, Senator, there's going—like I said, the only other recourse we have is litigation or looking at structuring the way leases are set up now, which disallows States and counties from coming in and taxing that, and that would even be more devastating to counties who are continually seeking to have the PILT formula increased and looking at other ways to increase their revenues. But we think that's one of the areas that really has to be focused on.

We think that also under the H.R. 224, that permanently extends the Indian employment credit—

The CHAIRMAN. Right. That's helpful.

Mr. MARTEL [continuing]. And accelerate depreciation would be very beneficial.

The CHAIRMAN. Right. That's right. It would help to continue that so it doesn't terminate.

Are there other provisions that are scheduled for termination that are particularly helpful to you guys if they are not terminated?

Indian employment, that's certainly one. Do others—there is a production credit, and I suppose that would be helpful to you as well.

Mr. MARTEL. Well, there's a concept floating around now about tribal energy development enterprise zones, and there's several things listed in that.

The CHAIRMAN. Right.

Mr. MARTEL. And I didn't bring that with me today, but I will be able to submit that before the September 7th, but that's something—

The CHAIRMAN. Well, that's an interesting idea, yeah, and I think it's something we should look into very seriously.

Mr. KENNERLY. We've actually been involved with the enterprise zones through our law firm and stuff, we actually put it through, and we do have, one of our representatives here, but I don't know if—is he still here? He's on vacation. Kurt here, he's actually working with that.

And there's tribes that got together in the Denver basin, and that is a big concern for us too, not only us, but other tribes in South Dakota, North Dakota and everything else. And it's a hard, you know, it's a hard thing for us to put them in rows actually for us, but enterprise zones would help us out tremendously too.

The CHAIRMAN. Back to bonding authority you mentioned. Ray, that's a concept that initially makes a lot of sense. You mention the payment and the cash flow difficulties. But even with all that, is bonding something that you think is pretty promising, or is that a back burner?

Mr. EDER. Well, Senator, the way we look at it is, you know, we see with the, like we said, with the court decisions and the Cotton Petroleum case now, it's taking away our taxing authority, and we need that sort of back, the ability to tax to supplement our other income that we have from other lands and stuff. And we think that if we ever get back to this—you know, you have to have cash inflow of some kind in order to get bonding, and you can't get bonding, you won't be able to get bonding unless you have that.

So, I think, you know, this tax incentives thing would help be an incentive for oil companies to come in and develop, not only just necessarily in oil and gas, wind energy, and we're thinking about geothermal development, maybe having a greenhouse, stuff like that.

And we need those dollars to get us off the ground, to get us up where we have a recurring income that would be able to sustain floating bonds. Got to have that income there. And if we don't have it, we can't float bonds.

So, it's important to us that this tax credit thing be something for, especially for development in getting some things off the ground and get people working.

The CHAIRMAN. Well, frankly I think a lot of the answer here is the State of Montana, along with the Federal Government and the tribes sort of get together, but particularly in Montana, the tribes try to figure out a way to jointly work out these issues. Unemployment on reservation land is going to continue to be high. And some of the other problems I mentioned, they're not going to be solved, I don't think, until we just kind of sit down and figure out a way to jointly work out the economic development.

And I guess the tax question and taxation issues and infrastructure, it's really sharing as I see it. Maybe that's not the best perspective, but we have to do that. And you make a lot of very good points, and particularly the taxation issue. That's very vexing to you, I can tell.

Do you know of any solid efforts to try to in an honest, good faith way to try to get at some of this so there's greater cooperation and sharing of revenues—

Mr. EDER. They had at one time—

The CHAIRMAN. In the best sense of the term?

Mr. EDER. They had a committee established to address this double taxation issue.

The CHAIRMAN. Yeah.

Mr. EDER. And I think, do you know Mike Webster? Have you ever heard of him?

The CHAIRMAN. No.

Mr. EDER. Anyhow, he's supposed to be a nationally known right-of-way specialist, and he's also an attorney. In fact, he's an attorney for Burlington Northern Railroad against tribe on taxation of that railroad.

But we had a team, and he was part of that team to address that problem, and they tried to negotiate or get something going with the State, but the State didn't want to and wouldn't come to the table.

So then they thought, well, maybe we could legislate something, and that's where this tax credit thing idea came in as an incentive for oil companies and any other business to come on the reservation.

Because we—reservations can offer tax exempt status to any company that comes on the reservation and does business there, provided structure of that agreement between the tribe and that company are so made in order for them to get that tax credit.

The CHAIRMAN. I think there's enormous potential on reservation land, enormous, the work force pool and its resources, and it's just—I just wish that more people saw that potential and worked to try to make it happen, particularly in this State, in State government.

Mr. MARTEL. There's a reservation in South Dakota that doesn't produce a lot of energy, but it does have an intergovernmental agreement with the State regarding collection of taxes and how it reverts back to the tribes, and the services are provided. But, you know, you're dealing with energy production, and there's a dollars at stake, and nobody's willing to give up their share.

The CHAIRMAN. That's part of it. But some of those things generally only work when people work together.

Mr. KENNERLY. That's the same thing with Blackfeet is, you know, we do have an agreement with the State too on oil production on taxation; but with the other taxations too, with regarding county on fee lands, you know, we did have an agreement, and then like I said, you know, there was a court case last year which went through the system and coming back to agreements with the county, and probably the best way we can go back to the table is with them, you know, on an agreement, which we haven't done yet.

The CHAIRMAN. Before we wrap up here, do you want to address any of the issues or statements the previous panelists made?

Mr. MARTEL. I think a lot of the statements regarding transmission really affect reservations. One of the things that we're looking at too is the construction of a powerplant at Wind River, but the way it is now, there's a bottleneck between Wyoming and Colorado and some of the other areas that we have to really look at WAPA.

We would like to see WAPA getting more borrowing authority. We think WAPA has a big role to play in constructing and developing transmission lines. Wyoming, the whole State itself suffers from a lack of transmission lines, and that's something that impacts us.

So, and then in regards to pipelines, that affects the price for us at Wind River and Wyoming because we don't have the pipeline capacity in our area.

Now, one the gentlemen from the panel this morning talked about \$3 for gas, the price for gas. Now, not too long ago, it was \$5. But in some of the areas they're getting that, but we are constricted because of pipeline capacity.

One of the things that we've kind of thought about from the national picture is maybe if there was a floor price for the price of oil for tribes, that they could sell to the strategic petroleum reserve. You know, when oil is above \$15 a barrel, we could sell on the open market, but if it drops below, that would—and tribes could try to sell to the reserve, that would give producers an incentive to come to us, plus give us some stable sources of income to look at.

The CHAIRMAN. Anybody else?

Mr. KENNERLY. I would agree. Transmission lines for us, with our projects we're developing is, you know, it's actually more feasible for us to go north to Canada because the transmission line is only probably 100 miles away.

We agree with a lot of the people before us because you know, that's the main holdup in a lot of projects is, you know, where are we going to send this energy and how much is it going to cost.

The CHAIRMAN. Okay. Ray?

Mr. EDER. That's another problem, you know, Fort Peck had too, is WAPA is up to capacity on their transmission lines right now.

The CHAIRMAN. They need more borrowing authority, then; is that right?

Does WAPA need more borrowing authority? I know BPA has asked us for it.

Mr. EDER. Yes, they would have to have, especially if we develop wind energy up there, they're going to have to have it. And then the same way with the Northern Border Pipeline, they're up to capacity on that line.

The CHAIRMAN. All right, I want to thank all of you very, very much and thank everybody for participating here today.

Mr. EDER. Who's buying lunch?

The CHAIRMAN. Who's buying lunch?

Mr. EDER. You kept us through lunch.

The CHAIRMAN. That's probably a good idea since we've all run out of energy.

But anyway, thank everybody very, very much for participating. Thank all the panelists. We will take this record and work with it all.

One of my goals is to make sure that solutions here enhance economic development, jobs, high-paying jobs. Second, that rural areas like Western States participate in any solution here, and also to get the right balance of conventional, unconventional energy production as well as conservation and clearly on tribal lands too, because we have a separate set of circumstances that we have to address.

I urge everyone just to keep in touch with us and with the Committee and with the entire delegation, because we're all working on these problems together.

I also want to thank a lot of people here that have just done a great job. And I would like the two ladies here in the front row to stand. This is Carla Martin and Amber Williams. They're with the professional staff, the Finance Committee staff. They have put all this together. I held the hearing in part to bring all the Finance Committee staff to Montana, and they're here. And thank you very, very much. Let's give them a round of applause.

Also, I want to thank our reporter here. It's Frances Kunz, who is dutifully, uncomplainingly making a transcript of this record. Let's give Frances a big round of applause too.

And behind me are, let's see, I have Matt Jones and Cary Pugh. And then there's Karen Bridges over here. Karen is not—they are the three that help mostly on the professional level for this hearing. Let's give the three of them a big round of applause too.

And in my office here in Billings, Jim Corson. Is Jim around?

Ms. PETERSON. No.

The CHAIRMAN. Sharon Peterson. You stand, Sharon? Everybody knows Sharon.

Liz, is Liz here?

Ms. PETERSON. She's outside.

The CHAIRMAN. She's outside?

Ms. PETERSON. Doing her job.

The CHAIRMAN. And, of course, Bill Lombardi, who is standing there at the doorway.

Jim Foley. I don't know if Jim's here or not.

And also so much appreciation for the Rocky Mountain College folks. They have done just—they provided the facilities here, and we're just very, very grateful that they did so, otherwise I don't know where we would be. We'd be out in a hot day somewhere, but thank you so very much.

And Elizabeth Paris with Senator Grassley's office here.

It's just another chapter but we're building. We're making progress. Thanks everybody very much.

The hearing is adjourned.

[Whereupon, at 1:05 p.m., the hearing was concluded.]

[EDITOR'S NOTE.—The prepared statements of the witnesses, along with additional submissions, can be found in the appendix.]



# A P P E N D I X

## ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

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**Testimony of Bob Anderson, Montana Public Service Commission  
Before the Senate Finance Committee  
August 24, 2001  
Billings, Montana**

Good morning. I'm Bob Anderson, a member of the Montana Public Service Commission. I've served on the Commission for over a decade and have been active in electricity policy issues at the state, regional, and national levels for many years. But please bear in mind this experience in no way makes me an expert on taxation.

I applaud the Committee's interest in these issues. Energy is the life blood of the American economy and no other commodity affects the environment as much as electricity does. Because of technological advances and the growth of the information economy, the fraction of the energy mix occupied by electricity is steadily growing.

It's my privilege and pleasure to appear before the Committee today to address issues of the electricity generation and transmission systems in the western market, defined by the interconnected bulk power grid, and the implications of taxation policy on them.

The year 2000 saw the run-up of prices in wholesale electricity markets and rolling blackouts in California. In Montana, industrial customers who benefited from market access after restructuring began in 1998, suddenly found themselves without low cost supplies and hundreds of Montana workers were idled as a result.

Electricity is back on the front pages of newspapers and policy-makers at all levels, including the Montana legislature, have wrestled with these vital issues. As an example of recent policy development, I recommend to the Committee *Electricity Policies in the Public Interest*, a set of recommendations issued on May 29, 2001, by two dozen state utility regulators.

See: <http://psc.state.mt.us/pdf/BAElectricityPoliciesinthePublicInterest.pdf>

One of the common responses to the western price and reliability problem has been to advocate an increase in infrastructure investment. People point to the lack of investment in generation and transmission in the west over the last several years. They ask for investment incentives, federal eminent domain over transmission siting, and expanded FERC authority over the retail market.

It's true such investment has lagged in recent years and it's true that some investment is needed, particularly to relieve some transmission constraints. But a closer look disabuses the notion that incentives for massive new investment in generation and transmission are needed. A California system that met a 53,000 MW peak demand in the summer of 1999 failed to meet a 29,000 MW demand in January, 2001. What's wrong with this picture?

Infrastructure investment is not the principle problem. Rather, flawed restructuring, particularly in California, resulted in a dysfunctional market that allowed generators to exercise market power. The best solution to market power is not investment incentives. It is fixing the market so that it has: good price signals for producers, transmitters and consumers; real competition among producers; a balance of risk and reward for investors; a robust portfolio of supply options, including distributed and renewable resources; effective demand response mechanisms; and alignment of authority and responsibility for governmental and quasi-governmental institutions at all levels—state, regional, and national. While targeted tax incentives for infrastructure can play a limited strategic role, they are not a substitute for the basic characteristics of a well-functioning market and regulatory framework.

In fact, there is reason to be wary of providing investment incentives. Today's incentives can lead to tomorrow's stranded costs if those investments are not the most economical ones. A cautious approach is called for. Hasty policy runs the risk of unduly shifting risk and cost to the public and resulting in the unintended and unanticipated consequences that have plagued electricity industry restructuring.

To the extent that generation investment is needed in the West, developers are responding to wholesale prices and regulators, especially in California, have worked at a frenzied pace to process and approve their applications. In the last year, 2,865 MW of generation have been brought on line, another 20,912 MW is under construction, 12,185 MW have been permitted, and 65,609 MW have been announced. Clearly, tax incentives are not needed for new, natural gas-fired generation.

But there is a place for targeted tax incentives. One is in the area of clean coal technology. Coal is our most abundant energy resource and makes up the bulk of today's electric generation. Unfortunately coal is our most polluting energy source. The clean coal program has shown how SO<sub>x</sub>, NO<sub>x</sub>, and particulates can be reduced in electric generation. But coal can only truly be clean if new technology successfully reduces the emission of carbon dioxide as well as the currently-regulated pollutants. Tax incentives for demonstration projects that can lead to commercial, cost-competitive technologies to increase combustion efficiency and reduce emissions of all four major pollutants (NO<sub>x</sub>, SO<sub>x</sub>, mercury and CO<sub>2</sub>) should be implemented.

Another good use of tax incentives is for renewable energy resources, the cleanest element of our indigenous resource portfolio. Non-hydro renewables make up a very small fraction of electric generation today. However, they have great potential, especially in Montana, and some, e.g. wind, are cost-competitive in some grid-connected applications today. Every electricity supplier's portfolio should have the diversity renewable resources can provide. Tax policy can encourage renewable technology development, driving down the cost and stimulating innovation.

Our most economical energy resource is efficiency. Squeezing more energy out of our existing systems will avoid or delay the need for new infrastructure and its cost and

environmental effects. But cost-effective energy efficiency has market barriers to implementation. Electricity customers have poor access to the capital needed for efficiency investments and often demand an irrationally-short pay back period. These barriers can be mitigated with progressive tax policies.

The picture in transmission is different. Little new transmission has been constructed in recent years and there is little proposed in the near future. And, to be sure, there are real needs for transmission expansion. The poster child has been Path 15 in California, which constrains the transfer of power from southern California to the Bay area, including power from the northwest which travels south via interregional interties. This problem is being addressed as we meet by the aggressive intervention of the Department of Energy through the Western Area Power Administration.

In the northwest, the principle transmission owner is the Bonneville Power Administration. The BPA system is stretched to its limits and BPA has identified several projects which would relieve its most urgent stresses. What BPA needs to accomplish these projects is an increase in its borrowing authority.

Much of the west's bulk power transmission system is owned by investor-owned utilities. These companies face enormous barriers to the construction of addition lines.

One is the difficulty of siting new lines. For a variety of reasons people just plain don't like transmission lines and oppose them in every venue—local, state, and federal. It is proposed that the states be preempted and FERC be given exclusive jurisdiction over the siting of electric transmission lines, as it has for interstate gas pipelines. Although this issue is probably outside the Committee's jurisdiction, I encourage Congress to resist such sweeping FERC authority. The states have responsible siting processes. At most, FERC should have a backstop authority, applied only if and when state and regional bodies fail to process a siting application in a timely manner. I refer the Committee to the recent policy on this matter of the Western Governors Association:  
[http://www.westgov.org/wga/policy/01/01\\_01.pdf](http://www.westgov.org/wga/policy/01/01_01.pdf)

Other barriers to transmission construction have been insurmountable in recent years. Even if siting approval could be acquired, investors face uncertainty as to cost recovery. This uncertainty could be eliminated by the implementation of regional transmission organizations which will operate the interstate grid and establish pricing tariffs.

There is tax policy that makes sense in this environment. In recent years, new technology such as FACTS (Flexible AC Transmission Systems), developed by the Electric Power Research Institute and others, has measurably improved the performance and efficiency of the transmission system, increasing the transfer capability of existing lines. And there is room for further improvement. Increasing the performance of existing lines is a way to avoid the public opposition to opening new corridors.

New technology requires research and development. The R&D tax credit should be renewed when it expires, increased to further stimulate innovative technologies, and expanded in its application if necessary to encourage more investment in transmission technologies such as FACTS. Senator Baucus, I know this is an area of tax policy in which you have a particular expertise and interest. Your strong support for research and development in the past has produced wonderful results for the American people.

Finally, there are a few tax-related positions of our national association, the National Association of Regulatory and Utility Regulators, I'd like to convey:

- enable electric utilities to continue to receive certain tax incentives for contributing to nuclear decommissioning trust funds in a restructured environment;

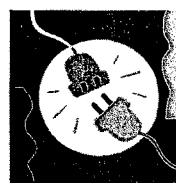
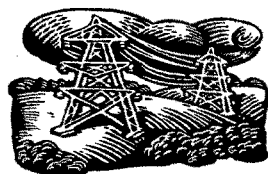
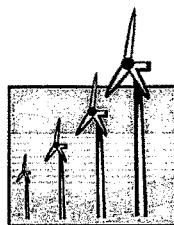
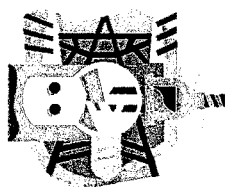
- recognize excess deferred taxes and unamortized investment tax credits as overpayments of taxes by consumers and require the return of such overpayments to consumers in the event of a sale or transfer of regulated assets;

- support tax incentives for the efficient use of energy resources to meet the nation's growing energy demands, considering the impact on the environment as well as reliance on imported fuel; and

- repeal the taxation of Contributions in Aid of Construction (CIAC) for electric and gas utilities (In 1996, Congress revised the IRC to exempt water and wastewater utilities from CIAC taxation but current law, passed in 1986, requires CIAC taxation for electric and gas utilities.).

Thank you for the opportunity to appear before you today. I look forward to continuing the dialog on these vital issues.

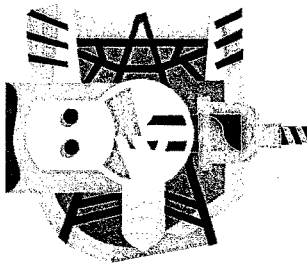
# ELECTRICITY POLICIES IN THE PUBLIC INTEREST



Recommended by some  
State Utility Regulators

May 29, 2001

## ELECTRICITY POLICIES IN THE PUBLIC INTEREST



Now more than ever, America has the challenge and the opportunity to develop a balanced and workable electrical energy policy.

Electricity has a vital, profound and increasing role in the American economy and society. It is in the national interest to have an electricity sector, from production to delivery to consumption, that provides reliable, safe, affordable, and environmentally compatible products and services.

Recently, electricity prices have gone up dramatically in some parts of the country. In some areas, electricity supplies have been interrupted. Consumers everywhere fear that electricity prices in the future will be high and volatile and that supplies will be unreliable.

We have large, untapped reserves of traditional fuels like gas, coal, oil, and uranium. We also have bountiful sunshine and wind and large reservoirs of energy efficiency.

Over time, we can exploit these and other emerging resources and technologies. But use of these traditional fuels and the traditional energy production, distribution and consumption can put pressure on our environment and create risks to our health and safety. Also, further resource exploitation will not ease prices or ensure reliability if electricity markets are not working correctly.

Americans are facing important electricity choices for the years ahead. Do we have to choose between reasonable prices and a healthy environment? Do we have to trade off affordable prices for a reliable electricity supply? If we reduce usage, must we sacrifice economic vitality and comfort for our homes and businesses? As we try to improve our standard of living, must we compromise the environment?

No. We believe it is possible to achieve all our goals with careful, intelligent, balanced decisions about America's electricity choices. Sound public policy choices can help unleash this potential.

Making this vision a reality requires trade-offs between:

- supply additions and usage reductions
- natural gas and electricity
- new electricity production and its substitutes (which include transmission, distribution and efficiency investments)
- legacy generation technologies and cutting-edge technologies
- large centralized generators and small distributed generation
- generating a kilowatt and substituting a "negawatt" of efficiency.

The policies we propose are designed to move America toward sustainable, reliable, affordable and ample electricity resources, with fewer burdens on our natural environment and more opportunities for personal choice.

Who are we? We are state utility regulators. These recommendations were developed by the Committee on Energy Resources and Environment of the National Association of Regulatory Utility Commissioners (NARUC). They have not yet been considered by NARUC's board of directors or its membership.

The signers feel timing is crucial. Energy policy debates are underway in the new administration, the Congress, and in state capitals around the land; the news media and the public are paying attention. The signing commissioners believe these recommendations have compelling merit and should be a part those debates.

The principles are organized into these topics:

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## I. ELECTRIC SUPPLY AND DEMAND

*The heart of our national electricity policy should be the rational balancing of supply and demand to achieve the goals of reliable, safe, affordable, and environmentally compatible generation, transmission, and distribution of electricity.*

### A. Existing conventional electricity generation technologies should be improved to increase their efficiency and reduce their environmental impact.



- Grandfathered, high-emission power plants should be required to reduce their air emissions and water use, or retired if they can be replaced by new, low-emissions plants and energy efficiency without compromising grid reliability.
- New power plants fueled by natural gas, oil, coal, biomass and other carbon- and NOx emitters should meet strict emissions limits.
- Hydroelectric and nuclear facilities can have significant environmental impacts; however, they do not produce air emissions. Thus, they may be a necessary part of our national electricity portfolio until better, non-air-polluting technologies become commercially available for bulk power production.
- Spent fuel from nuclear power plants must be disposed in a safe and permanent way, as quickly as possible.



### B. More diverse and environmentally friendly supplies of electricity should be developed.

- Renewable energy sources should be encouraged through renewable energy product offerings to retail customers, tax incentives, renewable portfolio standards and system benefit programs.
- Barriers to implementation of clean distributed generation should be removed so customers can generate power and plug into the grid under reasonable and predictable rules.
- Net metering should be implemented for small-scale customer-owned generation.
- Reliability standards and market rules should recognize the value of customer-owned generation and permit those resources to participate in electricity and reserve markets on an equal basis with central-station generation.
- Environmental impacts of distributed generation should be recognized and treated even-handedly through strong performance and emissions standards, preferably developed at the national level.





- Development of low-polluting central station generation technologies should be encouraged, e.g. through targeted research and development and tax incentives.
- Diversity can be enhanced by incorporating a variety of fuels and technologies in the generation mix. For example, an over-emphasis on natural gas will compromise winter natural gas availability for heating and electricity and raise gas prices for all consumers.

### C. Demand should be managed with cost-effective programs.

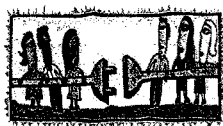
- Funding for energy efficiency programs should be substantially increased to lower customer bills, lower stress on transmission and distribution systems, address supply adequacy problems, and reduce environmental impacts.
- Multiple, complementary mechanisms which can produce cost-effective results include: improved building codes and appliance and equipment standards; traditional utility demand-side management (DSM) programs; franchised Energy Efficiency Utilities like Vermont's; market transformation; and other broad-based programs, with funding through competitively neutral system benefits charges.
- Tax credits for energy efficiency improvements to existing residential and commercial buildings should be established.
- Stronger efficiency and performance standards should be established for all buildings and for lighting, windows, motors, air conditioners, refrigerators and other appliances. For example, when incandescent light bulbs fail they should be replaced with high-efficiency ones by means of a standard phased in over time.
- Where a distribution wires company has responsibility for implementing efficiency programs, its tariffs should be structured to align the profit incentives of the company with the goals of cost-effective energy efficiency. Mechanisms may include performance-based ratemaking, lost-revenue recovery, and revenue caps.



- Customers need price signals that indicate the true value of demand reductions at different times, places, and system conditions. Real-time pricing and real-time and demand metering are necessary to facilitate this for large customers; but even small customers should have the opportunity to benefit from time-of-use rates and improved electricity price signals.
- To expand the reach of achievable efficiency, work should continue on new and creative ways to deliver energy efficiency services, and finance consumers' energy efficiency choices.

**D. Resource options and alternatives should be coordinated through information, planning and incentives.**

- Electricity suppliers should offer all customers incentives, choices, information and products to allow customers to use energy efficiency, load management, distributed generation and load shifting to manage their electricity usage, costs and risks.
- Energy efficiency and conservation resources are best acquired from low- and moderate-income customers using set-asides of funds from full DSM programs or from a System Benefits Fund.
- Not all services and technologies need to be offered by monopoly utilities; any energy-related service that can be delivered efficiently and effectively through a competitive market may be removed from the domain of franchised utilities.



**E. Because electricity production, delivery and use are all costly and risky endeavors, risks and rewards should be recognized and allocated clearly among customers, distributors, and providers.**

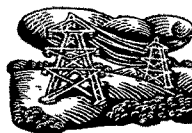
- The party best able to manage, mitigate, or otherwise control risk should do so and be compensated commensurately for it.
- Electricity prices in a competitive wholesale market will always be volatile, just as with any other commodity that cannot be stored; thus, both buyers and sellers should be able to manage risk and price through such techniques as fuel diversity, hedging, forward contracts, performance-based ratemaking, and insurance.
- Proposals for new nuclear generating plants should incorporate their associated risk into their cost structures. The Price-Anderson Act, which limits nuclear liability (i.e. shifts nuclear risk to the public) should be repealed.



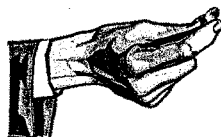
## 2. RELIABILITY

*Electric reliability means the probability of the lights staying on. Because of our society's dependence on electricity and the cost of outages, reliability is often as important as price.*

**A. To assure reliability, wires companies and integrated utilities should provide adequate and efficient generation, robust transmission and distribution systems, energy efficiency and demand management, distributed generation, and operations and controls.**

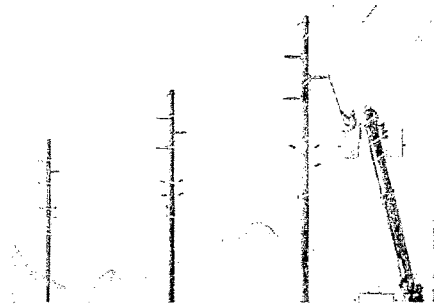


- Reliability cannot be assured in either traditionally regulated or competitive markets without long-term planning and directed investment in the infrastructure – plants, wires, and demand-side mechanisms and systems.
  - Short-term reliability problems should be addressed with aggressive load management measures, price-responsive demand mechanisms, distributed generation, and retail price signals.
  - Measurements and metrics are valuable tools to monitor and improve electric reliability delivery by utilities.
- B. Reliability involves a balancing of electricity supply and demand within a reasonable range of prices. Price levels and volatility affect peoples' perception of reliability – if electricity is too expensive, it is not perceived as available or acceptable.**
- Some excess generation capacity is essential to assure that wholesale market prices are moderated by competition and that reliability is not compromised by extended resource imbalance. Therefore, it is reasonable for society to pay for some excess of both demand- and supply-side resources to assure system reliability.
- C. A base level of reliability is in the public interest and should be delivered to all customers as a part of basic electric service.**
- Customers who want premium electric reliability and power quality should pay the costs necessary to achieve it.



**D. 95% of outages experienced by electric customers result from failure of distribution-level plant and equipment. Regulators should assure that distribution remains effectively regulated in a way that promotes both reliable service and customer access to energy efficiency and clean distributed generation.**

- The electric grid should provide everyone who wants grid-delivered electricity with safe and reliable service at socially acceptable performance levels.
- Transmission and distribution investments should serve long-term needs, but also be managed to realize short-term as well as long-term efficiencies. The grid should connect loads and generation in an integrated two-way network, with open access interconnection for all generators, of any size, that request it (subject to grid security constraints).
- Performance-based ratemaking or other incentive mechanisms can promote transmission adequacy and distribution reliability.



### 3. COMPETITIVE WHOLESALE MARKETS

*In the last several years the federal government has begun restructuring wholesale electricity markets to make them more competitive. At the same time, many states have begun restructuring the retail electricity markets for similar reasons. This process has been difficult, and many issues are not yet resolved. An effectively competitive wholesale marketplace, implemented correctly, should benefit consumers, distribution utilities, and market participants. In some cases, the outlook is optimistic. In others, ineffective wholesale or retail restructuring has significantly harmed ratepayers, distribution utilities, and other market participants.*

*Effective wholesale competition is a necessary prerequisite to retail competition. If wholesale competition works, retail competition can create further customer empowerment and spur innovations in pricing, technology, products, and features that create greater social benefit than was provided by monopoly utility service.*



*However, there are risks that must be addressed. Critical features of electricity competition must be recognized: (a) electricity generation and consumption have unique, real-time characteristics; (b) electricity is a socially and economically vital product; (c) many consumers have little price elasticity for electricity demand; (d) electricity offers unusual opportunities for the exercise of market power by suppliers and transmission providers; (e) market operations alone will not necessarily produce a sound public policy outcome, such as a low-emissions portfolio of generation options; and (f) it will be harder to bring the benefits of retail competition to small customers than to large consumers and to shield them from the risks of competitive markets.*

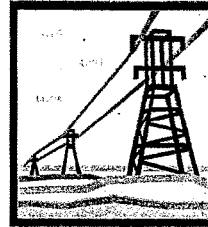
*Competitive markets should be allowed to work where possible, but policymakers should intervene strategically and with restraint where market operation alone does not produce good outcomes. Competitive markets do not happen by themselves, and developing a working competitive marketplace takes both time and effective, enforceable market rules. The desired outcome can be wholesale markets that produce adequate, clean electricity at stable, affordable prices, over the long term.*

#### **A. Wholesale markets should be structured so the full range of resources (including energy efficiency, load management, small-scale generation, clean distributed generation and renewables) can participate fairly.**

- Demand-side resources should receive equal consideration with supply and transmission options in regional transmission organizations (RTOs), independent system operators (ISOs) and power pools.



- Transmission tariffs should recognize the unique attributes of intermittent and renewable resources, which add important diversity to the generation mix, without discriminating against them.
- Wholesale electricity markets should permit and encourage the active trading of demand-side resources and demand bidding as system resources in both electricity and ancillary services markets.
- Siting of transmission lines should impose low environmental costs by considering alternative routes and alternative ways, such as distributed generation and energy efficiency, to meet the same customer needs.



**B. RTOs should be established across large geographic regions and should have sufficient authority to perform regional grid management, expansion, and efficient system operations.**

- The transmission system should be built and operated in the most economical, reliable and environmentally acceptable way to assure system reliability and facilitate efficient wholesale market transactions.
- Access to the transmission system should be open and non-discriminatory for all generators, distribution companies and customers.
- Because transmission is a long-lived asset and transmission constraints have severe costs and consequences, new transmission lines should be planned and built to meet long-term competitive market needs.

**C. Wholesale competition works best when there is sufficient generation and transmission relative to demand.**

- Market rules should be clear and consistent and provide certainty for new investments.
- Barriers to entry for clean generation should be removed.
- New generation should be facilitated by mandatory, timely open-access transmission interconnection, standard contracts and standardized transmission tariffs and pricing.

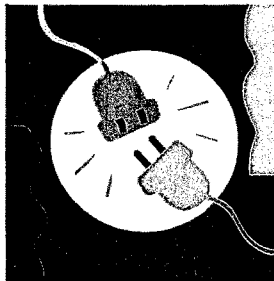
**D. Market power can seriously distort market operations, so market designs and rules should anticipate and encourage competitive, non-discriminatory, and non-abusive behavior.**

- An entity independent of market participants should have authority to monitor markets for potential abuses, enforce market rules, and correct market problems.

#### 4. REASONABLE PRICES AND RELIABLE SERVICE UNDER TRADITIONAL REGULATION

*Many states have adopted a wait-and-see attitude toward retail electric utility restructuring. In the wake of the California and west-wide wholesale market dysfunctions, some states that had embarked on retail competition have backed off. As long as regulated, vertically-integrated utilities exist, well-developed regulatory principles and methods should be continued and improved.*

- A. Integrated resource planning should be used to identify and promote the least cost mix of supply, distribution and demand-side options, taking economic, equity and environmental concerns into account.
- B. Retail rates should be designed to give consumers the option to shift usage off-peak and use electricity more efficiently.
- C. Incentives that favor centralized supply options over decentralized supply and demand reduction options should be removed.
- D. Vigilant oversight of utilities' obligation to provide just, adequate and reliable service at reasonable and non-discriminatory prices should be continued.



## 5. CUSTOMER PROTECTION AND FREEDOM TO CHOOSE



*A balance is needed between customer protection and customer freedom to choose. Consumers should be given opportunities to make choices while they are protected from market power, anti-competitive behavior, undue discrimination, poor service, and unfair billing and disconnection practices. The goals for both competitive and regulated retail markets are the same—safe and reliable service at just and reasonable prices.*

**A. The protections that customers enjoy under the regulated monopoly system should be preserved in competitive markets.**

- In competitive markets the obligation to serve should be met by a default provider.

**B. Information disclosure – by generation type and environmental impacts – should be required of all load-serving entities to give customers information about their choices and their impacts.**

**C. Because low-income customers have special needs, they should receive special consideration.**

- Bill assistance through LIHEAP should be substantially increased.
- Rate designs, such as discounts, lifeline rates, income-base rates, and levelized billing, should be offered.
- Disconnection policies should be fair, non-discriminatory, and limit extreme weather shutoffs.
- It is in the interest of all customers to improve the efficiency of electricity use, but low-income customers usually lack the wherewithal to invest in efficiency measures. Therefore, low-income energy audit and weatherization programs should be expanded.



**D. Service quality standards should be enforced for distribution companies and companies with default service obligations.**





## 6. ENVIRONMENTAL SUSTAINABILITY

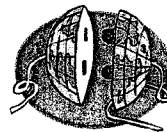
*Electricity costs are less than 3% of our nation's Gross Domestic Product; yet electric power plants produce 67% of SO<sub>2</sub> emissions, 25% of NO<sub>x</sub>, 40% of CO<sub>2</sub> and 34% of air-borne mercury. Power plants are America's second largest source of toxic chemicals and we depend heavily on hydroelectric power from dams that affect fisheries and recreational waters.*

*The production and delivery of electricity directly and substantially affect Americans, our habitats (air, land and water), and our health. Electricity markets are not "efficient" when these costs are externalized, i.e., when prices do not reflect the costs of air emissions (e.g. greenhouse gases, ozone, and particulates) and the impacts on groundwater, riparian habitats, and water quality. Policies of promoting competitive markets for wholesale electricity will be economically efficient only if they either reflect such costs in prices, or are coupled with environmental standards that minimize such externalized costs and protect public health and the environment.*

*All electricity generation causes environmental impacts; however, some generation technologies and fuels produce more pollutants than others. If electricity production increases in lock-step with our economic growth, environmental costs will unnecessarily increase. Fortunately, low-polluting energy sources, emission controls, and using electricity with more efficiency and wisdom can weaken that link.*

*Some strategies can reduce the environmental costs of production from all sources by avoiding needless generation, while other measures, such as emission limits, will lead to lower costs of emissions from specific production types. In particular, fossil fuel-based generation causes significant air pollution, which can harm local health, regional habitats, and global climates. These are the most pressing of the many unpriced costs of power production and delivery.*

**A. Renewable energy, energy efficiency and conservation should be central to American energy policy. They help achieve goals such as reliability, diversity, and price stability, while mitigating both air and water pollution.**



**B. Energy policies and environmental policies should be consciously harmonized at both state and federal levels.**

- This effort should recognize both the priced and the unpriced costs of power production and delivery; it should also value the most cost-effective ways of minimizing such costs.
- Energy and environmental officials should develop pollution control strategies that reduce multiple pollutants collectively, since this is more cost-effective than addressing each pollutant individually. A good example of such a multi-pollutant strategy includes addressing NO<sub>x</sub>, SO<sub>2</sub>, mercury, carbon dioxide and particulates through common measures.

- C. Air and water emissions should be addressed by market-based incentives and disincentives where feasible; otherwise, standards should be set.
- D. Hydroelectric and nuclear facilities can have significant environmental impacts; however, they do not produce air emissions. Thus, they may be a necessary part of our national electricity portfolio until better, non-air-polluting technologies become commercially available for bulk power production.
- Spent fuel from nuclear power plants must be disposed in a safe and permanent way, as quickly as possible.
- E. Carbon emissions should be controlled through national emission limits. These limits should be implemented in cost-effective ways, including credit-trading measures (with recognition of the electric power industry's ongoing carbon sequestration programs and voluntary reduction efforts).



## 7. STATE AND REGIONAL GENERATION AND TRANSMISSION PLANNING

*In both public and private markets, planning is an important way of harmonizing and reconciling competing goals.*

### A. Electricity policy makers should plan for the provision of adequate electricity distribution, transmission and, in regulated markets, generation.

#### B. Planning should:

- Use detailed end-use data for demand forecasts,
- Help improve environmental performance,
- Help manage fuel price, availability and performance risks,
- Value demand-side, alternative and conventional resources comparably,
- Develop practical ways to implement cost-effective DSM on a regional basis,
- Engage broad public participation,
- Help improve economic efficiency,
- Identify additional opportunities for customer choices of end-use efficiency, renewables and environmental performance, and
- Minimize adverse environmental and societal consequences.



### C. Generation facility siting decisions should consider diverse inter-regional, regional, statewide and local interests.

- Siting decisions should consider whether a project is consistent with state and regional electricity planning and regulatory decisions, including those encouraging development of a competitive electricity industry.
- State and regional siting processes should provide for broad notice and public participation, expeditious decisions, comprehensive and focused filing requirements, and possible support for interveners to participate in the process.
- The ultimate decision regarding a project requires finding that the project: is in the public interest considering the nature of probable environmental impacts; minimizes adverse impacts; is compatible with public health; and is designed to operate in compliance with regional, state and local requirements, except where local laws might be found to be unreasonably restrictive.

While some of us may disagree with one or more of the positions stated herein, we, the signers of this document, believe the positions advanced must be addressed as part of the important national electricity policy debate. Furthermore, there may be elements of it that pertain to proceedings before us. We do not prejudge any issues in those cases and will determine their outcomes based on the evidentiary records before us, the laws in our states, and the public interest.

SIGNED BY

Bob Anderson, Montana PSC  
 James Blake Atkins, South Carolina PSC  
 Jerome Block, New Mexico Public Regulatory Commission  
 Nancy Brockway, New Hampshire PUC  
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 Angel Cartagena, Washington DC PSC  
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## PREPARED STATEMENT OF RONALD HARPER

Mr. Chairman, my name is Ron Harper and I am the Chief Executive Officer of Basin Electric Power Cooperative (**Basin Electric**) headquartered in Bismarck, North Dakota. I am pleased today to testify before this Senate Finance Committee field hearing on behalf of Basin Electric, which delivers approximately 1700 mw of primarily coal & lignite-based generation to its 121 member cooperatives, serving over 1.5 million customers in Montana, North and South Dakota, Wyoming, Nebraska, Iowa, Minnesota, Colorado and New Mexico.

Basin Electric provides supplemental power to Upper Missouri G& T Cooperative and Central Montana Power Cooperative, two Montana generation and transmission cooperatives that serve 17 distribution cooperatives in Montana. We also own and operate joint transmission facilities with Western Area Power Administration (WAPA) in the State of Montana, including the Miles City DC tie facilities which interconnect and move power between the Western and Eastern Power Grids.

**GENERATION NEEDS OF MONTANA**

During the past several months we have been involved in studies evaluating our members' future power generation needs. Two areas of interest and concern that have dominated those studies are the expansion of coal bed methane development in northeastern Wyoming and the power supply needs of Central Montana Power Cooperative, which may require additional power starting in 2008.

As a generation and transmission cooperative, Basin Electric's mission is to provide low-cost, reliable power to serve our member cooperative needs. At this time, in conjunction with our cooperative members, we are conducting engineering studies to explore the feasibility and best location for the construction of a coal-based generation unit in Montana. We are focusing on coal because we have found in our other operations that coal is the most abundant, low-cost fuel available in the United States. Coal is also found in abundance here in Montana and could provide many mining jobs, an increased tax base and very affordable electricity.

The construction of such electric base units requires capital investment in many hundreds of millions of dollars which would need to be recaptured over thirty or more years, while also anticipating the considerable investment necessary to ensure compliance with current environmental requirements and transmission constraints. In addition to those considerations, an assessment of the general economy of the regions that we serve and the national economy, with the associated long-term planning and investment decisions involving considerable risk must be made.

To initially address some of that risk in the early planning stages, Basin Electric and its members need to secure long-term cooperative and customer contracts in Montana before embarking on the construction of such a project, since it is not our mission to build merchant plants.

### **IMPORTANCE OF COAL BASED GENERATION**

On May 17<sup>th</sup> President Bush released his National Energy Plan which stresses that the American economy in the 21<sup>st</sup> century will require reliable, clean and affordable electricity in order to maintain growth. The Department of Energy forecasts that, by the year 2020, the United States will experience an increase of over 40 percent in the consumption of electricity. The current portfolio of generation is not capable of meeting these new demands. As a result, a large number of new generating plants must be built if we are going to maintain our current levels of reliable and affordable electricity.

As you are aware, more than 50 percent of the electricity generated in the United States comes from coal-fired power plants. In the Rocky Mountain states, nearly 70 percent of the electricity generated comes from coal-fired power plants. Coal-fired generation is, and will continue to be, the predominant source of generating electricity in Montana and throughout the West for the foreseeable future.

However, new coal based generating plants that would be capable of using this great resource are not being built. To illustrate, over 43,000 megawatts (MW) of coal capacity came on line between 1980 and the end of 1984. In the past five years, only 3,500 MW of new coal capacity have been brought on line. This is largely due to uncertainty about new environmental requirements from the U.S. Environmental Protection Agency, coupled with the risks associated with large investments as the utility industry becomes more diverse and more competitive.

### **CLEAN COAL TECHNOLOGY DEVELOPMENT**

Mr. Chairman, Basin Electric has long been a leader in clean coal technologies and, along with its consumer-members, has a vested interest in being a good steward of the environment in the areas in which we live and serve. I believe the development and commercialization of more efficient and lower emitting clean coal technologies is required to meet new electricity demands while continuing to improve the environment. In the short term the challenges are two. The first challenge is to expand the use of newer, more advanced NO<sub>x</sub> and SO<sub>2</sub> control technologies in existing plants through retrofits. While such investments are extremely costly, technologies are available to do this while improving the efficiency of fuel combustion and increasing output. The second challenge is to move new advanced clean coal technologies that have been proven at the demonstration stage to, and through, placement in the commercial marketplace.

The newest clean coal technologies are, however, more expensive to install and there will be construction and production problems to work out as there are with all new technologies. To implement state-of-the-art clean coal technologies that will respond to the ever-increasing environmental requirements adds considerable expense when considering new power plant construction. This clearly is an area where taxation and other government incentives can be of great public benefit to further reduce the cost and risk of such projects insuring that the energy and environmental needs of the future will be met.

### **S. 60 - THE NATIONAL ELECTRICITY & ENVIRONMENTAL TECHNOLOGY ACT (NEET)**

Earlier this year, Senator Byrd, along with several of your colleagues, introduced the "National Electricity and Environmental Technology Act" (NEET) which would reduce environmental impacts and increase efficiencies when converting coal to electricity. This bill would assure that our Nation has the affordable electricity we need for continued economic growth while making significant reductions in emissions. The legislation would establish:

- A research and development program that addresses long-term clean coal technology needs;
- Financial incentives - a limited investment tax credit - designed to provide financial incentives to apply to the use of advanced technologies in existing coal facilities; and,
- A limited demonstration program to provide tax incentives (a combination of investment tax credits and efficiency production tax credits) for initial commercial scale application of advanced coal based generating technologies in both existing and new facilities.

NEET is a win for the economy, a win for the environment and for the lower income Americans who pay a far higher percentage of their income for electricity than others in society. Let me also mention that the group of industry representatives supporting S. 60, including the National Rural Electric Cooperative Association, support the removal of those provisions in the bill exempting utilities from Environmental Protection Agency's New Source Review (NSR).

### **TAX CODE CHANGES TO ACCELERATE CLEAN COAL TECHNOLOGY**

As the subject of this hearing is specifically on changes to Federal tax code, I will now focus on how to use the Tax Code to accelerate the development and use of technologies that limit harmful emissions from coal-fired generation facilities. Priority could be placed on rewarding those utilities, including electric cooperatives that invest in the cleanest and most up-to-date technologies. Tax changes proposed in the NEET proposal include:

- 1) For existing coal-fired generating units: NEET proposes to amend the Internal Revenue Code to provide a 10 percent investment tax credit on the first \$100 million investment in a qualifying system of continuous emission control retrofitted on an existing coal-based generating unit. If an existing unit is repowered with a qualifying clean coal technology, NEET proposes that units under 300MW be eligible for a \$0.0034/Kwhr production tax credit for the first 10 years of operation. All units must meet improved efficiency targets to qualify for any tax credit.

2) For advanced clean coal technologies installed on new generating plants: NEET proposes to amend the Internal Revenue Code to provide a 10 percent tax credit and a variable, efficiency based 10 year production tax credit for investments in advanced clean coal technologies for use in new or repowered units. Again, these technologies must meet increasingly improved design efficiency standards. The "bar" to qualify for tax credits gets higher in the out years of the program. NEET limits the amount of capacity for each technology that would qualify for credits with the understanding that, once a technology is proven commercially, tax credits are not needed to make that technology competitive.

#### **TRADABLE TAX CREDITS FOR RURAL ELECTRIC COOPERATIVES**

Mr. Chairman, S. 60 makes tradable tax credits available to electric cooperatives and publicly owned utilities enabling us to also utilize the financial benefits of the NEET bill.

Many rural consumer-owned electric cooperatives and publicly-owned utilities do not have sufficient federal income tax liability against which to apply a tax credit. Therefore, in order for Congress to provide rural electric cooperatives and publicly-owned utilities with useful incentives, we will need the ability to trade or sell our tax credits to private entities that can utilize them.

It is anticipated that we would net a smaller amount from the credits than our for-profit counter parts. Investor-owned utilities will be able to use the full amount of the credits assuming they have sufficient tax liability. Consumer-owned utilities will have to offer them at a discount to encourage their purchase by taxpayers and will have to incur transaction costs to effect the disposition.

Because renewable energy sources and environmentally clean, advanced fossil fuel technologies usually are more expensive to operate than traditional sources, the federal government has made it a policy to provide investment incentives to encourage IOUs to build these facilities. The rewards are cleaner, more secure, independent, and diverse energy sources. Without comparable incentives, rural electric cooperatives and publicly owned electric utilities are not afforded the same opportunities to make these investments.

We hope you agree that cost-based power production, such as offered by cooperatives, should also be entitled to incentives associated with the development and implementation of clean coal technology and renewable energy production. Offering incentives that are not usable by this significant segment of the market removes the opportunity to employ the existing capacity of cooperative and publicly owned utilities to deploy their expertise and resources in seeking solutions to the nation's energy challenges. To offer incentives to investor-owned companies and not to consumer-owned cooperatives would place us at a great competitive disadvantage in addressing the energy needs of Montana and our country.



**PARALLELS IN LAW SUPPORTING TRADABLE TAX CREDITS**

There are several provisions in the Tax Code similar to the tradable tax proposal. The only way to benefit from nearly all of the tax credits in the IRC is to have tax liability equal to or in excess of the credits. Exempt organizations can qualify for tax credits by engaging in an unrelated trade or business; however their ability to benefit from the general business credit (the term used to include virtually all credits) is extremely limited. However, some of the credits are directed toward the economic event targeted in the law as opposed to taxpayer's investing in the property or activity generating the credit. For example,

- Section 41 Research credits are allowed for qualified research expenses paid to tax exempt universities;
- Section 38(b)(3) Alcohol fuel credits apply to the alcohol sold or used as fuel, regardless of the tax status of the producer or user;
- Section 47(a) credit addressing, in part, certified historic structures, allows the credit even though the structure may be used by a tax exempt entity; and
- Sections 613A and 619 provide for the depletion allowance for oil and gas and timber, regardless of the tax status of the owner of the property.

Each of these examples advance the public policy without penalizing any member of the economy that implements the public policy objective. In addition, while not a tax provision, an excellent and parallel example of the Tradable Tax Credit proposal is found in the tradable credits of 1990, 42 U.S.C. section 7651 et seq. The Clean Air Act Amendments of 1990 established a system to issue emission allowances for airborne pollutants, implemented by the Environmental Protection Agency. Electric utilities were issued emission allowances authorizing the emission of a specified amount of airborne pollutants by the utility during a specified calendar year or later period. Starting in 1993, unused allowances may be sold, traded or held in inventory for use against emissions in future years.

Thank you for the opportunity to appear before you today. I would be pleased to answer any questions that you may have.

# FORT PECK TRIBES

Assiniboine & Sioux

TESTIMONY OF ARLYN HEADDRESS, CHAIRMAN  
ASSINIBOINE AND SIOUX TRIBES OF THE  
FORT PECK RESERVATION  
BEFORE THE  
SENATE FINANCE COMMITTEE  
AUGUST 24, 2001

## I. INTRODUCTION

I am Arlyn Headdress, Chairman of the Assiniboine and Sioux Tribes of the Fort Peck Reservation. There are seven Reservations in Montana. One-third of the Indian people are under the age of 16. Thus, for the tribal leaders in the Tribes in Montana, the number one priority for our people is ensuring that our youth, who make up the largest segment of our population and more importantly who make up our future, will have opportunities that we did not have.

To do this will not be easy. The high school graduation rate for Indian people is 65%. This is far below the national average. The infant mortality rate for tribes in Montana is 15. This means that fifteen out of every 1000 Indian babies born in Montana will die. This is 150% higher than the national average. Indian people suffer from diseases that most people thought to be eradicated. We face new challenges with the onslaught of AIDS and Hepatitis C in our communities, while the old challenges of diabetes and alcoholism continue to plague our communities. The unemployment rate for Indian people in Montana is 49%, and on some Reservations like mine it is higher. Almost 70% of the Indians living on or near the seven Reservations in Montana earn less than \$7,000. This means that the majority of Indian families living on or near the Reservations in the Billings Area live far below the poverty rate. In addition to addressing the challenges that face our people in the areas of education, health care, and employment, we are responsible for the land and resources that our ancestors preserved for us. In the Billings Area we have over 9 million acres of Indian trust land, which includes miles of rivers, valuable mineral resources and rich agricultural lands. We are the stewards of these resources and must ensure that they will be able to support our people for generations to come.

In order to address these challenges, we need economic development that will bring jobs to our people and provide a tax base for our tribal governments. The development of natural resources has long been the mainstay of tribal economies; whether it is oil and gas, hydro power, or agriculture; our economies have always been resource based. In fact, as the Committee no doubt knows, Indian country provides approximately 10% of the Nation's domestic energy production. This could and should be increased. We believe that encouraging further development of both conventional and renewable energy resources in Indian country is not only important to addressing the Nation's energy crisis, but also critical for strengthening tribal economies.

Below, I discuss several specific tax measures before Congress that we believe will accomplish this.

## II. DUAL TAXATION OF TRIBAL ENERGY RESOURCES

The Fort Peck Tribes receive substantial revenues from bonuses, lease rentals and royalties from oil and gas leasing on tribal lands and from operating our own oil and gas wells on several tracts of tribal land and from agricultural leasing. Since 1982, we have imposed a severance tax on oil companies doing business on our Reservation trust lands; severance tax payments amount to approximately \$320,000 annually for the Tribes. The State takes in the range of \$900,000 to \$1.1 million a year in taxes from these same leases. The Tribes' tax revenue is all the more critical to the Tribes in light of the recent court decisions that threaten the Tribes' ability to levy taxes against utilities and businesses using tribal lands and services.

As the Committee is well aware, in 1989 the Supreme Court ruled in *Cotton Petroleum Corp. v. New Mexico*, that states can tax non-tribal lessees of tribal lands used for oil and gas production. This subjects lessees of Indian lands to both tribal and state taxes. The problem of dual taxation as a result of the Supreme Court's decision in *Cotton Petroleum Corp.* remains a significant impediment to the development of Indian oil and gas resources. Since *Cotton*, my Tribes had to reduce our royalty rate in an attempt to attract mineral lessees to our Reservation. Even so, no major oil company has expressed interest in leasing our lands since *Cotton*, and some producers have reduced or ceased their activities. The only way a tribe can avoid the disadvantage *Cotton* creates is to forego entirely its right to tax. This is a cruel choice, as it provides a course which if taken would bankrupt tribal governments.

*Cotton* together with the recent decisions of the Supreme Court and Ninth Circuit are absolutely inconsistent with the goals of modern federal Indian policy: to promote Indian economic development and tribal self-sufficiency. Congressional action is needed to strengthen tribal authority to levy and collect taxes on those doing businesses within our boundaries. Without such action, the successes that we have witnessed in the last three decades will not continue and we will return to an era of paternalism and dependency.

In this regard, we support legislation that would provide a federal credit for oil and gas production on Indian lands, which would address the problem of dual taxation of our oil and gas resources. Specifically, S. 1106 introduced by Senator Domenici, would provide a federal tax credit for oil and gas production on Indian lands. This credit would entice developers back to Indian country. This development will produce jobs, increased royalties and an increase the Tribes' tax base. The Nation will also gain by decreasing its dependence on foreign oil supplies.

## III. RENEWABLE ENERGY TAX CREDIT

The Fort Peck Tribes believe that the further development of wind energy is an important part of the solution to our nation's energy crisis and our dependence on foreign oil supplies. The development of wind energy is a viable sustainable economic tool that will provide energy to our nation, economic resources to our communities and assist us in bringing America's prosperity to Indian people.

According to recent reports, Montana is one of the five windiest states in the union and the Fort Peck Reservation in northeast Montana presents one of the greatest opportunity for wind energy development in the entire state. With the necessary support from the State and federal governments, the Fort Peck Tribes will be able to attract the necessary business interests to bring a wind energy project to the Fort Peck Reservation.

We have been working on a wind energy project on the Fort Peck Reservation for several years. We began with a grant from the Department of Energy to conduct an economic feasibility of a wind energy project on the Reservation. The objective of the study was to assess the technical and economic feasibility for a staged-development, utility-grid-interactive, multi-grid-interaction, multi-megawatt wind power at Fort Peck. This study concluded that indeed this project would be feasible on the Reservation. The exact size and scope of such a project depends on both the investors and the transmission capacity. As we discuss below, a lack of transmission capacity is a major impediment to wind power the lack of existing capacity.

The Tribes are hoping to develop a "wind farm" that will produce not only energy for the Nation, but jobs for the Community. Since the feasibility study was completed, the Tribes have been actively seeking partners in this venture. Because we do not have the funds to build this facility ourselves, we are working with outside investors to be our partners. However, in order to do this, it is critical that Congress extend the existing tax credit for renewable energy, in particular wind energy. Without this tax credit extension, the Tribes will not be able to attract wind development to the region. S. 530, introduced by Senator Grassley in March would extend this credit until 2007. We are pleased that H.R. 4, the House's Energy bill, would also extend this credit until 2007. We urge the Committee to include this credit in any final energy tax credit package.

We also support the provisions of H.R. 2412 and S. 249 that would expand the existing credit to include other renewable energies such as solar, biomass, incremental hydro power and geothermal. Significantly, these measures also provide an additional credit for production from these sources on Indian lands, thereby creating an incentive to site these projects on Indian Reservations. S. 249 would increase the 1.5 cents credit by .25 cents and H.R. 2412 would increase the credit by 1.5 cents. H.R. 2412 would make this credit transferable by tribal governments. This is an important provision for tribes that undertake this development themselves. While we support these measures, we believe that it is important to amend them to ensure that wind production in Indian country would enjoy the additional credit.

In the Montana Legislature we were successful in enacting similar legislation granting certain State tax benefits to companies that build projects on Reservation. There was already a state tax credit for wind energy projects. The amendments made it clear that the credit applies to projects on reservations, and removed a limit on the credit allowed. The bill also extended the period of time that a company has to use the credit from seven years to fifteen years.

**IV. ASSET DEPRECIATION AND WAGE TAX CREDIT-SECTION 168(j)**

We support Section 3310 of H.R. 4, which would extend the Indian asset depreciation and wage credit—Section 168(j) of the tax code—for only energy development in Indian country. However, while we support this concept in H.R. 4, we believe that it should not be limited to energy activities alone in Indian country, but must include all economic development in Indian country—as does the current law. While we understand that these credits have not been significantly utilized outside of Oklahoma, we believe they still present an important incentive for businesses to locate in Indian country. Thus, we would urge the Committee to permanently extend these credits as they currently exist.

**V. TAX-EXEMPT BOND AUTHORITY AND INFRASTRUCTURE DEVELOPMENT**

Finally, as this Committee knows, economic development in any region requires that basic infrastructure be in place to support the development. Unfortunately, many places of Indian country lack the basic infrastructure, (including communication lines, power lines, and health facilities) necessary to build sustainable economies. In fact, one of the biggest barriers to the development of wind energy in Montana is the lack of transmission capacity on existing lines. Thus, we must build this infrastructure. One way to fund the building of this infrastructure is through the issuance of tax exempt bonds. In this regard, we would like to thank the Chairman for his sponsorship of S. 660, which would expand tribes' ability to issue tax exempt bonds. As we understand it, this new authority would be similar to the authority that states and local governments already have.

It is true that in order to issue bonds, tribes must have a steady stream of income with which to pay the bond holders. Many tribes, including Fort Peck, do not have this economic stability right now. Nevertheless, we believe that with congressional action to encourage economic development and strengthen our tax base, we will be able to achieve this stability and take advantage of the opportunities that S. 660 presents.

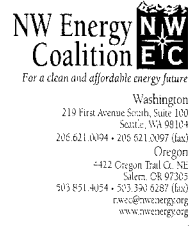
**VI. CONCLUSION**

I would like to thank the Chairman and the Committee for this opportunity to present this testimony. I would be happy to answer any questions that you may have.

A World Institute for a Sustainable Tomorrow  
 Alaska Housing Finance Corporation  
 Alliance to Save Energy  
 Alternative Energy Resources Organization  
 American Society  
 Assoc. for the Advancement of Sustainable Energy Policy  
 Central Area Mitigation Program  
 Citizens Climate Board  
 Climate Solutions  
 Cold Spring Cove Energy  
 Community Action Foundation of Oregon  
 Earth and Space Council  
 Emerald People's Utility District  
 Eugene-Tule River Community  
 Eugene Water & Electric Board  
 Fair Use of Sustainable Energy  
 Friends of the Earth  
 Gold Star Eagle Audubon Society  
 GoodPeace  
 Housing & Community Service Agency of Lane Co.  
 Interior Resource Council of Oregon  
 Idaho Community Action Association  
 Idaho Community Action Network  
 Idaho Conservation League  
 Idaho Consumer Affairs  
 Idaho Rivers United  
 Idaho Rural Council  
 Idaho Wildlife Federation  
 Institute Oklahoma Electric Consumers Association  
 Land and Water Fund of the Rockies  
 League of Utilities and Social Service Agencies  
 League of Women Voters - ID, OR & WA  
 Materials 21st C.A.  
 Montana Habitat Demonstration Project  
 Montana Environmental Information Center  
 Montana Public Interest Research Group  
 Montana River Action  
 Montana Trout Unlimited  
 Mountaineers  
 National Center for Appropriate Technology  
 Natural Resources Defense Council  
 Northern Plains Resource Council  
 Northwest Energy Efficiency Council  
 Northwest Resource Information Center  
 NW Sustainable Energy for Economic Development  
 Olympic Committee Action Program  
 Opportunity Council  
 Oregon Action  
 Oregon Energy Coordination Association  
 Oregon Energy Partnership  
 Oregon Environmental Council  
 Oregon State Public Interest Research Group  
 Pacific Northwest Regional Council of Carpenters  
 Pacific Rivers Council  
 Portland Energy Conservation Soc.  
 Portland General Electric  
 Puget Sound Council of Senior Citizens  
 Renewable Resources Project  
 Rivers Council of Washington  
 Salween for All  
 Save Our Wetlands Coalition  
 Senate Audubon Society  
 Seattle City Light  
 Sierra Club  
 Sierra Club of British Columbia  
 Snohomish County Public Utility District  
 Solar Energy Association of Oregon  
 Solar Information Center  
 Solar Washington  
 South Central Idaho Community Action Agency  
 South East Idaho Community Action Agency  
 Southwest Alliance for Clean Energy  
 Spokane Neighborhood Action Progress  
 Tule River Audubon Society  
 Trout Unlimited  
 Union of Concerned Scientists  
 WA Association of Community Action Agencies  
 Washington Citizens Action  
 Washington Environmental Council  
 Washington Public Interest Research Group  
 Washington Wilderness Coalition  
 Western Solar Utility Network Cooperative  
 Working for Equalities and Economic Liberation  
 Yukon Valley Opportunities Information Center

Associate Members:  
 City of Auburn  
 Puget Sound Energy

Sponsoring Members:  
 Clackamas County Waste/Water  
 Funding Authority of Shasta County  
 Multnomah County Waste/Water  
 Rocky Mountain Institute  
 WA Department of Community Development  
 Washington State University Energy Program



**TESTIMONY OF NANCY HIRSH**  
**POLICY DIRECTOR,**  
**NW ENERGY COALITION**

**BEFORE THE SENATE FINANCE COMMITTEE**

**AUGUST 24, 2001**

**FIELD HEARING - BILLINGS, MONTANA**

## I. INTRODUCTION

Mr. Chairman, Members of the Committee, my name is Nancy Hirsh. I am the Policy Director of the NW Energy Coalition. The Coalition is an alliance of almost 100 organizations advocating policies to provide clean and affordable energy for the citizens of Washington, Oregon, Idaho, Montana and British Columbia. Our member organizations include consumer and environmental groups, community action agencies, progressive utilities, businesses and others. A full list of our members is appended to my testimony (Attachment A). Prior to coming to the Coalition, I worked for twelve years in Washington, DC on national energy policy issues, specifically energy efficiency and renewable energy resources.

We appreciate the opportunity to testify at this very timely hearing. Energy policy is on the public agenda today in a way that it has not been in many years. The current energy crisis creates challenges and opportunities for addressing the region's and the nation's energy needs.

How we manage our way out of this energy crisis matters a lot. We must address the short-term issues causing the crisis with a combination of short-term fixes and long-term solutions that balance our energy needs with a healthy economy and environment.

In the Northwest, as in the rest of the country, there is a rush to build power plants and transmission lines. The fervor to build, build, build (16,000 MW of proposed natural gas power plants, \$1.4 billion for Bonneville Power Administration transmission system upgrades and expansion) is a short-sighted reaction to the chaos and will most likely lead us into a surplus with plummeting prices, continued market volatility and nervous investors. Many concerns have been raised about the adequacy of the nation's electric transmission grid and the need for significant expansion and upgrades. I agree that maintaining a high level of reliability for the electric grid is essential to our goals for providing energy services. However, I resist the notion that simply building more lines is the answer. There is no doubt that some infrastructure investments are warranted and will enhance reliability. However, we should look at our infrastructure needs through a least-cost lens that gives equal consideration to the alternatives to building more poles and wires.

The goal of our energy system should be to provide adequate, reliable, environmentally responsible, and affordable energy services to consumers. Central station renewables, demand-side management measures and distributed renewable generation can contribute to an efficient and broad market-based electric system that meets consumers needs. Strategically focused tax incentives can play a vital role in developing these resources and meeting our energy needs.

My testimony today will focus on the role of energy efficiency and clean energy resources in addressing our infrastructure needs and will outline what actions this Committee and the Congress should take to create a clean and affordable energy future.

## **II. EASING INFRASTRUCTURE CONSTRAINTS**

In this region, the Bonneville Power Administration and utilities have been efficient in the delivery of power to loads within the given transmission infrastructure. In the development of that infrastructure, however, risks to ratepayers have not always been well managed; nor have innovative or more local ways to serve load been encouraged. Specifically, demand-side management measures, which include energy efficiency and load management, distributed renewable generation, and strategically sited large scale renewable generation should play a more vital role in meeting consumers needs while reducing the pressure on the transmission system.

Too often the strategy for addressing transmission problems focuses on building more lines, with scant attention paid to the potential for new renewable resources, distributed renewable generation and demand-side management to solve transmission congestion. Once a system is overbuilt, the marginal cost of operation is practically zero, making it virtually impossible for energy efficiency and distributed renewable generation to compete against conventional generation. Building new transmission lines may be a part of the solution, but new lines should not be the presumed answer in all circumstances. Federal incentives should stimulate the least-cost approach to meeting the nation's energy needs with renewable energy resources, energy efficiency, and distributed generation in addition to new transmission lines and distribution system upgrades.



Although demand-side measures, distributed renewable generation and central station renewable energy facilities can offer cost-effective market solutions to meeting customer needs, outdated and unnecessary interconnection standards hinder the development and use of these resources. Transmission and distribution entities that implement interconnection standards should provide incentives to achieve all of the cost-effective energy and capacity benefits associated with all resource options including demand-side resources and intermittent renewable resources.

#### **A. Innovation and Leadership in Energy Efficiency Investments**

Energy efficiency is the quickest, cheapest, cleanest resource we have available, and we should accelerate its implementation immediately. Energy efficiency means doing more with less. Energy efficient lights provide the same level of output as conventional incandescents but use less energy. Common sense would dictate that everyone optimize energy efficiency to capture all the energy savings available. But in reality, an overwhelming array of market failures and market barriers prevent cost-effective energy savings from being acquired. Public policy intervention is needed to help overcome the market barriers and optimize energy use. Financial incentives clearly address the economic barriers that consumers face when making investment decisions to improve energy efficiency.

Traditionally, electric utilities have been the entities that provided financial incentives to consumers to improve energy efficiency. These programs have been very successful where they have had the backing of state regulators and public utility boards. However, it is important to note that in most cases, utilities have pushed efficiency programs with a weak wrist because getting customers to cut back on usage means less profit from the sale of kilowatthours. Where economic incentives have been promoted aggressively, they have proven to be an effective mechanism for driving technology advancement and creating a market infrastructure for the delivery of efficiency services. Financial incentives have been even more successful at transforming markets and getting consumers to purchase new products and services.

For the past two decades, Northwest utilities and the Bonneville Power Administration have been national leaders in energy efficiency investments. According to the Northwest Power Planning Council, Pacific Northwest utilities acquired about 1327 average megawatts of cumulative conservation savings from 1978 to 2000. Federal, state and local efficiency codes and standards have saved more than 200 megawatts. For perspective, the grand total of 1,500 average megawatts saved enough to serve the load of the entire city of Seattle one and a half times. Utility funded conservation savings in those years were acquired at a cost between 2 and 2.5 ¢ per kilowatt-hour and had a retail value to consumers of \$2.5 billion.

However, in the last six years the Northwest has seen a dramatic 75 percent reduction in utility investments in energy efficiency. Uncertainty about wholesale and retail restructuring and rock bottom natural gas prices triggered the investment decline. Out of sight market prices have dramatically changed the landscape for energy efficiency in just the past year and utilities, governments and consumers are scrambling to conserve, curtail and increase efficiency.

Even after two decades of capturing energy savings, the potential for energy efficiency in the region is still tremendous. The Northwest Power Planning Council conservatively estimates that we can save another 2400 average megawatts in the next 20 years at an average cost of 2 cents per kilowatt hour saved – less than half the cost of new power plants. For context – 2400 megawatts equals the annual output of Grand Coulee Dam.

Consistent long term incentives and programs are vital to prevent the roller coaster ramping up and down of investments. The energy efficiency delivery industry reports almost 10,000 jobs in the region devoted to providing energy efficient technology and services. This industry was severely impacted during the mid to late 1990's when investments in energy efficiency plummeted.

National policies are critical to providing a stable commitment to capturing cost-effective energy efficiency. Over the past twenty years there have been modest national policies to promote and incent investments in energy efficiency. For example, the Department of Energy's research and development program, efficiency standards and codes for equipment, appliances and buildings and tax incentives for investments in

certain technologies. The current mix of policies should be revised and expanded to ensure that the programs are effective at optimizing energy use.

National policy should build the model energy efficient house. Research and development programs form the foundation, the area where new ideas and technologies are cooked up and tested. Codes and standards are the main floor, they bring manufacturers up to a common level, nothing fancy and cutting edge, but standards do help move the really inefficient equipment out of the marketplace. Education and outreach programs are the windows, they allow exchange of information and a sharing of what's inside with those in the community. Incentives form the roof, the piece that takes the risk of exposure and dares to be different. The problem we have is that there is a hole in our roof and the shingles of long term financial incentives are missing.

#### **B. Load Management Reduces Bottlenecks**

Historically Northwest conservation programs have focused on reducing the total number of kilowatt hours used, without much regard to what time of the year or the day, those savings occurred. In our hydro-dominated system this made sense. We were, in the jargon of the industry, “energy-constrained,” not “peak-constrained.” That is, the hydroelectric system has enormous peak capacity – Grand Coulee alone has a capacity of almost 10,000 megawatts – but the amount of water in the system limits the total number of kilowatt hours that can actually be generated over a year.

It is important to recognize that this situation has changed. Even our hydroelectric system is no longer big enough to buffer us against the high marginal costs of peak energy usage. As the entire West Coast has seen this year, the costs of serving peak loads can be enormous. The cost of the transmission capacity that is necessary to accommodate those peaks can be larger than the ordinary cost of delivered power. For example, if transmission capacity is priced at \$24 per kilowatt year, then capacity that is used for only 400 hours per year costs 6 cents per kilowatt-hour delivered. The same economics apply to distribution capacity that is very rarely used. Finally, of course, system peaks – often driven by extreme cold-weather events in the Northwest – commonly strike many utilities at once. This coincident demand for energy can, and

does, drive the cost of energy itself to remarkable heights. Add it all up and the value of reducing Pacific Northwest peak loads can be very substantial.

"Load management" is a term used by utilities to cover a range of efforts to reduce consumption during peak demand. Usually the peaks have been measured for generation capacity, but the region is now also considering peak demand on transmission and even distribution capacity as well. Load management efforts include installing devices on residential electric water heaters to allow the utility to turn them off remotely when peak demand threatens a blackout or forces the utility to purchase outrageously priced power. Similar opportunities are available for businesses and industry to reduce or curtail non-essential electrical consumption temporarily in response to system peaks.

These load management programs do not necessarily result in less energy consumption overall and they are not strictly speaking improvements in efficiency. They can, however, serve as very cost-effective ways to avoid purchase of expensive peaking resources in the long term, purchase of expensive power and/or blackouts in the short term, and reduction of bottleneck constraints in heavily congested areas of the transmission grid.

### **C. Distributed Renewable Generation Applications**

Distributed generation refers to small-scale electric generating units that can be placed throughout a utility service territory. The traditional paradigm of large, central-station power plants feeding a network of high-voltage transmission lines and local distribution systems all owned by a single, vertically integrated electric utility is quickly becoming a thing of the past. With distributed generation, we are beginning to see a web of interconnected facilities for generating and storing electricity, owned by many different companies and households.

Distributed generation (e.g. fuel cells, solar photovoltaic systems, diesel generators, wind turbines and natural gas fired microturbines) can provide a number of clear benefits to the energy system. These technologies reduce energy losses in transmission and distribution lines, provide voltage support, reduce reactive power losses, defer substation upgrades, defer the need for new transmission and distribution capacity,

increase reliability of electricity supply, and reduce the need for spinning reserves. For example, the application of distributed generation on one side of a transmission bottleneck can reduce the congestion, which in turn lowers prices and ultimately increases reliability for consumers. Installation of a distributed technology has a much shorter timeline than upgrading a transmission corridor.

While all distributed generation technologies provide the benefits to the electric system I just described, not all meet the goals of providing clean, efficient and cost-effective electric service to consumers. For example, diesel generators have become the darling of the emergency power generation market yet they are one of the dirtiest technologies we have. In some applications, they are 60-100 times more polluting than combined cycle natural gas turbines. One diesel generator running for a year produces 7 tons of particulate/soot, 152 tons of carbon monoxide and 123 tons of nitrogen oxides. In California, diesel exhaust has been listed as a known carcinogen. Natural gas-fired distributed technology is not currently as clean as the central station combined-cycle combustion turbine, and fuel cells powered by natural gas derived hydrogen offer little to no net environmental benefits over a combined-cycle combustion turbine.

Distributed generating technologies that are fueled by renewable energy resources, such as wind and solar, provide significant environmental benefits as they displace fossil-fuel generation or other generating technologies with greater environmental impacts. Solar electric and wind energy technologies are most abundant in rural areas of the Northwest and can provide energy independence and/or more reliable electric service.

Tax incentive programs to encourage development and use of distributed generation should recognize and account for the significant differences in the environmental characteristics of the various distributed technologies. Tax incentives should prioritize distributed renewable technologies thereby discouraging further investments in environmentally damaging technologies.

Financial incentives would most certainly increase investments in distributed renewable generation yet there are other policy barriers that may prevent full utilization of distributed technology that must be addressed. Although these barriers are outside the scope of this Committee, I think it is worth mentioning a few because there are bills in

the Congress that attempt to address some of them. National policy is needed to establish uniform standards for interconnection to the grid, to standardize procedures for processing permit and interconnection requests, and to prohibit discriminatory charges and fees imposed by regulators and utilities.

#### **D. Strategically Sited Renewable Energy Facilities**

The development of new renewable energy resources can exasperate and also relieve transmission problems. Renewable resources are often in rural areas away from load centers, which means that they may be dependent on potentially constrained transmission paths as any other remotely sited fossil-fuel generating plant. Least-cost planning of transmission that includes non-transmission solutions such as the resources discussed earlier and strategic placement of renewable resources within the grid will benefit larger scale renewables facilities in the long-run.

In fact, uniform and fair interconnection standards as mentioned in my above remarks regarding distributed generation can foster more investments in distributed renewable generation and non-transmission solutions, which would reduce congestion and free up the transmission system for remotely sited renewables, such as wind farms.

The Northwest and many rural areas are blessed with tremendous potential for wind, solar, and geothermal power. Wind is the most cost competitive of the resources, and once large-scale projects are permitted, they can be built within six months. We now have 110 MW of operating wind projects in the Northwest with over 360 MW of wind and geothermal projects under construction. Another 1200 MW of wind is undergoing siting reviews and could be operating by 2003. Strategically sited wind projects have important economic development benefits beyond the reduction in transmission constraints, since for every turbine installed on a farmer's property, the landowner receives a royalty payment from the wind developer. This helps create a "second crop" for these farmers and ranchers and helps them stay in business.

### **E. Fuel Efficiency and Oil Pipelines**

Like fossil-fuel power generation and transmission line siting, oil and gas extraction and pipeline siting have significant environmental impacts. Before creating, extending or expanding tax incentives for oil extraction, processing or transport, Congress should first determine what public policy will benefit consumers and the environment. Will an increase in U.S. oil production really bring costs down, reduce our dependence on imports, and help the environment? Reducing demand for oil through efficiency is a better way to benefit consumers and the environment.

According to the American Council for an Energy-Efficient Economy, raising fuel economy standards for automobiles to 40 miles per gallon is feasible without sacrificing safety, jobs or high quality automobiles. This can be done using existing technology that the auto industry has and uses in select applications. Current Corporate Average Fuel Economy (CAFÉ) standards, at 27.5 miles per gallon for passenger cars are saving 3 million barrels of oil per day, yet the standards have not changed, even declined slightly, since 1985. Increasing these standards to 40 mpg would save an additional 2 million barrels per day, save consumers billions of dollars at the pump, and be the single biggest step to curbing global warming by dramatically cutting carbon dioxide emissions. Will additional incentives for oil production achieve these ends?

### **III. WHAT CAN THE SENATE DO?**

Let me close with a list of things Congress can do to assure that these energy efficiency, distributed renewable generation, and renewable energy opportunities do not escape our grasp and are fully utilized to meet our infrastructure needs. Supporting energy efficiency, distributed renewable generation and renewable energy proposals in general will help solve our infrastructure problems as these resources will be more aggressively implemented and available to reduce and meet load.

- ◆ Enact Smith-Feinstein Bill, S. 207. This bill provides tax incentives for energy efficient residential and commercial buildings, solar hot water and photovoltaic

systems and efficient heating, cooling and water heating equipment. The buildings sector accounts for over a third of U.S. energy use, \$250 of average customers annual utility bills and 35 percent of air emissions nationwide yet they are often overlooked as a source of energy waste. Energy use in buildings can be cut in half using cost-effective technologies that are hard to find but available to consumers. The financial incentives in this bill will move these technologies into the mainstream market and improve accessibility to consumers by using performance-based tax incentives instead of price-based incentive provisions. A performance-based approach prevents gold plating of efficiency measures and rewards measures that achieve the most savings. This bill aims to transform markets such that the entire chain of production and consumption, from the manufacturer to the contractor or vendor to the consumer, adopts the new technologies and practices quickly. A recent comparative analysis of the benefits and costs of proposed tax incentives for energy efficient buildings, completed by the Florida Solar Energy Center, shows that S. 207 provides the most energy and consumer savings at the least cost to the Treasury.

- ◆ Enact the Jeffords Bill, S. 1333. This bill establishes a renewable energy portfolio standard (RPS) and a system benefits fund for investments in energy efficiency and low income energy bill assistance. The proposed RPS creates a market-driven mechanism that is flexible and efficient at supporting the development of new renewable resources. The system benefits trust leverages state dollars to provide a long-term stable source of funding for investments in clean energy resources and assistance to those families most in need.
  
- ◆ Support proposals to extend the wind energy production tax credit for ten years and expand the credit to apply to all renewable resources. Several bills in the Senate address this vital component of the incentive package.
  
- ◆ Enact the Lincoln Bill, S. 686. This bill provides tax credits for the purchase of energy efficient clothes washers and refrigerators. While this bill is limited in the types of appliances it applies to it provides a clear and simple incentive to get families



to purchase appliances that will help them save energy and money. Here in the Northwest, electric and water utilities and the Northwest Energy Efficiency Alliance have offered financial incentives for the purchase of energy efficient clothes washers that has increased market penetration of these washers from 1 to 13 percent.

- ◆ Enact the Cantwell-Smith Bill, S. 1211. This bill extends the renewable energy production incentive that is available for publically-owned utilities for twenty years. The REPI is the companion mechanism to the renewable energy production tax credit for privately-owned utilities. Providing incentives for the output of electricity from renewable energy facilities helps ensure that projects make it from concept to actual production.
- ◆ Support tax credits and other financial incentive mechanisms for development and installation of distributed renewable generation technologies. These incentives should be applied to all customer classes.
- ◆ Enact the Hatch Bill, S. 760. This bill encourages the production and sale of automobiles using advanced technologies such as fuel cells, hybrid electric/gasoline, advanced batteries, and alternative fuels. This bill compliments proposals to increase CAFÉ standards as it tries to accelerate technologies that will improve vehicle fuel efficiency. This bill stands out among other vehicle tax proposals because it links the amount of the tax credit it offers in part to the actual fuel economy of the vehicle.

#### **IV. CONCLUSION**

We can have a secure, clean energy future if we prioritize energy efficiency and renewable resource, and move forward with incentives to stimulate implementation. We do not have to overbuild fossil fuel power plants nor build huge numbers of new transmission lines to meet the present crisis. We have plentiful, quick and cost-effective solutions from energy efficiency, renewable energy, distributed renewable generation and load management. Thank you for the opportunity to present this testimony.



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- A World Institute for a Sustainable Humanity — International  
Alaska Housing Finance Corporation — AK  
Alliance to Save Energy — National  
Alternative Energy Resources Organization — MT  
American Rivers — National  
Association for the Advancement of Sustainable Energy Policy — BC  
Central Area Motivation Program — WA  
Citizens Utility Board — OR  
Climate Solutions — WA  
Cold Spring Conservancy — WA  
Community Action Directors of Oregon — OR  
Earth and Spirit Council — OR  
Emerald People's Utility District — OR  
Engene Future Power Committee — OR  
Eugene Water and Electric Board — OR  
Fair Use of Snohomish Energy — WA  
Friends of the Earth — National  
Golden Eagle Audubon Society — ID  
Greenpeace — International  
Housing & Community Service Agency of Lane County — OR  
Human Resources Council, District XI — MT  
Idaho Community Action Association — ID  
Idaho Community Action Network — ID  
Idaho Conservation League — ID  
Idaho Consumer Affairs — ID  
Idaho Rivers United — ID  
Idaho Rural Council — ID  
Idaho Wildlife Federation — ID  
Kootenay-Okanagan Electric Consumers Association — BC  
Land and Water Fund of the Rockies — Regional  
League of Utilities and Social Service Agencies — OR  
League of Women Voters — ID, OR, WA  
Metrocenter YMCA — WA  
Missoula Urban Demonstration Project — MT  
Montana Environmental Information Center — MT  
Montana Public Interest Research Group — MT  
Montana River Action — MT  
Montana Trout Unlimited — MT  
Mountaineers — WA  
National Center for Appropriate Technology — MT  
Natural Resources Defense Council — National  
Northern Plains Resource Council — MT  
Northwest Energy Efficiency Council — WA  
Northwest Resource Information Center — ID  
Northwest Sustainable Energy for Economic Development — Regional  
Olympic Community Action Program — WA  
Opportunity Council — WA  
Oregon Action — OR  
Oregon Energy Coordinators Association — OR  
Oregon Energy Partnership — OR  
Oregon Environmental Council — OR  
Oregon State Public Interest Research Group — OR  
Pacific Northwest Regional Council of Carpenters — Regional  
Pacific Rivers Council — National  
Portland Energy Conservation, Inc. — OR  
Portland General Electric — OR  
Puget Sound Council of Senior Citizens — WA  
Renewable Northwest Project — Regional  
Rivers Council of Washington — WA  
Salmon for All — OR  
Save Our Wild Salmon Coalition — Regional  
Seattle Audubon Society — WA  
Seattle City Light — WA  
Sierra Club — Regional  
Sierra Club of British Columbia — BC  
Snohomish County Public Utility District — WA  
Solar Energy Association of Oregon — OR  
Solar Information Center — OR  
Solar Washington — WA  
South Central Idaho Community Action — ID  
South East Idaho Community Action Agency — ID  
Southern Alliance for Clean Energy — Regional  
Spokane Neighborhood Action Programs — WA  
Tahoma Audubon Society — WA  
Trout Unlimited — WA  
Union of Concerned Scientists — National  
Washington Citizen Action — WA  
Washington Environmental Council — WA  
Washington Public Interest Research Group — WA  
Washington State Association of Community Action Agencies — WA  
Washington Wilderness Coalition — WA  
Western SUN Cooperative — Regional  
Working for Equality and Economic Liberation — MT  
Yakima Valley Opportunities Industrialization Center — WA
- Associate Members  
City of Ashland — OR  
Puget Sound Energy — WA
- Supporting Members  
Clackamas County Weatherization — OR  
Housing Authority of Skagit County — WA  
Multnomah County Weatherization — OR  
Rocky Mountain Institute — National  
Washington State Dept. of Community Development — WA  
Washington State University Energy Program — WA

Testimony of

Terry Holzer  
General Manager  
Yellowstone Valley Electric Co-op

Submitted to the  
Finance Committee  
United States Senate  
Max Baucus, Chairman

August 24, 2001

Good morning Mr. Chairman. My name is Terry Holzer, and I am the General Manager of Yellowstone Valley Electric Co-op in Huntley, Montana. I greatly appreciate the opportunity to appear before you today to discuss tax law changes that are needed to facilitate fair competition for all electric utilities in the move toward a more competitive marketplace.

Let me begin by thanking you for sponsoring, along with Senators Lincoln, Thompson, and Grassley, S. 794 – The Rural Electric Tax Equity Act. This legislation is a top priority for Montana co-op's attempting to survive in this new competitive marketplace. Senator Baucus, you have been a strong supporter of electric cooperatives, especially those cooperatives providing cost-based power in Montana. On behalf of all electric cooperatives, I want to say thank you for being the champion that you are of consumer-owned, cost-based electric cooperatives. Equally important to Montana co-ops, as you grapple with energy related tax changes, is the need to provide rural electric cooperatives with equal access to energy incentive programs. Co-ops should be given tradable tax credits equal to the benefits given to investor owned utilities (IOUs) when developing renewable generation and/or clean coal technologies.

Just last month, the United States House of Representatives passed H.R. 4, Securing America's Future Energy Act, which failed to adequately address rural electric co-op concerns associated with competitiveness and parity in the electric utility industry. It is our hope that when the Senate moves similar legislation that it provide a better balance and distribution of tax related flexibility and incentives.

Before I address our interest in tax policy changes, let me first give you some background about Yellowstone Valley Electric Co-op and the rest of Montana's electric cooperatives. Yellowstone Valley Electric Co-op serves 14,000 meters in Montana. Our electric cooperative provides service in six counties, with most of our customer growth occurring around the city of Billings as it expands into our service territory. We are one of 26 Montana electric cooperatives serving nearly 400,000 customers in the state. Co-ops employ approximately 625 people statewide, with a total annual payroll of approximately \$13 million. Our average total residential delivered cost of electricity for co-op customers in Montana is 8.47 cents per Kwh. We average approximately 2.44 co-op customers per mile of line, compared to 12 customers for Montana's largest IOU.

Nationally, there are nearly 1,000 electric cooperatives serving over 35 million consumers in 46 states. The table in Addendum A shows an overview of the electric industry, and illustrates that one of the co-op industry's greatest challenges is the lack of customer density. Nationally, electric cooperatives serve 6 consumers and generate \$7,000 per mile of line; whereas investor-owned utilities (IOUs) have 35 consumers and generate \$60,000 per mile of line.

As you are aware, under Section 501 © (12) of the Internal Revenue Code, electric cooperatives are exempt from federal income tax so long as 85 percent of their income

comes directly from their members. In Montana, electric cooperatives are assessed a 12 percent property tax levy, the same tax rate as an IOU, on all property located within a city or town with a population of 3,500 citizens or greater. There is, of course, a place in the market for all types of utilities. It is particularly important that, in an era of restructuring, tax policy be adjusted to keep the consumer-owned cooperative form of business structure viable.

#### **ENSURE COMPETITIVE PARITY IN TAX RELIEF**

As you may know, 24 states have passed legislation to restructure parts of the electric utility industry; others states have similar proposals or are studying the issue. In Montana, the restructuring of the electric utility industry began in 1997 with the passage of S.B. 390, The Electric Utility Industry Restructuring and Customer Choice Act. Under this legislation, Montana Power Company residential and small commercial customers will move to customer choice on July 1, 2002. The legislation allowed electric cooperatives to "opt out" of customer choice if it was not in their customer's best interest. All but two electric cooperatives in Montana have opted to stay out of competition at this time. There are several localized reasons for Montana's electric cooperatives to not open their systems to competition – the foremost reasons being the potential tax consequences to their cooperative and the uncertainties surrounding electric deregulation.

The business environment for electric utilities is changing rapidly due to federal and state legislative and regulatory actions. It is imperative that tax provisions, advanced in any national energy or utility restructuring legislation should provide for a smooth transition for electric cooperatives to ensure that all electric consumers can benefit.

All sectors of the utility industry – the investor-owned utilities (IOUs), the publicly-owned municipal utilities (munis) and the consumer-owned cooperative utilities (co-ops) – agree that legislative "tax fixes" are needed to keep pace with the changes occurring in the electric utility industry.

#### **TAX TREATMENT OF ELECTRIC CO-OPS – 85/15 MEMBER INCOME TEST**

As mentioned above, an electric cooperative is tax-exempt so long as 85 percent or more of its annual income comes from members. Substantially all of the approximately 1000 electric distribution cooperatives throughout the nation annually pass the 85 percent member income test and thus qualify for tax-exempt status. An electric cooperative which does not pass the annual 85 percent member income test is treated as a taxable entity.

Nationally, most of the largest electric generating cooperatives (G&Ts) – as opposed to distribution cooperatives – throughout the nation derive more than 15 percent of their income from non-members and are taxable entities. As a consequence, over 80 percent of the electricity generated by the cooperative segment of the electric utility industry was produced and sold by taxable electric cooperatives. Of these taxable cooperatives, a large majority have little or no federal income liability.

The 85/15 test was enacted in 1924 and with a few limited exceptions has not been substantially altered in 75 years. Given today's electric industry and given the fact that most other kinds of cooperatives do not have a 85/15 test comparable to the one for rural electric cooperatives, I believe that changes are in order.

#### **PROBLEMS WITH THE 85/15 TEST**

The 85/15 test posed few problems for cooperatives prior to retail competition, mainly because cooperatives (like all electricity providers) had exclusive service territories. But with retail competition, the very nature of the business is changing. Let me provide some examples where Montana co-ops are placed at a disadvantage because of the 85/15 test.

For example, the 85/15 test is affecting the ability of Montana cooperatives to compete under Montana's electric industry restructuring law. Under this law, Montana cooperatives must form a for-profit subsidiary company in order to sell power outside their distribution system territories. Customers buying power from this subsidiary cannot become members of the parent cooperative, leaving cooperatives to be faced with a major disincentive to competition due to the non-member revenue issue under the 85/15 test.

The limitations of the 85/15 test also create a significant impediment to Montana electric cooperatives' participation in regional transmission organizations (RTOs). Involvement of cooperatives in RTOs is discouraged by the non-member revenue restrictions of 85/15 because RTO participation likely means cooperatives will be required to wheel or transport non-member power across their transmission systems. This impediment exists at a time when RTO development and participation is being strongly encouraged by the Federal Energy Regulatory Commission.

Another example of potential harm to Montana cooperatives under the 85/15 test stems from the recent sharp increase in market prices for electricity. This higher priced market has given rise to strong interest in the development of new generation facilities in Montana, including proposed development of alternative energy resources such as wind power. Electric cooperatives may well be obligated to wheel power produced by these facilities when they are located with the cooperative's service territory. This could result in the receipt of substantial non-member revenues that could affect the cooperatives non-profit tax exemption. Providing greater flexibility as outlined under S.794, would make it easier to participate in the competitive marketplace without losing our tax-exempt status and increasing the electricity rates of our members.

#### **S. 794 – THE RURAL ELECTRIC TAX EQUITY ACT**

Montana cooperatives strongly support S. 794, the Rural Electric Tax Equity Act because this legislation updates the tax laws to reflect the changes that have occurred in the deregulation of the electric utility industry over the past few years, as well as anticipated changes. To compute a co-op's income, the Tax Code currently ignores two types of revenue from the 85/15 income test. S. 794 proposes additional exclusions from the

income test. For example, the bill excludes income derived from the buyout of Rural Utility Service debt, condemnation income when a municipal annexes a cooperative's service territory, and gains on sales of the cooperative's assets. In addition, cooperatives need tax provisions allowing them to waive capital credits to certain larger customers that are demanding lower electric rates and to offer electric rates on bases that vary from fully embedded cost.

In addition to the exclusions from member income described above, S. 794 deems other types of income to be member income from the 85/15 test. In general, the items deemed to be member income are those which were member income or patronage sourced income prior to changes required from any electric restructuring law. Finally, the bill also provides generally the same level of relief for taxable cooperatives. By defining these similar types of income as patronage-sourced income, taxable electric cooperatives are able to participate in the open competitive market without increased tax liability.

#### **TRADABLE TAX CREDITS TO INCREASE RENEWABLE ENERGY SUPPLY**

In light of ongoing energy supply shortages and environmental challenges throughout the nation, Congress and the Administration should continue to pursue legislative options to promote the production of domestic, low-cost, efficient and clean energy supplies. However, tax benefits that create financial incentives for IOUs do not create incentives for rural electric or publicly owned electric utilities because these entities are not-for-profit, and do not generate federal income tax liability from which to deduct the credits.

In order to establish comparability and fairness with the IOUs, cooperatives and other not-for profit electric utilities must be provided with tradable tax credits. Furthermore, cooperatives must be permitted to sell, trade or transfer the tax credits to private entities that can utilize them. Proceeds from such sales provide comparable incentives for cooperatives' investment in new energy production similar to what is being proposed for the IOUs.

#### **BENEFITS OF PROVIDING TRADABLE TAX CREDITS**

A competitive electricity market rewards efficient energy production: Providing tax benefits to only one sector of the industry provides a competitive advantage for IOUs and a competitive disadvantage for the nearly 1000 consumer-owned electric cooperatives and 2000 publicly owned utilities that comprise 25 percent of the nation's electricity load. Offering incentives that are not usable by this significant segment of the market removes the opportunity to employ the existing capacity of cooperative and publicly owned utilities to deploy their expertise and resources in seeking solutions to the nation's energy challenges.

Because renewable energy sources and environmentally clean, advanced fossil fuel technologies usually are more expensive to operate than traditional sources, the federal government has made it a policy to provide investment incentives to encourage IOUs to build these facilities. The rewards are cleaner, more secure, independent, and diverse

energy sources. Without comparable incentives, rural electric cooperatives and publicly owned electric utilities are not afforded the same opportunities to make these investments.

#### **PARALLELS IN LAW SUPPORTING TRADABLE TAX CREDITS**

There are several provisions in the Tax Code similar to the tradable tax proposal. The only way to benefit from nearly all of the tax credits in the IRC is to have tax liability equal to or in excess of the credits. Exempt organizations can qualify for tax credits by engaging in an unrelated trade or business; however their ability to benefit from the general business credit (the term used to include virtually all credits) is extremely limited. However, some of the credits are directed toward the economic event targeted in the law as opposed to taxpayer's investing in the property or activity generating the credit. For example,

- Section 41 Research credits are allowed for qualified research expenses paid to tax exempt universities;
- Section 38(b)(3) Alcohol fuel credits apply to the alcohol sold or used as fuel, regardless of the tax status of the producer or user;
- Section 47(a) credit addressing, in part, certified historic structures, allows the credit even though the structure may be used by a tax exempt entity; and
- Sections 613A and 619 provide for the depletion allowance for oil and gas and timber, regardless of the tax status of the owner of the property.

Each of these examples advance the public policy without penalizing any member of the economy that implements the public policy objective. In addition, while not a tax provision, an excellent and parallel example of the Tradable Tax Credit proposal is found in the tradable credits of 1990, 42 U.S.C. section 7651 et seq. The Clean Air Act Amendments of 1990 established a system to issue emission allowances for airborne pollutants, implemented by the Environmental Protection Agency. Electric utilities were issued emission allowances authorizing the emission of a specified amount of airborne pollutants by the utility during a specified calendar year or later period. Starting in 1993, unused allowances may be sold, traded or held in inventory for use against emissions in future years.

#### **TAX PARITY TO BUILD NEW TRANSMISSION**

Tax parity should also be provided to rural electric co-ops if Congress supports giving IOUs accelerated depreciation and other incentives to build new transmission facilities. There is a lack of available transmission throughout the nation and a need to provide some form of incentives to help spur new development. However, we would caution you against just throwing money at the problem, in the form of excessive tax breaks, and compounding the error by giving the benefit only to the IOUs. We would support a more cautious and reasonable approach to providing incentives, with the understanding that co-ops would also be given access to these tax benefits, thereby preventing further monopolization of the transmission grid by IOUs.



In conclusion, all sectors of the electric industry have tax concerns due to restructuring and each sector should be provided with equal access to incentives that are designed to promote the cleaner more efficient generation and the building of new transmission facilities.

Thank you for the opportunity to appear before you today. I would be pleased to answer any questions that you may have.

**Addendum A****Electric Utility Comparisons**

	<u>Investor Owned</u>	<u>Publicly Owned</u>	<u>Cooperatives*</u>	<u>Industry</u>
Number of Organizations.....	190.....	2,000.....	930.....	3,120
Number of Total Customers.....	92 m.....	18 m.....	14 m.....	125
Size (median number of customers).....	230,000.....	1,800.....	10,600	
Customers, % of total.....	74%.....	15%.....	11%	
Revenues, % of total.....	76%.....	15%.....	9%	
kWh sales, % of total.....	75%.....	15%.....	9%	
<b>Sales (billions kilowatt hours)</b>				
Residential.....	804.....	172.....	165.....	1,141
Commercial.....	767.....	155.....	52.....	974
Industrial.....	768.....	145.....	63.....	976
Other.....	64.....	27.....	6.....	97
Total.....	2,403.....	499.....	286.....	3,188
Density (consumers/mile of line).....	35.....	39.....	6.....	32
Revenue/mile of line (dollars).....	62,866.....	63,988.....	8,156.....	57,563
<b>Distribution plant investment</b>				
per consumer (dollars).....	2,080.....	2,053.....	2,446.....	2,112
Assets (\$ billions).....	606.....	126.....	70.....	802
Equity (\$ billions).....	188.....	38.....	20.....	246

\*870 Distribution, 60 Generation & Transmission cooperatives

kWh = kilowatt hours

sources: 1999 Dept. of Energy/Energy Information Agency, NRECA Strategic Planning & Analysis, Feb 2001

## **Renewable Energy and Montana Rural Energy Needs**

Dale Horton, Sustainable Energy Program Manager  
National Center for Appropriate Technology

Mr. Chairman, thank you for inviting me today to appear before this committee. I appreciate the opportunity to discuss the role of tax incentives in addressing rural energy needs.

### **Introduction**

Twenty-five years ago the National Center for Appropriate Technology was founded, at least in part, on E. F. Schumacher's philosophy that is often represented by the phrase "small is beautiful." We don't know if Schumacher specifically foresaw the current wave of renewable distributed generation technologies, but we believe he would approve. I am here today to explain why clean, efficient, and economical technologies such as solar electric, solar thermal, wind, and biomass can fulfill the promise of environmental stewardship and ever greater self-sufficiency for individual citizens that Schumacher advocated.

For 25 years NCAT has been serving people—particularly economically disadvantaged people—and bettering lives by promoting and demonstrating appropriate technologies. As just a small sampling, NCAT has weatherized homes, installed solar electric systems, monitored energy use, devised water and energy savings plans, trained agency staff, administered funding for community projects, and helped farmers try new crops and find new markets.

### **The Sustainable Energy Era**

During the last century world population quadrupled, life expectancy doubled, and the world economy expanded by a factor of 17. (State of the World 1999 World Watch Institute) These unprecedented improvements were powered by the harnessing of fossil fuels. However, we are only now realizing the environmental consequences of that dependence on fossil fuels. Although the air pollution impacts of fossil fuel power plants and the biological impacts of dams have been documented for decades, the significance of global warming has been widely accepted only in the last few years. A home, business, or farm that depends less on traditional central power generation and fossil fuels will cause less impact on our environment.

Electric utility restructuring, distributed generation, increasing cost of fossil fuels, and steadily falling cost of renewable technologies suggest that the new century will see a revolution in our energy infrastructure. The restructuring of the electric utility industry has led to a fundamental change in the relationships among providers, regulators, and consumers. Distributed generation technologies such as solar electric, wind, and fuel cells are emerging that allow consumers to generate their own electricity and thereby take more control of their own lives.

In Montana, restructuring of the electric utility industry will likely lead to a 50% increase in electric costs in the Montana Power Company service territory beginning in July 2002. Natural gas costs are expected to remain high or to increase, as that fuel is increasingly used to generate electricity on the national level. The best way for consumers to guard against future cost increases is to reduce dependency on purchased energy. Distributed solar and wind technologies can do just that.

The challenge is to build an economy that can sustain human progress without destroying the world's natural support systems. The shift to an environmentally sustainable economy will be as profound as the shift last century to the hydrocarbon economy.

NCAT's mission emphasizes community-based approaches that promote individual self-sufficiency. For that reason this testimony focuses on distributed small-scale renewable energy technologies

### **Subsidy Imbalance**

The United States has a long history of providing government support for the development of energy resources and the protection of the country's supply of imported fuels. This support has been justified by the importance of energy to our economy and way of life. The pattern of subsidies for traditional energy resources (i.e., coal, oil, gas and nuclear fission) has skewed the energy market against renewable resources such as wind, solar and biomass.

The pattern of support is described by one source as follows:

"U.S. energy subsidies in the mid-1990's totaled \$25 billion (range \$18-\$32 billion), equivalent to \$350 per American household.... Of total energy subsidies, fossil-fuels and nuclear energy subsidies amounted to \$21 billion, or 84 percent of the total.... U.S. subsidies, like those of Europe, are strongly weighted against non-polluting renewable sources of energy."

(From Perverse Subsidies: How Tax Dollars Can Undercut the Environment and the Economy, Norman Myers and Jennifer Kent, Copyright 2001, Island Press)

The playing field needs to be leveled. Since it would be politically difficult to remove government subsidies for traditional energy sources, it is important to provide tax incentives to allow renewable technologies to compete in the energy marketplace.

### **Renewable Energy Technologies in Montana**

Self-sufficiency, electric supply reliability, and local economic growth are important reasons why renewable technologies represent an important opportunity for Montana:

*Foster Economic Growth.* Many Montana communities import fossil fuels, such as oil and natural gas, to provide heating, and fuel. Money spent on energy imports is money that the local

economy loses. Energy conservation and renewable energy resources are developed locally. Money invested in conservation and renewable energy resources stays in the local economy creating more jobs. Energy conservation and renewable energy technologies are labor intensive. Jobs evolve directly from the manufacture, design, installation, servicing, and marketing of renewable energy products. The wages and salaries from these jobs provide additional income in the local economy.

*Energy Self-Sufficiently.* The Y2K scare made many electric consumers in Montana realize just how dependent we are on centralized energy systems. Solar and wind technologies can reduce or eliminate that dependency. By reducing the use of centrally supplied energy sources, renewable distributed energy technologies can minimize the impact of cost fluctuations and increases.

*Electric Grid Reliability.* A lack of reliability in the centralized electric supply grid is motivating many homeowners and businesses to install their own electric generation systems to assure continuous power for critical electronic equipment. For most of us, a totally independent energy system is too costly but we can take steps to reduce our use of centrally distributed energy.

*International Competition.* Japan and European countries are aggressively promoting and subsidizing solar electric technologies. The United States runs the risk of falling behind in the world solar development. Kyocera (Japan), BP (Britain), and Schott Engineering (Germany) are foreign companies that have purchased domestic solar electric companies. Developing the domestic solar electric market will foster American solar technology and business.

#### **Solar**

Montana has an abundant solar resource that can be used to save energy in residential and commercial buildings, farming, and ranching. Solar technologies that have been implemented in Montana include distributed solar electric systems, solar thermal systems, and passive solar building design. Although these technologies are not new, the current generation of equipment is more efficient, affordable, and reliable than the first generation of twenty years ago.

The USDOE Million Solar Roofs Initiative aims to build momentum in the United States for more widespread use of solar technologies – photovoltaics (the process that energy produces electricity directly from sunlight) and solar thermal panels, which produce heat for domestic hot water, space heating or swimming pools. In the winter of 2000 NCAT sponsored a Million Solar Roofs (MSR) Partnership in Montana that resulted in the creation of the Montana Renewable Energy Association.

The core membership of the organization is the Montana solar businesses. The Montana Renewable Energy Association is working to promote the implementation of a quality solar, wind, and micro-hydro installations. By boosting confidence in and demand for solar energy systems, the association hopes to lower the cost of these technologies, making them accessible to more people.

The solar resource in Montana is more than sufficient to support a vibrant solar industry. Eastern Montana receives an annual average of 5 hours of full sun; Western Montana receives an annual average of 4.2 hours. Insolation in Montana cities compares favorably with insolation in other locations that are encouraging solar energy technologies, such as Sacramento, California and Madison, Wisconsin. Following are insolation levels for several cities:

<u>Insolation</u>	<u>kWh/m<sup>2</sup>/year</u>
Billings, MT	1461
Helena, MT	1396
Missoula, MT	1325
Madison WI	1382
Sacramento CA	1741

Solar electric (photovoltaic) and thermal systems are mature, proven technologies already working at many sites in Montana. Solar electric systems convert sunlight directly to electricity. While off-grid solar electric applications are often cost-effective in today's market, utility-interactive solar electric systems currently produce electricity that is two to three times the cost of grid-supplied power.

Solar electric system costs have dropped at least ten-fold since 1970. NCAT's Residential Solar Electric Demonstration Project, funded by the Montana Power Company Universal System Benefits Program, has installed 40 one-kilowatt residential grid-connected systems in a two-year period. In addition, 15 schools in the Montana Power Company service area have been equipped with two-kilowatt systems. The cost of electricity produced by these systems is 24-25 cents per kWh. Grid-connected solar electric systems are not strictly cost effective versus conventional electricity, but owners place value on other characteristics of solar generation. These characteristics include environmental benefits, self-sufficiency, and reliability. The promise of solar can only be achieved if the markets develop with a sales volume great enough to drive costs down.

Montana homeowner interest in solar electric systems is high. The initial newspaper notice for the Residential Solar Electric Demonstration project drew over 800 initial responses. Over 130 homeowners completed a lengthy form in hopes of purchasing a \$10,000 solar electric system for half price.

NCAT has also been involved with several applications that utilize solar electric systems to assist stock watering. Often the stock-watering applications also benefit fish habitat by getting the cattle away from the streams. We have demonstrated this in several ranches in central and western Montana.

Solar thermal panels produce heat for domestic hot water, space heating or swimming pools. Of these applications, solar water heating offers the greatest potential. In the cold Montana climate the year-round solar hot water systems must be protected from freezing. The technology exists that can do just that. But doubts linger in the minds of consumers and consumer interest in this technology lags behind solar electric in Montana. A typical closed loop drain-back all-season water heater will cost between \$3,000 and \$4,000. Such a system in Montana could provide

about half of the hot water needs for a family of four. For a Montana Power Company customer the system would just pay for itself over its life of 15 years.

Features can be designed into buildings to collect and store solar energy for space heat. This design approach is often called solar tempering or passive solar. With knowledgeable design this approach can reduce building space heating energy consumption significantly.

Recently the Montana legislature took steps to promote renewable energy in the State. Senate Bill 506, sponsored by State Senator. John Cobb (R-Augusta), is an act amending the laws relating to alternative energy and other energy systems. Among other provisions the bill provides a revolving loan fund to finance alternative energy systems, eliminates business property taxes on certain generating equipment, providing a five-year abatement of business property taxes on small generating equipment, and establishes an alternative energy revolving loan account, to issue low interest loans, up to \$10,000 for 5 years. Aimed at residences and small businesses. Although this legislation is a step in the right direction, its scale of support is not by itself adequate to stimulate the renewable industry in Montana.

### **Wind**

There is a stampede in Montana to develop wind energy. There is good reason for this enthusiasm as the state alone has enough potential energy from windy areas of class 4 and higher to supply 15% of the total 1990 electricity consumption of the 48 contiguous states. (Wind Energy Potential in the United States, D.L. Elliott and M.N. Schwartz, September 1993. PNL-SA-23109. Richland, WA: Pacific Northwest Laboratory)

However, the economic viability of wind power will vary from site to site and utility to utility. Important factors include system size seasonal production matching loads, transmission and access constraints, public acceptance, and other technological and institutional constraints.

In Montana wind is being developed at a wide range of scales. A proposed wind farm on the Blackfeet Indian reservation is projected to produce electricity that is competitive with conventional sources. For wind farm applications the cost of generating the electricity is only half of the total cost which includes transmission and ancillary services such as load following and scheduling. Current projections suggest that Montana wind farm power will cost about 6 cents per kWh. The federal production tax credit for wind is critical for the continued development of wind farms in Montana.

Distributed wind machines, because they are located at the point-of-use do not incur the transmission and ancillary costs. However there is a significant economy-of-scale to wind power. Generally, electricity generated from smaller machines will cost more. For small scale wind applications (less than 50 kilowatts capacity) the range of electricity costs is 7 to 15 cents per kilowatt-hour.

A number of irrigators in the Livingston area are contemplating installation of net-metered wind power systems of 50 kilowatts capacity. NCAT's Small Scale Distributed Wind Program, again

funded by the Montana Power Company Universal System Benefits Program, will see about 80 kW of wind generation in 10 kW or smaller machines. The cost of wind power varies with the wind machine size and the site specific wind resource.

Some ranchers are beginning to look at wind power generation as a potential cash crop to augment agricultural income. The economics of such ventures will depend on the issues such as access to transmission lines noted the discussion above regarding wind farms.

### **Biomass**

Biomass is an attractive energy source. It provides the opportunity for local and regional, energy self-sufficiency. Energy from appropriately developed biomass technologies does not have the negative environmental impact associated with non-renewable energy sources. The term "biomass" usually includes agricultural sources, animal wastes, wood waste, and forest waste. Transportation fuels derived from biomass are termed "biofuels" such as ethanol and biodiesel. The key to accessing the energy content in biomass is converting the raw material (feedstock) into a usable form, which is accomplished through combustion, or biochemical or thermochemical processes.

The nation's potential biomass resource is great enough to meet a large part of our energy needs and holds significant potential for Montana. While NCAT supports the concept of developing energy from biomass, the scale of the resource in Montana is not clear. A major issue is the cost of competing fuels. We are aware of the significant U.S.D.O.E. research programs to determine and develop the most effective processes for converting biomass to energy and in developing hardy, high-yield crops that are designed for use as feedstocks for biofuels.

To date, growing agricultural products solely for energy production has not been cost effective. Waste products of agricultural and wood products industries do offer significant potential for affordable applications. However it is unclear whether there is sufficient wood product waste to make dedicated power generation facilities feasible. Wood waste is already used by the wood products industry to produce steam, electricity, and wood pellet fuel.

The promise of energy resources and economic activity in Montana warrants tax incentives to stimulate biomass development in the state. However, we are cautious about the potential harm to the Montana if forest wastes are collected with the purpose of energy production.

### **Tax Credits for Renewable Energy**

NCAT supports tax initiatives such as investment and production tax credits that will stimulate the fledgling renewable energy industry. We believe that distributed renewable energy is keystone of a sustainable economy. However, the key is how to stimulate the market without skewing it.



The Montana Renewable Energy Association has discussed the issue of tax breaks and the reaction has been mixed. Tax breaks might be a good place to start in promoting solar, but the group agreed that tax breaks have limited value and can backfire if the industry infrastructure does not include reliable dealers and installers who can service installed systems. While the solar industry in Montana is healthy and growing, too great an incentive could do more harm than good.

Mike Strickland, co-owner of Dearborn Electric, favors tax incentives. "I don't think there's anything priming the pump right now," he said. Strickland suggested that tax breaks might encourage the market he services: users of small systems (2-4 panels) in remote areas off the grid.

Obviously tax credits can differ in their amount and their target audience. Production tax credits are intended to encourage corporations/businesses to produce or manufacture a sustainable energy commodity. Residential and property tax credits are directed towards consumers and building owners.

Most observers believe that experience with tax credits has been mixed. Production credits have greater accountability and are easier to administer, while credits for residential solar water heaters and photovoltaic systems have been more problematic in both their impact and operation.

The success of tax credits can be increased by not limiting the credit to a fixed period. Instead the credit should be allowed to continue indefinitely. Licensing or certification for qualifying suppliers and installers should also be part of any tax credit program as a way to assure quality installations.

#### Conclusions

- NCAT supports tax initiatives such as investment and production tax credits that will stimulate the growing renewable energy industry. We believe that distributed renewable energy is a keystone of a sustainable economy. However the key is how to stimulate the market without skewing it. Over-zealous tax incentives are not a good idea. That is a lesson we learned 20 years ago.
- During the 1970s and 1980s, Montana established a strong renewable energy tradition, focused on demonstration and outreach programs managed by the Montana Department of Natural Resources and Conservation. With the repeal of federal solar tax credits and the ending of the state renewable energy grant program, interest in renewable energy declined. This "boom and bust" approach to government support of renewables should not be repeated.
- We realize that there are pitfalls connected with tax incentives and that these need to be developed sensibly and cautiously, but it's urgently important that we develop these incentives, given the importance of renewable energy to rural areas and the current unbalanced situation where government incentives are stacked against renewables.

- We believe that the production tax credit should be expanded to include to other renewables such as biomass and solar energy. The production tax credit should also be made permanent or have a lifetime of at least five years.
- The major national energy policy issue should not be how to expand the production of fossil fuels but rather how to build a sustainable economy based on renewable energy sources. Admittedly, a sustainable energy economy cannot be created overnight, but the transition to renewable energy sources and conservation should begin now with strong steps to eliminate the imbalance of government subsidies.
- The future of renewable distributed electric generation in Montana and the nation will depend on a number of related issues such as interconnection standards, net-metering provisions, interconnection fees, consumer protection, and incentives such as production and investment tax credits. Tax credits are just a one of many key policy initiatives that must be implemented.
- NCAT has been fortunate to participate in a number of solar and wind energy demonstration projects. The interest in distributed solar and wind energy in Montana is strong and growing daily.
- NCAT has for 25 years advocated that homes and businesses strive toward self-sufficiency. This is a theme that resonates in rural Montana. Energy efficiency and distributed renewable energy resources can empower our homes, ranches, farms, and businesses to minimize our susceptibility to the price fluctuations that appear endemic to the market-driven fossil fuel economy.

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August 22, 2001

Mr. Max Baucus, Chairman  
Committee on Finance  
United States Senate  
Washington, D.C. 20510

Re: The Role of Tax Incentives in Addressing Energy Needs and Energy  
Conservation

Mr. Chairman and members of the Committee, my name is Leo Kennerly III. I am a member of the Blackfeet Tribal Business Council of the Blackfeet Nation, and Chairman of the Tribe's Economic Development Committee. I would like to thank you for this opportunity to address the Committee and would like to welcome you to Montana and Indian Country.

The subject of this hearing is very timely for the Blackfeet Tribe. As Mr. Baucus is aware, the Blackfeet Tribe has been working towards the development of a large-scale wind farm on our reservation with SeaWest WindPower Inc. that would generate approximately 50 MW of clean and renewable energy for the residents of Montana. When constructed, this wind farm will be the first commercial scale project of its kind located on tribal lands.

For several years, the development of our wind resource has been a priority of the Tribe. To date, there have been two (2) small wind pilot projects successfully constructed on our reservation with the assistance of the Department of Energy that remain in operation. The information gathered from these projects has demonstrated that a tremendous wind resource exists on our lands. An opportunity is now before the Tribe to develop its renewable resource in a way that is beneficial to the Tribe and Montana.

It has been our experience that although our lands may generate a tremendous Class 5 and 6-wind resource according to the National Renewable Energy Laboratory (NREL), the development of this resource depends heavily upon tax incentives from Congress. The renewal of current incentives is important, as they will ensure that projects like ours get constructed. Historically, the wind industry has relied on the Production Tax Credit (Section 45 of the Internal Revenue Code) and forms of Accelerated Depreciation to finance wind development. These incentives are not available to Indian Tribes but can be used by private developers to develop Indian Lands.

I would also encourage this Committee to support tax incentives specifically designated for Indian Tribes that want to participate in the financial ownership of wind projects. Our Tribe and many others are looking at wind development as a source of economic development. These tax incentives would encourage Tribes to invest in renewable energy development using their own resources. Currently there are no meaningful incentives earmarked for Tribes to own their own wind projects. Because of this void in

the law, we have found that tribal ownership of our own project would be economically prohibitive. Without access to tax incentives such as the Production Tax Credit, Tribes are placed on an uneven playing field when compared to other investors. This void will continue to prevent Tribes from realizing the greatest potential from wind development and diminish the promise and hope of tribal self-sufficiency.

During this session in Congress, legislation has been proposed that would encourage tribal ownership of wind farms by establishing a Production Tax Credit, Tribal Tax Exempt Bonding Authority, and Enterprise Zones for Tribes that want to participate financially in the generation of power using their own resources. Our Tribe supports these efforts and would encourage this Committee to seriously consider them and the importance they will bear on the economic future of Tribes.

I would like to thank the Committee for your time today, and would encourage your continued support of energy related tax incentives in Indian Country. Thank you.

**TESTIMONY OF WESLEY MARTEL  
MEMBER OF THE SHOSHONE BUSINESS COUNCIL  
OF THE  
EASTERN SHOSHONE TRIBE  
OF THE  
WIND RIVER RESERVATION  
PREPARED FOR THE SENATE FINANCE COMMITTEE  
BILLINGS, MT**

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**August 24, 2001**

My name is Wesley Martel. I am a Member of the Business Council for the Eastern Shoshone Tribe of the Wind River Reservation in Wyoming. The Tribe appreciates the Committee's request for input on national energy policy as we believe Tribal trust resources can play a role in meeting the energy demands of the nation. We look forward to working with the distinguished Senators on the Committee, including our own Senator Craig Thomas. It is critical that tribal governments and Alaska Native Corporations, at their election, be in position to promote non-renewable energy resources on their lands to create economic development.

This development will have a double benefit for this country, alleviating both Indian poverty and the country's energy shortage. Energy legislation approved by the House Resources Committee, while a good start, fails to adequately support the development of Indian oil, gas and coal reserves. The kinds of assistance we need falls into three categories: (1) tax incentives to overcome the present triple taxation a company faces when it develops energy at Wind River, (2) financial assistance so the Tribe can develop its, administrative, technical and legal capabilities, and (3) relief from regulatory burdens that slow down, and thus, discourage companies from working on reservations. We hope the energy policy of this country, in our case, is not perceived as corporate welfare for "Big Energy" but as a means to assist tribal governments help communities suffering from high unemployment and lack of an economic base.

At last count, there were 16 bills pending before Congress with energy policy as a focus. H.R. 2412, which was titled the "Tribal Energy Self-Sufficiency Act" was meant to establish programs to improve energy development of Indian lands, and for other purposes and has met its demise. We thought Tribes were finally going to receive due recognition for the role they can play in the energy policy of the country but we still remain hopeful that provisions of the bill can be revived. The Tribe requests passage of bills similar to H.R. 224 to permanently extend the Indian employment credit and accelerated depreciation rules for property used predominately within an Indian Reservation. Energy companies need the long-term certainty that these credits are in place as they attempt to develop trust resources.

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Amendments to federal laws to treat Tribes as favorably as state and local governments are needed to expand authority to issue tax exempt bonds for development purposes and for private activity purposes. The Tribes desire amendments to the payment in lieu of taxes (PILT) program which will allow tribes to receive the same benefits as local governments with non-taxable federal lands within their jurisdiction. Finally, Congress should prohibit dual taxation of Reservation resources by states, or in the alternative, require that 100% of such collected taxes be returned to the Tribal government. We need to eliminate the multiple levels of outside governmental interference such as state and county taxation which hinders ability to create viable energy related projects and develop the physical and governmental infrastructure so crucial to future growth and development. The Tribes on the Wind River Reservation generate \$178 Million in economic activity, primarily oil and gas development, and 1600 jobs within Fremont County, Wyoming. However, of the \$12 million collected by the State of Wyoming in severance taxes each year from our mineral resources, only \$7.2 million comes back in the form of State funded services. In addition, Fremont County collects \$14 million from our oil and gas and we receive less than half of this back in programs and services. To exacerbate this problem, the school district boundaries of the Reservation are gerrymandered so that most of the valuation from the Reservation goes to non-Indian school districts! We are clearly contributing, but not benefitting from our own resources.

The Grants and Loans provisions of H.R.2412 follows tribal recommendations and would prove extremely helpful in assisting tribes develop administrative, technical and legal capabilities. However, these provisions need set aside appropriations to make these grants and loans a worthwhile reality.

The transfer of ownership of water and power projects located on Indian lands is a provision my Tribe supports. The language of this bill though, would discourage transfers because it holds the United States harmless for liability, does not permit a change in purpose or operation of the project and does not include authorization for funding for improvements prior to transfer. Additionally, the bill as proposed did not seem to change current Department of Interior authority because it makes the transfer subject to all applicable Federal laws, which would probably include the Federal Land Policy Management Act, (FLPMA).

Language in the proposed bill relating to the Indian Minerals Development Act of 1982 must identify impediments that disallows tribes from obtaining the highest opportunity to develop nonrenewable energy resources. An analysis of the barriers must be undertaken and solutions must be found for the best means to remove these barriers. Broader regulatory authority must be given to tribes in permitting, inspection, enforcement, production accounting and royalty auditing aspects of tribal energy development. Appropriations for critical staffing and technical needs in the natural resources area is key and is central to our Tribe's ability to move forward economically. Putting our land to productive use requires federal approval for almost every individual action. However, lack of manpower in key areas has severely limited

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wise use of the natural resources and in some cases creates burdens on the land which make it nearly impossible to use. Therefore, I request a specific appropriation for the addition of a geologist, petroleum engineer, and field inspection staff with expertise to expedite the permitting, processing and administrative requirements of existing proposals as well as assist the Tribe with long term planning for wise use of our mineral resources.

Indian Tribes are in a unique position to assist in meeting the energy needs of this country. The millions of acres of land under their ownership and control make it imperative the United States recognize the trust relationship and the contribution Tribes and Alaskan Natives can make to this country. Congress must establish and appropriate such sums as necessary to adequately support a senior level office at the Department of Energy to promote development of tribal energy programs and encourage relevant interagency and intergovernmental coordination. Thank you for this opportunity and I wish you well in your endeavors on these important issues.

STATEMENT OF WILLIAM A. PASCOE  
BEFORE THE  
SENATE FINANCE COMMITTEE

Billings, Montana – August 24, 2001

The Role of Tax Incentives in Addressing Rural Energy Needs and Energy Conservation

Introduction

I am Bill Pascoe, Vice President of Energy Supply for The Montana Power Company. Montana Power serves more than 280,000 electric customers and more than 140,000 natural gas customers in one the largest utility service territories in the United States, covering most of the western two-thirds of the state of Montana. To serve these customers MPC owns and maintains more than 22,000 miles of electric transmission and distribution lines and more than 6,000 miles of natural gas pipelines. In many ways, MPC is typical of utilities serving rural areas throughout the Great Plains and Rocky Mountain States.

Until last March I served as MPC's Vice President of Transmission Services. In that capacity, I was actively involved in efforts to form a regional transmission organization (RTO) for the Pacific Northwest. Prior to taking on my new responsibilities at MPC, I served as the Chairman of RTO West, a non-profit corporation formed by Northwest utilities to foster the formation of an RTO for the region. I currently serve as the Vice Chair of the Western Systems Coordinating Council (WSCC), the industry organization charged with maintaining the reliability of the bulk power grid in the Western U.S. and Canada.

Incentives for RTOs and Transmission Investments

Based on my experience in regional transmission matters, I believe certain tax reforms are necessary to insure that the regional transmission organizations (RTOs) sought by FERC are successfully formed and that necessary new investments are made in transmission systems throughout the United States. The appropriate tax measures are included in the Electricity Tax Agreement reached by the Edison Electric Institute (EEI), the American Public Power Association (APPA) and the Large Public Power Council (LPPC). This agreement, representing a consensus between investor-owned utilities and public power utilities, is included as Sections 957, 958, 959 and 962 of S. 389, the "National Energy Security Act of 2001", introduced earlier this year by Senators Murkowski, Breaux and Lott. Most of these provisions were included in H.R. 4, "Securing America's Future Energy Act of 2001" which was passed by the House in July.

S. 389 includes necessary reforms to private use restrictions allowing public power utilities to participate in RTOs without risking their tax-exempt status. Although these



provisions of the bill focus on municipal utilities, MPC and EEI support equivalent provisions included in H.R. 4 that would encourage rural electric cooperatives to participate in RTOs. Because RTOs will work most effectively if they are inclusive and cover large, contiguous geographic areas, it is essential that public power utilities, including municipals and cooperatives, choose to participate. Without the private use reforms included in The Act, this participation is unlikely to occur.

Although RTOs will improve the efficiency and reliability of transmission grids, some RTOs, including RTO West, will not be structured to raise capital for new investments in the grid. Capital for these improvements must come from the members of the RTO who will own the transmission facilities controlled by the RTO. I believe that the restructuring of the electricity industry has significantly diminished the enthusiasm of these utilities for making new investments in transmission.

In the past, vertically integrated utilities willingly invested in transmission lines as part of an overall strategy to provide low cost power for their customers. These transmission lines connected new sources of remote generation to the utilities' load centers, allowed the utilities to arrange for emergency assistance with neighboring systems, and provided opportunities for wholesale power purchases and sales. In short, these transmission investments were attractive because they provided strategic opportunities for the utilities' generation and bulk power marketing activities.

However, with the passage of the 1992 Energy Policy Act and FERC Order 888, utilities were required to offer open access to transmission lines and the strategic power supply advantages of transmission ownership were eliminated. Open access has provided a more competitive wholesale generation market with significant benefits for consumers, but it has fundamentally changed the incentives for new transmission investments. Transmission investments now must stand on their own, and must provide sufficient returns to attract capital.

As the electricity industry restructures, most utilities have chosen to focus on the generation or distribution segments of the business and transmission investments have diminished accordingly. The result is an increasingly congested and less reliable grid. This is in stark contrast to the natural gas industry where companies compete vigorously to construct new pipeline capacity connecting producing regions to consuming areas. So why the different levels of enthusiasm for transmission investment? I think the reason is obvious. In the electric industry most transmission lines are owned by vertically integrated utilities more interested in the generation and distribution segments. In the natural gas industry, most transmission lines are owned by interstate pipeline companies seeking profitable opportunities to invest in the transmission business.

There has been significant discussion about the formation of independent electric transmission companies (Transcos) that would be similar to the interstate pipeline companies. Transcos would focus on the electric transmission business and actively seek opportunities to invest in the grid. However, there are significant adverse tax

consequences for vertically integrated utilities that want to transfer their transmission assets to Transcos.

S. 389 eliminates tax impediments to Transcos in two key areas. First, if a utility sells its transmission system to a Transco, the taxes on the sale may be deferred as long as the proceeds are reinvested in other energy assets. This is similar to the way in which the gain on the sale of a house is deferred as long as the proceeds of the sale are reinvested in another house. Second, if a utility forms a separate transmission company and “spins” this company to its shareholders, this new transmission company can be consolidated with similar transmission companies without the risk of adverse tax consequences for the “spinning” utility. In each case, the tax impediments would be removed only if the resulting Transco is part of a FERC-approved RTO.

In order to foster the development of stand-alone transmission companies that will actively pursue opportunities to invest in transmission infrastructure, these reforms must be adopted.

#### Contributions in Aid of Construction (CIACs)

The bill also removes the current tax penalties levied on customers that provide construction funds to utilities for new transmission and distribution facilities. Referred to as Contributions In Aid of Construction (CIACs), these capital advances are treated as operating revenues by the Internal Revenue Service and taxed as ordinary income rather than being treated as an offset to the cost basis of the constructed property. Utilities are left with little choice but to add a significant carrying charge, in MPC’s case 33%, to these advance payments to cover the cost of the taxes. What the IRS collects as a tax from utilities in effect becomes a direct tax on consumers. I can tell you from personal experience that the CIAC tax adder is a significant source of frustration for utility customers, especially in rural areas where a customer may already be faced with significant costs to attach to the nearest utility lines.

#### Incentives for Renewable Energy

MPC also supports tax incentives for renewables energy sources and for energy efficiency. In this area, my comments will focus on production credits for wind power.

Although Montana has great potential for wind power, little development has occurred to date. However, as wind turbine technology has improved and manufacturing costs have declined, wind power has reached the point where it is cost-competitive with traditional forms of generation, assuming the current production tax credits are renewed.

MPC has announced its intention to purchase 150 MW of power from wind turbines, heralding the beginning of commercial scale wind power development in Montana. We have received a number of excellent proposals and are in the process of selecting the projects that will be offered contracts. These projects meet our cost criteria assuming

current tax incentives remain in place. However, if the production credits are not renewed, MPC will not be able to proceed with these projects.

Government incentives have brought wind power to the verge of commercial deployment in Montana and neighboring states. Now is not the time to change course.

Summary

Thank you for the opportunity to appear before the Committee to offer MPC's views on these important matters. Properly structured tax legislation, as described above, can help to address critical energy infrastructure needs in rural areas.

Statement of

**Gina E. Sewell**  
Tax Manager  
Devon Energy Corporation

and

**Chairman**  
**Domestic Petroleum Council Tax Committee**

Before

Senator Max Baucus, Chairman  
Senate Committee on Finance

August 24, 2001

Senator Baucus, thank you for the opportunity to be here.

My name is Gina Sewell, I am the Tax Manager for Devon Energy Corporation and I am here to testify today as the chairman of the Domestic Petroleum Council's Tax Committee.

Members of the Domestic Petroleum Council who are active in Montana along with Devon Energy Corporation include Ocean Energy, Burlington Resources, Samedan Oil Corporation and Cabot Oil and Gas.

Devon has significant acreage positions in Blaine and Hill counties in north central Montana, in the Powder River Basin of south central Montana, and in the Williston Basin in eastern Montana.

Montana has historically produced more oil than gas. However, the industry also recognizes the potential of coal seam gas reserves in the Powder River Basin. There is also significant shallow gas potential in north central Montana and exploratory potential in the Big Horn and Crazy Mountain Basins in southwestern Montana.

Montana is a key player in the future of gas transmission from the northern Rocky Mountains to the northwestern and eastern United States. There is also considerable development potential along these transmission routes. Devon, as well as many other energy companies, is very interested in this potential and is actively increasing its presence in Montana.

And, now, to share some background thoughts on natural gas before moving to tax issues that are directly related to the production of natural gas and oil.

We know that natural gas is a premium fuel. It is clean, reliable and abundant. We cook with it. We use it to heat and cool our homes and businesses. And it is a strong underpinning of our economy, as an industrial feedstock and as the fuel of choice for generating new electricity to power the computers and the other elements of "the new economy".

In fact, the recent National Petroleum Council natural gas study projects that demand for natural gas will grow by more than one-third over the next decade. Nearly half of that demand growth will come from new electricity generation capacity--more than 90% of which will be gas-fired. This same study estimates that capital expenditures of over \$600 billion will be needed between now and 2015 to meet the nation's growing demand for natural gas.

A portion of that demand growth will also undoubtedly result from increased transportation fuel use--whether as compressed gas or liquefied natural gas. For the longer term, fuel cells that generate electricity from natural gas by chemical

reaction as opposed to combustion will play increasingly important roles in a variety of applications—including transportation.

This country's independent companies produce approximately 75% of the nation's natural gas. The 22 large independent exploration and production (E&P) company members of the Domestic Petroleum Council (or DPC) produce nearly one-quarter of the natural gas in this country.

Our industry produces natural gas and oil from many types of geologic formations. Whether onshore or offshore, it takes expensive high technology like 3-D seismic, petrophysical logging to indicate the existence of hydrocarbons and hydraulic fracturing to produce natural gas and oil. All of these require enormous amounts of upfront capital (as mentioned above). And this capital outlay is required before a company even knows if it has a commercially viable well.

These are the things we do everyday. And we know we'll need to even further enhance our technology and its application in the future to meet our growing natural gas and oil demand.

The DPC companies drill 35% of all oil and gas wells in the United States and nearly 60% of all such wells drilled by independents. We are committed to continue to take on the challenges of providing gas and oil to consumers in the future.

But we do have challenges. Not the least of which relate to the Tax Code.

The DPC and other industry trade associations agreed last year that the key tax incentives for our industry were the following:

- allowing geological and geophysical (a.k.a. G&G) costs and delay rental payments to be deducted when incurred;
- alternative minimum tax reform;
- change natural gas gathering lines to seven-year property;
- a marginal well tax credit; and,
- for small operators, certain percentage depletion enhancements.

While DPC continues to support all of these measures, the items of greatest importance to our members at this time are the allowance of deductions for G&G and delay rental costs. With the time remaining in this Congress, it would be a shame to miss the opportunity to seize a win-win opportunity by providing normal business tax treatment for G&G and delay rental expenses as is supported by the Administration as well as many Members of Congress, both Republicans and Democrats.

What are these expenses?

G&G costs are the costs incurred to gather and process seismic and other data in an effort to locate oil and natural gas deposits underground. The costs are routinely and continuously incurred as part of an active ongoing exploration program and are among the first costs incurred in the exploration effort. Because of the depleting nature of its resource base, an E&P company must acquire new reserves to stay in business.

The deductibility of G&G will be important as companies such as Devon take the first steps in analyzing new exploration areas, including those in Montana. To state the case for G&G deductibility yet another way: G&G is the research and development expenses of the energy industry. The majority of G&G costs incurred end up condemning properties as having no potential and thus, they are completely sunk costs, yet taxpayers are not allowed a deduction for this. The minority of costs result in arriving at viable candidates for further evaluation by drilling.

Under current tax law, G&G costs are "suspended", meaning no deduction or amortization is allowed for tax purposes, while decisions are made as to whether the data is promising enough to warrant drilling a test well and if no leases have yet been obtained in the area, the feasibility of obtaining leasehold rights that will allow the well to be drilled.

If a test well is drilled and is successful, the G&G costs remain suspended with no recovery allowed for tax purposes until the lease begins production of the oil or gas. In many areas where exploration is now occurring, such as the deepwater GOM, the period of time from drilling a test well until commencement of production is often five years or more.

Furthermore, if a company incurs \$10 million on a 3-D seismic study over a 1000 acre area and, based on an analysis of the study, only obtains a lease over a 250 acre area, the current rules require the total \$10 million dollar cost to be assigned to the 250 acre lease. This allocation causes G&G to skew the property's economics.

An E&P company, like any business, must generate a reasonable after tax rate of return on its capital to ensure that it will have access to new capital. Since G&G costs are incurred early in an exploration effort and a recovery on that G&G investment is often delayed for many years, it is very challenging for companies to generate acceptable after tax rates of return on their exploration capital. In addition, given the complexities of the current tax rules, a large amount of taxpayer administrative time and effort is expended to track and properly account for G&G costs. Further, the IRS and the taxpayer spend significant administrative time and effort auditing these costs. In joint IRS and industry meetings, the IRS has acknowledged the need for change in this area.

Delay rentals are payments that are generally required to be made on an annual basis by the lessee to the lessor for the right to hold the lease throughout its primary term. As the name implies, they are in the nature of rent. They are paid,

say annually, to extend the lease an additional year. If a lessee begins operations on the lease, typically by drilling a well, then the obligation to pay delay rentals ends as long as the operations on the lease continue. To put this in perspective, Devon has some 50,000 active leases and pays delay rentals on about 6,000 of them each year.

Prior to 1986, E&P companies were unquestionably entitled to deduct delay rentals for tax purposes. When the uniform capitalization rules were added to the tax Code (section 263A) that year, the treatment of delay rentals became less clear. During IRS audits the examining agents did not always take consistent positions but in many cases determined that delay rentals should be capitalized under the uniform capitalization rules. The taxpayers in the industry believe that delay rentals continue to be deductible since they are costs that are paid to postpone improvement of the property - not to improve it. Adding to the confusion, a long-standing regulation (since 1933), which the IRS in year 2000 proposed to change, still provides that delay rental payments are deductible at the taxpayer's election.

Like G&G costs, delay rentals are an ongoing expense incurred by the industry very early in the process of exploration and production.

The members of the Domestic Petroleum Council believe that allowing G&G costs and delay rentals to be deducted for tax purposes when incurred will encourage domestic exploration and production efforts and over time help to reduce America's dependence on foreign energy resources. The previous Administration in March of 2000 proposed allowing these costs to be deducted for tax purposes.

While the DPC supports all of the industry recommendations mentioned earlier, the tax treatment of G&G and delay rental payments are the highest priority tax items for our members this year. If tax legislation is able to move forward this session, we urge you to include these changes in that bill.

I have a summary and examples of the legislative language that has been proposed in various bills that I will be glad to provide to the Subcommittee.

And I would be pleased to answer any questions.

Thank you.



**TESTIMONY OF DARWIN L. SUBART FOR MDU RESOURCES GROUP, INC  
FOR THE SENATE FINANCE COMMITTEE FIELD HEARING  
AUGUST 24, 2001, IN BILLINGS, MONTANA**

Mr. Chairman, members of the committee, I am Darwin L. Subart, Executive Vice President and General Manager of WBI Southern, Inc. an indirect subsidiary of MDU Resources Group, Inc. (MDU). MDU is a publicly held company traded on the New York Stock Exchange and it is headquartered in Bismarck, ND. MDU provides energy, value-added natural resource products and related services that are essential to our country's energy, transportation and communication infrastructure. MDU includes electric and natural gas utilities, a FERC regulated interstate natural gas pipeline and non-regulated natural gas gathering pipelines, natural gas and oil production, utility services, construction materials and mining and energy services. Through its various business units, MDU has a strong presence in the Northern Great Plains including the states Montana, North Dakota, South Dakota, Wyoming and Colorado. MDU has been a developer, producer, transporter and distributor of natural gas in Montana for 75 years and it is one of the few states in which all of our lines of business are currently represented.

WBI Southern, Inc.'s principal operations consist of providing natural gas gathering and compression services to producers in Montana, Wyoming and Colorado. Our affiliated production company, Fidelity Exploration & Production Company is the second largest producer of natural gas in the state of Montana. My testimony will address MDU's viewpoint on changes in tax law directly related to the gathering, transmission and distribution of natural gas.

My testimony will be brief as we believe the Congress is on the right track with the tax changes proposed which have been passed in the House and which will provide substantial future economic and consumer benefits.

**Overview**

One of the most important public policy issues Congress faces is the need to ensure the continued delivery of affordable and reliable energy to America's homes and businesses.

Energy is the lifeblood of our economy and we need an energy policy that addresses our myriad economic, environmental and national security challenges. In the near future one of our greatest challenges will be expanding our energy delivery infrastructure to meet the projected growing demand for energy.

Customer demand for natural gas, for example, is expected to grow by 55-60 percent during the next 20 years. This is in large part due to America's growing awareness of the economic, environmental and operational benefits attributable to this highly efficient and

environmentally friendly fuel. As a result, the natural gas industry must substantially expand its existing delivery infrastructure, while at the same time continue to maintain its current infrastructure. For America to achieve the benefits of the greater use of natural gas, the production and exploration, gathering, transmission, and distribution sectors must make substantial investments.

It is estimated that natural gas utilities and pipelines will have to invest \$150 billion over the next 20 years to simply keep up with the increased demands for natural gas deliverability.

The total investment for gas transmission and storage facilities over the next ten years is projected to be over \$34 billion. These expenditures are required to meet the projected gas demand increase from almost 23 trillion cubic feet (Tcf) per day in 2001 to over 30 Tcf per day by 2010. In order to attract capital to support this massive effort, Congress should allow interstate transmission pipelines to write down the cost of infrastructure investments over ten (10) years, instead of the fifteen (15) years in current tax law.

Estimates for the distribution sector alone will require capital investments of \$100 billion for infrastructure with projections of a required increase in distribution system miles of 27 percent (255,000 miles). In order to raise the capital needed to accomplish this expansion, we must ensure investment in our distribution property, which is why the natural gas distribution property's tax life should be reduced from 20 years to 10 years.

This shorter depreciation life for natural gas transmission and distribution property will:

- allow needed projects to be built; meaning customers will sooner be able to obtain necessary supplies of clean-burning, domestically produced, highly efficient natural gas at long-term economic prices;
- facilitate an increased use of natural gas—especially in end-use applications in American homes and businesses—could lower oil imports, reduce overall energy consumption, and lower CO2 emissions, while relieving the strain on the electricity grid; and
- allow for the expansion of natural gas delivery systems in order to continue to safely and reliably meet America's growing demand for natural gas.

We also encourage you to establish a statutory seven (7) year recovery period and a class life of ten years for natural gas gathering lines. It will also end the conflict between members of the natural gas gathering and processing industry and portions of the Internal Revenue Service over the proper depreciation of these assets. Recently, the 10<sup>th</sup> Circuit Court of Appeals held that natural gas gathering lines owned by non-producers falls within the scope of seven (7) year recovery period. Establishment of a statutory 7 year recovery period for natural gas gathering lines will achieve the objectives as set forth above related to the shorter depreciation life on natural gas transmission and distribution

property and it will prevent unnecessary time being spent by the courts, government agencies (IRS) and industry in further arguing this issue.

### Regional View

The regional natural gas industry must substantially expand its existing delivery infrastructure in order to meet the growing demand, while at the same time continue to maintain its current infrastructure, especially for Montana, North Dakota, South Dakota and Wyoming. Critical to the economic viability of this region is reliable, economically priced energy, of which natural gas is a key component. The tax policy we propose will assist in achieving this long-term goal.

A challenge we experience in our rural areas is retaining our younger people, attracting industry to provide jobs to allow these younger people to stay. In our operating area, we are seeing the smaller rural communities declining in population, either through old age attrition or people retiring and moving to the few large communities existing, to be closer to medical facilities and other conveniences most of us take for granted or due to there not being jobs for younger people near their homes.

What effect does this have on our natural gas distribution business? It leads to facilities in these small communities becoming less viable as there are fewer and fewer customers to serve. However, in the majority of these communities the cost of continued distribution service is increasing. This is due to the fact that the distribution infrastructure is aged and we are constantly repairing and replacing facilities in order to provide safe and reliable service. Likewise, as more and more people relocate from small communities to a Billings, Montana or Bismarck, North Dakota additional infrastructure is required to provide service in these cities. Thus, you end up with the same number of customers but with more facility investment to operate and maintain. The proposed change in the tax depreciation life for natural gas distribution property to ten (10) years will assist in securing capital for facility investment and ultimately minimizing the costs to the consumer.

The limited market for natural gas in the states of Montana, North Dakota, South Dakota and Wyoming means that as new natural gas supplies are discovered in these areas, additional natural gas transmission infrastructure is needed to transport the natural gas to other interstate pipeline systems. The existing regional interstate transmission pipelines suffer the same issues as the distribution companies, increasing costs with fewer customers. Again, as the rural population continues to decline and aged infrastructure needs to be replaced and maintained, more investment is necessary with the same or fewer customers. Congress needs to also allow interstate transmission pipelines to write down the cost of infrastructure investments over ten (10) years, instead of the fifteen (15) years in current tax law. This would have a positive effect on Montana and enhance future natural gas industry related developments within the state.

To meet the projected demand growth will require development of non-conventional sources of natural gas, like tight sands, shale, coal seam, etc. Our region has untapped resources, but individual wells generally will not be large volume producers. What that means is a need for a large number of wells and related gathering and compression infrastructure to move the natural gas to the few regional interstate pipeline systems available.

A seven (7) year tax life for gathering pipeline will encourage infrastructure development of these non-conventional natural gas sources.

Finally, the proposed extension and modification of Credit for Producing Fuel From a Non-Conventional Source (Section 29 credit) would also greatly benefit this region to encourage additional development of non-conventional natural gas sources. We support language in H.R. 4, as passed by the House. These provisions would extend the Section 29 credit for currently qualified wells through 2006 and apply the credit to the first 200 Mcf per day of production for new wells drilled between passage of a bill and 2006. We strongly believe this legislation would provide economic incentives as well as significant economic and natural gas development opportunities for rural Montana and this region.

#### **Conclusion**

Federal tax policy plays a critical role in directing capital to flow toward the natural gas industry for production and transmission, gathering and distribution infrastructure development. Congress can take steps to seek a more stable energy supply to preserve Montana's and the nation's economic stability by approving these tax modifications. The proposed modifications are good for the long-term economy of this region and the entire nation.

## COMMUNICATIONS

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September 4, 2001

Mr. Matthew Jones  
Counsel  
Committee on Finance  
United States Senate  
219 Dirksen  
Washington, DC 20510

RE: Supplement to Ron Harper Testimony before the Senate Finance Committee Field Hearing in Billings, Montana on August 24, 2001

Dear Mr. Jones:

Enclosed for addition to the record of the proceedings held before Senator Max Baucus, Chairman of the Senate Finance Committee, on August 24 is supplemental information on clean coal technologies consisting of a U.S. Dept. of Energy Clean Coal Technology Report and an Energy Resources International, Inc. paper on Clean Coal Technologies.

This information would supplement the answers of Ron Harper, CEO of Basin Electric, to the questions of Senator Baucus on clean coal technologies.

Thank you for this consideration.

Yours truly,

Wally Goulet  
Vice President of Government Relations

## 2. CLEAN COAL TECHNOLOGIES

There are a wide variety of Clean Coal Technologies (CCTs) that can be used for electric power production by G&T Cooperatives. The Clean Coal Technology Program (CCTP) at the U.S. Department of Energy (DOE) has funded the development and demonstration of many (if not most) of these technologies.<sup>4</sup>

Table 2.1 indicates the number of projects in the CCTP. Of the 40 CCT projects, 24 have completed operations, while 16 are still in the demonstration phase. Most of the advanced power generation projects are still under construction or demonstration. Appendix A provides a profile of each completed project.

**Table 2.1 Completed CCT Projects by Application Category**

Application Category	Number of Projects	
	Completed Operations	Total
<b>Environmental Control Devices</b>		
SO <sub>2</sub> Control Technology	5	5
NO <sub>x</sub> Control Technology	6	7
Combined SO <sub>2</sub> /NO <sub>x</sub> Control Technology	6	7
<b>Advanced Electric Power Generation</b>		
Fluidized-Bed Combustion	2	5
Integrated Gasification Combined-Cycle	0	4
Advanced Combustion/Heat Engines	0	2
<b>Coal Processing for Clean Fuels</b>	3	5
<b>Industrial Applications</b>	2	5
<b>Total</b>	<b>24</b>	<b>40</b>

Source: U.S. Department of Energy, *Clean Coal Technology Demonstration Program, Program Update, As of September 1999*, Assistant Secretary for Fossil Energy (April 2000).

The subsequent discussion summarizes the alternative CCT options available for power generation—including their characteristics, status, costs and experience. This is followed by a synopsis of the completed and ongoing advanced CCT power generation projects, and identification of future coal-based technology configurations.

<sup>4</sup> The U.S. Congress established the Clean Coal Technology Demonstration Program in 1984 to demonstrate the feasibility of making the technology commercially viable. The Department of Energy (DOE) shares up to 50 percent of the cost to design, construct and operate these demonstration plants, with the project participants providing the remainder. From 1985-1989 the U.S. Congress appropriated \$2.75 billion for the program. DOE awarded these funds to 50 projects; as of October 1999, \$784 million was not yet expended. To date (September 1999), 24 projects have been completed with 16 projects still ongoing; 15 of the completed projects have produced sales of clean coal technology, either domestically or internationally.

CCTs for power generation can be grouped into three categories:

- **Pulverized Coal (PC) Technologies**—including low emissions boilers, indirect-fired cycles, sub-critical, supercritical and ultra-super critical pulverized coal plants.
- **Fluidized-Bed Combustion (FBC)**—including 1) circulating atmospheric fluidized-beds, 2) pressurized fluidized-beds, and 3) second-generation fluidized-beds.
- **Integrated Gasification Combined-Cycle (IGCC)**—including 1) oxygen-blown systems with gas cooling, 2) air-blown systems with gas cooling, 3) oxygen-blown systems with hot gas clean-up systems, and 4) air-blown systems with hot gas clean up.

To increase efficiency and further reduce air emissions, other technologies—e.g., fuel cells and advanced turbine systems—can be coupled with integrated gasification combined-cycle (IGCC) systems.<sup>5</sup> Fuel cell and advanced turbine-based power plants using natural gas or other clean (non-coal) fuels as the prime mover are not included in this analysis, except for comparison purposes.

Table 2.2 provides comparative technical, environmental and cost information on most of these greenfield (new) CCT power plant options, as well as two natural gas combined-cycle (NGCC) options. As discussed in Section 3, several of these CCT options can also be used to “repower” existing plants.

Note: the environmental performance data in Table 2.2 reflect compliance with current New Source Performance Standards (NSPS). The emission levels do not consider the additional reductions that may be required for compliance with the Clean Air Act Amendments of 1990 or Performance of Significant Deterioration (PSD), via Best Available Control Technology (BACT), since these requirements are company- and location-specific, respectively.

Based on the data in Table 2.2 it can be concluded that, in comparison with conventional sub-critical pulverized coal technology, the CCT options:

- achieve higher efficiencies and lower heat rates
- emit significantly less sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), particulate matter (PM) and carbon dioxide (CO<sub>2</sub>) emissions
- have comparable capital costs (ranging from 15% higher to 12% lower)
- have lower levelized busbar electricity costs, with the exception of supercritical systems.<sup>6</sup>

<sup>5</sup> U.S. Department of Energy, *Vision 21—Clean Energy for the 21<sup>st</sup> Century*, Office of Fossil Energy and National Energy Technology Laboratory (1999).

<sup>6</sup> It should be noted that, unlike the other options, NGCC system busbar costs are highly dependent upon fuel costs. Since the basis of the analysis reported in Table 2.2 was completed, natural gas prices have increased over 60%.

Table 2.2 Comparison of Performance and Cost Characteristics for CCTs Deployed During 2000-2010 Period

	Net Power (MWe)	Net Efficiency <sup>b</sup> (% HHV)	Net Heat Rate <sup>b</sup> (Btu/kWh)	SO <sub>2</sub> (lb <sub>SO2</sub> /lb <sub>CF</sub> ) 65% 85%	NO <sub>x</sub> (lb <sub>NOx</sub> /lb <sub>CF</sub> ) 65% 85%	PM (lb <sub>PM</sub> /lb <sub>CF</sub> ) 65% 85%	CO <sub>2</sub> (lb <sub>CO2</sub> /lb <sub>CF</sub> ) 65% 85%	Capital Cost (\$/kW)	O & M (\$/kW-yr)	Fuel Costs (\$/kWh)	Levelized Busbar COE (\$/kWh)
Conv. PC — Subcritical	397	37.6	9,077	3534 4621	4622 6045	305 400	2.1 2.7	1227	27	1.14	3.74
PC Supercritical	402	39.9	8,568	1686 2205	1544 2019	97 127	2.0 2.6	1275	27.5	1.08	3.90
PC Ultra-supercritical	400	41.4	8,251	1615 2112	1526 1996	93 122	1.9 2.5	1270	27.5	1.04	3.72
FOAK IGCC — O <sub>2</sub> Entrained	543	40.1	8,522	737 964	316 414	<26 <34	2.6 3.5	1410	36.8	1.07	3.88
Intermediate IGCC O <sub>2</sub> Blown	349	45.4	7,513	179 168	179 234	<15 <20	1.5 2.0	1348	41.9	0.94	3.76
Advanced IGCC — Air Blown	398	49.7	6,870	134 175	187 244	15 20	1.6 2.0	1072	37.0	0.86	3.12
Advanced IGCC — O <sub>2</sub> Blown	428	49.0	6,969	146 191	204 266	<17 <22	1.7 2.2	1193	38.6	0.87	3.38
Second Generation PFBC	379	47.0	7,269	1,804 2,360	785 1,026	<16 <209	1.6 2.1	1100	34.9	0.91	3.46
NGCC — Westinghouse "G" Turbine	326	50.6	6,743	—	188 246	—	0.7 1.0	561	16.0	1.82	3.59
NGCC — GE "H" Turbine	395	53.4	6,396	—	216 282	—	0.8 1.1	495	15.9	1.73	3.32

a. Plant emission estimates reported reflect NSPS prior to the Clean Air Act Amendments of 1990. This was assumed to facilitate standardization & comparison. For new greenfield plants built after 1990, the allowable SO<sub>2</sub> emissions would depend on the possession/availability of SO<sub>2</sub> allowances by the utility, and local site conditions. The same requirement is applicable to NO<sub>x</sub>, PM and CO<sub>2</sub>, as the "cap & trade program" will likely be used. In many cases, PSD regulations would apply, requiring Best Available Control Technology (BACT) to be used. BACT requirements are site-specific and vary considerably; they are significantly lower than NSPS limits.

b. Performance at 100% load, HHV.

Source: Parsons Infrastructure & Technology, 1998, *Market-Based Advanced Coal Power Systems*, prepared for U.S. Department of Energy, Office of Fossil Energy (December)



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In discussions with the power industry and technology vendors, it is clear that, because of changing market conditions (i.e., economic, environmental, performance), CCTs will be the technology of choice to serve new coal-based growth requirements that cannot be met by increased generation (capacity factors) at existing plants.<sup>7</sup> In addition, the potential exists to use CCTs to cost-effectively “repower” existing pulverized coal plants to reduce emissions, improve performance and increase generating capacity without the siting issues associated with developing a “greenfield” facility. A discussion of alternative advanced CCT power generation systems follows.

### 2.1 Pulverized Coal Systems<sup>8</sup>

There are four options to improve the efficiency and reduce the emissions associated with *new* pulverized coal systems:

- low emission boiler systems (LEBS)
- indirectly-fired cycles
- supercritical systems
- ultra-supercritical systems

Each is discussed below, with their advantages and disadvantages.

**Low-Emission Boiler Systems (LEBS)** is an evolutionary step in the development of industry-proven pulverized-coal-fired power generating systems. Using a systems approach, LEBS derives maximum benefit from recent advances in low-NO<sub>x</sub> combustion, flue gas cleanup technology, and materials for boiler tubes. The system capitalizes on the experience base of power generators and the existing industry support structure. LEBS features a high-efficiency pulverized coal boiler, integrated with advanced combustion techniques and advanced flue gas cleaning systems. Combustion and emissions control improvements are designed into the system, rather than added-on after the plant is built, in order to achieve higher efficiency, lower emissions, and lower cost.

Common practice today is to retrofit emission controls to operating boiler systems, as required by new environmental regulations—although physical constraints often limit the benefits obtained from such devices. In a new plant, however, there is an opportunity to *integrate* advanced pollution controls into the boiler and other major plant subsystems to optimize the performance and cost of the entire system.

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<sup>7</sup> “Recent Cost Reductions Increase IGCC Competitiveness”, Brkic, D. and D.C. Cooperberg, 1999, presentation at 1999 Gasification Technologies Conference (October); Simbeck, D.R. and H.E. Johnson, 1999, “Report on SFA Pacific Gasification Database and World Market Report”, presentation at the 1999 Gasification Technologies Conference (October); Holt, N., 1999, “What’s in the Pipeline? New Projects and Opportunities”, presentation at the 1999 Gasification Technologies Conference (October); McConnel, C. et. al, 2000, “Gasification Project Economics and Critical Success Factors To Compete In the Marketplace”, presentation at the 2000 Gasification Technology Conference (October)

<sup>8</sup> Primary data source: <http://www.netl.doe.gov>

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The purpose of LEBS is to generate electricity at significantly higher thermal efficiency, with greatly reduced emissions, and at a cost below that of conventional coal-fired power plants designed to meet the federal New Source Performance Standards (NSPS). Because LEBS uses the latest technology combined with an integrated design approach, the system is projected to perform better than even the best PC-fired plants available today. Projected efficiencies for advanced LEBS systems are 42-48% (total station net, based on coal HHV), compared with 32-35% average efficiency levels (thermal) at current coal-fired power plants.

LEBS advantages:

- Power plant design and operation are similar to those of PC boilers, with which utilities have considerable experience.
- Very little "new" technology is required. Rather, it is a better use, through integration, of existing (i.e., conventional) power generation technologies.

LEBS disadvantages:

- Relatively high capital costs.
- Lower efficiency relative to other options.
- Similarity to conventional PC plants may make it a target by anti-coal advocates.

**Indirectly-Fired Cycle (IFC)** systems are coal-fired, combined cycle systems that produce energy as cleanly and efficiently as oil- or natural gas-fired systems.

In an indirectly-fired cycle, combustion gases from coal (or other fuels) never directly contact the high-efficiency gas turbine. Rather, the combustion process heats a "working fluid," such as air, that drives the turbine. The key innovation is a novel furnace that transfers the heat from the combustion chamber to channels in the furnace walls carrying impurity-free air to the turbine. The working fluid can be further heated by supplemental burning of natural gas. Heat recovered from the turbine exhaust and the coal-fired high-temperature air furnace (HITAF) flue gas are used in the steam cycle. This configuration has been referred to as High Performance Power Systems (HIPPS). A variation of the concept—the "externally-fired cycle"—employs a novel heat exchanger to separate the combustion gases from the working fluid.

First-generation IFC power systems are projected to have net system efficiencies of greater than 45%—single cycle coal-fired plants are 32-35% efficient today. Advanced IFC power systems—based on the humid air turbine (HAT) cycle—are expected to achieve net system efficiencies approaching 55% (based on coal HHV).

IFC advantages:

- Potentially high efficiencies.

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IFC disadvantages:

- Potentially high capital costs.
- Need to develop advanced heat exchangers that can meet utility performance requirements.
- Need to develop advanced materials that can withstand highly corrosive gases under high temperature and pressure conditions.

**Supercritical Systems** are the basis of only a small number of operating power plants in the U.S. Most conventional pulverized coal-fired boiler systems in operation use sub-critical pressure (<221.2 bar) steam cycles with superheated and single reheated steam. Supercritical steam cycles (with steam pressure >221.2 bar, single reheat and main steam and reheat steam temperatures approximately 540 degrees Centigrade) are primarily used in Europe and Japan.

Supercritical steam cycle advantages:

- Good part-load efficiencies, typically one-half the drop in efficiency experienced by sub-critical plants.
- Reduced fuel consumption due to improved thermal efficiency.
- Improved environmental performance.<sup>9</sup>

Supercritical steam cycle disadvantages:

- Higher temperature requires use of more exotic and expensive materials.
- Higher capital and busbar costs.
- Complex furnace tube design.
- Difficult and expensive repairs.
- Most applicable in large units (> 400-500 MW).

**Ultra-supercritical systems** raise the steam parameters to ultra-supercritical conditions. These conditions are—steam pressures above 248 bar, and steam temperatures above 566 degrees Centigrade.

Ultra-supercritical system advantages:

- Efficiencies even greater than supercritical systems.
- Emission rates that are even better than supercritical systems.
- Capital costs are comparable to supercritical systems and busbar costs are lower.

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<sup>9</sup> The low level of SO<sub>2</sub> emissions is achieved by sulfur capture in the wet limestone FGD system. The nominal overall design SO<sub>2</sub> removal rate is set at 96 percent. NO<sub>x</sub> production (and emissions) are minimized through use of low-NO<sub>x</sub> burners, overfire air staging, and selective catalytic reduction (SCR). CO<sub>2</sub> emissions are equal to those of other coal-burning facilities on an intensive basis (lb/MMBtu), due to the same coal type. However, total CO<sub>2</sub> emissions are lower than a typical PC plant due to the higher thermal efficiencies.

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Ultra-supercritical system disadvantages:

- Use of even more exotic materials to handle very difficult operation conditions. Such materials are still being demonstrated, with 5+ years until commercially available.
- Other disadvantages summarized for supercritical systems.

## 2.2 Fluidized-Bed Combustion<sup>10</sup>

There are several forms of fluidized bed combustion, which depend on the bed configuration, and whether the combustor operates at atmospheric or higher pressures.

**Circulating Fluidized-Bed Combustion (CFBC)** relies on a bed of finely sized ash, limestone (or other sulfur sorbent) and solid particles that are fluidized (suspended) by forcing combustion air through it. Coal is added to the fluidized bed and efficiently combusted. Coal fines are re-circulated back into the bed.

CFBC advantages:

- Commercially proven and used for applications < 350-450 MW in size<sup>11</sup>
- Fuel-flexible, able to combust a very wide range of carbon-based fuels.
- Low NO<sub>x</sub> emissions.
- Inherently control SO<sub>2</sub> emissions to reasonably low levels.

CFBC disadvantages:

- Production of large quantities of solid waste.
- Environmental performance comparable to sub-critical systems (except for NO<sub>x</sub>).
- Capital costs comparable to sub-critical systems.

**Pressurized Fluidized Bed Combustion (PFBC)** is one of several advanced approaches for substantially improving the efficiency of coal-fired power systems, while significantly reducing emissions. Like CFBC systems, PFBC plants use a sorbent such as limestone or dolomite to capture sulfur released by the combustion of coal. Jets of air suspend the mixture of sorbent and burning coal during combustion, converting the mixture into a suspension of red-hot particles that flow like a fluid. However, PFBC systems operate at elevated pressures and temperatures to produce a high-pressure gas stream that can drive a gas turbine, and steam generated from the heat in the fluidized bed is sent to a steam turbine, creating a highly-efficient combined cycle system.

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<sup>10</sup> Primary information source: Parsons Infrastructure & Technology, 1998, *Market-Based Advanced Coal Power Systems*, prepared for the U.S. Department of Energy, Office of Fossil Energy (December).

<sup>11</sup> For a discussion of current applications see, Power Engineering, 2000, *Fluidized Bed Combustion—Solid Fuel Survivor* (September).

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First-generation PFBC systems, now undergoing commercial demonstration in the Clean Coal Technology Demonstration Program, are capable of achieving efficiencies up to 42%.

PFBC advantages:

- Capital costs lower than sub-critical plants.
- Lower levelized costs.
- Fuel flexibility.
- Ability to add other building block technologies to improve efficiency and performance.
- Significantly lower NO<sub>x</sub> and SO<sub>2</sub> emissions than sub-critical boilers.
- Significantly higher efficiencies than sub-critical boilers.

PFBC disadvantages:

- Demonstrated at small scale, <100 MW.
- Encountered problems feeding solids into pressurized system.
- Environmental performance may not achieve more stringent NSPS requirements expected in future.

**Second Generation PFBC**, now in DOE's Fossil Energy R&D program, a pressurized carbonizer is added to process the feed coal into fuel gas and char (to resolve solids feed problem with first generation PFBC). The PFBC burns the char to produce steam and to heat combustion air for the gas turbine. The fuel gas from the carbonizer burns in a topping combustor linked to a gas turbine. The gases are heated to the rated firing temperature of the combustion turbine. The gas turbine heat recovery steam generator (HRSG) produces more steam for a conventional steam turbine, resulting in a higher efficiency level for the combined cycle system.

Advantages and disadvantages of a second-generation system are similar to those of first generation systems. There are, however, two differences: second-generation systems should have considerably higher efficiencies, and they will not have a solids feed problem (due to the carbonizer). Nevertheless, second-generation PFBC is a more complex system that will require further development before commercialization. With increasingly stringent environmental regulations on the horizon, the longer development time coupled with the limited PFBC environmental performance may foreclose particular market niches.

### 2.3 Integrated Gasification Combined-Cycle (IGCC)<sup>12</sup>

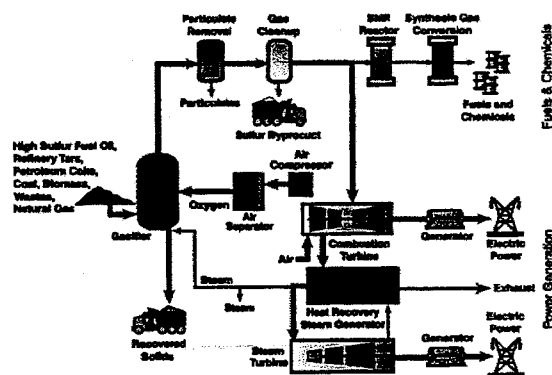
IGCC utilizes a coal gasifier—instead of a traditional coal combustor—that is coupled with an advanced gas turbine. By gasifying the coal (instead of combusting it), the IGCC configuration provides high system efficiencies and ultra-low pollution levels.

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<sup>12</sup> Primary information source: Parsons Infrastructure & Technology, 1998, *Market-Based Advanced Coal Power Systems*, prepared for the U.S. Department of Energy, Office of Fossil Energy (December).

The gasification process converts any carbon-containing material into a synthesis gas composed primarily of carbon monoxide and hydrogen, which can be used as a fuel to generate electricity or steam or used as a basic chemical building block for a large number of uses in the petrochemical and refining industries. Gasification adds value to low- or negative-value feedstocks by converting them to marketable fuels and products.

Figure 2. 1 Illustration of Gasification Cycle



Gasification technologies differ in many aspects but share certain general production characteristics. Typical raw materials used in gasification are coal, petroleum based materials (crude oil, high sulfur fuel oil, petroleum coke, and other refinery residuals), gases, or materials that would otherwise be disposed of as waste. The feedstock is prepared and fed to the gasifier in either dry or slurried form. The feedstock reacts in the gasifier with steam and oxygen at high temperature and pressure in a reducing (oxygen starved) atmosphere. This produces the synthesis gas, or syngas, made up primarily of carbon monoxide and hydrogen (more than 85% by volume) and smaller quantities of carbon dioxide and methane.

The high temperature in the gasifier converts the inorganic materials in the feedstock (such as ash and metals) into a vitrified material resembling coarse sand. With some feedstocks, valuable metals are concentrated and recovered for reuse. The vitrified material, generally referred to as slag, is inert and has a variety of uses in the construction and building industries.

Gas treatment facilities refine the raw gas using proven commercial technologies that are an integral part of the gasification plant. Trace elements or other impurities are removed from the syngas and are either recirculated to the gasifier or recovered. Sulfur is recovered either in its elemental form or as sulfuric acid, both marketable commodities.

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If the syngas is to be used to produce electricity, it is burned in a gas turbine to generate electricity. Exhaust heat from the gas turbine is used to produce steam for a conventional steam turbine, resulting in the two cycles of electric power generation. There is no need for tail end or post-combustion technologies to remove/reduce the SO<sub>2</sub> or NO<sub>x</sub> emissions in the resulting flue gas.

The syngas can also be processed using commercially available technologies to produce a wide range of products—fuels, chemicals, fertilizer or industrial gases. Some facilities have the capability to produce both power and products from the syngas, depending on the plant's configuration as well as site specific technical and market conditions.<sup>13</sup>

*First-generation IGCC systems* are assumed to use entrained-bed (Destec) gasifiers that are oxygen blown, supplying medium-Btu gas to a gas turbine/combined cycle block. Cleanup of the synthesis gas is accomplished by first cooling the product gas. A General Electric MS 7001FA gas turbine is used. Two gas turbines are coupled with a single steam turbine to produce a nominal 540 MWe net output.<sup>14</sup>

As shown in Table 2.2, this system achieves 40% efficiency (HHV, based on Illinois #6 coal), emits 1/5<sup>th</sup> the SO<sub>2</sub>, 1/15<sup>th</sup> the NO<sub>x</sub>, but higher CO<sub>2</sub> emissions<sup>15</sup> than sub-critical PC boilers. Its capital cost is about 20% higher than conventional systems. This plant configuration is based on the technology demonstrated at the Wabash River Coal Gasification Repowering Project, but for a greenfield site with a new steam turbine.<sup>16</sup>

*Intermediate IGCC systems* use the same gasifier (as first generation systems), but with hot gas cleanup and a Westinghouse W501G turbine. This configuration is designed for commercial operation in 2005.

Intermediate IGCC systems produce a net output of 349 MWe at a net efficiency of 45% (HHV, based on Illinois #6 coal). It has about the same environmental performance as first generation systems. However, CO<sub>2</sub> emissions are about 30% lower than conventional PC systems. The higher efficiency and lower CO<sub>2</sub> emissions result from not having to cool the synthesis gas before it is cleaned. The capital cost of intermediate systems is about 10% higher than a conventional PC, but busbar costs are about the same because of their higher efficiencies.<sup>17</sup>

The first *advanced IGCC system* is configured to use an air-blown, fluidized-bed gasifier (MW Kellogg) with hot gas cleanup and a General Electric H-Frame advanced turbine system. In this design, one gas turbine is combined with a steam turbine on a single shaft, driving one electric

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<sup>13</sup> U.S. Department of Energy, 1991, *Report to Congress: COAL REFINERIES – A Definition and Example Concepts*, DOE/FE-0240P, (July).

<sup>14</sup> See Exhibit C.1 for a flow diagram and additional plant performance and emissions data.

<sup>15</sup> Higher CO<sub>2</sub> emissions result from the need to cool the synthesis gas produced in the gasifier before sulfur is extracted from it.

<sup>16</sup> U.S. Department of Energy, 1996, *The Wabash River Coal Gasification Repowering Project*, Topical Report #7 (November).

<sup>17</sup> See Exhibit C.2 for a flow diagram and additional plant performance and emissions data.

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generator. The IGCC portion of the plant is configured with two gasifier islands, including in-situ desulfurization with a hot gas polisher.<sup>18</sup>

The second version of the advanced IGCC has the same balance of plant design, but with a Destec entrained, oxygen-blown gasifier. This IGCC configuration will produce a nominal 500 MWe net output, with a target in-service date of 2010. The IGCC portion of the plant is configured with one gasifier island, which includes a transport reactor type hot gas desulfurizer. The resulting plant produces net output of 427 MWe at a net efficiency of 49 percent (HHV, based on Illinois #6 coal).<sup>19</sup>

As indicated in Table 2.2, both advanced IGCC systems have thermal efficiencies that approach 50%, due to their lower heat rates. While emissions from advanced IGCC systems are approximately equivalent to intermediate systems, there is a significant cost advantage in terms of capital, operating and busbar. The capital cost of advanced IGCC systems is estimated to be approximately 10% less than conventional PC systems, with the levelized cost of electricity estimated to be 15-20% lower.

The economic advantages of the gasification-based system are its use of low-cost feedstocks, its high efficiency in resource use, its economically efficient reduction of environmental pollutants, and its integration of processes within the plant complex. In addition, it can deliver high-value products. Modularity and phased construction can distribute capital expenditures to meet financing requirements. Repowering can use existing plant infrastructure to reduce up-front expenditures. By-products, such as sulfur, are also marketable. Because advanced gasification systems will use regenerable sorbents and catalysts, the costs of replenishing these supplies as well as the costs of disposal can be avoided.

IGCC advantages:

- High efficiencies (41-50%).
- Lower capital costs for advanced designs (~\$200/kW relative to FOAK and intermediate IGCC systems, and PC plants).
- Repowering—components of an IGCC system can be integrated into an existing power plant in modular form, allowing a user to take advantage of an existing site and its steam-generating equipment. Staged additions can be made in blocks to match one or more steam generators, and will give the resulting system 2.5 times the generating capacity.<sup>20</sup>
- Modularity—the modular nature of IGCC plant systems allow for staged additions in blocks ranging in size from 100-450 MW. As advanced turbine systems evolve, the capacity of single units will increase, and the trend will be to add larger-capacity modules.

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<sup>18</sup> See Exhibit C.3 for a flow diagram and additional plant performance and emissions data.

<sup>19</sup> See Exhibit C.4 for a flow diagram and additional plant performance and emissions data.

<sup>20</sup> Bechtel Power Corp. et. al., 1994, "Final Report: Electric Utility Repowering Assessment", prepared for the Gas Research Institute, Report GRI-94/0093 (February)



- Fuel flexibility—the gasifier has the flexibility to handle a variety of feedstocks. In addition to coal, possible feedstocks include petroleum coke, refinery liquids, biomass, municipal solid waste, tires, plastics, hazardous wastes and chemicals, and sludge.<sup>21</sup> These alternative feedstocks are typically low-cost, sometimes even of negative expense. When a low-cost feed is used, the economics of gasification are enhanced and marketable products are created from a waste stream, avoiding disposal costs.
- Phased construction—IGCC systems are unique in the economical way in which they meet the demands of utility growth patterns. A first-phase installation might include only a gas turbine, operating as a simple natural-gas-fired cycle and providing two-thirds of the plant's ultimate capacity. Addition of a steam turbine would create a combined cycle with full capacity. A third phase of installation would integrate a gasifier and gas cleanup system when justified by low coal prices, lack of gas availability, or need for conversion to baseload capacity.<sup>22</sup> Figure 2.2 illustrates the phased construction IGCC plants.
- Low water use—the water required to operate an IGCC plant is only 50-70% of the quantity required to run a PC plant with a flue gas desulfurization (FGD) system.
- Marketable byproducts—waste disposal is minimal at an IGCC plant. The sulfuric acid or elemental sulfur that is produced is a marketable product. Ash and any trace elements are melted, and when cooled, become an environmentally safe, glass-like slag that can be used in the construction or cement industries.<sup>23</sup>
- Production of multiple high-valued co-products—in addition to producing electricity, the coal gasification process can be used to co-produce such products as fuels in the form of methanol or gasoline, urea for fertilizer, hot metal for steel making, and chemicals.<sup>24</sup>

IGCC disadvantages:

- Complexity of operating these “chemical” plants, by traditional (mechanical) power engineers

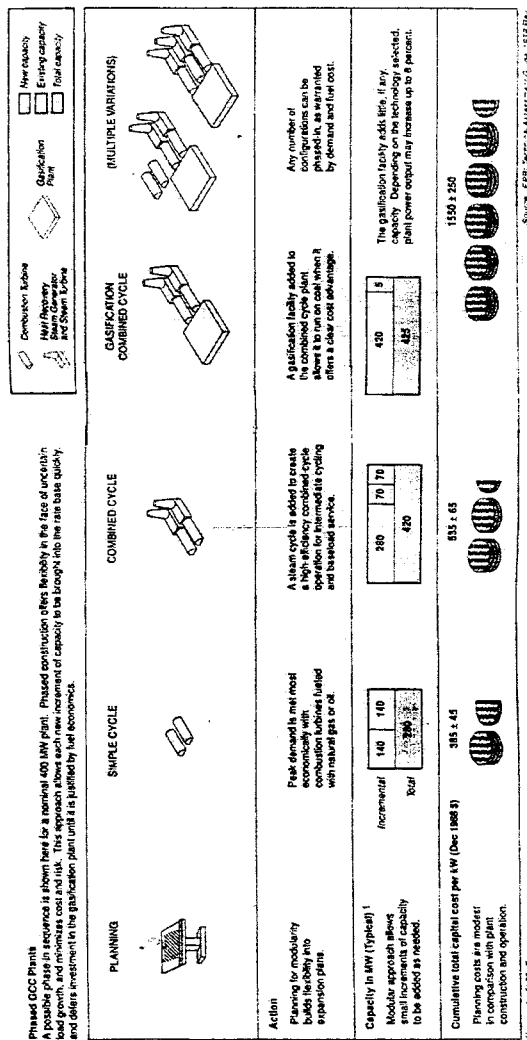
<sup>21</sup> Holt, N., 1999, *What's in the Pipeline? New Projects and Opportunities*, 1999 Gasification Technologies Conference (October).

<sup>22</sup> Flour Daniel, Inc., 1990, *Phased Construction of Gasification-Combined Cycle Power Plants*, prepared for the Electric Power Research Institute # GS-7224 (November).

<sup>23</sup> Caputo, C et. al., 2000, “*Repowering Conventional Coal Plants With Texaco Gasification: The Environmental and Economic Solution*”, presented at the Gasification Technologies Conference (October); Holt, N., 1999, *What's in the Pipeline? New Projects and Opportunities*, 1999 Gasification Technologies Conference (October).

<sup>24</sup> U.S. Department of Energy, 1991, *Report to Congress: COAL REFINERIES – A Definition and Example Concepts*, DOE/FE-0240P, (July).

Figure 2.2 Illustration of Construction Phases of Gasification Combined-Cycle Plants



- Stage of development—several demonstrations of IGCC technology have successfully documented the technical feasibility of the technology. However, long-term operation under utility conditions and significant reductions in cost to levels approaching those required to be competitive with NGCC have not yet been fully demonstrated in the U.S.<sup>25,26</sup>

#### 2.4 Experience with CCTP Power Generation Projects<sup>27</sup>

Pollution control was a priority early in the CCT Program. Besides abatement technologies, the program included technologies that could effectively “repower” aging plants faced with the need to both reduce emissions and respond to growing power demands. Repowering is an important option because existing power generation sites have significant economic value. In addition, the fuel delivery and power transmission infrastructure already exist, together with the environmental permits, so siting issues common to a new plant are averted.<sup>28</sup> These attributes resulted in three repowering projects be awarded early in the CCT Program—two ACFB projects and a PFBC project.

As the CCT Program unfolded, a number of energy and environmental issues combined to change the emphasis toward high-efficiency, low-emission power generation technologies for both repowering and new power applications. This emphasis was deemed essential to enable coal to fulfill its projected contribution to the nation's energy mix well into the 21<sup>st</sup> century. Environmental issues included a growing concern over greenhouse gas (GHG) emissions, capping of SO<sub>2</sub> emissions, increasing attention to NO<sub>x</sub> in ozone nonattainment areas, and recognizing fine particulate emissions (respirable particulates, PM<sub>2.5</sub>) as a particular health threat.

These environmental issues prompted follow-on projects in PFBC, initiation of projects in IGCC, and projects in advanced combustion and heat engines. Higher efficiency and lower emission generating technologies were required to comply with increasingly stringent and more comprehensive regulations than could be achieved with earlier-designed AFBC and PFBC technologies.

**Fluidized-Bed Combustion.** The Tri-State Generation and Transmission Association, Inc.'s Nucla Station repowering project provided the database and operating experience requisite to make ACFB a commercial technology option at the utility scale. At 110 MWe, the Nucla ACFB unit was more than 40 percent larger than any other ACFB at that time. Up to 95 percent SO<sub>2</sub>

<sup>25</sup> Exhibit A.4 profiles the IGCC projects in the CCTP.

<sup>26</sup> Todd, D., 2000, *Gas Turbine Improvements Enhance IGCC Viability*, presented at 2000 Gasification Technologies Conference (October); Brkic, D. and D.C. Cooperberg, 1999, *Recent Cost Reductions Increase IGCC Competitiveness*, presentation at 1999 Gasification Technologies Conference (October); McConnell, F. et. al, *Gasification Project Economics and Critical Success Factors To Compete In the Marketplace*, 2000, presentation at the 2000 Gasification Technology Conference (October).

<sup>27</sup> U.S. Department of Energy, 2000, *Clean Coal Technology Demonstration Program, Program Update, As of September 1999*, Assistant Secretary for Fossil Energy (April).

<sup>28</sup> McConnell, C. et. al, 2000, *Gasification Project Economics and Critical Success Factors To Compete In the Marketplace*, presentation at the 2000 Gasification Technology Conference (October).

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removal was achieved during the 15,700 hours of demonstration, and NO<sub>x</sub> emissions averaged 0.18 lb/10<sup>6</sup> Btu.<sup>29</sup> The thrust of this effort was to fully evaluate the environmental, operational, and economic performance of ACFB. As a result, the most comprehensive database on ACFB technology available to date was developed. Based on this knowledge, commercial units were offered and built.

While the Nucla project established commercial acceptance of ACFB at moderate utility capacities, a second CCT demonstration project, located in Jacksonville, Florida, is carrying on where Nucla left off. JEA (formerly Jacksonville Electric Authority) is building a 300-MWe plant, which will have the distinction of being the largest ACFB in the world, as well as one of the cleanest.<sup>30</sup>

Today, every major U.S. boiler manufacturer offers an ACFB in its product line. There are now more than 120 fluidized-bed combustion boilers of varying capacities operating in the United States, and the technology has made significant market penetration abroad.

Through the Ohio Power Company's (American Electric Power subsidiary) repowering of the *Tidd Plant* (70 MWe), the potential of PFBC as a highly efficient, very low pollutant emission technology was established and the foundation was laid for commercialization. The PFBC system constructed was the first utility-scale system in the United States. Efforts were focused on fully evaluating the performance potential. With over 11,444 hours of operation, the technology successfully demonstrated SO<sub>2</sub> removal efficiencies up to 95 percent with very high sorbent utilization (calcium-to-sulfur molar ratio of 1.5). NO<sub>x</sub> emissions ranged from 0.15-0.33 lb/10<sup>6</sup> Btu, but were typically 0.2 lb/10<sup>6</sup> Btu during the demonstration. These emissions were inherent to the process, which was operating at approximately 1,580°F. No NO<sub>x</sub> control enhancements, such as ammonia injection, were required. Emissions of carbon monoxide and particulates were less than 0.01 and 0.02 lb/10<sup>6</sup> Btu, respectively. The plant is no longer in operation.

The Tidd Plant PFBC was one of the first generation 70-MWe P200 units installed in the early 1990s. Others were built and operated in Sweden, Spain, and Japan. ABB Carbon, the technology supplier, used a "bubbling" fluidized-bed design, which is characterized by low fluidization velocities and use of an in-bed heat exchanger.

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<sup>29</sup> While this NO<sub>x</sub> emission rate was not beyond NSPS/NSR applicable to coal plants at the time the project was proposed, the recent SIP Call and revised NSPS-NO<sub>x</sub> requirements specify an emission rate of 0.15 lbs./10<sup>6</sup> Btu. Furthermore, BACT requirements for NSR, based on NGCC, have pushed this rate to 0.1 lb./MMBtu in nonattainment areas. BACT that is fuel specific has been proposed to remove this bias against coal. Today, the FBC NO<sub>x</sub> emissions rate is greater than the SIP Call and revised NSPS, so it alone cannot meet the requirements. However, if there is a cap & trade program, the FBC could purchase additional allowances necessary to achieve compliance.

<sup>30</sup> The JEA project, currently in the design phase, moves atmospheric fluidized-bed combustion technology to the larger sizes of utility boilers typically considered in capacity additions and replacements. The nominal 300-MWe demonstration unit will be more than double the size of the Nucla unit (110-MWe). Features include an integrated recycle heat exchanger (INTREX™) in the furnace, steam-cooled cyclones, a parallel pass reheat control, an SO<sub>2</sub> polishing scrubber, and a fabric filter for particulate control. Expected environmental performance is 0.17 lb/10<sup>6</sup> Btu for SO<sub>2</sub> (98% reduction), 0.09 lb/10<sup>6</sup> Btu for NO<sub>x</sub>, and 0.017 lb/10<sup>6</sup> Btu for total particulates (0.013 lb/10<sup>6</sup> Btu for PM<sub>10</sub>).

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The first utility scale PFBC—a 360-MWe P800—was built in Japan and has been in operation for slightly less than one year. While designed for full load operation, it has not yet been achieved due to operating problems. Current emissions data are not available yet; its target emissions characteristics are comparable to other PFBCs. A "second generation" P200 PFBC with freeboard-firing is currently operating in Cottbus, Germany. A number of other ABB Carbon PFBC projects are under consideration in China, South Korea, the United Kingdom, Italy, and Israel.

Two ongoing interrelated projects, *McIntosh 4A and McIntosh 4B* at the McIntosh Power Station of Lakeland Electric (Lakeland, Florida), will demonstrate PCFB at a utility scale.<sup>31</sup> PCFB uses a higher fluidization velocity than bubbling-bed systems that entrains the bed material. Bed material is separated from the flue gas by cyclones and recirculated to the combustor. The economizer—that captures heat from the flue gas—is downstream of the cyclones.

McIntosh 4A will evaluate a 137-MWe first generation PCFB configuration using Foster Wheeler technology. The projected net heat rate is approximately 9,480 Btu/kWh (HHV), which equates to an efficiency greater than 36%. Environmental attributes include in situ sulfur removal of 95%, NO<sub>x</sub> emissions less than 0.3 lb/10<sup>6</sup> Btu, and particulate matter discharge less than 0.03 lb/10<sup>6</sup> Btu. Solid waste will increase slightly as compared to conventional systems, but the dry material is readily disposable or potentially usable.

McIntosh 4B will demonstrate a second-generation system by integrating a small coal gasifier (pyrolyzer) to fuel the gas turbine "topping cycle," thereby adding 103 MWe capacity. The second generation PCFB has the potential to significantly improve the efficiency of pressurized fluidized-bed systems by increasing power generation from the gas turbine, which is more efficient than the steam bottom cycle. The 240-MWe (net) plant is expected to have a heat rate of 8,406 Btu/kWh (40.6% efficiency, HHV). The design SO<sub>2</sub> capture efficiency rate is 95%. Particulate and NO<sub>x</sub> emissions are expected to be 0.02 lb/10<sup>6</sup> Btu and 0.17 lb/10<sup>6</sup> Btu, respectively. In the final configuration, the gas turbine will produce 58 MWe and the steam turbine will produce 207 MWe, while plant auxiliaries will consume about 25 MWe.

**Integrated Gasification Combined-Cycle.** Three of four IGCC projects are in an operating status under the CCT Program. They represent a diversity of gasifier types, cleanup systems, and applications.

*PSI Energy's 262-MWe Wabash River Coal Gasification Repowering Project* began operation in November 1995 and continues in its fifth year of commercial service. The utility dispatches the unit over other coal-fired units because of its high efficiency. The unit—the world's largest single train IGCC—has operated on coal for approximately 15,000 hours and processed approximately 1.5 million tons of coal to produce about 23 x 10<sup>12</sup> Btu of syngas. The facility is

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<sup>31</sup> The project schedule anticipates the start of commercial operation of the PCFB (McIntosh 4A) in 2003. In parallel with the first two years of operation of the PCFB, the design, fabrication, and construction of the topped PCFB technology (McIntosh 4B) will occur, with a planned start of operation in 2005.

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demonstrating a heat rate of 8,910 Btu/kWh (HHV) with SO<sub>2</sub> emissions of 0.1 lb/10<sup>6</sup> Btu. Total NO<sub>x</sub> emissions are 0.15 lb/10<sup>6</sup> Btu, with particulate emissions are below detectable limits.

The *250-MWe Tampa Electric Integrated Gasification Combined-Cycle Project* (Polk Power Station, Mulberry Florida) began commercial operation in September 1996 and is still operating. The Polk Power project was intended to demonstrate IGCC technology in a greenfield commercial electric utility application at the 250-MWe size using an entrained-flow, oxygen-blown gasifier with full heat recovery, conventional cold-gas cleanup, and an advanced gas turbine with nitrogen injection for power augmentation and NO<sub>x</sub> control.

The gasifier has accumulated over 15,000 hours of operation and produced over 3,500,000 MWh of electricity on syngas. Tests have included evaluation of various coal types on system performance. A conventional amine sulfur removal system keeps SO<sub>2</sub> emissions below 0.15 lb/10<sup>6</sup> Btu (97% capture). The cleaned gases are then reheated and routed to a combined-cycle system for power generation. A GE MS7001FA combustion turbine generates 192 MWe (gross). Thermal NO<sub>x</sub> is controlled to below 0.27 lb/10<sup>6</sup> Btu by injecting nitrogen. A steam turbine uses steam produced by cooling the syngas and superheated with the combustion turbine exhaust gases in the HRSG to produce an additional 124 MWe. The plant heat rate is 9,350 Btu/kWh (HHV), which is an efficiency of 38.4% (LHV).

The Sierra Pacific Power Company (SPPC) continues to make progress on its IGCC system. The *99-MWe Piñon Pine IGCC Power Project* at SPPC's Tracy Station began operation on natural gas in November 1996. The GE Frame 6FA, the first of its kind in the world, performed well. The plant has undergone shakedown, and design modifications have been made. The system has achieved steady state gasifier operation for short periods through September 1999, but continues to experience difficulty with sustained operations. When operational, the IGCC plant will remove 95+% of the sulfur in the coal. Due to the relatively low operating temperature of the gasifier and the injection of steam into the combustion fuel stream, the NO<sub>x</sub> emissions are expected to be 70% less than a conventional coal-fired plant. The IGCC will produce 20% less CO<sub>2</sub> than conventional plants.

The *Kentucky Pioneer Energy IGCC Demonstration Project* (East Kentucky Power Cooperative Smith Site, Clark County, Kentucky), which is in the design stage, will offer yet another gasifier design and include the testing of a fuel cell operated on syngas from the coal gasifier. The 400 MWe (net) BGL slagging fixed-bed gasification system will be coupled with a 2.0 MWe molten carbonate fuel cell (MCFC) supplied by Fuel Cell Energy, Inc (formerly Energy Research Corporation).

The IGCC system being demonstrated in the Kentucky project is suitable for both repowering applications and new power plants. The technology is expected to be adaptable to a wide variety of potential market applications- because of several factors. First, the BGL gasification technology has successfully used a wide variety of U.S. coals. Also the highly modular approach to system design makes the BGL-based IGCC and MCFC competitive in a wide range of plant sizes. In addition, the high efficiency and excellent environmental performance of the system are competitive with or superior to other fossil-fuel-fired power generation technologies.

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The heat rate of the Kentucky IGCC demonstration facility is projected to be 8,500 Btu/kWh (40% efficiency) and the commercial embodiment of the system has a projected heat rate of 8,035 Btu/kWh (42.5% efficiency). The commercial version of the MCFC fueled by a BGL gasifier is anticipated to have a heat rate of 7,379 Btu/kWh (46.2% efficiency). These efficiencies represent a greater than 20% reduction in emissions of CO<sub>2</sub>, when compared with a conventional pulverized coal plant equipped with a scrubber. SO<sub>2</sub> emissions from the IGCC system are expected to be less than 0.1 lb/10<sup>6</sup> Btu (99% reduction); and NO<sub>x</sub> emissions less than 0.15 lb/10<sup>6</sup> Btu (90% reduction).

Construction is scheduled to start in February 2001, with initial operation in July 2003. The plant is expected to operate for one-year, until July 2004. The project will provide valuable data for design of an integrated gasification fuel cell (IGFC) system. IGFC has the potential to achieve efficiencies greater than 60 percent.

**Advanced Combustion/Heat Engines.** Two projects are demonstrating advanced combustion/heat engine technology. The *Healy Clean Coal Project* is demonstrating TRW's entrained (slagging) combustor combined with Babcock & Wilcox's spray-dryer absorber using sorbent recycle. Operations commenced in January 1998. Results from environmental compliance testing showed very low emissions—0.26 lb/10<sup>6</sup> Btu for NO<sub>x</sub>, 0.01 lb/10<sup>6</sup> Btu for SO<sub>2</sub>, and 0.0047 lb/10<sup>6</sup> Btu for particulates. Permit levels are 0.35 lb/10<sup>6</sup> Btu for NO<sub>x</sub>, 0.086 lb/10<sup>6</sup> Btu for SO<sub>2</sub>, and 0.03 lb/10<sup>6</sup> Btu for particulates because of the plant's proximity to a national park.

The *Clean Coal Diesel Demonstration Project* is evaluating an 18-cylinder, heavy-duty engine (6.4-MWe) operating on a low-rank coal-water-fuel (LRCWF) slurry.<sup>32</sup> The project is expected to have very low NO<sub>x</sub> and SO<sub>2</sub> emission levels (50%-70% below current New Source Performance Standards). In addition, the demonstration plant is expected to achieve 41% efficiency, while future plant designs are expected to reach 48% efficiency. This will result in a 25% reduction in CO<sub>2</sub> compared to conventional coal-fired plants. Final design of the LRCWF processing plant has been completed. Construction of the LRCWF has been delayed until May 2001 due to funding shortages. A revised plan and schedule for the demonstration test of the 18-cylinder diesel on coal slurry is being developed.

Commercialization successes for advanced electric power generation systems to date are summarized in Table 2.3.

## 2.5 Future Clean Coal Technologies

Other advanced coal-based systems are being developed or in early stages of demonstration. One is called Vision 21. Vision 21 is a new approach to 21st century energy production from fossil fuels being developed by the U.S. Department of Energy.

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<sup>32</sup> Based on Alaska sub-bituminous coal. The LRCWF is prepared using an advanced coal drying process that allows dried coal to be slurried in water. In addition to the LRCWF being capable for use in the coal-fueled diesel engine, the LRCWF is expected to be an alternative to fuel oil in conventional oil-fired industrial boilers.

**Table 2.3 Commercial Success—Advanced Electric Power Generation Projects**

Project	Commercial Use
Tidd PFBC Demonstration Project (The Ohio Power Company)	<b>Sold internationally.</b> Success of the project has led Babcock & Wilcox to invest in the technology and acquire domestic licensing rights. Commercial ventures abroad include the following: <ul style="list-style-type: none"> <li>– Vartan in Sweden is operating two P200 units to produce 135 MWe and 224 MWt;</li> <li>– Escatron in Spain is operating one P200 unit producing 80 MWe;</li> <li>– Wakamatsu in Japan is operating one P200 unit to produce 71 MWe;</li> <li>– Cottbus in Germany is operating one P200 unit to produce 71 MWe and 40 MWt;</li> <li>– Karita in Japan operates one P800 unit to produce 360 MWe; and</li> <li>– Other projects under construction are in China, South Korea, U.K., and Israel.</li> </ul>
Nucla CFB Demonstration Project (Tri-State Generation and Transmission Association, Inc.)	<b>Sold domestically and internationally.</b> Today, every major boiler manufacturer offers an ACFB system in its product line. Since the demonstration, commercial sales of 29 units greater than 100 MWe have been realized, representing 6.2 gigawatts of capacity valued at nearly \$6 billion.
Tampa Electric Integrated Gasification Combined-Cycle Project (Tampa Electric Company)	<b>Sold domestically and internationally.</b> First greenfield IGCC unit in commercial service. Texaco, Inc., and ASEA Brown Boveri signed an agreement forming an alliance to market IGCC technology in Europe. There are currently 10 IGCC projects using a Texaco gasifier that are either planned or under construction.
Wabash River Coal Gasification Repowering Project (Wabash River Coal Gasification Repowering Project Joint Venture)	<b>No sales reported.</b> First repowered IGCC unit in commercial service and is the world's largest single train IGCC in commercial service. Preferentially dispatched over other coal-fired units is PSI Energy's system because of high efficiency.
Pifon Pine IGCC Power Project (Sierra Pacific Power Company)	<b>No sales reported.</b> Unit in initial operation preparatory to commercial service.
Healy Clean Coal Project (Alaska Industrial Development and Export Authority)	<b>No sales reported.</b> TRW offering licensing of combustor worldwide (China agreement in place). Commercial operation tests are ongoing.

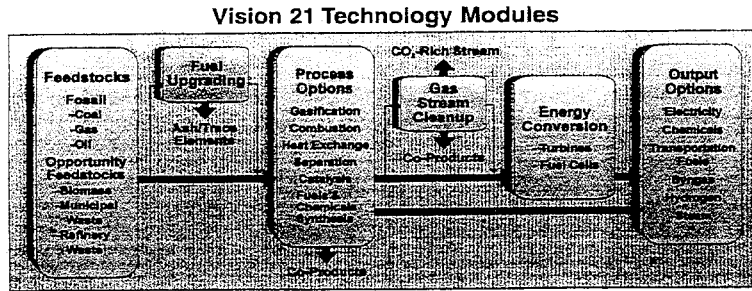
Source: U.S. Department of Energy, *Clean Coal Technology Demonstration Program, Program Update, As of September 1999*, Assistant Secretary for Fossil Energy (April 2000).

As illustrated in Figure 2.3, Vision 21 will integrate advanced concepts for using a variety of feedstocks to co-produce electric power, process heat and high value fuels and chemicals with virtually no emissions of air pollutants. Vision 21 technologies will be capable of a variety of configurations to meet differing market needs, including both distributed and central power generation.<sup>33</sup> For example, IGCC with fuel cells, where synthesis gas produced by the gasifier would be stripped of its hydrogen and used as input to a fuel cell. If these Vision 21 concepts are successfully demonstrated, they may be ready for commercial use in the future. Another concept being researched at DOE is hybrid fuel cell/advanced turbine systems.

<sup>33</sup> U.S. Department of Energy, *Vision 21—Clean Energy for the 21<sup>st</sup> Century*, Office of Fossil Energy and National Energy Technology Laboratory (1999).



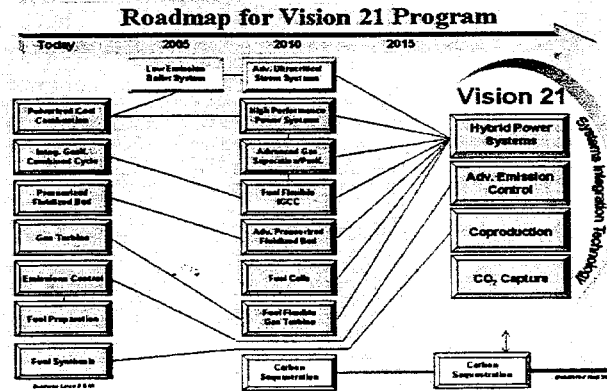
Figure 2.3 Vision 21 Technology Modules



Many of the initial building blocks for 21<sup>st</sup> Century Energy Plants are emerging from DOE's advanced technology programs. Projects in the Clean Coal Technology Program have pioneered the use of coal gasification and pressurized fluidized bed combustion to produce a gas for combustion turbines and advanced processes for converting coal-derived gas into liquid fuels. New types of fuel cells and a revolutionary high-efficiency gas turbine are being developed in the DOE R&D Program.

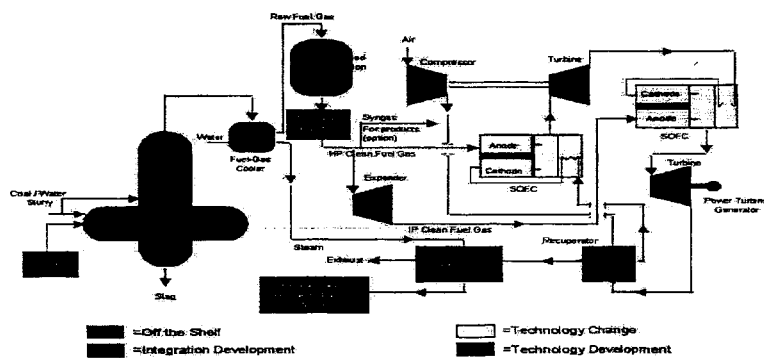
As illustrated in Figure 2.4, the Vision 21 program provides a roadmap for integration and further advancement of these technologies to provide progressively cleaner and more efficient energy production.

Figure 2.4 Roadmap for Vision 21 Program



Several configurations of Vision 21 systems have been analyzed to determine whether the thermal efficiency targets can be met and, if so, what levels of performance would be required from the different subsystems and components. The configurations studied were developed from familiar "building blocks," including gasifiers, combustors, fuel cells, combustion turbines, and steam turbines; however, these systems are examples and there is no suggestion that they are likely configurations for future Vision 21 plants.<sup>34</sup>

**Gasification/Gas Turbine/Fuel Cell Cycle.** A high efficiency gasification/gas turbine/fuel cell hybrid cycle has been investigated. The heat and mass balance indicates that it is thermodynamically feasible to achieve 60% efficiency (HHV) using coal as the fuel. The gas turbine, fuel cell, and gasifier technology selected for the cycle represent the state-of-the-art in our current development programs.



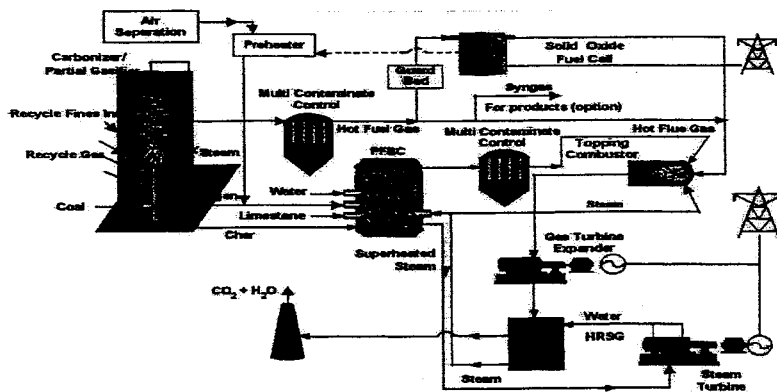
Many of the subsystems and components in this system have not been tested at the indicated scales or operating conditions. The challenge is to integrate the subsystems at the correct sizes and conditions, simplify the cycle, develop a control strategy and the means to implement it, and reduce cost.

The plant design that has been evaluated produces 560 MW (gross) or 520 MW (net) power. The fuel is Illinois No. 6 coal containing 2.5% sulfur. The coal is gasified in an entrained bed gasifier operating at 15 atmospheres pressure. A cold gas conversion efficiency of 84% is assumed. The fuel gas is cleaned, cooled, and desulfurized before entering a solid oxide fuel cell (SOFC) operating at 15 atm. and 1000 degrees celsius. A portion of the gasifier fuel gas is reduced in pressure through an expander/turbine before entering a second, low pressure, SOFC operating at 3 atmospheres. Ninety percent of the fuel constituents are converted within the cell chambers to

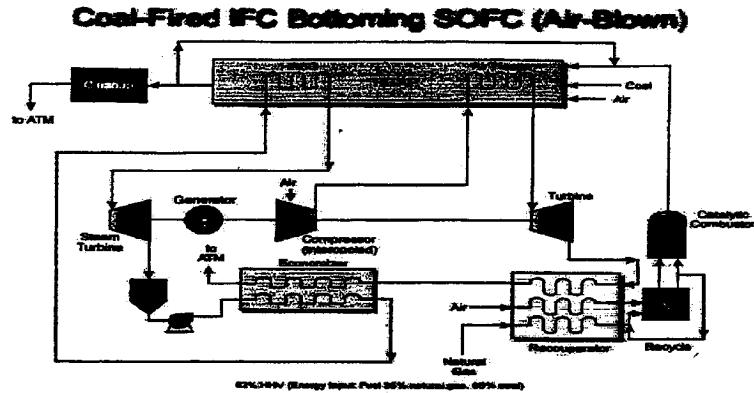
<sup>34</sup> Source: [www.netl.doe.gov/products/power1/vision21](http://www.netl.doe.gov/products/power1/vision21).

produce electricity. The remaining fuel is combusted with the oxidant exhaust streams from the SOFC cathodes to boost the heat energy available for use in the two cascaded turboexpanders. Heat from the turbine exhausts and from the fuel gas cooler is used to generate steam for a reheat steam cycle operating at 1450psi and 538 degrees celsius. Of the 560 MW gross power, 33% is provided by the high-pressure SOFC, 21% by the low-pressure SOFC, 25% from the turboexpanders, and 21% from the steam turbine.

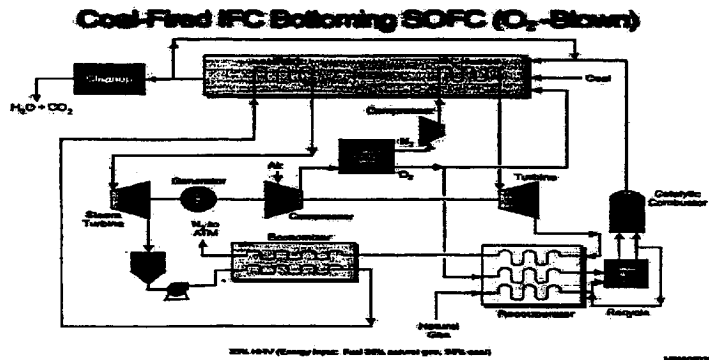
**Combustion/Gas Turbine/Fuel Cell Cycle.** A 350 MW combustion/gas turbine/fuel cell cycle that also achieves a theoretical efficiency of 60% has been evaluated. In this system, both the partial gasifier and fluidized bed use coal and oxygen, the latter being provided by a conventional air separation unit. The result is that the exhaust from the system contains only CO<sub>2</sub> and water, making the system readily adaptable to CO<sub>2</sub> recovery and sequestration. Steam is used to moderate temperatures in the pressurized fluidized bed combustor (PFBC) and in the topping combustor. Fuel gas from the partial gasifier, after cleaning, goes to a SOFC, which generates about 8% of the 350 MW gross power. Combustibles remaining in the SOFC exhaust are burned in the topping combustor, which is also used to raise the temperature of the PFBC flue gas. The hot, pressurized topping combustor exhaust is used in a turboexpander to produce about 40% of the power output. Steam produced from heat in the PFBC and the turboexpander exhaust is used in a steam cycle, producing 52% of the power output.



**Indirectly Fired Cycle Bottoming Fuel Cell.** Indirectly fired cycles do not require hot gas cleanup before the gas turbine because only clean air, or an alternative working fluid, contacts the turbine. A coal-fired indirectly fired cycle that bottoms a natural gas-fueled solid oxide fuel cell (SOFC) has been evaluated. The energy in the SOFC exhaust is utilized in the HITAF (high-temperature air furnace).

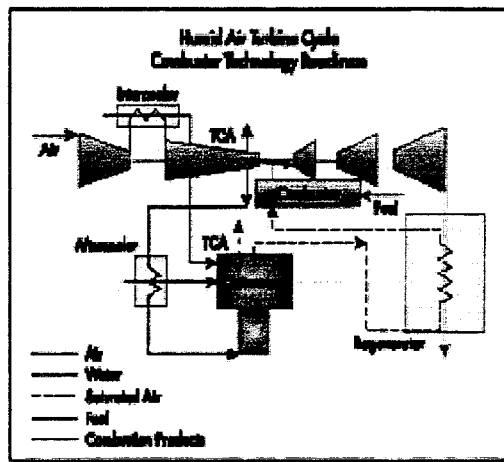


Coal is also burned in the HITAF to heat air for the turbine and to generate steam for a steam cycle. The efficiency of this cycle, with gas turbine inlet conditions of 20 atm. and 1400°C, is 62% (HHV). About 30% of the power is generated by the fuel cell. Coal provides 65% of the fuel input and natural gas provides the remaining 35%. A similar indirectly fired cycle incorporating an air separation unit (ASU) has been evaluated. The ASU has been added in order to make the cycle "sequestration ready," i.e., the exhaust contains only CO<sub>2</sub> and water. Nitrogen from the ASU serves as the turbine working fluid whereas the oxygen is used in the fuel cell and in the HITAF.



As in the air-blown cycle, coal still provides 65% of the total heat input but the cycle's thermal efficiency is lower, 53% (HHV). The main reasons for the lower efficiency are the energy required by the ASU and the reduced mass flow through the turbine.

**Humid Air Turbine and Cascaded Humid Air Turbine.** The above cycle configurations utilize fuel cells to help achieve their high theoretical efficiencies. It is desirable to identify high-efficiency cycles that do not require the use of fuel cells. Two promising candidates are the humid air turbine (HAT) cycle and the cascaded humid air turbine (CHAT) cycle. Both of these cycles use low-temperature heat to humidify the gas turbine compressor discharge air.



The simplified CHAT cycle is essentially a reheat HAT cycle. A turbocharger is added that allows very high pressures in the saturator, e.g., 65-70 atmospheres, and higher mass fractions of water compared to the HAT cycle. The high-pressure humidified stream is heated in the HITAF, expanded to drive the turbocharger, reheated in the HITAF, and then heated further in the duct heater before expansion in the turbine. HAT and CHAT cycle efficiencies can be in the 55-60% (HHV) range, and perhaps higher. At comparable turbine inlet temperatures, the CHAT cycle furnishes more power than the HAT.

**MONTANA SECRETARY OF STATE**

*Bob Brown*



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**Testimony for U.S. Senate Finance Committee  
Hearing on Role of Tax Incentives in Addressing Rural Energy Needs and Conservation  
From Montana Secretary of State Bob Brown  
August 24, 2001, Billings, Montana**

Montana owes its heritage in part to the prudent and practical use of its renewable timber resource. As a long-time public servant in this state, born and raised in western Montana among some of the most spectacular forests in the nation, I would like to see us continue to make wise use of this resource--both to reduce our dependence on unreliable foreign energy and to further our own economic development. Toward that end, I urge the Senate Finance Committee to consider tax incentives as a way to encourage the development of biomass as an energy source. I understand that a bill to establish a production tax credit for biomass energy generation (S. 756) is currently awaiting the committee's approval.

Biomass is nothing more than stored solar energy in the form of vegetation. We have been using it as a fuel ever since mankind first discovered fire. However, with today's advanced technology, we are now able to burn biomass more cleanly in high-intensity generators. Scandinavian countries generate about a third of their electricity using this technology, and water heated during the burning of biomass is also used to warm homes, businesses, and even the streets of those northern climes.

As anyone who has hiked through the forests of Montana knows, you can barely see the trees for the biomass. When we adopted the nickname "Treasure State," we may not have been thinking of biomass, but our forests represent a national treasure chest just waiting to be opened.

The development of biomass as an energy source offers a multitude of advantages:

1) Biomass is a renewable and environmentally friendly fuel. When burned, it releases no more carbon dioxide into the atmosphere than it removed from the atmosphere during photosynthesis.

When used to augment conventional fossil fuels, it helps to conserve the latter.

2) It creates a financial incentive to enhance the health of our forests by removing the unmarketable wood waste that contributes to devastating wildfires. Other happy consequences of this would be improved watersheds, fisheries, and wildlife habitat.

3) Its development could help to stimulate the wood-products industry by creating a new market and much-needed jobs. Almost two dozen sawmills have closed in Montana since 1989, resulting in the layoffs of about 1,800 people--a painful blow in a state with a population of only about 900,000.

Local officials in Montana's Ravalli County recently announced that they are working with private industry to develop the state's first generation plant aimed at converting biomass into electricity. Small-diameter, nonmarketable trees and wood waste left over from nearby timber operations would be used to fuel the generator. Business and government leaders in Flathead County also are exploring the potential of biomass.

The Ravalli project has moved forward in large part because of subsidies for alternative power that were available from the U.S. Department of Energy's Renewable Energy Production Incentive Plan. Without this kind of incentive, it might have languished on the drawing board.

Tapping trees for power makes sense in western Montana. Encouraging a form of electrical generation that simultaneously creates new jobs and improves the health of our forests also makes sense, not just for Montana but for the nation as a whole. I respectfully request that Sen. Baucus and his colleagues on the Senate Finance Committee approve the proposed federal production tax credit for biomass power.

Bob Brown  
Montana Secretary of State

August 23, 2001

Honorable Max Baucus

RE: Blackfeet Community Water Project

The Blackfeet Tribe requests your assistance with our Community Water Project. The project continues, and in fact the first portion of Phase I (intake structure), at Lower Two Medicine Lake is to be advertised for bid, beginning August 30, 2001, with construction to begin after October 1, 2001. A second portion of the Phase I project, the water treatment components, will be advertised in late October of this year.

Issues:

- Rural Development – has submitted a request for funds for Phase I of our water project. As of 8/23/01, the director of USDA Rural Development, Rural Utilities Service, in Montana, has not heard back from USDA. It is important to know the level of funding requested, what level of funding will be available and when it will be available.
- Rural Development – the state director has informed us that the Tribe's taxes cannot be imposed or collected on this project (where their funds are involved). This includes the Tribe's Construction Tax and the TERO fee, which represents 5% of total project costs and is paid by the contractor. RD has stated that they do not have a problem with the contractor paying taxes or fees imposed by the State of Montana. The Tribe has agreed to advertise the projects on the open market, without Indian Preference, but the Tribe's taxing authority should not be compromised. Can you help us with this?
- Value Engineering Study – the Tribe has agreed to participate in a value engineering study of the project. The purpose of this study is to insure accountability, and that the communities receive the best value for their funds. The study will begin on September 24 and be completed by September 28 of this year. A team of professionals, including engineers from the Bureau of Reclamation and Rural Development have committed their time and will participate. The State of Montana, Department of Environmental Quality has been invited. The Bureau of Reclamation has determined that their staff can participate, however they do require an agreement with the Tribe and payment of approximately \$20,000.00, up front, with a guarantee of payment for any additional costs. Is it possible that these services can be provided by BoR, without cost to the Tribe?

Thank you for your past and current assistance with our community water project.

Sincerely

*Gordon Monroe Sec BK/EL Tribe  
to Kennedy III BK/AT T. 20*



**Browning Public Schools**  
Superintendent's Office

129 1st. Avenue S.E.  
P.O. Box 610  
Browning, Mt. 59417-0610  
Phone: (406) 338-2715 • Fax: (406) 338-3200



August 23, 2001

Mr. Leo Kennerly, Member  
Blackfoot Tribal Business Council  
Blackfoot Indian Reservation  
Browning, Mt. 59417

Dear Mr. Kennerly,


The purpose of this correspondence is to request that the Blackfoot Tribal Business Council consider the land that it has purchased in fee simple status the past few years be transferred to Tribal Trust status.

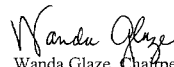
Browning Public Schools is located on the Blackfoot Indian Reservation and consists of three elementary schools, one middle school, one high school, one rural school and two Hutterite Colonies. The student enrollment is approximately 2,200 students of which 97% is of American Indian descent. The taxable value of the school district is very low and the total assessment for one mill is among the lowest in the State of Montana; therefore, Browning Schools is very dependent on Impact Aid funds for the operation and maintenance of the District. Impact Aid funds account for approximately 45% of the District's budget.

Browning Public Schools provides educational opportunities for students attending School District No. 9 that resides in households under the supervision and administration of the Blackfoot Tribal Housing Authority, a department of the Blackfoot Tribal Business Council. School District No. 9 cannot collect Impact Aid funds for the maintenance and operation of the schools for these students because their households are attached to fee status land. For every 100 students that could be eligible for Impact Aid funding the district loses more than \$500,000.00 per year.

Therefore, Browning Public Schools is supportive of any and all efforts the Blackfoot Tribal Business Council's assistance to transfer tribal fee status land to trust status. The students of Browning Schools will be the benefactor of this change in land and household status.

Sincerely yours,

  
Stan Juncosa, Superintendent  
Browning Public Schools

  
Wanda Glaze, Chairperson  
Browning Public Schools

CONRAD BURNS  
MONTANA

United States Senate  
WASHINGTON, DC 20510-2603  
(202) 224-2644

CLYDE HANKS  
APPROPRIATIONS  
COMMERCE, SCIENCE, AND  
TRANSPORTATION  
ENERGY AND NATURAL  
RESOURCES  
SMALL BUSINESS  
SPECIAL COMMITTEE ON AGING

August 24, 2001

Senator Max Baucus  
Committee on Finance  
219 Dirksen Senate Office Building  
Washington, D.C. 20510

Dear Senator Baucus and Members of the Finance Committee:

I want to thank Senator Baucus and the Finance Committee for inviting me to take part in today's hearing to address rural energy needs and energy conservation. A commitment I made several months ago to help raise money for leukemia keeps me from attending.

There is a very important role for tax incentives in addressing our nation's energy crisis. As I have said repeatedly, this is a time of opportunity for our resource-rich state. We need to use these resources to help fill state tax coffers to provide for better teachers' salaries, better health care for our children, and better jobs for all Montanans. I see the chance of a lifetime before us. This is why I hope future legislation will address tax incentives for reaching resource reserves. Montana can be a part of the solution to our nation's energy problems, but we need incentives to accomplish this.

In order to address our nation's energy needs, we must first agree on one issue of vital importance. Energy supply has not kept up with demand. The Northwest region of the United States has seen a nearly 24% increase in electricity consumption since 1992, while only seeing an increase in generation of 4%. If you add California into the mix, the discrepancy grows much larger. Further, the Electric Power Research Institute recently found that there is going to be a 20-25% growth in electricity demand in the next decade, but only a 4% increase in power lines and electric-grid equipment. The statistics speak for themselves, if more generation and transmission are not brought on-line, high energy prices are here to stay. If we want to continue to grow our economy, a tax incentive bill cannot overlook the importance of these statistics.

The first logical step that would benefit Montana is common sense public land access. The federal government currently manages 650 million acres of land; more than 90% of this land is west of the Mississippi River. Nearly 95% of undiscovered oil and 40% of undiscovered gas are estimated to be located under these lands. Part of our solution to energy dependence on foreign sources must come from a plan that allows common sense development of our natural resources on public lands.

We know that in the next two decades, our country's demand for oil will grow by a third. Yet we are producing less oil today (39% less) than we were in 1970. We make up the difference with imports, relying ever more on the good graces of foreign suppliers. Think of this: During the Arab oil embargo of the 1970s, 36% of our oil came from abroad. Today it's 56%, growing steadily, and under the current trend is set to reach 64% within 20 years.

What is the state of natural gas? By 2020, our demand will rise by two-thirds. This is a plentiful, clean-burning fuel, and we're producing and using more of it than ever. What we have not done is construct the entire infrastructure to carry it from the source to the user. We in Montana have a great opportunity to be part of this solution. And by being a part of the solution, we will vastly increase the tax base for our schools, health care, and other worthy causes that sometimes face the reality of budget bottom lines. Any tax incentive bill that does not consider infrastructure is an empty piece of legislation.

We must also build more generation, which is something that can be accomplished in an environmentally friendly manner. All new plants must be built to safe environmental standards. As President Ronald Reagan once said and as Vice President Cheney recently reminded us, "No one wants to treat this last American frontier as we treated the first." I see it the same way. If we had to make do with the drilling technology of the past, then there would be a strong case against exploration in the Alaskan wild, the Rocky Mountain Front or anywhere else for that matter.

But oil drilling has changed enormously, especially in recent years. Three-dimensional seismic readings now have pinpoint accuracy, greatly improving the success rate and minimizing the occurrence of dry holes. In Prudhoe Bay, the vast majority of drilling over the past decade has been horizontal, allowing much oil production to go literally unnoticed, and habitats undisturbed. The notion that somehow developing the resources on our public lands requires a vast despoiling of the environment is provably false.

President Bush and Vice President Cheney are Westerners. They understand us and they understand our needs. The West is a region where stewardship is a serious matter. People rely on the land, not only for the livelihood it yields, but for the life it offers. I have often said that Montana has long been full of the best environmentalists. Farmers have long shown the ability to work in concert with the environment. They appreciate the wonders of creation all around them. The quickest way to lose respect in our part of the country is to act harshly or selfishly toward the natural world. There is no excuse for that kind of reckless disregard of nature's claims. The President's energy strategy takes this into account and I will only advocate a plan which factors in this critical consideration.

We also must not dismiss or discount the importance of using our coal bed methane and coal reserves located here in Montana. Coal bed methane extraction holds great promise not only as an energy source, but also as a source for new good-paying jobs in the Powder River Basin. I recently secured a \$699,000 research grant to help Montana State University study coal bed methane extraction. The research being done by MSU will help ensure that we move forward with coal bed methane development in a responsible manner that has the least possible impact on our environment. We have often been called the "Saudi Arabia of coal." If we want to help Montana, and help our nation we need to use our reserves. Further, we must continue to provide incentives to coal producers to advance clean coal technologies so we leave our children a land better suited for living than our ancestors gave us.

We can also safeguard the environment by making greater use of the cleanest methods of power generation we know. We have, after all, mastered one form of technology that causes zero emissions of greenhouse gases, and that is nuclear power. Fortunately for the environment, one-fifth of our electricity in America is nuclear-generated. But the government has not granted a single new nuclear power permit in more than 20 years, and many existing plants are expected to shut down. If we're serious about environmental protection, then we must seriously question the wisdom of backing away from what is, as a matter of record, a safe, clean, and a plentiful energy source. One of the most

liberal societies in the Western world, France, has proved that nuclear power is an environmentally friendly way to produce low-cost energy. A tax incentive bill must address this issue as well.

Another part of our energy future is power from renewable sources, some known, others perhaps still to be discovered. I recently found a statistic on the Department of Energy web site that brings great hope to me. If all of the wind potential in Montana were to be developed with utility-scale wind turbines, the power produced each year would equal one billion Megawatt/hrs or 7525% of the entire state's electricity consumption. In the last Congress, I cosponsored legislation to provide tax incentives to help bring wind power to market faster, and I assure you I will look for similar measures in this Congress. However, we still must be able to transmit power from these wind resources to where it is needed, and under current regulations this will not happen. We must improve our transmission system if we want to continue to receive low-cost electricity. Any tax incentive bill must have transmission incentives as a key component.

The final principle I will address today and that should be part of any energy strategy is to make better use, through the latest technology, of what we take from the earth. No one can dispute that it is a good thing to conserve energy in our daily lives. I urge all of you to do so. Conservation may be a sign of personal virtue, but it is not a completely sufficient basis for a sound, comprehensive energy policy. Anyone who tries to tell you differently is ducking the tough issues.

I want to close by letting you know that I am also in the process of drafting a tax incentive bill to address rural energy needs. My bill will contain many of the concerns I have outlined today and it will be written with the help of Montana's electric cooperatives who continue to supply low cost power to most Montanans. I look forward to reading the reports from my staff on the witnesses' testimony.

Sincerely,

Conrad Burns  
United States Senator

CRB/roh

Testimony of

Jeanne Charter and Kathleen K. Blehm  
Members of the  
Bull Mountain Landowners' Association

Submitted to the  
Finance Committee  
United States Senate  
Max Baucus, Chairman

September 6, 2001

For the record, our names are Jeanne Charter and Kathleen K. Blehm. We reside at 13838 Highway 87 North, Shepherd, Montana 59079, and 623 Avenue B, Billings, Montana 59102, respectively. We are members of the Bull Mountains Landowners Association.

As the Committee ponders our nation's energy tax policy, hopefully, they will see the importance of having conservation, alternatives and renewables needing incentives to getting a bigger piece of the pie when it comes to being an energy provider for our nation's consumers.

More than one person testified during the Senator Max Baucus' Field Hearing, in Billings, Montana, that coal provides at least 50% of the fuel for the production of United States' electric energy. That is a big piece of the pie and to continue that trend would lead to further monopolistic behavior by suppliers. Providing incentives for the addition of other types of generated power would lead to a more stabilized economy and provide a protection for our non-renewable resources.

Figures that were given us by Montana State Senator Ken Toole on energy production are as follows: Conservation and efficiency cost about \$.02-1/2 per kw hour. Montana Power is figuring their cost for power at least double that cost at \$.04 per kw hour. Any other source also costs at least twice as much as conservation technology, so efficiency investments represent by far the least cost energy source and a major savings for the consumer.

Wind power is figured to cost about \$.05 per kw hour and is dropping. We have to remember that the cost for wind is based on construction and maintenance because the power source is free. Solar power is at \$.08 to \$.10 per kw hour and also dropping.

Natural gas cycle turbine power is figured to cost \$.04 per kw hour. Coal generated power historically has been at \$.05 to \$.07 per kw hour, new figures claim costs at \$.03 to \$.04 per kw hour but have not been substantiated. One must remember that these coal and natural gas figures are based on the average cost for the cycle of the plant. This will change should gas prices spike, perhaps, to even \$.06 per kw hour. We have yet to put a price on the ripping of our land up and waste of our water for coal, coal bed methane and other non-renewable sources of power. To some folks, destructive mining practices cost them their livelihoods.

There are countries that are relying on alternatives for their energy, i.e., Greenland. Montana's Congressman Dennis Rehberg has visited some of these countries and says it is working and we should bring on promising renewable sources with regard to our nation's energy policy.

Within our country, California is using biomass turbines on landfills to produce energy from methane and it is working. It is said that through proven efficiency investments, such as wide scale use of compact fluorescent light bulbs, energy consumption could be reduced enough to not need to build additional power plants in the near-term in

the United States. For the mid- and long-term, promising renewables (wind, solar and biomass) can be cost effective with modest public incentives structured to expand our least cost energy options. A relatively small increase in volume of demand is all that is needed to bring renewable energy costs down to a level fully competitive with the long subsidized fossil fuel energy production.



## DOMESTIC PETROLEUM COUNCIL

September 4, 2001

The Honorable Max Baucus  
Chairman  
Senate Committee on Finance  
203 Hart Senate Office Building  
Washington, DC 20510-6200

Dear Mr. Chairman:

Thank you for the opportunity to present the views of the Domestic Petroleum Council at last week's Montana field hearing on energy related tax matters. As the Chair of the DPC Tax Committee, and as Tax Manager for Devon Energy Corporation, I very much appreciate the effort you and your staff are making to ensure that sound tax policy complements other legislative efforts underway to ensure the best possible energy policy and future for our nation.

In thinking further about the testimony presented by the witnesses in Billings, and in response to several very pertinent questions you raised and observations you made during the hearing, I would like to offer several brief additional comments that you may want to make a part of your hearing record.

First, in view of our discussion of the relatively short-term fluctuations in natural gas supply and demand, the fact remains that we are still going to need – probably conservatively – 30% more gas supply on a daily basis in 2015 than we have today. And the DOE Energy Information Administration has estimated that we could need 60% more by 2020.

Second, you are correct that the spending requirements to meet our energy demand in the future will be tremendous. In addition to the \$6-billion I mentioned as being necessary to fund new natural gas exploration and production, the National Petroleum Council estimates that total spending in this sector alone by 2015, including capital and operating costs for supply, transmission and distribution are projected to be as much as \$1.5-trillion.

Finally, allowing current deduction of geologic and geophysical costs has been a "normal business expense" treatment goal of the natural gas and oil exploration and production sector for many years. It is more important today because of the increased costs we face as we develop and deploy new technologies to find and produce more gas from smaller geologic targets, with fewer wells and less surface disturbance and fewer offshore facilities.

201 Maryland Avenue, NE  
Washington, DC 20002-5703  
202 544 7100 202 543 0616 (fax)  
[www.dpcusa.org](http://www.dpcusa.org)



Allowing current deduction of geologic and geophysical costs has also been recognized by the Joint Committee on Taxation as a tax simplification step that we believe will save significant company calculation and government audit costs. We hope we can achieve our goal this year.

Attached is a fact sheet on the DPC, including a list of its members, for your file. I hope these additional thoughts are helpful, and again I thank you for considering our views.

Sincerely,



Gina Sewell  
Chair  
Tax Committee  
Domestic Petroleum Council

and

Tax Manager  
Devon Energy Corporation  
20 North Broadway, Suite 1500  
Oklahoma City, OK 73102-8206  
405 552 4749



## DOMESTIC PETROLEUM COUNCIL

### The Domestic Petroleum Council

The Domestic Petroleum Council is a national trade association representing 22 of the largest United States independent natural gas and crude oil exploration and production companies.

Most DPC members are publicly-traded corporations, and most have international operations or interests. They are leaders in developing and applying technology necessary to find and produce oil and gas onshore and offshore, including in deep water.

The DPC companies as a group:

- are leaders in adding domestic energy reserves, drilling almost one-third of the natural gas and oil wells in the United States;
- produce one-fifth of the natural gas in the United States, and account for more than 14% of the country's domestic oil production;
- hold more than 35% of independents' U.S. gas reserves, and approximately one quarter of all U.S. gas reserves;
- hold more than 44% of independents' U.S. oil reserves and 18% of all U.S. oil reserves;
- are strong players in the offshore Gulf of Mexico, with almost 3700 total OCS lease interests, many as operator;
- have more than 1,100 deepwater lease interests in the Gulf of Mexico, including a number of operator designations; and,
- provide jobs in the United States for more than 19,000 employees.

The DPC mission is to work constructively for sound energy, environmental and related public policies that encourage responsible exploration, development and production of natural gas and crude oil to meet consumer needs and fuel our economy.

Anadarko Petroleum Corporation  
Apache Corporation  
BHP Petroleum (America)  
Burlington Resources Oil & Gas Company  
Cabot Oil & Gas Corporation  
Cross Timbers Oil Company  
Devon Energy Corporation  
Dominion Exploration & Production, Inc.  
El Paso Production Company  
EOG Resources, Inc.  
Forest Oil Corporation  
Kerr-McGee Corporation  
Louis Dreyfus Natural Gas Corp.  
Mitchell Energy & Development Corp.  
Newfield Exploration Company  
Noble Affiliates, Inc.  
Occidental Oil & Gas Corporation  
Ocean Energy, Inc.  
Pioneer Natural Resources Company  
Pogo Producing Company  
Seneca Resources Corporation  
Unocal Corporation

*Flathead County*  
**Board of Commissioners**

(406) 758-5503

Howard W. Gipe  
Robert W. Watne  
Dale W. Williams



August 22, 2001

The Honorable Max Baucus  
207 North Broadway  
Billings, Montana 59101

RE: Production Tax Credit for Biomass Energy

Dear Senator Baucus:

Biomass power development has significant potential in Montana, especially in Flathead and other western counties. It is important for the renewable energy it can produce, but is also equally significant for the environmental and economic benefits that it can deliver in our rural areas.

As you consider tax incentives for energy development at your August 25th hearing in Billings, we encourage you to pay particular attention to the production tax credit for biomass energy that is included in Senate Bill 756 (Grassley). On behalf of the citizens of Flathead County, we strongly encourage you to support this tax credit when it comes before the Senate Finance Committee in the near future. Its approval will accelerate biomass energy development in Montana -- more than any other issue you will consider this year.

Let us explain why biomass power development means so much to us:

- \* First, it helps to reduce the risk and severity of forest fires that plague our communities and wildlands. It makes productive use of over-dense forest vegetation that would otherwise be an environmental liability, and it protects the public health and safety at the same time.
- \* Second, biomass power generation is an excellent source of new jobs in areas where employment opportunities are scarce. Not only are jobs created by the construction and operation of a biomass power facility, but also for those who gather the fuel from the forests, process it into useful shape, and transport it. A recent federal study estimated that 4.9 jobs are created for each megawatt of biomass facility capacity.

Hon. Max Baucus  
RE: Biomass  
August 22, 2001  
Page Two

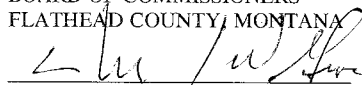
- \* Finally, biomass power plants add dollars to the local economy and will help us to sustain essential services. In other states where they are currently in operation, biomass facilities are often the biggest source of property tax revenues in their counties, and their payrolls and purchase of goods and services lift the local economy.

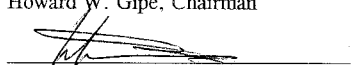
Momentum is building in Montana to capture these benefits. Developers and county officials are evaluating sites, working with experts at the University of Montana, and plans are rapidly being made to build new facilities. This will only happen, however, if the economics make sense. Without a production tax credit to offset the cost of purchasing fuel it is difficult to justify the investment. Your support of the proposed tax credit is essential if we are to move from wishful thinking to actual construction.

In Flathead County, we are particularly interested in the development of one or more modern biomass power facilities that will be good environmental neighbors. We would like to locate them, if possible, adjacent to existing industrial activities so that we can avoid transmission constraints and keep the cost of electricity to the consumer as low as possible.

We would greatly appreciate your active involvement on this important issue.

Respectfully,  
BOARD OF COMMISSIONERS  
FLATHEAD COUNTY, MONTANA

  
Howard W. Gipe, Chairman

  
Dale W. Williams, Member

Not Available for Signature  
Robert W. Watne, Member

FCBC:ecn

**TESTIMONY OF THE INTERSTATE NATURAL GAS ASSOCIATION OF  
AMERICA (INGAA)  
FOR THE SENATE FINANCE COMMITTEE HEARINGS  
ON ENERGY TAX LEGISLATION  
FOR THE RECORD OF  
THE HEARING OF AUGUST 24, 2001, IN BILLINGS, MONTANA**

As the Senate Finance Committee prepares to mark up energy tax legislation, the Interstate Natural Gas Association of America would like to submit the enclosed testimony for the record of the hearing on energy taxes held in Billings, Montana, on August 24, 2001. INGAA is the trade association that represents almost all of the interstate natural gas pipelines in the United States as well as the inter-provincial pipelines in Canada and PEMEX in Mexico.

The Energy Information Agency and many other organizations predict that natural gas demand will increase from about 22.8 trillion cubic feet (Tcf) per day in 2001 to over 30 Tcf per day by around 2010. The interstate pipeline industry does not have the necessary infrastructure in place today to meet this demand. "Pipeline and Storage Infrastructure Requirements for a 30 Tcf U.S. Gas Market" prepared by Energy and Environmental Analysis, Inc. for the INGAA Foundation looked at the questions of what pipeline infrastructure is needed to meet this increase of demand to 30 Tcf per year. This study estimates that the industry will need to build an additional 2,000 to 2,500 miles of interstate pipeline per year to able to meet this demand at a cost of about \$2.5 billion per year. Total U.S. gas storage expenditures are projected to be an additional \$190 million per year. The total for gas transmission and storage is projected to be \$34.4 billion over ten years.

INGAA is supporting some important changes to the tax code to assist us to have the needed gas supply and to build the needed infrastructure to meet this 32 percent increase in demand. In our testimony, INGAA will support the following changes to current tax law:

1. A change in depreciation to move natural gas high-pressure transmission pipelines from 15-year to 10-year accelerated depreciation property
2. Verification that natural gas gathering lines are depreciated as 7-year property
3. Removal of natural gas pipelines from Subpart F
4. Repeal of the tax on Contributions in Aid of Construction
5. Extension of Section 29 tax credits for non-conventional natural gas production

**NATURAL GAS PIPELINE DEPRECIATION**

Tax incentives for interstate pipeline infrastructure can greatly assist our member companies in building the necessary additional pipeline infrastructure and storage to meet the anticipated 32 percent increase in natural gas demand over the next 10 to 12 years. INGAA strongly supports a 10-year accelerated depreciation for new natural gas pipeline property. This change can also assist in providing the needed incentive for investors to invest in these federally regulated facilities. Since this winter and in reaction to events in California, the stocks of natural gas pipeline companies have lost almost \$60 billion in market value severely limiting our ability to raise capital.

By restructuring the federal income tax obligation of new natural gas pipelines in the early years of their useful life, accelerated depreciation will increase cash flow to our pipeline members. This will permit increased investments in new pipeline facilities by reducing the company's need to borrow money to build the additional pipelines and lower the cost of capital that is acquired. More rapid depreciation for needed new natural gas pipelines and storage facilities will provide necessary impetus for investment in this infrastructure. INGAA urges the Committee to pass a provision to provide 10-year accelerated depreciation for natural gas pipeline property.

**DEPRECIATION OF NATURAL GAS GATHERING LINES**

INGAA also supports clarification that natural gas gathering lines should be depreciated as 7-year property. We ask the Committee to support S. 593 which was introduced earlier this year. This legislation is needed due to a conflict between members of the natural gas processing industry and portions of the Internal Revenue Service over the proper depreciation of these assets. These assets were being depreciated over a 7-year period as assets related to the exploration and production of petroleum and natural gas. However, some in the IRS have begun asserting that natural gas gathering lines are 15-year assets used in pipeline transportation. These assertions have appeared both in audits and in litigation.

However, gathering lines are not natural gas transmission pipelines. Natural gas gathering lines "gather" natural gas from various production wells and deliver this gas to processing plants where water, other liquids and impurities are removed. Only then is the natural gas considered

“pipeline quality gas” and placed in high-pressure transmission pipelines that transport the natural gas from where it is produced to local distribution companies, electric utilities and other large users in areas throughout the United States. In some cases, the natural gas meets the pipeline qualifications without having to go through a processing plant; then the gathering pipelines deliver the natural gas directly to the transmission pipeline.

The asset description for Asset Class 13.2 governing “Exploration for and Production of Petroleum and Natural Gas Depositions,” found under the Modified Accelerated Cost Recovery System (MACRS), expressly “(i)ncludes assets used by petroleum and natural gas producers for drilling wells and production of petroleum and natural gas, **including gathering pipelines and related storage facilities.**” All assets in Asset Class 13.2 are subject to a 7-year cost recovery period. Congress needs to eliminate the uncertainty created by the IRS regarding treatment of gathering lines.

#### **REMOVAL OF NATURAL GAS PIPELINES FROM SUBPART F**

Focusing for a moment on energy policy at an international level, INGAA has been strongly supportive of providing an exemption for natural gas pipelines from Subpart F. As the international community focuses on mitigation of greenhouse gases, worldwide natural gas pipeline infrastructure becomes an increasingly important factor as a mitigation policy. Subsidiaries of U.S. companies should be able to compete to build this critical infrastructure.

Income from natural gas pipeline is neither “easily movable” nor considered passive income, two qualifications for Subpart F income treatment. Foreign subsidiaries of U.S. companies have been unable to win bids to build needed pipeline infrastructure in any case where the pipeline is built in a country where the natural gas is consumed and the pipeline does not hold title to the gas or in any country that is crossed by a pipeline but no new supply is added and no gas is consumed. Because U.S. pipeline companies have to increase their bids due to the tax consequences of subpart F, their bids are higher than those from pipeline companies in other countries and they lose the bid.

Attached is a more detailed testimony INGAA submitted to this Committee in 1999 on this provision. Last year the Joint Tax Committee scored the revenue impact of this change over 10 years to be less than \$10 million. INGAA urges the Finance Committee to support an exemption for income derived from these new natural gas pipelines from the provisions of Subpart F.



**REPEAL OF THE TAX ON CONTRIBUTIONS IN AID OF CONSTRUCTION**

The tax treatment of Contributions in Aid of Construction (CIAC) needs to be corrected. A new customer that currently seeks to connect to a natural gas pipeline system is often required to transfer money or property to the pipeline to defray the cost of extending facilities into a new service area. This transfer of money or property (CIAC) is used to offset the costs of making the connection to the pipeline. Under most situations, the pipeline is taxed on this contribution. In fairness, this contribution should be treated as contribution to the capital of the pipeline system. Taxing the contribution works to discourage new gas connections. This penalty can result in not only a disincentive for new hookups but also encourage movement to other less environmentally friendly fuels.

**EXTEND SECTION 29 TAX CREDIT FOR NON-CONVENTIONAL RESOURCES**

As stated above, natural gas demand is expected in the next 10 to 12 years to increase about 32 percent. Much of this growth will be in the electric generation area where natural gas is the fuel of choice for environmental and economic reasons. This growth in natural gas, accompanied by improvements to the environment, is expected to occur in all regions of the country. But, this growth cannot be met unless an adequate supply of natural gas is available. As witnessed this winter, when supplies of natural gas tightened, the price increased and many users moved to other fuels or decreased their productivity to sell their natural gas elsewhere.

An extension of the Section 29 tax credit for non-conventional gas resources can make an important contribution to produce the necessary supply to meet this increase in natural gas demand. Congress first created Section 29 in 1980 to encourage U.S. production from deposits that are unusually difficult and expensive to develop and produce. The credit is given for actual production, that is, tax dollars are spent only after the producer has taken the risk and achieved success.

The record shows that this credit has provided the needed incentive for producers to explore for these difficult resources. Non-conventional gas resources (tight gas sands, coal bed methane and Devonian shale) currently provide approximately 26 percent of U.S. lower-48 gas production. The current tax credit will expire in 2002. Extension of this credit will create numerous benefits including creating new jobs and demand for materials and services, reducing costs and expanding supply for gas consumers, less dependence on imported energy and providing a

cleaner environment. It is also projects to increase severance taxes in 19 states. INGAA urges the Finance Committee to extend this credit for natural gas non-conventional resources and provide an increase in a valuable domestic resource.

INGAA can also support other incentives for producers such as expensing of geological and geophysical costs and incentives for marginal wells.

INGAA knows that we face a unique challenge to meet the increased demand for clean natural gas to heat the homes and cook the food for millions of Americans while providing the energy to electric generators and large agricultural and industrial users to continue to grow our economy. We urge the Finance Committee to adopt the tax changes explained above to help us to meet this challenge.

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Committee on Finance

United States Senate

Hearing on World Economy and International Taxes  
March 11, 1999

Statement for the Record  
By the Interstate Natural Gas Association of America

Submitted  
March 19, 1999

**BACKGROUND**

**INGAA SUPPORTS LEGISLATION THAT WOULD  
ELIMINATE THE APPLICATION OF SUBPART F PROVISIONS  
TO NATURAL GAS PIPELINES IN A FOREIGN COUNTRY  
WHERE A U.S. PARENT COMPANY IS  
AT LEAST A 10% SHAREHOLDER**

**Current Law is Unfair to INGAA Members Participating in Pipeline Projects  
Abroad.**

1. U.S. 10% shareholders of a controlled foreign corporation (CFC) are taxed on passive or easily moveable income (i.e., subpart F income) earned by the OFO regardless of whether the income is distributed. Income derived from the pipeline transportation of natural gas is generally included in subpart F income except for the following types of income:
  - A. Income derived from operating a gas pipeline in the same country in which the gas transported was extracted (extraction exception); and
  - B. Income from operating a gas pipeline derived from the sale of gas by the OFO in a country for use or consumption in that same country (consumption exception).

The “high-tax exception” which applies to exempt all other types of highly taxed foreign base company income from subpart F is not, however, applicable to income from a foreign pipeline project.

2. Pipeline income is active business income that is considered with a taxpayer’s other active income in calculating the “general basket” foreign tax credit limitation (although foreign oil and gas extraction income taxes are creditable only to the extent that they do not exceed 35% of the extraction income.
3. No tax policy rationale exists for currently taxing any pipeline income before distribution or for limiting creditable taxes because such income is not passive or easy to manipulate; the state reason for current law enacted in 1982 was to raise revenue from petroleum companies with foreign subsidiaries, not from pipeline companies, which generally did not operate abroad in 1982.

**INGAA SUPPORTS LEGISLATION THAT CREATES A NEW  
EXCEPTION FROM SUBPART F FOR PIPELINE  
TRANSPORTATION OF GAS IN FOREIGN COUNTRIES**

INGAA supports legislation such as S. 843, Sec 209 introduced by Senators Hatch and Baucus in the 105th Congress which would add a new exception from subpart F requirements for "(C) the pipeline transportation of oil or gas within such foreign country."

**The Interstate Natural Gas Association of America and The Foreign Pipeline Projects of Its Members**

The Interstate Natural Gas Association of America (INGAA) is a nonprofit national trade association that represents virtually all of the major interstate natural gas transmission companies operating in the United States. These companies handle over 90 percent of all natural gas transported and sold in interstate commerce. INGAA's United States members are regulated by the Federal Energy Regulatory Commission pursuant to the Natural Gas Act and the Natural Gas Policy Act of 1978.

In recent years a number of INGAA's member companies have become engaged in the design, construction, engineering, ownership and operation of major pipelines and power plant projects outside the United States. Investments are made in these foreign projects generally by foreign subsidiaries of the U.S. companies. These projects, which are highly capital-intensive, often involve construction of a natural gas pipeline and related activities to transport gas from its point of extraction within one or more foreign countries to distribution companies, industrial facilities or power plants. The project may include the electric generating plant, and/or may also include an interest in the gas wells which provide the gas supply. The gas being transported in the pipeline may or may not be owned by the pipeline owner. Most of these projects are being undertaken in Latin American, Asia, India and in less developed countries in other parts of the world.

Most of these large energy projects are awarded through a bidding process. The bidding is highly competitive, and the economics of such projects are tax sensitive. In many cases there is substantial income tax payable to the local country where the project is based. U.S. bidders are currently at a disadvantage vis-à-vis their foreign competitors including particularly those based in Canada, Australia, or Europe, because of the manner in which U.S. tax law currently applies to such projects, as is explained below.

## U.S. Taxation of Foreign Pipelines Under Current Law

### Subpart F.

#### 1. Description of Current Law.

Under the Subpart F rules, U.S. 10 percent shareholders of a CFC are subject to U.S. tax currently on their proportionate shares of “Subpart F income: earned by the CFC, whether or not it is distributed to the U.S. shareholders. Included among the categories of Subpart F income is “foreign base company oil related income” (See section 954(g). Foreign base company oil related income is income derived outside the United States from the processing of minerals extracted from oil or gas wells into their primary products; the transportation (including by pipeline), distribution or sale of such mineral or primary products; the disposition of assets used in the trade or business involving the foregoing; or the performance of any related services.

There are two significant exceptions to this classification of income:

- a. The extraction exception: Income, including income from operating a pipeline, derived from a source within a foreign country in connection with oil or gas which was extracted by any person from a well located in such foreign country is not foreign base company oil related income.
- b. The consumption exception: Income, including income from operating a pipeline, derived from a source within a foreign country in connection with oil or gas (or a primary product thereof) which is sold by the CFC or a related person for use or consumption within the foreign country is not foreign base company oil related income.

There is a general exception to this Subpart F provision for CFCs which do not produce 1,000 barrels per day of foreign crude oil and natural gas; this exception is often not available because for this purpose all related persons are aggregated, and many significant investors in natural gas pipelines and power projects around the world own foreign production which exceeds 1,000 barrels per day

- c. Unavailability of high tax exception: All types of foreign base company income except foreign oil related income may be excluded from current taxation under Subpart F if the income is

subject to an effective rate of local income tax greater than 90 percent of the U.S. corporate rate (Section 954(b)(4)fl. No reason is given in the legislative history as to why this high tax exception is not applicable to foreign oil related income. Because Congress chose not to allow this exception, highly taxed income from the operation of foreign pipelines by a CFC may be subject to current U.S. tax under Subpart F, with a likelihood that credit will not be available for the foreign income tax paid and international double taxation will occur.

## 2. Policy Rationale of Current Law.

The Subpart F taxation of foreign oil related income was enacted in the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), P.L. 97-248, September 3, 1982. The Senate Finance Committee legislative history explaining the tax policy rationale for the Subpart F Treatment of foreign oil and gas income is as follows:

“because of the fungible nature of oil and because of the complex structures involved, oil income is particularly suited to tax haven type operations” (S. Rep. No 494, 97th Cong., 2nd Session 150 (1982)).

The only other reference made in the legislative history of TEFRA to any reason for including foreign oil related income in Subpart F is the general statement of the Finance Committee that “the petroleum companies have paid little or no U.S. tax on their foreign subsidiaries’ operations despite their extremely high revenue.” Accordingly, Subpart F taxation was imposed on all foreign oil related income without analysis of whether such income fit the criteria of Subpart F, i.e., was passive in nature or moveable. Income from the ownership and operation of foreign gas pipelines is neither passive nor moveable. Moreover, it is unlikely that such income could have been a target of TEFRA since there was little foreign pipeline investment by U.S. companies at that time.

### **Current Law is Unfair to INGAA Members Who Participate in Pipeline Projects Abroad**

As described above, CFCs owned by INGAA members participate in large foreign projects which typically involve the construction and operation of gas pipelines and related facilities, sometimes include the participation in power plants, and occasionally also include investment in gas wells. These are all active business activities which have occurred only in recent years. As illustrated by the legislative history of TEFRA, Congress expressed no policy reason why this type of income should be currently

taxed to U.S. shareholders of the CFC under Subpart F. This foreign income of CFCs owned by INGAA members is no more “particularly suited to tax haven operations” (as the Senate Finance Committee Report states) than is any foreign manufacturing or processing activity conducted by a CFC, such as the manufacture of consumer or industrial goods. Surely it is not possible to “manipulate” income earned by a CFC from operating a gas pipeline permanently installed in a particular foreign country.

Most U.S. bidders have generally only won projects where either the “extraction” or “consumption” exceptions applies. If a pipeline project does not qualify for one of these exceptions to Subpart F it is unlikely that a U.S. bidder could successfully win a bid for that project against foreign competitors. Such a U.S. bidder is at a competitive disadvantage even for projects with local income taxes higher than the U.S. corporate rate because the Subpart F exception for high-tax income does not apply.

Moreover, the exceptions of Subpart F for foreign oil related income apply irrationally. Consider the example where gas is extracted and processed by persons unrelated to the CFC in country A. The CFC constructs a pipeline from country A through country B and into country C where the gas is delivered to a power plant. Assume that the CFC receives \$100 for transportation of the gas in each of countries A, B, and C. The U.S. taxation of the \$300 of income is as follows:

Country A — the \$100 is not subpart F income because the extraction exception applies — the income is derived from country A where the gas was extracted.

Country B - \$100 is subpart F income and therefore taxed when earned because it was not earned in a country where the gas was extracted (country A) nor consumed (country C).

Country C - \$100 is subject to subpart F and therefore taxed when earned because the CFC does not own the gas, but merely charges a tariff for the transportation. If the CFC owned the gas and sold it in country C, the consumption exception would apply and the tax due on the \$100 would be deferred.

As a matter of tax policy, different tax treatment of each separate \$100 of income cannot be justified. It is submitted that none of this \$300 of income should be Subpart F income because it is not passive or moveable.

This is why INQAA supports a change to the tax law to make transportation by gas pipelines in foreign countries an exception from the provisions of Subpart F. INGAA’s U.S. members want to be able to bid on pipeline projects throughout the world.



Because of the Subpart F provisions, they have a significant disadvantage to other bidders for international pipeline projects that expand more than one country. Even if the project would be built in two adjacent countries, many countries maintain title to the natural gas so the consumption exception does not apply.

Adopting the provision (Sec.209) of 5. 843 will permit U.S. investors the opportunity to successfully bid for the capital-intensive foreign pipeline projects, help U.S. jobs, and improve U.S. competitiveness in the global economy.



**MONTANA FARMERS UNION**

Art Loendorf, President

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P.O. Box 2447  
Great Falls, MT 59403-2447  
Phone 406 • 452-6406  
1 • 800 • 234-4071  
Fax 406 • 727-8216  
www.montanafarmersunion.cc  
email: mfu@initco.net

**The Role of Tax Incentives in Addressing Rural Energy Needs and Conservation**  
August 24, 2001

Members of Senate Finance Committee:

I am supporting the electric Co-ops in their search for changes to the 85/15 test. Times are changing with increasing swiftness and so is the way we do business. With retail competition the co-ops have lost their exclusive service territories. The 85/15 puts them at a disadvantage because of lack of flexibility in the test.

The cooperatives were formed because retail companies would not move into an area where there was no profit and this left the vast areas with no service. The cooperatives filled this void and opened up America. I do not think they should be penalized now for a rule that is 75 years old, and that most other cooperatives do not have to live up to this test. The co-ops still have large unpopulated areas to serve and need their tax-exempt status to compete.

Thank you for your attention.

Art Loendorf, President  
Montana Farmers Union



**Northwest Montana Human Resources, Inc.**

214 Main Street PO Box 8300  
 Kalispell, Montana 59904-1300  
 Phone: 406-752-6565 Fax: 406-752-6582  
 E mail: nmhr@kalhrdc.hhs.state.mt.us

District X HRDC



*A Non-Profit Community Action Agency that Provides Opportunities for Disadvantaged Citizens to Become Self-Sufficient*

August 22, 2001

The Honorable Max Baucus  
 207 N. Broadway  
 Billings, MT 59101

**Subject: Production Tax Credit for Biomass Energy**

Dear Senator Baucus:

Northwest Montana Human Resources is an active member of the Northwest Regional RC&D, which is a rural development organization covering Flathead, Lake, Lincoln and Sanders Counties in Northwest Montana. We promote environmentally responsible economic and natural resource development and are sponsored by County Commissions, Cities, Economic Development Organizations and Conservation Districts. Some of the major issues we are addressing in our work plan include: alternative energy production, forest restoration, reduction of catastrophic fire potential, industry diversification, job creation, and value added industry development.

We feel that biomass power development has significant potential in Montana. It is important for the renewable energy it can produce, but is also equally significant for the environmental and economic benefits that it can deliver in our rural areas. We feel biomass energy production is a win-win situation for communities and the environment.

We feel that tax incentives for biomass energy development are needed and ask that these incentives be considered at your August 24<sup>th</sup> hearing in Billings. We ask that you support the production tax credit for biomass energy that is included in Senate Bill 756 (Grassley). We feel its approval will accelerate biomass energy development in Montana more than any other issue.

Let us explain why biomass power development is so important to us:

- **First**, it will help to reduce the risk and severity of catastrophic forest fires that plague our communities and wild lands. It will make productive use and create a market for over-ly-dense forest vegetation that is otherwise an environmental liability, and it protects the public health and safety at the same time.

**FIELD OFFICES**

**LIBBY**  
 202 East 6th  
 P.O. Box 213  
 Libby, MT 59923  
 406-293-2117

**POJON**  
 106 1/2 N. East  
 Pojón, MT 59846  
 406-843-3470

**IN-HOME SERVICES**

Case Management  
 Personal Trainer  
 Support Care

**NON-PROFIT BUSINESS CENTER**

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 Government Contracting Assistance

**EMPLOYMENT AND TRAINING**

WIA Programs  
 WORK Program  
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**ENERGY PROGRAMS**

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 Energy Share  
 Woodstove/Log  
 USB Programs

**HOUSING**

Housing Counseling  
 Section 8 Program  
 Low Income Appliance Programs  
 Home Repair

**COMMUNITY SERVICES**

Outreach and Advocacy  
 Information and Referral  
 Needs Assessments  
 Economic Development

- Second, biomass power generation will be an excellent source of new jobs in our area where employment opportunities are scarce. Not only are jobs created by the construction and operation of a biomass power facility, but also in harvest, processing and transporting the fuel to the facility. A recent federal study estimated that 4.9 jobs are created for each megawatt of biomass energy created.
- Finally, biomass power plants add dollars to the local economy and will help us to sustain essential services. In other states where they are currently in operation, biomass facilities are often the biggest source of property tax revenues in their counties, and their payrolls and purchase of goods and services lift the local economy.

Momentum is building in Montana to capture these benefits. Developers and county officials are evaluating sites, working with experts at the University of Montana, and plans are rapidly being made to build new facilities. This will only happen, however, if the economics make sense. Without a production tax credit to offset the cost of purchasing fuel, it is difficult to justify the investment. Your support of the proposed tax credit is essential if we are to move from wishful thinking to actual construction.

We greatly appreciate your leadership and support of this important issue.

Respectfully,



Jim Lackey  
Agency & Community Development



"Promoting Economic  
& Natural Resource Development  
in Northwest Montana"

905 West 9th Street • Libby, MT 59923 • (406) 293-8885 • Fax (406) 293-3222

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August 21, 2001

The Honorable Max Baucus  
207 N. Broadway  
Billings, MT 59101

**Subject: Production Tax Credit for Biomass Energy**

Dear Senator Baucus:

The Northwest Regional RC&D is a rural development organization covering Flathead, Lake, Lincoln and Sanders Counties in Northwest Montana. We promote environmentally responsible economic and natural resource development and are sponsored by County Commissions, Cities, Economic Development Organizations and Conservation Districts. Some of the major issues we are addressing in our work plan include: alternative energy production, forest restoration, reduction of catastrophic fire potential, industry diversification, job creation, and value added industry development.

We feel that biomass power development has significant potential in Montana. It is important for the renewable energy it can produce, but is also equally significant for the environmental and economic benefits that it can deliver in our rural areas. We feel biomass energy production is a win-win situation for communities and the environment.

We feel that tax incentives for biomass energy development are needed and ask that these incentives be considered at your August 24<sup>th</sup> hearing in Billings. We ask that you support the production tax credit for biomass energy that is included in Senate Bill 756 (Grassley). We feel its approval will accelerate biomass energy development in Montana more than any other issue.

Let us explain why biomass power development is so important to us:

- First, it will help to reduce the risk and severity of catastrophic forest fires that plague our communities and wild lands. It will make productive use and create a market for over-dense forest vegetation that is otherwise an environmental liability, and it protects the public health and safety at the same time.
- Second, biomass power generation will be an excellent source of new jobs in our area where employment opportunities are scarce. Not only are jobs created by the construction and operation of a biomass power facility, but also in harvest, processing and transporting the

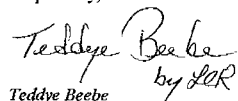
fuel to the facility. A recent federal study estimated that 4.9 jobs are created for each megawatt of biomass energy created.

- Finally, biomass power plants add dollars to the local economy and will help us to sustain essential services. In other states where they are currently in operation, biomass facilities are often the biggest source of property tax revenues in their counties, and their payrolls and purchase of goods and services lift the local economy.

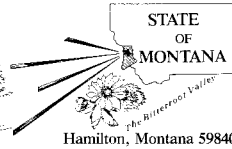
Momentum is building in Montana to capture these benefits. Developers and county officials are evaluating sites, working with experts at the University of Montana, and plans are rapidly being made to build new facilities. This will only happen, however, if the economics make sense. Without a production tax credit to offset the cost of purchasing fuel, it is difficult to justify the investment. Your support of the proposed tax credit is essential if we are to move from wishful thinking to actual construction.

We greatly appreciate your leadership and support of this important issue.

Respectfully,

  
Teddye Beebe  
Chair

COUNTY  
OF  
RAVALLI



Hamilton, Montana 59840

The Honorable Senator Max Baucus  
207 N. Broadway  
Billings, Mt. 59101

Monday, August 20, 2001

RE: Renewable Alternative Energy Tax Incentives

Dear Senator Baucus,

I encourage and support your efforts to fund the Renewable Alternative Energy Tax Incentive for clean coal technology, renewable alternative energy resources (**BIOMASS, Wind, and Solar**), and the natural gas industry. Biomass is of particular and considerable significance for Ravalli County and other rural communities, especially those communities in proximity to National Forest lands where hazardous fuels have accumulated to catastrophic proportions. Health and Safety of the citizens in Ravalli County is of utmost importance to us, particularly related to those hazardous fuels accumulations on our National Forests.

Ravalli County experienced extremely threatening and devastating wildfire last year, and the potentials for future episodes are increasing annually. As Acting Fire Finance Administrator for Ravalli County I was intimately involved in the process. The future has similar potentials if we don't use the forest waste products, and remove the fuels.

A significant component of dealing with the fuels is the utilization of the biomass apart from just burning it and releasing the smoke into the atmosphere. The use of the biomass in distributed low yield co-generation of electricity and heat is extremely significant for rural communities like Ravalli County, and is one area that seems to address both the health and safety of our people, but also aids in the health and restoration of our forests. We are investigating the economic feasibility of biomass cogeneration here in Ravalli County, with the help of the University of Montana. Apparently, there are numerous benefits, and we are exploring a private /public partnership to demonstrate this feasibility on findings from the University.

I recently spent two weeks in Finland and Sweden investigating Biomass cogeneration and found exciting technologies being used in the forests over there, that are light on the land, and bundles the biomass for economically feasible transport to a cogeneration facility. This has never been done in the United States, and differs from cogeneration and

the standard use of what is termed hog fuels. This device bales the biomass into logs, which produce as much as 1.5 mw/hr of energy each.

Small cogeneration facilities could assist us with community self-determination by providing low cost heat and power to government facilities, schools, hospitals, homes, and industry. The process will create jobs and reinvigorate our economy, and deal with the forest residues. As mentioned, the technologies we are exploring have not been deployed in the U.S., but are promising approaches to light on the land forestry, and economic feasibility of biomass transport and utilization for cogeneration. Biomass is a renewable sustainable source of low cost energy, and needs greater importance for the role it plays. We hope to demonstrate this project for replication throughout Montana and the Western States.

The targeted tax incentive for alternative renewable energy resources will assist private industry in the establishment of biomass cogeneration facilities and the ancillary work associated with the hazardous fuels removal to and the use in those facilities. This is an extremely important phase in the development of alternative renewable energy and forest health arenas, deserving of national support and attention.

Senator, we respectfully encourage you and support you in your efforts to fund the targeted tax incentive for renewable and alternative energy production in this country, and invite you to explore the demonstration of our biomass cogeneration project.

Respectfully submitted,



Kevin Schreier  
Ravalli County Grant Administrator  
Purchasing Agent, and Special Projects



COUNTY  
OF  
RAVALLI



The Honorable Senator Max Baucus  
207 N. Broadway  
Billings, Mt. 59101

Monday, August 20, 2001

RE: Energy Tax Incentives

Dear Senator Baucus,

On behalf of the citizens of Ravalli County, we encourage and support your efforts to fund the Biomass Tax Incentive proposed in S. 756 (Grassley), which will soon come before your Senate Finance Committee.

The health and safety of the citizens in Ravalli County is of utmost importance to us, particularly related to the hazardous fuels accumulations on our National Forests. Ravalli County experienced extremely threatening and devastating wildfire last year, and the potentials for future episodes are increasing annually.

A significant component of dealing with the fuels is the productive utilization of overly dense forest vegetation (biomass) apart from just letting it burn in the forests and releasing the smoke into the atmosphere, which is another health concern. The use of the biomass in distributed low yield co-generation of electricity and heat has high potential and significance for rural communities like Ravalli County, and is one area that seems to address both the health and safety of our people, but also aids in the health and restoration of our forests. We are investigating the economic feasibility of biomass cogeneration here in Ravalli County, with the help of the University of Montana. Apparently, there are numerous benefits, and we are exploring a private /public partnership to demonstrate this feasibility on findings from the University.

Small cogeneration facilities, with the support of a production tax credit, could assist us with community self-determination by providing low cost heat and power to government facilities, schools, hospitals, homes, and industry. The process will create rural jobs and reinvigorate our economy. The technologies we are exploring are improvements upon systems currently deployed in the U.S., and are promising approaches to light-on-the-land forestry, and economic feasibility of biomass transport and utilization for cogeneration. Biomass is a renewable sustainable source of low cost energy, and needs greater recognition and federal support for the multiple benefits it offers.

The production tax credit will assist private industry in the establishment of biomass cogeneration facilities and the ancillary work associated with the hazardous fuels removal to and the use in those facilities. This is an extremely important phase in the development of alternative renewable energy and forest health arenas, deserving of national support and attention.

Senator, we respectfully encourage you and support you in your efforts to fund the production tax credit for renewable and alternative energy production in this country. Your active support of Senate Bill 756, especially, will make a big difference in accelerating Montana's much-needed biomass energy development. We invite you to explore the demonstration of our biomass cogeneration project at your earliest opportunity.

Respectfully submitted,

Ravalli County Board of Commissioners

  
Alan Thompson Chairman

  
Betty Lund Commissioner

  
Jack Atthowe Commissioner



**SANDERS COUNTY**  
BOARD OF COMMISSIONERS

The Honorable Max Baucus  
N. Broadway  
Billings, MT 59101

Subject: Production Tax Credit for Bio-mass Energy

Dear Senator Baucus:

Sanders County has a tremendous volume of wood waste material produced by our sawmills, post yards and log home manufacturers that could be used for bio-mass energy. The large majority of our land acreage is timberlands, much in need of thinning for better growth and disease prevention. This could produce material to be used for energy production. It is our hope you would continue to support the full bio-mass production credit bill.

We would greatly appreciate your active involvement on this important issue.

Sincerely,

BOARD OF COUNTY COMMISSIONERS  
Sanders County, Montana

  
Harold L. Laws, Chairman

  
Gail Patton, Commissioner

  
Carol Brooker, Commissioner



**Sanders County  
Economic Development**

P.O. Box 1520 • Thompson Falls, MT 59873 Phone: (406) 827-6942 FAX: (406) 827-4388 E-Mail: [simonson@ronan.net](mailto:simonson@ronan.net)  
207 N. Broadway  
Billings, MT 59101

Subject: Production Tax Credit for Biomass Energy

Dear Senator Baucus:

Biomass power development has significant potential in Montana. It is important for the renewable energy it can produce, but is also equally significant for the environmental and economic benefits that it can deliver in our rural areas.

As you consider tax incentives for energy development at your August 24th hearing in Billings, we encourage you to pay particular attention to the production tax credit for biomass energy that is included in Senate Bill 756 (Grassley). We strongly encourage you to support this tax credit when it comes before the Senate Finance Committee in the near future. Its approval will accelerate biomass energy development in Montana -more than any other issue you will consider this year.

Let us explain why biomass power development means so much to us.

First, it helps to reduce the risk and severity of forest fires that plague our communities and wild lands. It makes productive use of overly-dense forest vegetation that would otherwise be an environmental liability, and it protects the public health and safety at the same time.

Second, biomass power generation is an excellent source of new jobs in areas where employment opportunities are scarce. Not only are jobs created by the construction and operation of a biomass power facility, but also for those who gather the fuel from the forests, process it into useful shape, and transport it. A recent federal study estimated that 4.9 jobs are created for each megawatt of biomass facility capacity.

Finally, biomass power plants add dollars to the local economy and will help us to sustain essential services. In other states where they are currently in operation, biomass facilities are often the biggest source of property tax revenues in their counties, and their payrolls and purchase of goods and services lift the local economy.

Momentum is building in Montana to capture these benefits. Developers and county officials are evaluating sites, working with experts at the University of Montana, and plans are rapidly being made to build new facilities. This will only happen, however, if the economics make sense. Without a production tax credit to offset the cost of purchasing fuel, it is difficult to justify the investment. Your support of the proposed tax credit is essential if we are to move from wishful thinking to actual construction.

We would greatly appreciate your active involvement on this important issue.

Respectfully,

Steve Simonson

Sanders County Economic Development

**Techform Hawaii LLC**P.O. Box 731  
Kula, Hawaii  
96790

August 31, 2001

The Honorable Max Baucus  
Chairman, Senate Finance Committee  
United States Senate  
219 Dirksen Senate Office Building  
Washington D.C. 20510

Dear Chairman Baucus:

I am writing this letter to you concerning your recent field hearing on "The Role of Tax Incentives in Addressing Rural Energy Needs and Conservation" held on August 24<sup>th</sup>, 2001 in Billings, Montana. I understand that your committee has solicited written comments from parties interested in "targeted tax incentives for renewable and alternative energy resources." This issue is one of particular interest to me as I am president of a company, Techform Hawaii LLC, that is committed to bringing advanced alternative energy technologies to Hawaii. I have been involved in evaluating energy resources, such as municipal, agricultural and industrial wastes, for use in Hawaii. Tax incentives, including the tax credits currently available under Section 45 of the tax code for electricity produced from biomass, can encourage additional investment in alternative energy resources, especially in rural areas that exist in Hawaii and other states where the local infrastructure may be underdeveloped. By targeting these tax incentives, it is possible to foster the development of alternative energy technologies that balance Hawaii's growing need for energy with Hawaii's need to preserve its natural environment.

I am a seventh generation native Hawaiian and live "upcountry" on the Island of Maui. As you may know, our Islands are rural in nature with great beauty. Although we are a remote part of America, tourism provides the engine that drives our economy. Managing growth and change here is not unlike managing the growth and change in Montana.

However unlike Montana, the land on our Islands is very limited and we have limited resources of energy. Our present infrastructure is dependent on imported oil, which has continued to become more expensive over the past decades. On average, our residents pay more than twice the amount for a kilowatt of electricity as residents of the US mainland. We are very aware of and sensitive to the spiraling costs for energy and realize that we cannot sustain our economy on energy from imported oil. It is in Hawaii's best interest to find and develop alternative domestic sources of energy and reduce our reliance on fossil fuels and foreign energy sources. Potential sources of alternative energy are municipal solid waste (including wastewater treatment plant sludge) and other biomass such as pineapple scraps and waste brush.

My background has been in the field of waste management. I was the former Vice President of Maui Disposal, the largest waste company on the Island of Maui. At Maui Disposal, I was the primary manager of all of the company's business in my day to day duties. While working for the company, I realized an important fact: over the long term, Hawaii cannot continue to dispose of municipal trash through landfilling since we have limited space on our Islands. As our State grows in population and more tourism develops, this amount of trash will be overwhelming. Currently the trash throughout the State is hauled to the central landfills on each island. This waste disposal practice presents the danger of runoff polluting our water aquifers, our most precious resource. These concerns were factors that led me to run for office as a state representative.

After being elected to the State House of Representatives last November, I left Maui Disposal to focus on my new duties in the State Legislature. As a representative, I participated in the passage of

the Renewable Portfolio Standards Act of 2001, which provides initiatives in alternative energy and helps our State wean from its dependency on fossil fuels. We believe that this Act will help foster new technologies in alternative energy for Hawaii, as well as reduce contributions to global warming.

While researching energy issues during the deliberation over this Act, I reviewed various alternative energy technologies that produce electricity from wind, sun or waste. The advanced industrialized European countries, such as Switzerland, Germany and the Netherlands, have implemented these technologies and have made significant advances in the field of converting municipal solid waste to electricity. From an environmental perspective, the biomass facilities that have been constructed in Europe not only eliminate municipal solid waste that otherwise would have to be stored in a landfill, but burn it in a much cleaner and more efficient fashion. As an added benefit, the facilities are small and unobtrusive and have even been centrally located in various European tourist centers, including Lucerne and Barcelona.

As I viewed and studied these municipal solid waste-to-electricity facilities and their applications in the local communities, I was struck by the parallels our State of Hawaii has to these responsible European countries that must also manage growing tourism, limited land space and limited natural energy resources. After acquiring knowledge of the ways in which alternative energy sources can be utilized to create electricity, I began the process of establishing a technology transfer company called Techform Hawaii LLC to bring innovative energy technology to our State.

Techform Hawaii has licensed technology developed in Europe for one type of municipal solid waste-to-electricity facility and is currently negotiating for the placement of several such facilities in the Hawaiian Islands. These facilities are designed to have low throughputs (50,000 to 75,000 tons per year) of a variety of fuels with varying degrees of BTU values, such as municipal solid waste (including wastewater treatment plant sludge) and other agricultural and industrial wastes. These facilities also have low operating costs and are ideal for commercial sites (e.g., hotels, wastewater treatment plants, agricultural rendering plants, etc.) like we have throughout our State.

The technology for these facilities has continued to evolve and it is now possible to scale down the size and capacity of these energy plants while at the same time making them more efficient through capturing the facilities' steam output as a useful byproduct of the production of electricity. Furthermore, Techform Hawaii's facilities will not present environmental problems because they are designed to comply with Europe's emission regulations, which are significantly more stringent than those in the United States. After recycling all of the material that is able to be recycled, the conversion of Hawaii's remaining municipal solid waste (and other agricultural and industrial wastes) to electricity is a beneficial use of this waste.

Hawaii and other rural areas often face difficulty in securing adequate investment in the local infrastructure. Tax incentives can be the inducement that encourages an investor to finance needed improvements. This is especially true with respect to alternative energy sources. As noted above, Hawaii has large amounts of municipal solid waste (and other wastes that are not easily disposed of), but limited landfill sites. Hawaii also has a need for lower cost electricity (particularly in rural areas), a reduction in its reliance on expensive fossil fuels, and for an increase in its supply of alternative energy resources. The technology exists to utilize Hawaii's municipal solid waste and other agricultural and industrial wastes as fuels to produce electricity, but it is often difficult to attract investors to these projects. Tax credits, such as the Section 45 tax credit, would provide a further incentive to invest in these projects. However, Section 45, as it is currently written, excludes "open loop biomass" (including municipal solid waste), from the types of biomass that qualify for the credit and requires an eligible facility to be placed in service before 2002. Expanding the Section 45 tax credit to include electricity produced from municipal solid waste (including wastewater treatment plant sludge and tires) and other biomass such as agricultural and industrial wastes and extending the placed-in-service deadline would encourage the development of these resources.

The House of Representative recently passed the "Securing America's Future Energy Act of 2001" (H.R.4). Although H.R.4 would extend the placed-in-service deadlines for facilities qualifying under Section 45 and would expand eligible sources of biomass to include various types of "open-loop biomass", it specifically excludes municipal solid waste. I think that this exclusion is shortsighted and I would request the Senate to consider expanding the Section 45 credit to include open loop biomass in the form of municipal solid waste (including waste water treatment plant sludge and tires), and other alternative energy resources when it begins consideration of the Senate energy bill in September.

There are currently two comprehensive energy tax bills before the Senate (S.596 and S.389) that include biomass and municipal solid waste among the eligible energy resources of Section 45. These bills are a step forward in directing energy policy towards the development of alternative energy resources. However, we would like to recommend several clarifications, so that it is clear that municipal solid waste includes wastewater treatment plant sludge and other materials such as tires, and that biomass waste such as pineapple scraps are also eligible energy resources. We would also like any legislation to recognize that certain facilities are designed to produce electricity from biomass and municipal solid waste, and, therefore, we propose the deletion of the provision in S.389 restricting eligibility of biomass facilities to those that utilize more than 75% biomass. Proposed changes to the language of these bills are attached as Exhibit A and Exhibit B.

I believe Techform Hawaii's small (50,000 to 75,000 tons per year) municipal solid waste-to-energy plants have potential application in the rural areas of Hawaii and other states. These plants will be able to process a wide variety of fuels ranging from animal and human waste, municipal waste, agricultural biomass such as pineapple scraps, cattle and poultry renderings and numerous other potential waste-derived fuels into a source of electricity and other energy. However, it takes time to secure the necessary permits, to finance and to construct these projects. With an extension of the placed-in-service deadline and the additional incentive of a targeted tax credit, our company (and others like it) will be able to develop these alternative energy resources.

I hope you and your committee concur with the efforts (both by private business and the State) here in Hawaii to encourage utilization of all possible sources of alternative energy, such as municipal solid waste (including wastewater treatment plant sludge) and other biomass, as well as solar and wind energy technologies. We need to include each of these sources in an energy bill to encourage the responsible development of alternative energy via tax credits as proposed in Section 45.

Thank you for your time and consideration of my comments on this subject.

Sincerely,



Kika Bukoski

President, Techform Hawaii LLC

(10<sup>th</sup> District Representative State of Hawaii)