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NATIONAL ENERGY ISSUES

HEARING

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

TO RECEIVE TESTIMONY ON PROPOSALS RELATED TO REMOVING BARRIERS TO DISTRIBUTED GENERATION, RENEWABLE ENERGY AND OTHER ADVANCED TECHNOLOGIES IN ELECTRICITY GENERATION AND TRANSMISSION, INCLUDING SECTION 301 AND TITLE VI OF S. 597, THE COMPREHENSIVE AND BALANCED ENERGY POLICY ACT OF 2001; SECTIONS 110, 111, 112, 710, AND 711 OF S. 388, THE NATIONAL ENERGY SECURITY ACT OF 2001; AND S. 933, THE COMBINED HEAT AND POWER ADVANCEMENT ACT OF 2001 AND TO RECEIVE TESTIMONY ON PROPOSALS RELATING TO THE HYDROELECTRIC RELICENSING PROCEDURES OF THE FEDERAL ENERGY REGULATORY COMMISSION, INCLUDING TITLE VII OF S. 388, TITLE VII OF S. 597; AND S. 71, THE HYDROELECTRIC LICENSING PROCESS IMPROVEMENT ACT OF 2001

PROPOSALS RELATED TO GLOBAL CLIMATE CHANGE

COMPREHENSIVE ELECTRICITY RESTRUCTURING

JULY 19, 2001

JULY 24, 2001

JULY 25, 2001

JULY 26, 2001

PART 3

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NATIONAL ENERGY ISSUES

THURSDAY, JULY 19, 2001

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 9:30 a.m., in room SD–366, Dirksen Senate Office Building, Hon. Jeff Bingaman, chairman, presiding.

OPENING STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

The CHAIRMAN. We have a two-part hearing today. In the first half we will discuss legislative proposals to address some of the barriers that currently inhibit the market penetration of distributed generation technologies, including distributed power from renewable energy.

This cluster of clean and efficient technologies includes fuel cells, wind, photovoltaics, and microturbines. In contrast to electricity produced at large central powerplants, which travels over transmission and distribution lines to reach the ultimate consumer, distributed generation is smaller in scale and produces electricity at or near the site where it is to be used.

Distributed power is automatically 7 to 10 percent more efficient than central station power, because that is how much electricity is lost in the transmission process. It has become an increasingly attractive option for customers who demand a power source with high reliability and who want to control their peak demand or to use renewable energy.

The second half of the hearing will address hydroelectric relicensing legislation. Non-Federal hydropower represents 5 percent of all electric power generated in the United States. It provides a far greater percentage of the electric power generated in California, in the Pacific Northwest, and in New England. Relicensing of non-Federal hydropower projects involves many stakeholders and raises significant energy and resource protection issues.

Now we have been working with Senator Craig to try to craft legislation to provide an appropriate balance on these issues. We look forward to the testimony to help flesh out all the issues involved.

Let me call on Senator Craig for any opening statement that he has.

[The prepared statement of Senator Bingaman follows:]

PREPARED STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

Good morning.

We have a two part hearing today. In the first half we will discuss legislative proposals to address some of the barriers that currently inhibit the market penetration of distributed generation technologies, including distributed power from renewable energy.

This cluster of clean and efficient technologies includes fuel cells, wind, photovoltaics and microturbines. In contrast to electricity produced at large central power plants, which travels over transmission and distribution lines to reach the ultimate consumer, distributed generation is smaller scale and produces electricity at or near the site where it will be used.

Distributed power is automatically 7 to 10% more efficient than central station power because that is how much electricity is lost in the transmission process. It has become an increasingly attractive option for customers who demand a power source with 99.999 percent reliability, want to control their peak demand, or to use renewable energy.

While some electric utilities view DG as competition, many can see its benefits. Here's what one CEO of a major electric and gas utility has to say about distributed generation. "NiSource believes that as the PC was to the mainframe, distributed generation will be to traditional power generation. Distributed generation will create a new electric industry by mitigating transmission gridlock, diminishing the need for siting and funding new generating stations, easing the strain on distribution, providing for premium or back-up support services and improving the emissions profile of generation portfolios." (Gary Neale, CEO of NiSource, Inc., "Utilities Benefit from Distributed Generation", utilitybusiness.com, January 2001.)

This hearing will also explore the potential for increasing the contribution renewable energy can make to our energy supply portfolio. Renewable energy resources are plentiful throughout the United States as the maps on this chart from the President's *National Energy Plan* demonstrate. New Mexico for example has abundant wind, geothermal, and solar resources which can be particularly important for those who live far from existing power lines or gas pipelines. I should also note that eight of the "Big 12 Wind States" are represented on this committee. (ND, SD, MT, NE, WY, OK, CO and NM).

The second half of the hearing will address hydroelectric relicensing legislation. Non-Federal hydropower represents 5 percent of all electric power generated in the United States, but provides a far greater percentage of the electric power generated in California, the Pacific Northwest, and New England.

Relicensing of non-Federal hydropower projects involves many stakeholders, and raises significant energy and resource protection issues. I have been working with Senator Craig to try to craft legislation that will provide an appropriate balance on these issues, and I look forward to today's testimony to help further flesh out some of the issues involved.

STATEMENT OF HON. LARRY E. CRAIG, U.S. SENATOR FROM IDAHO

Senator CRAIG. Well, Mr. Chairman, thank you very much. I do appreciate the work that is going on in an effort to address these important issues. I am, as you know, particularly interested in the panel that will address the hydro-licensing reform.

I appreciate your support in helping to resolve the problems currently and pending through an effort to create an efficient review of the non-Federal hydroelectric licensing applications at FERC.

Mr. Chairman, Congress has been reviewing FERC's hydropower relicensing program for the better part of 4 years. The Senate's hearing record on this issue is replete with evidence that FERC's process lacks balance, is costly, cumbersome, and often convoluted. And a few examples, I think, include a typical project can take 8 to 10 years, as compared to a gas fired project that takes 18 months.

Federal resource agencies set environmental conditions without equal consideration of projects, economies, the energy benefits, the flood control, the navigation and other values protected by different

Federal statutes. The inability of FERC to act as a referee to reconcile these conflicting requirements and a process that often results in higher and higher cost with major loss in project operational flexibility that adversely affect the ability to meet critical peak loads has to be a major concern of this committee.

We have learned with this painstaking review, Mr. Chairman, that the commission's hydroelectric licensing process does not produce optimum decisions because of, in the words of some courts, this rather unorthodox system of shared authority that is sanctioned by the Federal Power Act is a problem. I have introduced legislation, as you know, in the 105th, 106th and now the current Congress to address the problem. The latest iteration of that legislation is S. 71.

Like its previous forms, it does nothing to erode the environmental principles established by Congress in the Electric Consumers Protection Act of 1986. It emphasizes, or, I should say, reemphasizes, the Federal Power Act's requirement for balance in government review of licensing applications.

Indeed, Mr. Chairman, S. 71 underscores the requirement mandated in the Electric Consumers Protection Act that the Federal Government equally consider all of the issues associated with hydropower projects throughout the Nation. The precise language added to section 4(e) of the Federal Power Act by the Electric Consumers Protection Act reads in part as follows: "In deciding whether to issue any license under this part of any project, the commission, in addition to the power and development purposes for which licenses are issued, shall give equal consideration to the purposes of energy, conservation, the protection mitigation of damage to and enhancement of fish and wildlife."

Mr. Chairman, what is often overlooked is that Congress separated the word power from the word development. Development purposes under the Federal Power Act include navigation, irrigation and flood control, words that define issues of commerce, food production, and safety. What is truly astonishing, Mr. Chairman, is the fact that, under current practice and policy, Federal resource agencies have no legal requirement to consider effects on commerce, food production, and public safety when developing conditions for hydro projects.

In my judgment, this is an absurd statutory requirement that simply cannot stand. Congress must require that Federal resource agencies consider these issues before developing and issuing conditions that will be imposed on licensed projects.

Well, Mr. Chairman, I have more to say, and I will add it to the record. But I think very clearly what we are all wanting to achieve is accountability. And that has to be the cornerstone of a responsible government and a responsible government process. Federal resource agencies must be held accountable, not only for the protection of fish and wildlife, but also for public safety and commerce consequences of the conditions they ultimately impose on hydro projects.

We are going to hear from witnesses this morning on this issue, both the pros and cons of the issue, and legislation that I have introduced and the cooperative effort that we are working under now to try to see if we cannot resolve this to make the process at least

in the whole less costly, more predictable and, I would trust, more accountable.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Let me ask if Senator Thomas has any opening statement.

STATEMENT OF HON. CRAIG THOMAS, U.S. SENATOR FROM WYOMING

Senator THOMAS. Thank you, Mr. Chairman. I will just try and be very brief. I am very much interested in this hearing and what you are doing.

Welcome to the Assistant Secretary. Nice to see you, sir.

I think it is a good idea to talk about this approach to some of our electric needs. I do, however, want to share with you that I hope we can also focus on that portion of our electric production that is most important, that brings us the most, and that is what comes from larger generator plants. And so I hope we do not get diverted entirely over into these other things, which are there in the future but are not really—we need to be talking about the kind of fuels we are going to use for generation.

If coal is our longest lasting fuel and one that can be most used there, are we going to be able to use it in this distributed generation? I do not think so. So we ought to take a look at that, it seems to me.

We ought to have more research, perhaps, on the ones that are providing generation now. I mean, you look out there at wind, and I am all for that. I think we ought to be looking at it. But here all these are, and here is 40 megawatts, you know, when we are really knocking about 2,500 is what we really ought to be having somewhere.

A power grid. We have to be talking more about the power grid. I think it is up to us to deal with a nationwide one. Who is going to own it? You mentioned the efficiency of distributed generation. Perhaps that is the case. Maybe we ought to be looking at line loss. There is line loss. But I have to tell you, I think a 2,500 megawatt generator is probably more efficient than a 15 or 20 in most any circumstances. And so we have to take a look at those things.

I think we have to look at the re-regulation thing. We have not talked about that much in terms of distribution and what we are going to do with electricity.

So I guess my point is, I think this is very important, and I am very much a part of it. But when we are talking about resolving the demands for power needs this year, next year, five years from now, this is not going to be the total answer. And we also need to be looking at that base supply that I think is so very important. So I am interested in what you are doing here.

The CHAIRMAN. Well, thank you very much. I appreciate that statement.

Secretary Garman, you are a regular here. You are here as much as you used to be when you worked here. But we are very glad to see you again. Why do you not go right ahead?

STATEMENT OF DAVID K. GARMAN, ASSISTANT SECRETARY, ENERGY EFFICIENCY AND RENEWABLE ENERGY, DEPARTMENT OF ENERGY

Mr. GARMAN. It is a pleasure to be here. Thank you for this opportunity to testify on legislative provisions designed to address some of the barriers that exist to the deployment of distribution generation and renewable energy technologies. The time is right for us to be thinking about these issues, not only because energy supplies and price issues are so acute, but because we have to confront important decisions about an aging electricity and energy infrastructure.

Half of the installed transformer banks in the United States are reaching retirement age. More than two-thirds of our boilers in electrical plants are at least 30 years old and more than 40 percent are 40 or more years old or older. Electric energy losses are increasing as we try to push more power through transmission and distribution systems where, at their maximum, losses can be 10 times higher than normal.

The decisions we make over the next several years will strongly influence the energy supply, energy security, economic strength and environmental future of our country for years to come.

With regard to the legislation before the committee today, we are likely to support much of it provided it is part of a balanced, comprehensive approach that also addresses energy efficiency, supply, and infrastructure issues, as in the national energy policy document.

At this time, I would like to address each of the major provisions under consideration. First, with respect to renewable energy resource assessments, these are extremely useful tools that are used by developers, landowners, local officials to determine their options and renewable resource potential.

[Chart.]

You can see some representations of very large-scale efforts here in this chart. And we have to continue, and in some cases intensify, our efforts in these areas. A suggestion about the legislation: The requirement in the legislation that has us do these things on an annual basis could divert resources from other high-priority efforts.

In the case of solar, wind and geothermal, the resource really does not change that much from year to year. And updating these assessments once a decade using 30-year averages is probably adequate. So we request that the language be modified to allow the department to undertake these assessments on an as-needed basis, taking into account market conditions, cost, available technology to do them, and other relevant factors.

Second, with respect to Federal renewal purchase requirements that are in the legislation before us, section 602 of S. 597 would require from 3 to 7.5 percent of the Federal Government's electric power be purchased from renewable energy resources. We share the view that the Federal Government offers significant potential as the Nation's largest electricity buyer in this area. And we support the establishment of goals.

Just a couple of weeks ago, the Secretary of Energy announced that the Department, through Bonneville Power Administration, would sign pre-development agreements for seven new wind power

projects to provide an additional 830 megawatts of generating capacity in the energy-strapped West. This initiative would provide us with enough electricity to power 270,000 homes and would represent about 20 percent of increase in the Nation's wind power supply.

So we are working to make these purchases for ourselves and our customers of our power marketing administrations. And we are doing it because it makes good economic and environmental sense. However, because the choice of purchasing renewable power does not yet exist in many areas of the country, absolute percentage purchase requirements, such as those contained in the bill, could unduly benefit the seller in a Federal power purchase negotiation.

Therefore, until such time that retail competition and greater purchaser choice is available, we urge that the committee express renewable energy use goals rather than absolute requirements in their legislation. We also recommend that section 602 be modified to add renewable energy derivatives, such as renewable energy credits or green tags, under the definition of renewable energy source.

Third, with respect to residential renewable energy grant program, as I think is proposed in S. 389, we recognize that higher initial capital costs are often a barrier to the purchase of renewable energy systems. But rather than a grant program, as proposed in the Murkowski bill, we favor the alternative approach, a tax credit, as recommended in the national energy policy document.

Fourth, with respect to interconnection standards, the administration supports the concept of uniform and enforceable interconnection requirements that will apply to both distribution and transmission systems. We have been working for the past couple of years supporting industry through the Institute of Electrical and Electronic Engineers, or IEEE, to develop voluntary national interconnection standards.

As we proceed with the consideration of legislation, it is important to take into account potential jurisdictional issues, particularly with regard to providing backup service and the requirement that distributed facility owner-operators pay costs associated with the interconnection. Those are issues that have traditionally been under the purview of State utility regulators. In the legislation, you might want to consider providing some guidance about how the State utility regulator can act to determine the reasonableness of cost terms and conditions related to interconnection standards.

Fifth, net metering. The administration supports the concept of net metering, but recognizes that these decisions have also historically fallen under State jurisdiction. As with interconnection standards, net metering will improve the economic viability of wind, geothermal, solar and other renewable and distributed energy projects.

To conclude, because I see the red light, today's energy system was designed in a regulated environment around central power stations. It was not designed to send real pricing signals to consumers, nor was it designed to accommodate distributed generation or consumer choice. Our shared challenge is to transform that system into a more efficient one that can do all of these things and more.

Fortunately, with some of the tools of the information age, we are starting to envision just how a more open, flexible, and respon-

sive market might be created. The provisions in the legislation under consideration today are thoughtful attempts to address some of the key obstacles to the widespread adoption of renewable and distributed generation technologies, as cited in the President's National Energy Policy. And we look forward to working with the committee and the staff on this legislation.

I will be pleased to answer any questions that the committee has either this morning or in the future. Thank you.

[The prepared statement of Secretary Garman follows:]

PREPARED STATEMENT OF DAVID K. GARMAN, ASSISTANT SECRETARY, ENERGY EFFICIENCY AND RENEWABLE ENERGY, DEPARTMENT OF ENERGY

Thank you for the opportunity to testify on S. 597, Title VI; Sections 710 and 711 of S. 389; and S. 933. These legislative provisions propose to address some of the barriers that exist to the deployment of distributed generation and renewable technologies.

The President's National Energy Policy (NEP) contains a discussion of distributed energy technologies particularly relevant to today's hearing. Interconnection standards, net metering, land-use zoning codes and other barriers to distributed generation are discussed in chapter six of the NEP. Other barriers to distributed generation are also highlighted; including the difficulty of permitting some combined heat and power projects.

By removing barriers related to interconnection standards, net metering, purchases of renewable energy, and combined heat and power, we can increase the efficiency of our electric system by making distributed energy resources more practical in the marketplace. Because distributed resources put electricity generation closer to its point of use, they can help overcome some of the generation, transmission and distribution problems we are experiencing today in some areas of the country.

This is a critically important time, not only because energy supply and price issues are acute, but because demand is growing even as we confront important investment decisions with respect to an aging electricity infrastructure. For example:

- Half of the installed transformer banks in the U.S. are reaching retirement age;
- More than two-thirds of our boilers and electric power plants are at least 30 years old, and more than forty percent are 40 years or older;
- Electric energy losses are increasing as we try to push ever more power through our electric power transmission and distribution system where, at maximum capacity, losses can be ten times higher than normal;
- By 2009, 6 of the country's 10 electricity regions—serving about 65 percent of U.S. customers—will fall below the traditional power industry standard of a 10 percent "safe reserve" capacity margin without substantial increases of new power generation; and
- By 2020, EIA estimates that U.S. electricity requirements will more than double from today's 700,000 megawatts to approximately 1,500,000 megawatts.

The decisions we make over the next few years will strongly influence the energy supply, energy security, economic strength, and environmental future of our country for years to come. Our goal should be to replace and expand our domestic energy supplies, develop advanced and highly efficient systems to deliver this energy, and improve end-use energy efficiencies. As we revitalize and expand our national energy infrastructure, renewable and distributed energy technologies can help reduce transmission system congestion and energy losses by placing energy generation at or near the point of consumption.

With respect to the specific provisions in legislation before the Committee today, I would note that they are all thoughtful and well intentioned. With some modifications, we are likely to support many of them if they are part of a balanced, comprehensive approach that also addresses energy efficiency and infrastructure issues as contained in the National Energy Policy document.

At this time I would like to address each of the major provisions under consideration.

RENEWABLE ENERGY RESOURCE ASSESSMENT [SECTIONS 601 OF S. 597, AND 711 OF S. 389]

Section 601 of S. 597 and Section 711 of S. 389 call for an annual assessment of renewable energy resources. These sections focus on development of a renewable resource inventory that would create a useful tool for project developers, landowners,

and state and local elected and appointed officials to determine their resource potential as well as future development options.

We have already developed some renewable energy resource inventories that have been used to site wind farms and other renewable energy projects. However, the requirement in the legislation that these be done on an annual basis would divert resources from other high priority efforts. In the case of solar, wind and geothermal, for example, the resource does not change appreciably from year to year. Updating these resource assessments once a decade using 30-year averages is probably adequate. Biomass, on the other hand, might benefit from more frequent updates due to changes in annual crop yields and types.

Also, a solar resource assessment is far different than a geothermal assessment, which in turn is different than a wind or biomass assessment. Current approaches to doing these assessments cost up to $5 million each and take from two to three years to complete. We hope to employ new technologies to reduce costs and/or enhance the data collected. We request that the language be modified to allow the Department to undertake these assessments on an as-needed basis after periodic reviews, taking into account market conditions, cost, available technology, and other relevant factors.

FEDERAL PURCHASE REQUIREMENT [SECTION 602 OF S. 597]

Section 602 of S. 597 would require from 3 percent to 7.5 percent of the Federal Government's electric power be purchased from renewable energy resources.

We share the view that, as the nation's largest single energy user, the Federal Government offers a significant potential market for renewable energy products, and the Administration supports the establishment of goals for this purpose. The existing goal pursuant to Executive Order 13123 is that 2.5 percent of the federal government's electricity use should be derived from specified renewable resources by the year 2005.

Last month, Secretary Abraham announced that the Department of Energy, through the Bonneville Power Administration, would sign pre-development agreements for seven new wind power projects to provide an additional 830 megawatts of generating capacity in the energy-strapped West. This initiative would produce enough electricity to meet the needs of nearly 270,000 homes, and it represents an approximately 20 percent increase in the nation's wind power capacity.

Just this week, I signed a letter of intent to purchase renewable power under the EPA's Green Power Partnership for the National Renewable Energy Laboratory. It is my hope that more than 7 percent of the power supplying this facility will be from renewable resources by the end of the year, the bulk of it coming from new resources. So we are working to make these purchases for ourselves and for the customers of our power marketing administrations, and we are doing it because it makes good business and environmental sense.

However, because the choice to purchase renewable power does not yet exist in many areas of the country, absolute percentage purchase requirements such as those contained in section 602 of S. 597 could unduly benefit the seller in a federal power purchase negotiation. Therefore, until such time that retail competition and greater consumer choice is available, we urge that the Committee express renewable energy use goals rather than absolute requirements in legislation. Moreover, these goals should be for electricity used, not just electricity purchased as some federal entities might have the ability to generate electricity from their own renewable resources on federal land. Finally, the renewable power purchase costs should be reasonable.

Section 602 limits hydroelectric generation to include only the capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric dam. We believe all hydroelectric can be properly termed renewable energy. However, if the purpose is to promote new renewable generation, we recommend modifying the language in order to avoid precluding Federal power purchases either from an existing dam that presently has no hydroelectric capability that could be developed, or hydroelectric power from any new facility that might be developed.

We also recommend that section 602 be modified to add "renewable energy derivatives, such as renewable energy credits or green tags" under the definition of "renewable energy source."

RESIDENTIAL RENEWABLE ENERGY GRANT PROGRAM [SECTION 710 OF S. 389]

Residential renewable energy systems dependent on solar or wind are free of the fuel price volatility problems associated with conventional energy technologies. However, higher initial capital costs are often a barrier to wider acceptance and usage of these systems. Section 710 of S. 389 would establish a Residential Renewable En-

ergy Grants program, which would provide incentives for the purchase and installation of residential renewable energy systems.

Because such a grant program would be subject to annual appropriations, the uncertainty of consistent appropriations would send confusing signals to the market. Small manufacturers offering residential renewable energy systems would find it difficult to anticipate appropriations levels and subsequent demand. Thus, they would face difficulty planning capital expenditures to ensure that enough systems would be available in the marketplace.

The alternative approach of a tax credit, as recommended in the National Energy Policy document, is not subject to the uncertainty of the annual appropriations process and would send a stronger, more certain signal to the market. Specifically, we believe that a 15 percent tax credit for residential solar, up to a maximum of $2000, is a superior approach to a grant program that may or may not be funded on a consistent basis.

INTERCONNECTION STANDARDS [SECTION 603 OF S. 597 AND SECTION 4 OF S. 933]

The Administration supports the concept of uniform and enforceable interconnection requirements that will apply to both distribution and transmission systems.

Distributed electricity generation can offer customer benefits such as increased reliability, uninterruptible service, energy cost savings, and on-site efficiencies. However, adding new small grid-connected generating facilities to an existing electricity grid developed around centralized generation will require innovative approaches to managing and operating new distributed energy resources. Customers, vendors and developers of these new technologies cite interconnection barriers including technical, institutional and regulatory policies as some of the principal obstacles separating them from commercial markets.

Current interconnection requirements vary from state to state. In addition, except in the few states that have enacted legislation or regulations to address the interconnection of distributed energy resources with the utility system, interconnection standards can also vary from utility to utility. A national interconnection standard would reduce uncertainty, lower costs, and facilitate deployment of modern distributed generation technologies such as fuel cells, photovoltaics, wind, and microturbines. It would also remove one of the barriers to combined heat and power, a technology that has the potential to double the efficiency of our energy production by utilizing the heat that would normally be wasted by combustion technologies or fuel cells in the process of generating electricity.

The Department has been supporting efforts by industry through the Institute of Electrical and Electronic Engineers (IEEE) to develop voluntary national interconnection standards. This effort has been in effect for the past several years and has involved extensive working group deliberations involving staff from electric utilities as well as equipment manufacturers and distributed energy project developers. The technical standard being developed by the IEEE could very well provide a basis for the rule making process called for in both bills and, at the minimum, should be referenced to ensure that the progress that has been made by this group is not lost or duplicated unnecessarily.

In addition, there are potential jurisdictional issues that should be considered, especially with regard to providing back-up service and the requirement that the distributed facility owner or operator pay costs associated with the interconnection. Such service and rate issues traditionally have been the jurisdiction of State utility regulators. In this regard, the legislation perhaps should provide clearer guidance about how the State utility regulator can act to determine the reasonableness of costs, terms and conditions. We also should be aware that several States have already established rules which not only address the technical requirements for interconnection, but also address in some detail the related business terms and conditions and allocation of costs. These generally treat small distributed generation projects very favorably, exempting them, for example, from the costs of engineering studies or liability insurance. We would not want any Federal legislation to undo this progress.

NET METERING [SECTION 604 OF S. 597]

The Administration supports the concept of net metering, recognizing that these decisions have historically fallen under state jurisdiction. As with interconnection standards, net metering will improve the economic viability of wind, geothermal, solar and other renewable and distributed energy projects, help meet our growing electrical demand and cut power bills for small businesses and families across the country.

To increase the economic viability of a distributed renewable energy project, an effective net metering provision should ensure a fair market price for power generated on site, and remove the burden for an on-site generator to procure, install and maintain additional equipment. Section 604 of S. 597 has attempted to address those issues.

We would note, as a technical observation, that the definition of "net metering service" is overly specific. In some cases, multiple meters need to be used to correctly account for time of use charges or when electronic meters (which do not spin backwards) are in use. Consequently, we suggest striking the words "through the same meter through which purchased electricity is received."

Additionally, under subsection (a) (2), the Committee might wish to consider removing fuel cells as part of the definition of a "renewable energy resource" and creating a separate clean energy category. Fuel cells in and of themselves are not a renewable resource, but rather fuel cells utilize hydrogen that can come from a variety of sources. While cost-effectively producing hydrogen in large quantities from renewable resources is a long-term DOE Hydrogen Program objective, most fuel cells today use either a reformate or hydrogen extracted from a fossil fuel such as natural gas. Using fuel cells in combined heat and power mode increases fuel use efficiency for electric generation from 33 percent efficiency to more than 70 percent efficiency. Thus, you might want to consider a separate category for other specified high efficiency residential energy systems such as fuel cells and other micro combined heat and power.

ACCESS TO TRANSMISSION BY INTERMITTENT GENERATORS [SECTION 605 OF S. 597]

The Administration supports the goal of ensuring fair access to transmission by intermittent generators such as wind and solar energy. I am informed that the Federal Energy Regulatory Commission is actively looking at this matter, and thus we should avoid being overly prescriptive in the statute to give FERC needed flexibility to address this problem.

CONCLUSION

Today's electricity system was designed in a regulated environment around central power stations. It was not designed to send real pricing signals to consumers, nor was it designed to accommodate distributed generation or consumer choice. Our shared challenge is to transform that system into a more efficient one that can do all that and more. Fortunately, with some of the tools of the information age, we are starting to envision just how a more open, flexible, and responsive market might be created.

The provisions in the legislation under consideration today are serious and thoughtful attempts to address some of the key obstacles to the widespread adoption of renewable and distributed generation technologies cited in the National Energy Policy. We look forward to working with this Committee and its staff on legislation in this area. I will be pleased to answer any questions you may have in this regard both this morning and in the future.

The CHAIRMAN. Thank you very much. Let me ask about a concept that I have become increasingly focused on here just in the last few weeks, as I have studied this whole set of issues. And that is a proposal that has been kicking around now for several years, to try to impose something in the nature of a fossil fuel efficiency standard so that we would not be picking as between one source of power versus another.

We would essentially be saying that it is in our national interest to have power produced efficiently. And whether that was from a large generating plant that Senator Thomas referred to that produces 2,500 megawatts or a small plant and whether it used coal or whether it used natural gas or whether it used some other source, our interest is seeing that there is more efficiency.

This chart that you brought the other day and that you have again, typical electricity losses, I think makes the point very persuasively that an awful lot of what goes in in the way of fuel to produce power and heat winds up being lost in conversion. And it

seems to me that we have a real interest as a Nation in reducing that inefficiency and promoting more efficiency.

Is this something you have looked at or you have any position on?

Mr. GARMAN. Well, I have in the context of climate change. I remember when former Senator Bennett Johnston was kicking around a very similar idea. And there are some interesting notions to it. And it is intriguing in the sense that driving efficiency upward is a good goal. But there are a couple of cautions.

One has to be very careful in looking at the intersections of existing environmental statutes with an efficiency goal. You could kind of think of it as café standards for fossil fuel powerplants in a way, where you have good performers and bad performers, but your goal would be to drive the efficiency level upward.

You have to look very carefully at the interaction with existing environmental laws. For example, the Clean Air Act requirement that you drive down the oxides of nitrogen requires you to use selective catalytic reduction that actually uses a lot of energy and, similarly, the impact of new source review. Right now, new source review is an impediment, a regulatory impediment, to trying to drive efficiency in a plant upward because you are afraid to make your plant more efficient without triggering new source review.

The CHAIRMAN. Well, would that not be a—I mean, could you not argue that if we were to adopt a fuel efficiency standard, that would then bring pressure to bear to change the new source review process?

Mr. GARMAN. It easily could, because if you did not, if you failed to consider the existing environmental laws, if you on one hand had one law that says we want you to make your plant more efficient, and you had another law that said we are going to force you to use selective catalytic reduction, you know, imposing an energy penalty and making your plant less efficient, you really squeeze this plant. So you would have to deal with some of those aspects to be successful.

The CHAIRMAN. Okay. I think those are very good comments. I appreciate those. Let me ask about your comments here about the Department of Energy support for the IEEE process to develop uniform technical standards for interconnection. I obviously favor anything being done on a voluntary basis that we can get done on a voluntary basis.

I am just wondering, though, when we expect this standard to be promulgated and implemented. And is there something that we should be doing in the Congress or in the administration to see to it that it happens sooner rather than later?

Mr. GARMAN. We are watching this very carefully. The IEEE is trying to promulgate this standard during this calendar year. I think they are going to miss it. I think they will probably promulgate the standard very early in the next calendar year.

They are working on a variety of technical requirements and is an important point. Texas, New York, California, Delaware, Vermont and others have implemented or are considering a distributed generation rule. And they are looking to the IEEE with a view of adopting those standards when it is ready. I think the States are

looking for some uniform guidance in this area. And they will take advantage of it when it is available.

In terms of—you know, the one thing that we want to be very careful with in the context of Federal legislation is that the States have done some very good things on distributed generation. Some of them have said, we are not going to charge pre-interconnection study fees for people who want to do distributed generation, and we are not going to charge stranded charges for distributed generation.

So we want to be very careful not to undo with Federal legislation some of the very good things that have been done at the State level.

The CHAIRMAN. Are you confident that the IEEE standard that is being developed is not going to undo some of those good things?

Mr. GARMAN. No, because it is just a technical standard, as I understand it, in and of itself. It looks at items such as voltage regulation, distribution, frequency disturbances, harmonics, and other kinds of technical aspects of the actual interconnection.

The CHAIRMAN. So if the IEEE were able to get a uniform technical standard, is it your thought that we should look at having a uniform set of provisions built on the best practices that have been adopted in the States?

Mr. GARMAN. At the technical level, perhaps. I am a little concerned about the one-size-fitting-all aspect. Different areas and different utilities have different situations. And I am not certain that a Federal uniform standard that deals with some of the ancillary nontechnical issues, like cost of service charges, backup power provisions, and some other things that probably should be handled at a more local level.

The CHAIRMAN. Okay. Thank you very much.

Senator Murkowski.

STATEMENT OF HON. FRANK H. MURKOWSKI, U.S. SENATOR FROM ALASKA

Senator MURKOWSKI. Thank you very much, Senator Bingaman. And good morning, David. How are you?

Mr. GARMAN. Good morning, Senator.

Senator MURKOWSKI. Recognizing that the purpose of the hearing today is to address FERC's hydroelectric licensing process and those related so-called distributed generation, it is my opinion that we are going to have to make some changes in procedure. I gather that over the next decade we are going to be looking at about 200 existing projects with a capacity of some 24,000 megawatts come up for relicensing.

There is probably going to be some new projects proposed. And many of these are going to be out west. As a consequence, I would appreciate, and perhaps you have already commented—and if you have, I apologize. But nevertheless, I think it is fair to say that FERC's licensing and relicensing process needs a significant and dramatic improvement. It takes too long, costs too much. Decision making is scattered among different Federal agencies. And the end result is often a reduction of the project's ability to produce power when needed.

We were able, through your efforts and others, to get a five megawatt exemption in our State of Alaska simply because the cost of pursuing FERC licensing could almost run as high as a quarter of the project cost, as we saw in Cordoba, I believe. I am wondering if we could address through FERC some changes and still maintain the adequate oversight of something like a one-stop-shopping procedure that would balance the competitive interests. This has been advocated for some time by both the Democratic and Republican Chairman of FERC. But I am aware that it is controversial.

I think Senator Craig, Larry Craig, has introduced such legislation, which would restore balance by requiring the Federal resource agencies, the Department of the Interior, National Marine Fisheries, and the Forest Service, to consider the economic, as well as the energy, impact on the mandatory terms they impose on FERC licensed projects. This certainly seems reasonable to me, because, you know, we have a tremendous conflict from time to time by these agencies based on their philosophical role or turf areas or so forth.

We have seen situations in Glacier Bay National Park where you are familiar with the opportunity to have a small hydro project in a wilderness or, in effect, have extended diesel generation provide the necessary power source. And you get into the merits of, well, now what are you better off with, and are you breaking a covenant by making exception for carving out this small hydro. And it is a terrible, terrible, costly, lengthy process. And we do not seem to be able to get to a level where somebody can make a decision and move on with it.

And we all support renewable energy as part of the overall energy mix. But when we consider proposals, I think we have to be mindful of the consequences. And I wonder what your comments are on that.

And then I will conclude with a reference to PURPA. Of course, it was enacted to promote alternative energy generation without adversely affecting consumers. That was—of course, hindsight is 20/20. And PURPA probably could not be enacted today knowing what we know now. Some have seen the opportunity to take advantage of PURPA and simply finance their project based on the take or pay clause. And as a consequence, that was not what it was intended to do.

Accordingly, before we act on these provisions, we want to be sure that we have full understanding of the potential long-term consequences for consumers and customers as well. So I guess among our concerns with witnesses later is to judge the various proposals on the benefit to the consumers by reducing price. Do they reduce regulation and do they streamline regulation?

I would appreciate any comments you might care to make. And I am holding an article that appeared in the *New York Times* today. It says, "California's new problem is suddenly a surplus of energy." We seem to go from feast to famine around here.

I guess any forecasts you could care to make, commenting on whether this is a temporary euphoria or simply a misprint, would be appreciated.

Mr. GARMAN. You have raised a number of questions. Let me start with hydro. And while I was not invited or asked to talk

about the hydro bill, I do have a comment about it. Currently, hydro produces nine percent of our electricity. Our total renewable production is around 11 percent.

My goal, of course, is to increase the use of renewable energy. It would be a terrible thing to see the amount of renewable energy that we generate decline during our watch. I could triple wind, double solar. But if the problems associated with hydro relicensing drove down hydro, we could have a net loss of renewable energy in this country during my tenure. And that is the last thing that I want to see.

So I applaud the Congress, as you work, try to work, through this problem, because it is incredibly important that we solve it to keep hydro a viable resource.

You alluded to PURPA, which is not a very elegant way of dealing with the renewable energy issue. A more elegant way, and the focus of our efforts, frankly, is research and development to bring down the cost of renewable energy resources and make them competitive in the marketplace. We have a tremendous success story with respect to wind. Wind energy in some areas of the country is competitive head-to-head with gas.

And the focus of our effort will continue to be to focus research and development in our national lab to bring down the cost of these technologies so that they can compete head to head in the marketplace.

And I see the red light. So I had better stop there.

Senator MURKOWSKI. And you are not going to comment on California?

Mr. GARMAN. I am not going to be a forecaster because I would be in a different line of work.

Senator MURKOWSKI. You would be in the fortune-telling business.

The CHAIRMAN. I would just point out, it is not feast to famine, it is famine to feast.

Mr. GARMAN. That is fair enough.

The CHAIRMAN. Senator Thomas.

Senator THOMAS. Thank you. You know, we talk about these things that you cannot help but wonder, since our job is to, I think, is to try and set policy so that the private sector will have a basis in which to operate. You talked about efficiency. If you go ahead and get some competition, if you have an electric grid where people can enter to compete, then they are going to be efficient, because the market will drive that.

So I guess my question basically is, what do you see as the division between our energy that is placed here on probably our future things, as opposed to the more immediate needs? And we are not going to be able to fill the need with the growth in demand, I do not think, do you, with wind energy?

Mr. GARMAN. Well, you know, wind has an important role to play.

Senator THOMAS. Sure.

Mr. GARMAN. But you are right. Currently, the wind generation and solar together is producing a very tiny fraction of our total energy.

Senator THOMAS. That does not mean it is not important and that we ought not to do it. But I think we need to—I think we are sometimes letting ourselves get a little diverted away from doing the things that we can do now to meet our needs, as we look at things that are at this point a little in the future.

For example, you talked about the efficiency and the line loss. Is there not an opportunity to reduce line loss considerably and perhaps even reduce the need for transmission lines by making the capacity of those lines much higher? Is that not a possibility?

Mr. GARMAN. There are those possibilities. And also, the possibility of employing new technology, such as the super conducting cables that we have in place today under the streets of Detroit in one example, in an R&D program, in a demonstration program, that we have going on. There are technologies that can address some of these issues.

Senator THOMAS. I guess that—and I am like you, I am all for these—I always remember somebody saying we never run out of fuel in our history. We always found something different. And we will find something different. But I hope we do not divert our attention entirely from doing what needs to be done to meet needs as we look at the future.

This distributed—I was just reading something from home that is kind of interesting, Mr. Chairman. In the new methane gas fields, they need electricity. And it is very difficult to build lines in there. So they are using generators in a distributive way. This lady, she is complaining about the noise. "I think my horses are going deaf," she says, "from all the noise of these generators that are around doing this small part." Kind of interesting.

At any rate, thank you. I hope we can divide our focus to the future and what we need and not get out of line with doing the things that have to be done.

Mr. GARMAN. But if I could just make one point, because this is an important point. Because so much of our electricity infrastructure is nearing the time of its retirement, this is an important time to think about the future. And it is an important time to think about the way we can refashion our energy delivery system to allow for a more perfect market and allow market forces to really come into play.

Right now, market forces are not really allowed to come into play. We have——

Senator THOMAS. In some places.

Mr. GARMAN. Well, yes. But for instance, there is a big difference in time of use power. Peak power obviously costs a lot more than base load power. And yet the bill that consumers get in most areas of the country, the overwhelming majority of the country, is one flat rate. If consumers had a market signal that would allow them to differentiate the cost of peak power and the cost of non-peak power, they might be inclined to do some load shifting and some other things that would save them money.

Senator THOMAS. The fact of the matter is, for most residences the cost is not the power, the cost is the distribution. You are not going to change—now a large user, what you are saying is, of course, exactly right. But I am a little concerned that, you know, you are right about the fact that we have not upgraded facilities.

But largely because we do not have a policy that encourages people to invest. And if we continue to act like we do not need these basic facilities, then we are not going to have the investment in them. And I think we are going to find ourselves in real problems.

Anyway, thank you.

The CHAIRMAN. Senator Hagel.

Senator HAGEL. Mr. Chairman, thank you. And I am glad my distinguished colleague from Wyoming with the write up of the lady's horses. We have the same problem in Nebraska. It is a real problem.

It is nice to see you again, Mr. Secretary.

Mr. GARMAN. Good to see you, Senator.

Senator HAGEL. Picking up a bit on what Senator Thomas was talking about, could you develop a bit what you see as long-term possibilities in the sense of, as you have laid out this morning in your testimony, potential for renewables? But Senator Thomas was getting into an area that I think is pretty important. How much tax incentive, government incentive, dynamic will be required in the out-years to develop renewables, such as solar and wind? Are we kidding ourselves a little bit here on it is all kind of interesting and new and fresh, and we must pursue it absolutely?

But have you lined out at all over the next 25 years asking the ultimate question when and if these renewable sources of energy, of power production, will be able to stand on their own in fact in the marketplace, as the Senator from Wyoming talked about? Develop that a bit for us.

Mr. GARMAN. Okay. And it is a very complicated question because there is no one or two policies that we can pursue that, by themselves, will make a huge impact in renewable energy. We actually have to do a lot of things. Some of you may have seen, for instance, the solar house on the mall not too long ago. That solar house was destined for a place, an electric cooperative, in Loudoun County, where there was an interconnection standard and that metering allowed.

Suddenly here is a homeowner that found it to be in his economic self-interest, because there were—a lot of the other aspects were in place. We will not know what the real potential for renewable energy generation is until we understand fully and have taken steps on interconnection and net metering in part, because that is really, I believe, going to be the thing that helps bring them into fruition.

And, of course, you know, we are understandably—I have watched this committee in the past try to make the decisions about electricity and transmission generation and restructuring the electricity supply system. And as Senator Thomas pointed out, there has been very little incentive to invest in some of these things until some of these basic decisions are made.

So it is—you know, I cannot give you a number and say we will—I can tell you that our R&D efforts are designed to bring down the costs in anticipation of the time where we have a distribution system that is more friendly to renewable systems and distributed generation system. But I cannot tell you how much they are going to come into the marketplace until that system is fixed.

Senator HAGEL. Will you be coming forward with proposals? You mentioned in your testimony here "distributed generation is a new

concept and has therefore faced a number of regulatory and institutional barriers." Will we see from the Department of Energy your suggestions, policies, to deal with those in order to get to what you have just laid out on the untapped potential for these new renewable resources?

Mr. GARMAN. We are studying that. But again, we are also going to school a little bit on the States, as I mentioned earlier, New York, California, Delaware, Vermont, Texas, and others. We are looking particularly closely at Texas.

Senator HAGEL. Is that an accident or——

Mr. GARMAN. No. Actually, Texas has been working on its restructuring. It has done some groundbreaking work on renewables. Most of the new wind generation that has been put into place in the past year has been done in Texas. So, frankly, we are looking at Texas very closely and some of the things that they have done. And I will tell you that the Department has actually reached out to some of the talent that was a part of that and brought them in-house.

Senator HAGEL. Well, Texas had a pretty good governor, I think——

Mr. GARMAN. Yes, sir, I agree with that.

Senator HAGEL [continuing]. At one time. Your projections of growth in the renewable areas, you mention specifically biomass, landfill gas, geothermal, wind power, would you develop that a bit in where you see the Department of Energy going with trying to frame those in a way that connect the reality of the development and what you will do in the way of coming forward with policy recommendations?

Mr. GARMAN. I do not want to be in a position of trying to tell the committee that we are going to be in a position anywhere in the foreseeable future where fossil fuels do not provide the overwhelming majority of our energy. That is not what I am—I do not want to leave you with that impression, because those are the realities that we face. We are working mainly through research and development to bring down the cost, to let these things come into the marketplace on their own accord.

Again, I cannot give you a good estimate. And my crystal ball—any more than I can predict what the energy prices in California are going to be. And it is our goal within my office, of course, to increase the power generated from renewable energy resources. And, frankly, I am given about $400 million a year to do that. And most of that effort goes toward research and development to bring down costs and make those things available in the marketplace, and that is our goal.

Senator HAGEL. It is considerably more than Senator Murkowski gave you when you worked up here. Best regards to the secretary. Thank you.

Mr. GARMAN. Yes, sir.

Senator MURKOWSKI. Mr. Chairman, if you would yield, I have had the opportunity to visit Texas, some of their wind facilities. And as has been pointed out, they have a State provision that requires, I think, 5 to 6 percent of their energy to come from renewables. So what the utilities have done is simply accepted that.

But the return on investment does not suggest that it is a money maker. They have subsidize it with their other source power. In other words, there are cheaper sources of power. But they have made a conscientious commitment to proceed with 5 percent or 6 percent alternative. And it is primarily in wind power. It works, but the cost return to the utilities is something that is subsidized within the rate structure. And that is just the way it is.

So the point is, there is no free ride here just because the wind is free, or the hot air around here.

The CHAIRMAN. Senator Smith.

Senator SMITH. Thank you, Mr. Chairman. I would like to give special welcome to Julie Keil from Portland, Oregon, who is with the Portland General Electric Company. She works on hydro relicensing and water rights. And I am glad that she is here to testify.

Mr. Secretary, I apologize, I was not here during your testimony, but I wonder if you spoke to the future of wind power. The reason I ask this question is where I live in eastern Oregon there is a lot of wind. And Florida Power and Light is putting in a huge wind system there. But on the Oregon side, it has all been halted due to a ground squirrel. Are you finding that——

The CHAIRMAN. Ground squirrel?

Senator SMITH. The ground squirrel, yes.

The CHAIRMAN. Do you need more ground——

Senator SMITH. Well, I guess the bottom line is, are you having difficulty getting windmills development sited around the country?

Mr. GARMAN. There have been instances, and you mentioned Oregon. I know that there is one instance where a wilderness study area has precluded development of a very promising wind site in Oregon. It is something that we are beginning to work very closely with the Department of the Interior on. There are tremendous geothermal resources, for instance, in Nevada, all on public lands. There are tremendous wind resources around the country on public lands. And gaining access to do the necessary study and validation is proving to be pretty difficult. And one of the recommendations in the President's national energy policy is to try to work cooperatively with the Department of the Interior and break through some of those issues.

Senator SMITH. Do you see wind as a renewable?

Mr. GARMAN. Yes, sir.

Senator SMITH. And what is the resistance? What is developing against that now? I cite the ground squirrel in my State, but what are the other resistances to wind?

Mr. GARMAN. There have been in the past, particularly in California, concerns about birds. But I think a lot of these have been addressed. Candidly, we actually did some research, worked with the Audubon Society and were able to demonstrate that the wind resource was not as damaging to aviary populations as had been thought at one time.

Wind has advantages and disadvantages. One of the advantages is you can get a lot of it up relatively cheaply and quickly. One of the disadvantages is that it is an intermittent resource. And whenever you have an intermittent resource, you have issues with both transmission and others that come into play, as with any intermittent resource. So it has advantages and disadvantages.

It is, of course, immune from fuel price changes. And wind has actually, in some areas of the country over the past year, become the cheapest available. But when natural gas prices came back down, wind was no longer in that position. So there are advantages and disadvantages that can be exploited.

Senator SMITH. Are you aware of a situation in the Pacific Northwest with the Bonneville Power Administration and their desire to have bonding authority increased so as to improve transmission lines?

Mr. GARMAN. Not as much as I need to be to answer the question that I think is coming.

Senator SMITH. Just so you put on your radar screen, there is a lot of new production going in right now. It is wind. It is also natural gas. But, frankly, there is a big bottleneck in terms of just wheeling this to markets. And so the need for this bonding authority is critical. And it is being bottled up in the Congress by the Appropriations Committee, who wants to evaluate it annually and make it subject to annual appropriations. And no one is going to invest in such a system.

And, frankly, it is of little value to put in new production, if you cannot get the power to the markets that need it. And so I really think the Department of Energy needs to talk to OMB fast, because this is really dumb what is happening right now.

And I know there are objections to public power, but this is an old issue in some parts of our country, and in my part especially. It is not going to go away, and we need to make sure that the power that is produced, either privately or publicly, can get to markets. And I hope that we will have the support of the administration on this, because we can put in lots of renewables in Oregon, but it does not do any good if we are running over the old lines.

And I will tell you my suspicion, that there is opposition to this in some private sectors, who are able to game the system, to drive up prices, because there is a bottleneck. And we ought not to be creating that artificial situation.

I wonder if the administration will support classifying hydropower as a renewable.

Mr. GARMAN. We consider hydropower a renewable resource. Absolutely.

Senator SMITH. No plans to tear out Snake River dams?

Mr. GARMAN. I think that would come under the jurisdiction of the Department of the Interior.

Senator SMITH. It would.

Mr. GARMAN. But no plans in the Department of Energy, I can assure you of that.

Senator SMITH. The Star Program, are you familiar with that? It would certify buildings and appliances and——

Mr. GARMAN. Energy Star, yes. In fact, this afternoon we are welcoming Canada into the Energy Star Program.

Senator SMITH. You will be pushing that——

Mr. GARMAN. Yes, sir.

Senator SMITH [continuing]. As the Government? Thank you.

I recently toured a plant, a cold storage plant, in Portland, Oregon, that is generating remarkable efficiencies of 40 to 50 percent above industry averages. And they have worked with Portland

General Electric to do this. And I would encourage your consideration of any Federal policies that could encourage marketers to do those kinds of things. We have to start valuing the saving of a kilowatt as much as the use of a kilowatt.

I look forward to hearing what Julie has to say about that and commend it to your attention, as well.

Thank you, Mr. Chairman.

Senator MURKOWSKI. May I ask my colleague from Oregon a question? You know, we had a discussion that I observed the other day regarding the sucker fish. And you brought up a squirrely issue relative to the squirrels having some objection to wind power. And I never quite got the connotation of whether the squirrely aspect was related to those who objected. But I wonder if you could bridge the gap to explain what the wind has to do with the squirrels.

Senator SMITH. I wish you could explain that to me.

Senator MURKOWSKI. You brought it up. I am just curious.

Senator SMITH. I went home, and this big wind project is probably 20 miles from my home in eastern Oregon. You can literally see it from my home. And I suppose if there is any objection to windmill farms is that some people do not find them very attractive.

But there is, under the Oregon Endangered Species Act, a listing of the ground squirrel. So I do not know that they know the difference between the Washington and the Oregon border, but all of the production has gone to the Washington side now because of the listing of the ground squirrel and apparently the effect of the windmill on the ground squirrel.

Senator MURKOWSKI. Maybe you could put bark on the tower so the squirrel could climb up.

Senator SMITH. Well, I think it has to do with the vibration of the blades and how that might affect the ground squirrel. So that is what I am told.

Senator MURKOWSKI. I appreciate but do not understand the explanation.

[Laughter.]

The CHAIRMAN. Senator Craig, did you have questions for Secretary Garman?

Senator CRAIG. I do not. Dave, I am sorry I missed your testimony. I had to run out. I am back. I will only add that what the Senator from Oregon has talked about, about Bonneville Power bonding, is critical, not only for Oregon, Washington, Idaho and Montana, but we spent a lot of time bailing California out in the last while by sending a lot of energy to them over some of these lines. And they have returned energy during their surplus times, believe it or not. There once was that situation.

The point is it is a regional situation that needs to be addressed in the overall energy package. And I am as concerned, as is the Senator from Oregon, that we have an OMB that somehow has not communicated with the White House that there is a concerted energy effort underway by the part of this administration and by this government. Thank you.

Senator SMITH. I think they are asking that it be increased by $2 billion of bonding authority. This is all money that I guess to be accounted a certain way that is of concern to OMB.

Senator MURKOWSKI. Counted and paid back.

Senator SMITH. It is all paid back by rate payers. But the truth of the matter is you cannot plan to these kinds of capital expenditures if they are subject to annual review.

The CHAIRMAN. But you are willing to cap it.

Senator SMITH. Oh, of course. Absolutely. But I would just follow up, if I may, Mr. Chairman, on Senator Craig and just say that I really think this is important for the administration to get right. They need to be seen on the west coast as helping on energy issues. And I want to highlight that I think some take advantage of the bottleneck on wheeling of energy. And that is wrong. And we need to make sure that we have the infrastructure there that can keep power flowing and keep it affordable and available.

And for some reason, it is being held up, and I do not like it.

Mr. GARMAN. Senator, I will follow up with Valerie of your staff this afternoon on this issue.

Senator SMITH. Thank you.

The CHAIRMAN. Well, thank you very much for your testimony. It is very useful.

And we will move on to the second panel at this point.

Mr. GARMAN. Thank you, Mr. Chairman.

The CHAIRMAN. Oh, I am sorry. I did not see Senator Graham come in here. Go right ahead, Senator Graham. Did you have questions of Secretary Garman?

Senator GRAHAM. No questions and no opening statement.

The CHAIRMAN. Okay. Well, then we will move to the second panel.

Let me go ahead and introduce this panel. We have Mr. Robert Boyd, who is the vice president at Enron Wind Corporation. We appreciate you being here very much.

We have Mr. Demeter, is that correct?

Mr. Demeter, Mr. Chairman.

The CHAIRMAN. Demeter, excuse me. Mr. Demeter, who is the chief executive officer with Antares Group, Inc.; Mr. Mark Hall, who is the vice president for external affairs with Trigen Energy Corporation; and Mr. Thomas Starrs, who is the senior partner with Kelso Starrs and Associates in Vashon, is that right, Vashon, Washington?

Thank you all very much for being here. Why do we not—if each of you could—we will introduce your entire statement into the record. If you could take about five minutes each and tell us the main points you think we need to understand about what you are testifying about.

Mr. Boyd.

STATEMENT OF ROBERT T. BOYD, VICE PRESIDENT, ENRON WIND CORPORATION

Mr. BOYD. Thank you, Mr. Chairman. I appreciate the opportunity to be here today.

The CHAIRMAN. Would you pull that microphone right in front of you? That way you do not have to lean over.

Mr. BOYD. Okay. I just want to be able to see my notes.

The CHAIRMAN. Thank you.

Mr. BOYD. I am from California, and I am happy to hear the power situation is improving. And it is nice to lights and air conditioning for a change.

The CHAIRMAN. Good.

Mr. BOYD. My company, Enron Wind Corp., is a wholly owned subsidiary of Enron Corporation of Houston, Texas. And we manufacture wind turbines, and we build wind powerplants, and we operate and maintain them. I was happy to hear that there is so much interest in wind, and I hope that I can shed some light on some of the questions that you all had.

Wind energy is really the most rapidly growing renewable. And the reason for that is because we have been driving the cost down. In the early eighties, it was over 25 cents a kilowatt hour. Now we are down between, well, 4 to 6 cents without a tax credit in a very good site. So we have done a good job of getting our cost down.

A lot of that is due to having a wind production tax credit, which has been helpful in getting our costs close to the conventional technologies. The other thing has been the good efforts of the Department of Energy. They have helped considerably in some of the research and development efforts. And they have a fine lab out in Colorado that has equipment that most manufacturers would not have that can do testing. So appreciate their efforts.

Wind is going to grow here. I think we probably will double this year the amount of wind in the United States. And over the next five years worldwide wind is estimated to grow by about 40,000 megawatts, which is considerable.

Why wind energy?

The CHAIRMAN. After this year, how many megawatts of power will we be producing from wind energy in this country?

Mr. BOYD. I think that we will be close to 5,000. California, for example, about 2 percent of our electricity comes from wind. And now that is spreading to other parts of the country.

I think it has been alluded to that wind does not have any fuel. And as such, we can give a fixed price contract for 20 years or whatever to the power buyer. And what that is then is a hedge against price increases in different fossil fuels. And it helps somebody plan.

Also, you know, it takes away the price volatility and potential of tax increases. There can—and I look at taxes like some of the air quality credits and things that you have to have in different parts of the country.

Another area that is benefitting from wind energy is the agricultural sector in the United States. And the reason for this is that wind is primarily in a lot of the unsettled or unpopulated parts of the country. And a landowner that has wind on its property is going to get a significant amount of money, if he has many turbines. It can amount to about $4,000 for each turbine. And that is considerably more than he would make on a per acre basis for his crops.

The other thing is the property tax benefits that these rural communities derive. There is one county in Texas, Culbertson County,

I think, that gets about 25 percent of their tax revenues from two wind projects in their county.

What are some of the things that can help wind and bring down some of the barriers that we face? The wind production tax credit has been the most successful. Yesterday in the Ways and Means Committee there was a billion passed out that has a 5-year extension of that credit. And we would appreciate your support when it comes over here to the Senate.

The second thing is, you were talking about a Federal purchase requirement in your bill. We would like to see that broadened to a renewable portfolio standard. This is the type of thing that has been used in Texas. And what this does is allow a seller of power to offer a certain amount of renewable energy. And they can do it either by putting in a plant, they can buy the power from a renewable plant, or they can buy a credit from somebody that has more renewables than they need.

This is, as I say, what Texas has been doing. They are going to put in about 800 megawatts of wind this year, which represents about an $800 million investment in the State of Texas primarily in rural lands.

Transmission has been talked about here today. And this is a key issue for all electric generation. There is a recent EPRI study that said that between $10 million and $30 million are going to be needed just in the West alone in the next 10 years to keep the system stable. And we look at wind as—or not wind—but transmission as being similar to the Federal highway system. And we should be addressing it, perhaps, in that way to make sure that we have adequate transmission around this county.

Public benefits fund. We would encourage that, too. California's program has resulted in a lot of projects ready to be developed. Unfortunately, the market situation out there right now does not let us finance them. The assessment of renewable resources, the Secretary addressed, and we think that is a very valuable program.

Also, small wind turbines are also important. I think it was Mr. Thomas who mentioned the diesel generator sets in the gas fields. In Oklahoma, they have actually used small wind turbines to do the same thing with batteries.

One other thing on the transmission, too, that I forgot to mention is that FERC had a decision a week or so ago creating four regional RTOs around the country. And we would support that. We think that is a good thing to do.

I have been personally somewhat disappointed to see what has been happening in the West with each area going their own way, because we are an interdependent system out there, and we trade power all over the West. And it makes sense that we have the RTO as a western RTO.

And I guess I had better conclude, because I got the red light. We would love to see the United States move towards a more competitive marketplace, and not only in the wholesale level, as we have done, but on the retail level as well. We want to see customers have a choice. And we believe that when they do that they will choose renewables.

Thank you.

[The prepared statement of Mr. Boyd follows:]

PREPARED STATEMENT OF ROBERT T. BOYD, VICE PRESIDENT, ENRON WIND CORPORATION

INTRODUCTION

Enron Wind Corp. (Enron Wind) is pleased to offer testimony on removing barriers to wind energy development in the United States.

Enron Wind is a wholly owned subsidiary of Enron Corp. The company has been in business for over two decades and has installed over 4500 wind turbines comprising more than 1,600MW of electric generation capacity. As a manufacturer of wind turbines, our current product line ranges from 600kW to 1.5MW with new 3.2MW onshore and 3.6MW offshore models under development. During 2001 our U.S. facility in California will manufacture 300 1.5MW turbines which will be deployed in Texas, Wisconsin, New York and Pennsylvania.

STATUS OF WIND ENERGY

Wind Energy has become the most rapidly growing renewable technology because it has moved rapidly down the cost curve from over 25¢/kWh in the early 1980's to between 4 and 6 cents today in good sites without a tax credit. The major factors on the federal level driving down the cost of wind have been the creation of a U.S. market by using the Wind Production Tax Credit (PTC) to help equalize costs with conventional generation technologies and technological advances made possible through DOE cost-shared research and development and deployment programs. State renewable power requirements have also helped wind energy growth. The American Wind Energy Association estimates that installed wind capacity will almost double in the U.S. this year. BMT Consult ApS estimates that close to 40,000MW of wind will be installed throughout the world between 2001 through 2005.

WHY WIND ENERGY?

Wind energy is close to becoming competitive with conventional fuels. With additional R&D funding and the continuation of the Production Tax Credit for the next five years wind should become price competitive with conventional generation technologies. One primary advantage of wind technology is that because it burns no fuel long term fixed price contracts can be offered. This is a hedge against both fuel price volatility and potential pollution or CO_2 taxes. We have certainly learned the value of fuel diversity during the energy crisis and we should put that lesson into practice by adding non-fuel dependent technologies like wind into our electric generation mix. A balanced portfolio approach helps mitigate risk.

The agriculture sector has been impacted significantly during the energy crisis and the value of wind energy should not be overlooked in the rural farming communities. Some of the best wind resources are found in sparsely populated areas used for farming and ranching. The landowners benefit by receiving significant land rent payments which far outstrip the value of agricultural income on a per acre basis. The host Counties also receive additional property tax revenues with very little increase in the services they must provide.

RECOGNITION OF THE BARRIERS TO WIND ENERGY

We appreciate the chairman and ranking member's consideration for renewables in drafting their bills. Energy policy is a very complex issue in the U.S., but renewables must be a part of our long-term strategy to satisfy U.S. energy needs. The issues we have highlighted below are those we view to be most significant in the future development of wind energy.

1. Wind Production Tax Credit (PTC)

By far the most important issue for wind energy is the extension of the Wind Production Tax Credit which has been included in your bills. The PTC has helped wind become more competitive with conventional generation technologies while we continue to reduce our costs. The PTC is vital to the long-term success of wind energy. This program has been the most effective tool in increasing the use of wind energy in the country. The extension of the PTC is a priority for this year as it expires on December 31, 2001.

2. Renewable Portfolio Standard

A federal purchase requirement is also a part of S. 597. The federal government can play a leadership role as a consumer of clean renewable energy. There has been a particular interest from the military in using renewables on their bases for energy security reasons. We would like to see the purchase requirement expanded to a na-

tionwide Renewable Portfolio Standard (RPS) which would require all power sellers to have some percentage of their electricity be renewable. This is a quasi-market based program which offers choices to the sellers in how they satisfy the requirement. Power sellers would have the option of owning renewables, buying and reselling renewable power or buying tradable credits from renewable sellers. There are several states with this type of program. Under the Texas RPS program, over 800MW of wind will be added this year. This will be an $800 Million investment in rural Texas.

3. Transmission

Transmission is a key issue for all electric generation, including wind power. Transmission upgrades and new lines are needed throughout the country. EPRI recently released a study which concludes that $10 to $30 billion needs to be invested in the western states transmission grid over the next 10 years just to bring the system to a stable condition. Wind energy, like hydro facilities and mine mouth coal plants, is often found in areas remote from load centers. We must have adequate access to transmission facilities on a non-discriminatory basis to reach the markets where wind power is needed. Transmission of electricity is much like the interstate highway system for the transportation of goods. We need a national electric grid just as we need a national highway system to get goods to market. FERC's decision last week to create four Regional Transmission Organizations (RTOs) is vital to the development of that national grid. We strongly urge Congress to support the FERC's RTO plans.

Intermittent resources such as wind have some difficulty accurately scheduling their deliveries and penalties can result from transmission providers for not meeting schedule. Wind generators are working to develop methods to better forecast delivery schedules, but we are not there yet. Your prohibition of such penalties is vital to future wind energy development.

4. Public Benefits Fund

We support the proposed Public Benefit Fund for renewables. Some states have adopted this type of program, which has been successful in bringing more renewables on line. The cost for renewables is spread over all the electricity purchasers in proportion of how much they use. Projects then bid for funding which is awarded to the lowest cost bids. California's program has resulted in a significant amount of new renewable projects under development. Federal funding would ensure that all states have the opportunity to participate in renewable development.

5. Assessment of Renewable Energy Sources

The Department of Energy has done wind resource assessment in the past. It has proven valuable in siting wind projects around the country. We believe there are similar DOE programs for most renewable resources. The key to their being successful is adequate funding.

CONCLUSION

The U.S. has begun to move toward a competitive electricity market. Many states have already opened the door to competition, some with better results than others. There are many ways this committee and the Congress can help steer this emerging competitive market. We would hope to see competition not only at the wholesale level but at the retail level as well. The retail customer should be able to choose his supplier and product, which should include renewables. We appreciate your consideration of the renewable issues that the bills before this committee have already addressed. We request that you also consider some of the other issues we have raised in this testimony.

The CHAIRMAN. Thank you very much.

Mr. Demeter, why don't you go right ahead?

STATEMENT OF CHRISTIAN P. DEMETER, CHIEF EXECUTIVE OFFICER, ANTARES GROUP, INC.

Mr. DEMETER. Thank you. Mr. Chairman, members of the committee, I thank you for the opportunity to address you today on legislative proposals related to removing barriers to distributed generation, renewable energy, and other advanced technologies.

In general, I am encouraged by the proposed actions contained in the legislation that we are discussing here today. Congress,

working with the administration, can enhance competition in energy markets now by removing market barriers to renewables, allowing them to compete fairly. This is why I am supportive of legislative language in title 3 of S. 597, which calls for a review of existing regulations and standards that act as barriers to market entry for emerging energy technologies.

Renewable energy technologies, such as biomass, geothermal, wind, solar, and hydro, have met important measures of success relative to declines in the cost of electricity production. Other factors out of control of the renewables energy industry, such as changing market conditions, the ability of competing technologies to also improve, and existing barriers to market entry, account to much of the difficulty in expanding market share.

Although commercial success of renewables in terms of market penetration has perhaps not lived up to expectations, in fact, performance of these technologies is higher, and costs have been lower than expected in this document, Resources for the Future, a study that was released a couple years ago.

Title 4 of S. 597 contains other provisions which would help to enhance market acceptance of renewables and distributed generated systems. Section 601 calls for an assessment of renewable energy resources available in the United States. This information is important to both policy makers and to private developers. Accurate knowledge of the quality, quantity, and location of these resources is important to public decision making.

The private sector may also fail to carry out the optimal amount of energy investment because of lack of knowledge about resources. I know from my own personal business experience that it was only 2 years ago that the Department of Energy's Energy Information Administration included biomass supply curves in their national energy modeling system. We helped them develop that data.

Section 602 of S. 597 seeks to advance provisions of Executive Order 13123 to encourage Federal procurement of renewable energy. Although that executive order set a positive tone, section 602 would do much more by mandating Federal procurement. The United States has done this in the past to stimulate the demand for transistors and to expand the supply of uranium. The advantage to this approach is that the government can include the cost in the budget so the commitment to the program can be reviewed annually.

We are working on a project currently in central New York which can take waste biomass to produce low sulfur diesel fuels, a home heating oil substitute, or a liquid turbine fuel for the production of electricity. In fact, General Electric is working with us on the latter. A Federal contract to buy electricity from renewable resources such as this would help us to seed that market.

A policy to encourage renewable energy use at Federal facilities, as outlined in this section, would overcome many of the weaknesses of the existing executive order and compensate for some of the past adverse effects of barriers to entry for renewables.

S. 933 is particularly important legislation, as we attempt to enhance competition in energy markets and electricity markets. Antares Group is currently working with a project developer on a combined heating power project using a proprietary distributed

generation technology. As we proceed with the development of this project, we are encountering many of the issues described in S. 933.

To avoid high standby or backup charges by the utility, our project would incur from a 30- to 50-percent charge in addition of added capital expense in order to create a redundancy in the system. If after this increased cost for redundancy is incurred and the utility company charges us an exit fee for leaving the grid, our project quickly becomes uneconomic as we could no longer afford to provide our on-site customer with less expensive heat and power.

Should we choose to stay on the grid and the project developer wants to make a business of expanding a market for this new DG technology, we face the potential for site-by-site interconnection studies, which can quickly become costly. A consistent interconnect standard would further develop distributed generation and combined heat and power technologies, be they renewable based or not.

It would also make more sense to be able to negotiate reasonable standby charges and not to have our customers charged onerous exit fees. Although this bill does not completely correct these problems, the potential exists through this legislation to encourage States and municipal authorities to not impose excessive fees on small generators.

Section 604 of S. 597, net metering, and section 111 of S. 388, innovative financing, contain language which will help consumers of electricity become competitors in the electric supply business, thereby enhancing competition further. My company recently installed a small 12 kilowatt distributed solar cell array on a county office building in Maryland to convert sunlight to power. The system reduces county energy costs by about $2,500 a year and emits no pollution.

The county government, the U.S. Department of Energy, and the States of Maryland and Virginia provided funds for a total cost of about $78,000 for the system. While the fuel is free, the high upfront capital costs would have killed this deal without the Federal support. But rather than providing outright grants of Federal funds for these systems, I think a more efficient method would be to develop innovative financial mechanisms and allow customers who generate electricity to sell electricity to the grid at market rates in times of peak demand.

In conclusion, I support the proposed legislative changes be discussed here today. They are key components to ensuring market acceptance of renewable energy and a viable renewable energy industry.

Thank you, Mr. Chairman, members of the committee. I would be happy to answer any of your questions.

The CHAIRMAN. Thank you very much.

[The prepared statement of Mr. Demeter follows:]

PREPARED STATEMENT OF CHRISTIAN P. DEMETER, CHIEF EXECUTIVE OFFICER, ANTARES GROUP, INC.

Mr. Chairman and members of the Committee, thank you for the opportunity to address you today on legislative proposals related to removing barriers to distributed generation, renewable energy and other advanced technologies in electricity generation and transmission, referred to in S. 388, S. 597, and S. 933. My name is Christian Demeter, and I am Chief Executive Officer of the Antares Group Incorporated in Landover, Maryland. I work daily with engineers, economists, scientists, and lawyers taking a systematic approach to solving energy problems. I founded An-

tares Group nine years ago with the objective of assisting private-sector developers in commercializing advanced energy technologies, renewable and otherwise, and advising state and Federal clients on where and how emerging technologies can enter the market.

My interest in energy dates back to 1973 and the first oil embargo. I clearly recall the difficulties then of utilities meeting peak demand in summer months, intermittent threats of gasoline or home heating oil shortages, closing of aluminum plants in the Northwest, and the inability of new homeowners to get natural gas connections. At that time, the nation responded by embarking on a significant set of energy policies. It seems now we are facing similar challenges in the energy sector. In general, I am encouraged by the proposed actions contained in the legislation we are discussing today.

My remarks emphasize the need for Congress to pass legislation to ensure that private and public investments made in renewable energy R&D are successfully commercialized in the marketplace. Much of this legislation emphasizes the need to reduce institutional barriers and thus costs of renewable technologies in the marketplace. Competition among all energy technologies is good if society is the ultimate beneficiary of reduced costs. Congress working with the Administration can enhance competition in energy markets now by removing market barriers to renewables allowing them to compete fairly. This is why I am supportive of the language in Title III of S. 597 which calls for a review of existing regulations and standards that act as barriers to market entry for emerging energy technologies and for recommendations for changes in laws or regulations which may impede market development.

Renewable energy technologies such as biomass, geothermal, wind and solar, have met important measures of success relative to declines in cost of electricity production. Other factors out of the control of the renewable energy industry such as changing market conditions, the ability of competing technologies to also improve, and existing barriers to market entry, account for much of the difficulty in expanding market share. A recent study performed by the not-for-profit research organization, Resources for the Future (RfF), found that although commercial success of renewables in terms of market penetration has not lived up to expectations, in fact, performance of these technologies is higher and costs have been lower than expected. To their credit, the competitive energy sources such as mature fossil technologies continue to innovate and thus produce a moving and declining cost baseline. Fossil technologies have also benefitted from energy policy in the form of deregulation in the oil and natural gas pipeline and railroad industries.

Title IV of S. 597 contains other provisions which would help to enhance market acceptance of renewables and distributed generation (DG) systems. Sec. 601 calls for an assessment of renewable energy resources available within the United States. The language is substantially similar to Sec. 112. of S. 388. This information made publicly available is important to both policymaker and developer. In most cases, the sunlight, wind, water, and even biomass on public lands are public resources. Accurate knowledge of the quality, quantity, and location of these resources is important to public decision making. The private sector may also fail to carry out optimal energy investment because of lack of knowledge about resources. I know from my own business experience that it was only two years ago that the Department of Energy's Energy Information Administration began incorporating biomass supply curves into their National Energy Modeling System because they previously did not have the data. My company developed the data for them under contract to the National Renewable Energy Laboratory.

Sec. 602. of S. 597 seeks to advance provisions of Executive Order 13123 issued in June 1999, to encourage Federal procurement of renewable energy. Although agencies were encouraged to purchase electricity generated from renewable energy, that electricity would have to be priced at or below existing alternatives. Thus although E.O. 13123 sets a positive tone, Sec. 602 would do much more by mandating Federal procurement. Through long-term contracts, government can guarantee companies a market of any size. The United States has done this in the past to stimulate the demand for transistors and to expand the supply of uranium. The advantage to this approach is that the government can include the costs in the budget so the commitment to such a program can be reviewed annually. We are working on a project in central New York which can take waste biomass, i.e., wood chips, paper mill sludge, segregated municipal solid wastes; and convert them to a platform chemical called levulinic acid which can be combined with ethanol to produce an ultra-low sulfur diesel fuel, a home heating oil substitute, or a liquid turbine fuel for electricity production. General Electric Company is working with us on the turbine fuel's market potential. A Federal contract to buy electricity from renewable sources such as this would help seed the market. Although I oppose mandating private purchases of electricity generated from renewable sources, a policy to encour-

age renewable energy use at Federal facilities as outlined in Sec. 602 would overcome the weakness of the E.O. 13123 and compensate for the past adverse effects of barriers to entry for renewables.

S. 933 and a related item, Sec. 603, Interconnection Standards of S. 597, is particularly important legislation as we attempt to enhance competition in electricity markets. Antares Group is currently working with a project developer on a combined heat and power (CHP) project using a proprietary distributed generation technology. To my knowledge, not even the DOE is currently funding such technology. The technology is similar to steam turbine technology, but it can convert lower-temperature and pressure steam into electricity more economically than currently available technologies. The project will have a total cost of about six million dollars and generate both heat and power at about 10 MWe equivalent.

As we proceed with developing this project, we are encountering many of the issues described in S. 933. To avoid high standby or backup charges by the utility, our project will incur $2-$3 million of additional capital expense in redundant systems. If we were to incur the cost of redundancy to avoid high standby charges then leave the grid, we could not reduce our customer's cost of heat and power as much as planned. If after this increased cost for redundancy were incurred and the utility company charged an exit fee for leaving the grid, our project becomes uneconomic as we could no longer afford to provide our on-site customer less expensive heat and power. Should we choose to stay on the grid and the project developer wants to make a business of expanding the market for this new DG technology, we face the potential for site-by-site interconnection studies which can quickly become costly.

A consistent interconnect standard would further develop DG and CHP technologies, be they renewable based or not. It would also make more sense to be able to negotiate reasonable standby charges, not have our customers charged onerous exit fees particularly after stranded costs have already been recovered in electricity rates. Although this bill does not completely correct these problems, the potential exists, through this legislation, to encourage states and municipal authorities to not impose excessive fees on small generators.

Sec. 604 of S. 597 (net metering) and Sec. 111 of S. 388 (innovative financing) contain language which will help consumers of electricity become competitors in the electric supply business thereby enhancing competition further. For example, my company recently installed a small 12kW distributed solar cell array on a county office building in Maryland to convert sunlight to power. This is the equivalent of about three average home systems. The system reduces county energy costs by about $2,500 per year and emits no pollution. The county government which owns the building paid half the cost of the system. The U.S. Department of Energy and the States of Maryland and Virginia provided additional funds for a total project cost of about $78,000 or about $6,500 per kW. While the fuel is free, the high upfront capital costs would have killed the deal without the Federal support - in this case, it would take almost 40 years to payback based solely on capital costs. Rather than providing outright grants of Federal funds for these systems, a more efficient method would be to develop innovative financial mechanisms and allow customers who generate electricity to then sell electricity to the grid at market rates in times of peak demand.

In conclusion, I support the proposed legislative changes being discussed here today and appreciate this Committee's attention to addressing our Nation's energy needs while we also move toward more competitive electricity markets. Along with Federal funding of long-term R&D, Federal energy policies discussed here today are key components to ensuring market acceptance of renewable energy technologies and a vibrant renewable energy industry.

Thank you, Mr. Chairman and members of the Committee for this opportunity to present these views. I look forward to answering your questions.

The CHAIRMAN. Mr. Hall, why don't you go right ahead?

STATEMENT OF MARK HALL, VICE PRESIDENT, EXTERNAL AFFAIRS, TRIGEN ENERGY CORPORATION

Mr. HALL. Good morning. Thank you, Mr. Chairman and members of the committee, for having me here this morning to testify predominantly in support of S. 933 that is before the committee and also to address other legislative proposals to address barriers to combined heat and power and distributed generation.

My company is Trigen Energy Corporation. We are based in New York, but we have operations in 22 States and the District of Co-

lumbia. And more than half of those projects would be characterized as distributed generation or combined heat and power projects, and in some cases both.

CHP, which is combined heat and power, CHP and modern distributed generation provide significant economic and environmental benefits. And to the point that was raised earlier, there has been quite a lot of analysis by both the private sector and the U.S. Environmental Protection Agency and the U.S. Department of Energy that backs up the very significant environmental benefits, as well as the economic benefits that can be derived from more widespread deployment of combined heat and power and distributed generation.

In addition, the point that was raised earlier about being in the here and now versus thinking about that which might come in the future, combined heat and power and distributed generation is very much in the here and now. And although we certainly do face a shortfall of electric capacity in the near term and in the future, it is going to be much more efficient, to the extent that we are going to continue to rely very heavily on fossil fuels, to leverage modern technologies that can produce both electricity and thermal energy much more efficiently than just producing electricity alone.

To answer the question that was not directed to me earlier, but to the Secretary, a 2,500 megawatt powerplant will never be as sufficient as a smaller scale combined heat and powerplant and modern distributed generation that recovers the heat simply because all fossil-based electric generation produces excess heat. And if we can find ways to use that, then we reduce the need to burn fossil burn someplace else in the economy where the heat is needed.

And with the lone exceptions of hydroelectric and solar energy, which are going to be topics widely discussed today, all other forms of generation will have that leftover heat. And so the issue is, as we are going to continue to be reliant on fossil fuels into the near term certainly, and to a large extent the large term, we need to find ways that we can most efficiently use our fossil fuel resources. And if we can use our fossil fuel resources more efficiently, then we should be able to reduce our overall cost.

That brings us to those things that do not relate directly to fuel cost and technology that do stand in the way of the more widespread deployment of these technologies. And interconnection is high on the list of those issues that need to be addressed and need to be addressed in a thoughtful way at the Federal level that is symbiotic with those activities that need to be taken at the State level.

I think interconnection is a very well-known and very well-researched barrier to distributed generation and interconnection. There is a DOE report that was published in May 2000 entitled Making Connections that memorializes an array of instances where interconnection barriers—where developers have come up against interconnection barriers in various projects. It documents cost, lost environmental benefits, et cetera. And to the extent that this committee has not seen that DOE report, a request could be made of DOE or we could certainly make it available to you as well.

I think it is also important to recognize that S. 933 is the result of a pretty lengthy process of ongoing dialogue that included not

only members of this committee and members of the Senate, but a lot of interested stakeholders in this issue. And as it was characterized to me, there was a search high and low to find someone that could represent an opposing viewpoint today on the need for a uniform interconnection standard.

And I do not think that you will hear from one today, because I think we have struck the right balance in this language that will allow everybody to get what they need at both the distribution and the transmission level, and also to assure that backup power, which is sort of the hand-in-glove partner on interconnection, that backup power is also made available to those entities that are going to be interconnecting with the transmission and distribution system.

To reiterate a comment made earlier, S. 933 focuses on technical interconnection standards. It does not address the process for interconnection. That is left appropriately at the State level, where local conditions should dictate the appropriate process.

I would also just like to highlight that we are also very supportive of the provisions in a couple of the other bills that are before the committee this morning, the subject of this hearing, S. 597, section 301, and section 112 of S. 388, both which require the cataloging of additional barriers, many of which you have heard about and many of which are discussed in more detail in my testimony that you have before you.

I would like to close by thanking you again for your interest in these issues. And I am certainly available to answer any questions.

The CHAIRMAN. Thank you very much.

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF MARK HALL, VICE PRESIDENT, EXTERNAL AFFAIRS, TRIGEN ENERGY CORPORATION

Mr. Chairman and members of the Committee, thank you for allowing me to testify before you today on Senate Bill 933 and other legislative proposals to remove barriers to combined heat and power (CHP) and other forms of distributed generation (DG). My name is Mark Hall, and I am the Vice President of External Affairs for Trigen Energy Corporation, based in White Plains, NY. Trigen owns and operates some of the most efficient power plants in the world. We accomplish this by deploying CHP, DG and leveraging other modern technologies in innovative ways.

Trigen currently owns, operates or otherwise manages fifty-one plants located in twenty-two states, and the District of Columbia. Trigen is the proud recipient of many prestigious awards recognizing our innovation, leadership in the energy industry and commitment to environmental protection. This includes two awards from U.S agencies: the *Energy Star Award* from the U.S. EPA in recognition of our leadership in CHP projects and the *Climate Protection Award* from the U.S. EPA for corporate leadership in reducing greenhouse gas emissions. But more important than awards recognizing our environmental stewardship is the fact that we would not be selected to design, build own or operate on-site CHP projects for our customers if we were not able to provide substantial economic and reliability benefits in addition to outstanding environmental performance. The nearby University of Maryland College Park is an excellent example. Trigen and a partner were selected by the University to build and operate a new state-of-the-art CHP facility for the campus as well as to manage the on-site utilities while working with the campus staff to improve overall efficiency. The project is expected to save the University of Maryland system $6 million dollars per year while reducing regional nitrogen-oxide emissions by 9,800 tons per year and carbon dioxide emissions by 3.5 million tons over the 20 year life of the contract. We were the recipient of the 1999 Project Award from the National Council for Public-Private Partnerships because of our ability leverage technology in ways that were both economically and environmentally beneficial to all parties.

Despite these economic and environmental benefits, there are a variety of institutional and regulatory barriers that prevent CHP from achieving its full potential. These barriers inappropriately reduce the economic viability of CHP projects, slow their development and implementation and in some cases simply make them impossible to complete. S. 933 is an attempt to remove the interconnection and backup power barriers and allow Trigen and other companies to increase the beneficial application of CHP. Although S. 933 covers some of the issues, there are additional factors that must be addressed to fully remove the barriers. The cataloguing and systematic treatment of these barriers as suggested in S. 597 § 301 A & B and S. 388 § 112 are also critically important.

Mr. Chairman, Trigen's plants and employees are at work every day showing how efficient energy production is both good for business and good for the environment. By removing the barriers to utilizing CHP and other highly efficient DG, Congress can reward investors, benefit consumers, strengthen our economy and clean up our air.

The issues you have asked this panel to address are of critical importance to all of us. Energy sector competition is already upon us, with the States leading the way. The Federal government must rise to the task of addressing the barriers to competition that inherently lend themselves to national legislation, matters that cannot be responsibly dealt with in a piecemeal, State-by-State manner.

S. 933 is the result of many months of thoughtful work that reflects the benefit of numerous parties working together to arrive at consensus language that addresses the need for a uniform nationwide interconnect standard. S. 933 marks a critical step in efforts to improve the environment and electricity markets by encouraging the deployment of CHP and other DG. I would like to point out that H.R. 1945 is the companion bill to S. 933 from the House of Representatives. Trigen offers its full support of both.

In addition to addressing why there is a critical need for uniform nationwide interconnection standards, I would also like to highlight five other issues that must be addressed if we want to remove the most formidable barriers to deploying CHP and other highly efficient DG technologies. They are: Backup power as related to PURPA repeal, clarifying tax depreciation schedules, establishment of investment tax credits, rethinking new source review and establishing output-based standards. First, I will address interconnect standards and the immediate need for S. 933.

INTERCONNECTION

The National Energy Policy proposal recently released by the White House, like similar proposals of the last Administration, recognizes the economic and environmental benefits of CHP and other highly efficient DG systems. One formidable barrier to taking advantage of those benefits is the lack of uniform nationwide interconnection standards.

The current process for determining the appropriate technical requirements for the interconnection of new energy projects with the distribution or transmission system is often unnecessarily lengthy and expensive and the specific requirements can vary arbitrarily from state to state, utility to utility, site to site. Incumbent utilities that may not want to face competition may attempt to cloak anti-competitive behavior in the guise of technical disagreement over interconnection. We recognize that it is essential for interconnections to be safe and reliable, but interconnection standards can be both safe and reliable, and uniform. Bringing uniformity to interconnection through a uniform nationwide technical standard will reduce uncertainty, lower costs, and facilitate deployment of modern CHP technology, across the country. Interconnection language must be sufficiently broad to help all generators connect to the distribution and/or transmission grids. S. 933 provides for interconnections at both levels. The language does not pick winners and losers, but maximizes flexibility for determining whether the facility is connected to the transmission grid or the distribution grid. In addition, it is important that the language does not unnecessarily infringe upon States' rights to manage their respective distribution grids. The benefits of uniformity require that the standards apply to all states.

I think it is important to give you an example of the interconnection problem. Trigen has a great deal of experience interconnecting various sized generators with the distribution and transmission grid. We have done it literally dozens of times. Technically, it is a pretty straightforward task but in practice it can be a slow painful process that raises costs and delays projects that otherwise could be delivering important economic and environmental benefits. In 1998, Trigen approached a utility to request interconnection for a 703 kW generator to be installed in a downtown office building. The small system would supply the building's electric load and air conditioning. Yet, two years later, we were still negotiating with the utility over so-

called "technical" issues. Months after receiving our initial request for interconnection, the utility asked that Trigen design a different, specialized interconnection. Trigen completed the new design at a significant additional cost. The utility rejected the design. In response, Trigen offered to use guidelines developed by Consolidated Edison in New York City, even though the ConEd guidelines were disproportionately burdensome and expensive given the very small size of the installation. The utility agreed, but after Trigen complied with these requirements, the utility imposed further "technical" restrictions on Trigen's ability to operate the facility. It took over two years to resolve this issue. The barrier related costs of completion were over $88,000.

One would strongly suspect that this was anti-competitive behavior masquerading as technical disagreement which successfully prevented the unit from operating for two years. This is but one of countless examples. In fact, DOE published a report in May of 2000 entitled *Making Connections* that memorialized this example and numerous others from across the country. S. 933 would address many of the interconnection barriers highlighted in that report. Passage of S. 933 will help manufacturers of CHP and DG technology achieve a plug and play economy of scale, lower costs and encourage investment in CHP and DG technology.

THE SHORTCOMINGS OF S. 597 REGARDING INTERCONNECT

Like S. 933, S. 597 recognizes the need for a uniform interconnect standard. However, S. 597 falls short of addressing the entire scope of that need. S. 597 calls only for a standard for interconnect to the distribution grid. Failure to address transmission interconnect would result in an enormous lost opportunity to ensure all the same benefits S. 597 seeks to achieve at the distribution level. Stream-lining interconnect at the transmission level will be one more encouragement to investing in larger scale DG like on-site CHP plants whose efficiencies can bring immediate large scale reductions in fuel consumption and emissions.

In addition, S. 597 does not include a provision addressing the right to back-up power at just and reasonable rates. Most CHP and DG assets require back-up power as insurance to the DG/CHP customer that they will have electricity in the event the DG/CHP asset has scheduled or unscheduled down time. Without a guaranty of affordable back-up power many DG/CHP projects will never get off the ground. I will address this issue in more detail below.

Finally, S. 597 includes limiting language that the DG asset must be designed to serve retail customers "at or near the point of consumption". S. 933 does not include any such limitation. If we want to encourage the deployment of highly efficient CHP and DG assets we should not place any limitation on what customers are served or where it can be located in order to take advantage of uniformity.

BACKUP POWER AND THE PROSPECTIVE REPEAL OF PURPA'S "MUST-SELL" PROVISION

Hand-in-glove with the issue of interconnection standards is the availability of reasonably-priced back-up power. Historically, back-up power was guaranteed at just and reasonable rates to facilities that met either the Qualifying Facility or Small Power Production Facility definitions under PURPA. However, as technology and markets have evolved, the need for back-up power at rates that are just, reasonable and not unduly discriminatory is important to a wide-range of projects that might not meet these historic definitions, regardless of whether the project is interconnected to the transmission or distribution grid. S. 933 remains respectful of state authority by allowing States to determine the just and reasonable rate for back-up power at the distribution level. The Bill also ensures that until there are open markets where a facility can competitively purchase backup power, the local utility must provide such backup power at nondiscriminatory rates.

CHP and other DG systems rely on the ability to purchase backup power from the grid in the event that they temporarily fail to operate or must shut down for maintenance. Under current PURPA laws the local utility "must sell" backup power to qualified stand alone CHP facilities. Many proposed restructuring bills would repeal both the "must buy" and the "must sell" requirements of Section 210 of PURPA. The "Right to Back-up Power" provision of S. 933 is a safety measure that will ensure back-up power at just and reasonable rates if the "must sell" provision of PURPA is repealed and there is no open access to purchase of electricity in a given state. Elimination of PURPA's "must sell" requirement without the protection of the right to back-up power will leave new entrants and existing DG at the mercy of the local utility, subject to discriminatory pricing or outright denial of back-up power.

TAX DEPRECIATION SCHEDULES

The current tax code, based on an somewhat obsolete view of the energy industry, currently does not allow depreciation of CHP and DG technologies in ways that reflect those assets physical and economic lives. This inappropriate treatment can discourage investments in CHP and DG technology. For example, the IRS allows a gas turbine located inside a building for on-site generation use to be depreciated over a 39-year period while the same gas turbine used for transportation (e.g., on an airplane) depreciates in one quarter of the time. The moving parts of the turbine used for electricity and heating may be replaced as many as five times while the owner continues to depreciate the original investment. Shortening the time over which this equipment depreciates would remove an impediment to investment in what is otherwise an efficient and environmentally beneficial technology.

New and small turbines have different physical properties and will generally operate under quite different conditions than large turbine units employed by traditional electric utilities and, consequently, will have different service lives. Further, the competitive marketplace will force energy suppliers to replace or "upgrade" standing equipment before it fails, since installation of more efficient technology offers lower costs to customers and the opportunity to hold or capture market share for competitive energy suppliers. We expect that energy generation equipment will come and go in the marketplace in a manner that strongly resembles that of modern computers assets which outlive their economic lives long before they cease to work properly.

Congress should direct the Internal Revenue Service (IRS) to set a depreciation schedule of seven (7) years for industrial and utility facilities and ten (10) years on Building CHP (BCHP) assets, which reflects the true technical and economic life of most systems. I have attached to this testimony, recommended modifications to the Internal Revenue Code from the U.S. Combined Heat and Power Association (Attachment A).* Trigen is a member of the USCHPA and supports all of its recommendations.

COMBINED HEAT AND POWER INVESTMENT TAX CREDIT

Tax credits are typically offered by the Federal government to obtain public benefits by prompting private parties to make capital investments that they would not so readily make otherwise or to overcome other short-term barriers to otherwise feasible activities. As such, an investment tax credit (ITC) is a good short-term mechanism to promote CHP systems, which offer very significant public and private economic and environmental benefits, but can often be more difficult for the private sector to deploy than electric-only projects because of the complexity inherent in assembling a "thermal load" or set of heating/cooling customers.

Congress should direct the IRS to provide a ten (10) percent ITC for met thermal energy distribution systems at district energy CHP facilities. I have attached to this testimony, recommended modifications to the Internal Revenue Code form the US Combined Heat and Power Association (Attachment A). Trigen supports all of its recommendations.

NEW SOURCE REVIEW

The new source permitting program known as New Source Review (NSR) was developed over 20 years ago to reduce air pollutant emissions. At the time the focus was on reducing smokestack emissions and NSR focuses primarily on requirements for end-of-pipe, add-on control technologies. Add-on controls reduce emissions but add cost and reduce efficiency.

Over the last 20 years, we have learned that a much better approach to pollution control is to entirely avoid the generation of pollution through lower emitting processes and reduce their impact through increased efficiency. Pollution prevention (P2) and increased efficiency reduce emissions while also reducing capital and operating costs. They result in processes that are cleaner and cheaper with lower demand on all natural resources. This is clearly the direction that we need to move in order to achieve a vital economy and a healthy environment and CHP is perhaps the best example of this opportunity.

Unfortunately, NSR does not give any credit for efficiency and gives little or no credit for pollution prevention. It is constantly driving projects away from these positive approaches and back to the old sidetrack of add-on controls. It discourages the application of existing P2 technologies and the development of new technologies. U.S. companies have learned that they should not invest in the development of cleaner and higher efficiency technologies because they will not be able to permit

*Attachments A and B have been retained in committee files.

them. This is a multidimensional loss to the U.S. economy. In contrast, our foreign competitors have made great strides in these areas, which are reflected in their high efficiency use of energy.

As an example, several of our recent projects have been based on a particular small gas turbine generator. As an electric generator only, the turbine is less than 30 percent efficient. However, our CHP applications using that same piece of equipment are anywhere from 80 to over 90 percent efficient. Put another way, we provide more than three times as much energy to the customer from the system for the same amount of emissions and energy input.

It is only common sense that our regulatory system should recognize this energy and environmental benefit. But it doesn't. In the eyes of NSR, there is no difference between the two systems. Since NSR is a cost-based system, it is requiring us to duplicate capital investment to use add-on controls where we have already provided a reduction through efficiency. In many cases, the project "won't pencil" if we have to pay twice, and a beneficial project is cancelled.

This fundamental flaw of NSR is only one of several ways in which the regulation has outlived its usefulness. The program relies on a variety of highly technical standards to determine which new or existing units will be required to apply emission controls. Over the years, these standards have become more and more arcane and contentious. The very high cost and uncertainty involved in the application of NSR to both new and existing units has created a huge disincentive for operators to maintain and improve the performance of these units. By holding out for the maximum possible improvement at all times, the program has discouraged even the normal improvement that should happen without regulation. By excluding the effects of pollution prevention and efficiency, it has excluded the best possible solutions from consideration and left us with proliferating lawsuits as the only result.

Because CHP, by definition, produces two types of energy output (steam & electricity) from one fuel input, its treatment under NSR is especially difficult. The system sometimes tries to force us to combine our facilities with those of our clients in ways that are commercially impossible. In other cases it deprives us of credit for emission reductions that are legally verifiable and creditable.

Output-based regulation, which relates the emissions to the useful energy produced is another regulatory concept that would help to address these problems. There has been growing acceptance of this approach as a way to send the proper signals through environmental regulation. Unfortunately, it seems to be difficult to integrate this approach into the structure of NSR.

We have been working with the EPA for more than three years to find appropriate ways to achieve the universally recognized benefits of CHP within the NSR structure. I am sorry to report that our progress to date has been limited. In large part this is due to the fundamental structure of the program. In the end, we are forced to conclude that, at least for the generation of heat and power, the NSR program is a grandfathered regulation that has outlived its usefulness and needs to be replaced with a more modern and efficient regulatory structure. We believe that a properly designed cap and trade program that provides guaranteed emission reductions over the entire sector would provide better environmental results and encourage new, more efficient technology. I have attached a copy of a multi-pollutant strategy (Attachment B) that Trigen and four other energy companies have developed as a substitute for NSR as it applies to heat and power generation.

OUTPUT-BASED STANDARDS

Currently, efficiency is measured by an input-based standard that measures fuel consumption as opposed to energy output. Under this approach, the efficiency of CHP is not recognized. By way of example, for every one unit of fuel consumed by a CHP plant two units of energy are produced—steam and electricity. CHP is twice to three times more efficient than a typical central generation plant that only produces one unit of energy for every one unit of fuel consumed because it is not capturing the heat off the combustion process.

The establishment of output-based standards would allow facilities to count their fuel to end use energy efficiency toward their environmental compliance requirements. Output-based standards encourage efficient and inherently cleaner plants. Trigen has been an active participant in numerous venues established to develop output-based standards. Trigen seeks establishment of progressive regulations that replace BACT and LAER with a cap and trade program coupled with a universal allowance allocation of pounds of pollution per megawatt hour of electricity produced and pounds per megawatt hour of thermal energy produced.

CONCLUSION

Given the inevitability of competition in the electricity market, and both national and global trends that will guide the future of energy production in this country, I believe that emerging technologies are serving and will serve an indispensable purpose in meeting goals of energy efficiency and environmental demands. I urge this committee to pass S. 933 and to take a proactive stance on addressing the other concerns I have raised here today. We would also like to reiterate our support for § 301 A & B of S. 597 and § 112 of S. 388. I thank the committee for the opportunity to appear before you. Thank you, Mr. Chairman.

The CHAIRMAN. Mr. Starrs.

STATEMENT OF THOMAS J. STARRS, J.D., Ph.D., SENIOR PARTNER, KELSO STARRS AND ASSOCIATES, L.L.C.

Mr. STARRS. Thank you, Mr. Chairman, members of the committee. My name is Tom Starrs. I am a partner in the energy and environmental consulting firm of Kelso Starrs and Associates.

My business focuses on the design, analysis, and implementation of legal and regulatory incentives for the development of renewable energy technologies, particular solar and wind energy. I also serve on the board of directors of both the American Solar Energy Society, which is a national, nonprofit membership organization dedicated to the advancing the use of renewable energy, and the Schott Applied Power Corporation, which is one of the largest distributors of renewable energy equipment in the United States. I very much appreciate the opportunity to testify before you this morning.

I am going to focus my testimony on a few details of the bills that are currently before this committee, specifically interconnection standards, net metering, and business practices. Starting with interconnection standards, we have heard quite a bit about this already from the other witnesses, so I will not belabor this. But this is perhaps the most significant barrier to the broader commercialization of distributed technologies.

The problem, the absence of national technical standards for the interconnection of these facilities, arises because utilities historically have had substantial discretion over interconnection requirements and have often used that discretion to develop requirements that varied considerably from one utility to the next without any appropriate technical or economic justification.

These utility-specific requirements were of relatively little concern for the developers of large-scale generating facilities whose projects were big enough that they could justify the cost of hiring consulting engineers and attorneys to negotiate project-specific requirements for their facilities. However, for smaller systems, just as residential, rooftop, solar electric systems, or farm-scale wind energy systems, these costs are an absolute deal breaker.

The solution to this problem as we have already heard today, is the adoption of national standards developed by appropriate authorities, such as the Institute of Electrical and Electronics Engineers, or IEEE, the Underwriters Laboratories, or UL, and the National Fire Protection Association, which writes the national electrical code.

The States are already pursuing this approach. As figure 1, which is attached to my testimony, indicates, over 20 States have passed laws or enacted regulations requiring the development of standardized interconnection requirements for at least some cat-

egories of distributed generation facilities. I am delighted to see that this is the approach adopted in both S. 597 and S. 933.

Section 603 of S. 597 requires the FERC to establish safety, reliability and power quality rules for distributed generation facilities. It also—and I think this is particularly important—states that the FERC may prescribe different rules for different classes of facilities, which I think is essential for recognizing the distinction between residential and small commercial-scale facilities for which we should be striving to achieve as close as we can to plug and play-type simplicity, and larger commercial- or industrial-scale facilities for which some project-specific engineering may be appropriate. Section 4 of S. 933 similarly calls for the FERC to develop reasonable and appropriate technical standards for interconnection.

With respect to net metering—Mr. Garman mentioned this morning, and a couple of the other witnesses have mentioned it as well—net metering is a simple, inexpensive and easily administered mechanism for encouraging the use of small-scale distributed generation. Net metering allows utility customers to spin their meter backwards when they produce more electricity than they need to power their own lights and appliances.

Under existing Federal law, the PURPA law, utilities are already required to interconnect with certain distributed generation facilities and to purchase the excess electricity produced by those facilities. But under PURPA, the utility purchases that excess electricity at an administratively determined avoided cost price, which is usually a fraction of the retail price the consumer pays for power.

Net metering provides a modest economic incentive for eligible facilities by crediting them for this excess electricity at the retail rate. Now metering policies have been tremendously popular at the State level. Just 5 years ago, only fourteen States allowed net metering, and most of those requirements were adopted pursuant to State implementation of the Federal PURPA law.

Today, the total stands at 34 States which 4 new States, Arkansas, Georgia, Hawaii, and Wyoming, enacting net metering laws just this year. And figure 2, which is attached to my testimony, shows how much inroads we have made on the net metering issue with respect to the penetration among the States.

In most cases, these laws were enacted by legislation. Although in a few cases, net metering policies have been adopted by regulation and, in most cases, with broad bipartisan support. In my home State of Washington, for example, the 1998 net metering law passed unanimously in a then Republican-controlled legislature and was signed into law by a Democratic governor.

Of the bills currently before the committee, only S. 597 currently includes a net metering provisions. Section 604 of S. 597 requires utilities and other retail electric suppliers to offer net metering services to customers using renewable energy resources with a maximum generating capacity of 100 kilowatts for residential customers and 250 kilowatts for commercial customers.

I want to mention one other element of the net metering language in S. 597. It includes a provision prohibiting utilities and other retail electric suppliers from discriminating against net metering customers by imposing additional fees or charges or other-

wise treating them differently from non-net metering customers in the same customer class.

This is an important provision that should be retained because it prevents suppliers from imposing charges that would circumvent the intent of net metering, which of course is to encourage these facilities.

The third area I want to touch on today is the area of business practices. None of the proposals before the committee address this fundamental barrier to the interconnection of distributed facilities, the failure to adopt simplified interconnection agreements and routine procedures for processing interconnection requests. Again, the goal should be plug and play simplicity, at least for the smaller scale facilities, in order to eliminate unnecessary delays and inappropriate expenses.

For guidance on this subject, I would urge the committee to consider language in a bill introduced in the House by Congressman Jay Inslee, H.R. 954, entitled the Home Energy Generation Act. Mr. Inslee's bill also includes net metering and interconnection requirements but goes further in requiring the FERC to develop "consumer friendly contracts" for the interconnection of distributed generating facilities up to 250 kilowatts. A comparable provision would be an appropriate addition to any bill coming out of this committee.

Thank you very much.

[The prepared statement of Mr. Starrs follows:]

PREPARED STATEMENT OF THOMAS J. STARRS, J.D., PH.D., SENIOR PARTNER, KELSO STARRS AND ASSOCIATES, L.L.C.

Mr. Chairman, members of the committee, ladies and gentlemen: My name is Thomas Starrs. I am a senior partner in the energy and environmental consulting firm of Kelso Starrs & Associates LLC, based on Vashon Island, Washington. My consulting practice focuses on the design, analysis and implementation of legal and regulatory incentives for the development of renewable energy technologies, with a focus on solar and wind energy. I also serve on the Board of Directors of both the American Solar Energy Society, a national non-profit membership organization dedicated to advancing the use of renewable energy; and the Schott Applied Power Corporation, one of the largest distributors of renewable energy equipment in the United States. I am the author of over thirty publications regarding renewable energy and distributed energy policy. In addition, I have made invited presentations on energy policy to numerous national organizations, and to legislative committees, public utility commissions, and state energy offices in over a dozen states. This is my first time testifying before the U.S. Senate. The opinions I offer here are my own and not necessarily those of any of the organizations with which I am associated. I very much appreciate the opportunity to testify this morning on this important element of our nation's energy future.

OVERVIEW OF DISTRIBUTED GENERATION

Continuing technology innovation is creating new market opportunities for decentralized or 'distributed' power generation. The distributed generation paradigm emerged in the early 1990s out of research suggesting that the use of small-scale electric generating facilities dispersed or "distributed" throughout the utility network provided technical and economic benefits to the electricity system that were not available from traditional central-station generation.

A number of studies—including several sponsored by utilities—have identified direct, measurable economic benefits of having generation sources located close to the end user.[1] Distributed generation reduces energy losses in transmission and distribution lines, provides voltage support, reduces reactive power losses, defers sub-

[1] See D. Shugar, Photovoltaics in the Utility Distribution System: The Evaluation of System and Distributed Benefits, Pacific Gas & Electric (July 1991); R. Lambeth & T. Lepley, Distributed Photovoltaic Evaluation by Arizona Public Service, 23rd IEEE PV Specialists Conference (May 1993).

station upgrades, defers the need for new transmission and distribution capacity, increases reliability of electricity supply and reduces the demand for spinning reserve capacity.[2] In fact, several studies have concluded that under many circumstances (particularly where the utility's distribution system is operating near capacity) non-traditional distributed benefits are comparable in scale to traditional energy and capacity benefits.[3]

The increasing availability of distributed technologies will provide residential, commercial and industrial customers with economically viable options for using locally-available energy resources to meet their own electricity needs. In addition, I believe the public interest is best served by encouraging the use of solar energy, wind energy, and other environmentally-preferred renewable energy resources in distributed applications.

Where the distributed technology is fueled by a renewable resource, it offers the additional benefit of displacing fossil-fuel generation or other generation technologies with greater environmental impacts. Solar and wind energy are the quintessential distributed resources, allowing homeowners, businesses and industries to capture additional economic value from two natural resources that flow freely and nearly ubiquitously over the Earth. The use of solar and wind energy requires no mining or processing of natural resources, no shipping or pipelining of a fuel, no combustion, and no pollution control. Rather, these resources require only the technology needed to capture and convert the available sun or wind into electricity or other forms of useable energy. Solar electric and wind energy technologies can be located anywhere the sun shines or the wind blows, and can be used to generate power on any scale, from watts to megawatts.

From its modest start in the research and development departments of utilities a decade ago, distributed generation has emerged as one of the most-discussed aspects of the electricity industry. Electric and gas utilities are investing in distributed technologies; venture capital is pouring into companies focusing on distributed generation; and utility regulators are exploring the policy implications of integrating distributed generation into existing electric utility systems.

ADVANTAGES AND DISADVANTAGES OF DISTRIBUTED GENERATION

A recent report from the Worldwatch Institute lists eight benefits of distributed generation (which it refers to as "micropower" technologies). The following table describing these benefits is from the Worldwatch paper, with an additional column I prepared explaining their applicability to solar and wind energy.

EIGHT HIDDEN BENEFITS OF MICROPOWER

Benefit	Description	Applicability to solar and wind
Modularity	By adding or removing units, micropower system size can be adjusted to match demand.	Solar and wind technologies are among the most modular, available from watts to megawatts
Short Lead Time ..	Small-scale power can be planned, sited and built more quickly than larger systems, reducing the risks of overshooting demand, longer construction periods, and technological obsolescence.	Solar and wind systems have shorter lead times than any other generating technologies

[2] Howard J. Wenger, Thomas E. Hoff & Brian K. Farmer, Measuring the Value of Distributed Photovoltaic Generation: Final Results of the Kerman Grid-Support Project, Conference Proceedings, First World Conference on Photovoltaic Energy Conversion (December 1994), p. 793.

[3] See E. Prabhu, Finding High Value for Grid-Connected PV: Southern California Edison's Innovative Solar Neighborhood Program, American Solar Energy Society Annual Conference (1995); J. Oppenheim, PV Value Analysis: Progress Report on PV-COMPACT Coordinating Council's Consensus Research Agenda, American Solar Energy Society Annual Conference (1995); H. Wenger, T. Hoff & B. Farmer, Measuring the Value of Distributed Photovoltaic Generation: Final Results of the Kerman Grid-Support Project, First World Conference on Photovoltaic Energy Conversion (1994); D. Keane, Grid-Support Photovoltaics: Summary of Case Studies, Pacific Gas & Electric (1994).

EIGHT HIDDEN BENEFITS OF MICROPOWER—Continued

Benefit	Description	Applicability to solar and wind
Fuel Diversity and Reduced Price Volatility.	Micropower's more diverse, renewables-based mix of energy sources lessens exposure to fossil fuel price fluctuations.	As non-depletable renewable resources, solar and wind energy are freely available and cannot be exhausted, eliminating their vulnerability to fuel price fluctuations
"Load-Growth Insurance" and Load Matching.	Some types of small-scale power, such as cogeneration and end-use efficiency, expand with growing loads; the flow of other resources, like solar and wind, can correlate closely with electricity demand.	Solar energy is well correlated with electricity demand, particularly for summer-peaking utilities whose peak is driven by air conditioning demand
Reliability and Resilience.	Small plants are unlikely to all fail simultaneously; they have shorter outages, are epsier to repair, and are more geographically dispersed.	Solar and wind energy systems use modular components that are easy to repair and replace, and can be dispersed over the landscape
Avoided Plant and Grid Construction, and Grid Losses.	Small-scale power can displace construction of new plants, reduce grid losses, and delay or avoid adding new grid capacity or connections.	Solar energy systems can be sited in locations designed to maximize these benefits
Local and Community Choice and Control.	Micropower provides local choice and control and the option of relying on local fuels and spurring community economic development.	Solar and wind energy development is usually the preferred choice of local communities, and small-scale applications often can be permitted without environmental impact review
Avoided Emissions and Other Environmental Impacts.	Small-scale power generally emits lower amounts of particulates, sulfur dioxide and nitrogen oxides, heavy metals and carbon dioxide, and has a lower cumulative environmental impact on land and water supply and quality.	Solar and wind energy systems produce no emissions and have a minimal environmental impact

Source: Seth Dunn, *Micropower: The Next Electrical Era, Worldwatch Paper No. 151* (Worldwatch Institute, July 2000), p. 33 first two columns); third column by the author.

By contrast, there are relatively few disadvantages of distributed generation. The principal one is that distributed generation remains more expensive than central-station generation. For example, while installed cost of new central-station generating facilities is between $500 and $1,000 per kW, the cost of combustion-based distributed technologies ranges from $600 to $1,500 per kW, and the cost of cleaner non-combustion technologies such as solar cells, wind turbines, and fuel cells range from $900 to $10,000 per kW.[4] It appears likely, however, that with mass production the cost of many distributed technologies will drop significantly, making them more competitive with central-station generation.

The second disadvantage of distributed generation is that most fossil-fueled distributed technologies are not currently as clean as their central-station counterparts, which means that distributed generation does not necessarily represent an improvement in the environmental characteristics of the electricity industry. According to the U.S. Environmental Protection Agency, the electricity industry in the mid-1990s was responsible for approximately:

- 72% of sulfur dioxide (SO_2) emissions;
- 33% of nitrogen oxide (NO_X) emissions;
- 32% of particulate matter (PM) emissions;
- 23% of emissions of mercury, a toxic heavy metal, and

[4] S. Dunn, *Micropower: The Next Electrical Era, Worldwatch Paper No. 151* (July 2000), pp. 19 & 24.

- 36% of all human-caused emissions of carbon dioxide, the most dominant 'greenhouse' gas.[5]

Innovations in larger-scale generating facilities, such as combined-cycle gas turbines (CCGTs), have resulted in substantial reduction in emissions per kilowatt-hour from these facilities. Unless and until distributed technologies can match the environmental performance of these larger-scale facilities, increased use of distributed generation may not provide any incremental improvement in the environmental characteristics of the electricity industry. For example, recent studies prepared for the California Air Resources Board and the Energy Foundation[6] indicate that the diesel-fueled internal combustion engines used in some distributed applications are 60-100 times more polluting than CCGTs. Even fuel cells, when powered by hydrogen extracted from natural gas, may offer little if any environmental advantage over CCGTs.

It is important for policymakers to understand that not all distributed technologies are equal from an environmental perspective, and that among distributed generating technologies, only solar photovoltaic and wind energy systems currently offer clear environmental benefits compared to other newer, more efficient generating resources. Policymakers should recognize and account for the significant differences in the environmental characteristics of various distributed technologies in determining to what extent these technologies deserve support. Rules encouraging the use of distributed technologies without regard for their environmental performance may do a disservice to the public. As a result, public policies should favor those distributed technologies that offer significant environmental benefits relative to other generating technologies.

THE PUBLIC INTEREST IN A DISTRIBUTED ENERGY FUTURE

The transition to a distributed energy future is likely to result in an electricity system that is less polluting and more efficient, reliable, and resilient.

Distributed technologies are the electrical equivalent of the personal computer. Computing power used to be concentrated in large-scale mainframe computers with access via "dumb" terminals at the end-user's location. The last two decades have seen a near-complete transition to microcomputers or minicomputers, each able to operate independently but also frequently linked to other computers to create electronic networks of information. Similarly, the generation of electric power has been concentrated in large-scale central-station facilities with the power transmitted, for the most part unidirectionally, to end-users. Increased reliance on distributed generation ultimately will result in a complex web of generating sources, with power flowing in multiple directions through the distribution system. Although for the foreseeable future this transition will not be complete, in that distributed generation will supplement rather than replace existing central-station generation, some industry analysts believe that new central-station plants on the order of 1,000 MW (typical of large nuclear and coal-fired power plants) will soon be unheard of.

Much of the promise of the transition to a distributed energy future stems from potential improvements in the efficiency of energy conversion and in the environmental performance of the energy supply system. On-site generation allows the capture of waste heat, increasing the overall systems efficiencies of many combustion and non-combustion distributed technologies, including fuel cells, to as much as 80-90 percent. In addition, some distributed technologies—with the exceptions noted earlier—offer substantial environmental benefits relative to existing energy conversion technologies. The Worldwatch Institute notes that micropower technologies that rely on cogeneration and cleaner fuels—either renewable energy or the cleanest of the fossil fuels, natural gas—have 50 to 100 percent fewer emissions, on a per-kilowatt basis, of particulates, nitrogen and sulfur oxides, mercury, and carbon dioxide than traditional fossil-fuel generation.[7]

The threat of human-caused climate change alone is reason enough to encourage the structural changes necessary to support a distributed energy system. Under a

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[5] Comments of the U.S. Environmental Protection Agency to the Federal Energy Regulatory Commission, Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities, August 7, 1995, p. 7.

[6] See *Air Pollution Emission Impacts Associated with Economic Market Potential of Distributed Generation in California*, Prepared for the California Air Resources Board and the California Environmental Protection Agency by Joseph Iannucci et al., Distributed Utility Associates (June 2000); and *Can We Have Our Cake and Eat It Too?: Creating Distributed Generation Policy to Improve Air Quality*, Prepared for the Energy Foundation by James Lents, Center for Environmental Research and Technology, University of California, Riverside (Distribution Draft November 2000).

[7] Micropower, pp. 36-37.

business-as-usual approach, the construction of new generating facilities would triple the carbon emissions from the electricity sector in developing nations alone. Widespread adoption of distributed renewable generation could reduce these projected emissions by 42 percent.[8]

A distributed energy future also will help to resolve reliability and power quality concerns. Electricity reliability problems recently have reached crisis proportions, turning energy issues into front-page headlines for the first time in over two decades. Transmission constraints and capacity shortages in some regions have resulted in power disturbances and outages. An outage in Chicago during the summer of 1999 cut power to 2,300 businesses, including the entire Board of Trade on a midweek afternoon.[9] Supply problems in San Diego contributed to a doubling and even tripling of electricity prices during the summer of 2000.[10] These problems increasingly are seen not as isolated instances, but as indications of a power supply system that has eroded as demand has grown.

Contributing to reliability and power quality concerns are the increasing demands placed on the electricity system by the digital economy. Utilities traditionally sought to provide "three 9's" of reliability—99.9 percent availability, equivalent to about eight hours per year of outages. However, the proliferation of computers and other electronic equipment that is highly sensitive to even momentary disruptions in power has created a demand for "six 9's" or even "nine 9's" of reliability. The existing distribution system is unable to provide this level of performance, forcing e-commerce companies and other participants in the digital economy to look elsewhere for their reliability needs. Among the options to which they turn is distributed generation, where innovations in power electronics, storage systems, and communications networks have enabled distributed technologies to meet the most stringent needs for power quality and reliability.

BARRIERS TO INCREASED USE OF DISTRIBUTED GENERATION

A recent report prepared for the National Renewable Energy Laboratory describes the barriers to distributed generation encountered in 65 different case studies, ranging from a 300 Watt solar electric system to a 26 MW gas turbine project.[11] I was one of the authors of that report. In it, we identified and described a wide range of technical, business practice, and regulatory barriers encountered by the developers and owners of the distributed generation facilities.

Technical barriers arise from utility requirements intended to ensure engineering and operational compatibility between the utility grid and the distributed generator. Most of these requirements focus on the utilities' safety, power quality, and power reliability concerns. For solar and wind energy systems, the most prominent technical barrier is the failure to adopt uniform technical standards for interconnection to the utility system. Although applicable standards for solar photovoltaic systems have been approved by the Institute of Electrical and Electronics Engineers (IEEE 929-2000), the Underwriters Laboratories (UL 1741), and the National Fire Protection Association (NEC Article 690), these standards have yet to be adopted in most states.

Business practice barriers consist of contractual and procedural requirements for interconnection of distributed generation facilities. Among the most common complaints of owners and developers of distributed generation facilities is the absence of simple, standardized procedures among local jurisdictions and utilities for processing permitting and interconnection requests. According to the NREL study, more than 25% of the case studies cited project delays greater than four months. Many facility owners and developers also objected to application and interconnection fees that were seen as arbitrary and disproportionate. In one extreme case, the owner of a single-module solar electric system expected to produce approximately $40 per year worth of electricity was asked to pay up to $400 in application and processing/inspection fees, thereby offsetting ten years' worth of anticipated energy savings.[12]

Regulatory barriers include rate and tariff issues, including the imposition by utility regulators of backup or standby charges on distributed generation facilities; distribution wheeling charges for the delivery of power to wholesale or retail customers

[8] Micropower, p. 37.

[9] Micropower, p. 38.

[10] Testimony of San Diego Mayor Susan Golding to the Board of Governors of the California Independent Systems Operator (ISO) Regarding Wholesale Electricity Rate Price Caps (August 1, 2000).

[11] B. Alderfer, M. Eldridge and T. Starrs, *Making Connections: Case Studies of Interconnection Barriers and Their Impact on Distributed Power Projects*, National Renewable Energy Laboratory, Publication NREL/SR-200-28053 (May 2000).

[12] *Making Connections* Report, Case #26, pp. 77-78.

other than the utility itself; exit fees to discourage efforts to reduce dependence on utility power through self-generation or even demand-side management; and administratively determined buyback rates that do not reflect the economic benefits of distributed generation or clean power generation. For example, solar energy advocates had to appeal to the California Public Utilities Commission to prevent a utility from imposing a standby charge on net metering customers that would have offset nearly 90 percent of the anticipated energy savings from a 1 kilowatt solar electric system.[13]

Another fundamental barrier to a distributed energy future is the apparent absence among U.S. policymakers of the political will needed to support the infrastructure investments necessary to enable the widespread adoption of distributed technologies. Upgrades to the distribution system are essential for proper integration of distributed technologies into existing electricity networks. However, many utilities, instead of embracing the opportunity to create the electrical equivalent of an "open architecture" system, hesitate to make the necessary utility investments, perhaps fearing the loss of physical or economic control over the electricity system. Similarly, many utility regulators appear reluctant to allocate the costs of bolstering the distribution system among all customers, perhaps fearing the lack of public support for such expenditures. Although these issues are just starting to be addressed among the states, early evidence suggests that much of the cost of making the transition to a distributed energy future will be shouldered by private developers of distributed generation facilities, even while the benefits of a renewed, more resilient distribution system accrue to the public.

COMMENTS ON PROPOSALS CURRENTLY BEFORE THE COMMITTEE

Today's witnesses have been asked to focus their testimony on certain sections of five bills currently before this Committee: S. 597, S. 388, S. 933, S. 388 and S. 71. In the interest of time, I have further narrowed my testimony to the sections of these bills that are likely to shape the future development of markets for distributed generating technologies. The three topics I will discuss in some detail are the development of interconnection standards for distributed generating technologies, net metering, and business practices.

Interconnection Standards

One of the most significant barriers to the broader commercialization of distributed technologies is the absence of uniform, national technical standards for the interconnection of distributed generating facilities. The problem arises because utilities historically have had substantial discretion over interconnection requirements, and have often used that discretion to develop requirements that vary considerably from one utility to the next without appropriate technical or economic justification. These utility-specific requirements were of relatively little concern for the developers of larger-scale generating facilities, whose projects were big enough that they could justify the cost of hiring consulting engineers and attorneys to negotiate project-specific interconnection requirements for their facilities. For smaller systems such as residential 'rooftop' solar electric systems or farm-scale wind energy systems, these costs are an absolute deal-breaker.

Utilities play a tremendously important role in our society by maintaining the safety and reliability of the grid, and as a result they have legitimate concerns about the interconnection of non-utility generating equipment to their networks. On the other hand, utilities face a conflict of interest because they have an economic incentive to discourage customers from generating their own electricity: the more customers self-generate, the less those customers are buying from the utility.

The solution to this problem is the adoption of national standards developed by appropriate authorities, such as the Institute of Electrical and Electronics Engineers (IEEE), Underwriters Laboratories (UL), and the National Fire Protection Association (which writes the National Electrical Code, or NEC). The states are already pursuing this approach: As figure 1 indicates, over 20 states have passed laws or enacted regulations requiring the development of standardized interconnection requirements for at least some categories of distributed generating facilities.

I am delighted to see this approach adopted in both S. 597 and S. 933. Section 603 of S. 597 requires the Federal Energy Regulatory Commission (FERC) to establish safety, reliability and power quality rules for distributed generating facilities. It also specifically states that the FERC may prescribe different rules for different classes of facilities, which I think is essential for recognizing the distinction between residential- and small commercial-scale facilities, for which we should be striving to

[13] Making Connections Report, p. 24.

achieve 'plug-and-play' simplicity; and larger commercial- or industrial-scale facilities, for which some project-specific engineering may be appropriate. Section 4 of S.933 similarly calls for the FERC to develop "reasonable and appropriate" technical standards for the interconnection of distributed generating facilities. I commend Senator Bingaman and Senator Jeffords, as well as their co-sponsors, for recognizing the importance of this issue in their bills.

Net Metering

Net metering is a simple, inexpensive, and easily-administered mechanism for encouraging the use of small-scale distributed generation. Net metering allows utility customers to spin their meter backwards when they produce more electricity than they need for their own lights and appliances.

Under existing federal law (the Public Utility Regulatory Policies Act of 1978), utilities are required to interconnect with certain distributed generating facilities, and to purchase the excess electricity produced by those facilities. But under PURPA, the utility purchases that excess electricity at an administratively-determined 'avoided cost' price, which is usually a fraction of the retail price the customer pays for power. Net metering provides a modest economic incentive for eligible facilities by crediting them for this excess electricity at the retail rate.

Net metering policies have been tremendously popular at the state level. Just five years ago, only 14 states allowed net metering, and most of those requirements were adopted pursuant to state implementation of the federal PURPA law. Today the total stands at 34 states, with four new states—Arkansas, Georgia, Hawaii and Wyoming—enacting net metering laws just this year (see figure 2). In most cases, these laws were enacted by legislation (although in a few cases net metering policies were adopted by regulation), and in most cases with broad bipartisan support. In my home state of Washington, for example, the 1998 net metering law passed unanimously in a then-Republican controlled legislature and was signed into law by a Democratic Governor.

Of the bills currently before this Committee, only S. 597 currently includes a net metering provision. Section 604 of S. 597 requires utilities and other retail electric suppliers to offer net metering service to customers with eligible on-site generating facilities, defined as those using renewable energy resources with a maximum generating capacity of 100 kilowatts for residential customers, and 250 kilowatts for commercial customers.

I respectfully suggest that this Committee revisit the question of these system size limits, which I believe are too large in the case of residential customers, and too small in the case of commercial customers. For residential customers, a size limit of 10 kilowatts should be more than adequate for all but the largest homes. For commercial customers, on the other hand, a limit of 1,000 kilowatts (or 1 megawatt) would be more appropriate. California expanded its net metering law to include facilities up to 1 megawatt earlier this year, and the response has been tremendous, with a number of utility customers pursuing the installation of larger-scale facilities. This size limit also enables the use of utility-scale wind turbines (which typically are sized around 1 megawatt) in distributed applications, allowing large customers to capture some of the economies of scale associated with these larger wind turbines, where they have the wind resources available to support the use of these turbines.

Three other elements of the net metering language in S. 597 deserve mention:

First, it includes a provision prohibiting utilities and other retail electric suppliers from discriminating against net metering customers by imposing additional fees or charges, or otherwise treating them differently from non-net metering customers in the same customer class. This is an important provision that should be retained because it prevents suppliers from imposing charges that would circumvent the intent of net metering.

Second, it includes a provision requiring utilities and other retail electric suppliers to provide a carryover credit for any excess generation during a billing period, with the kilowatt-hour credit appearing on the bill for the following billing period. This provision is particularly valuable for resources such as solar and wind energy, which are subject to seasonal variations that may cause customers to produce more than they need to offset their own use in some months, and less than they need in other months.

Third, it spells out specific technical requirements for interconnection of net metering facilities, based on IEEE and UL standards and NEC requirements, which dovetails nicely with the requirement in the bill that interconnection standards be developed for all distributed technologies. These requirements are consistent with those already in place in over a dozen states.

Business Practices

None of the proposals before the Committee address another fundamental barrier to the interconnection of distributed generating facilities: the failure to adopt simplified interconnection agreements and routine procedures for processing interconnection requests. Again, particularly for small-scale facilities, the goal should be to attain "plug and play" simplicity that eliminates unnecessary delays and inappropriate expenses. Unfortunately, many utility customers across the country have had the experience of contacting their local utility seeking information on interconnection procedures, only to be ignored or rebuffed or otherwise discouraged. In response, some states have explicitly required the development of simplified agreements and specific timelines for the processing of interconnection requests.

For guidance on this subject, I would urge the Committee to consider language in a bill introduced in the House by Congressman Jay Inslee, H.R. 954, titled the "Home Energy Generation Act." Mr. Inslee's bill also includes net metering and interconnection requirements, but goes further in requiring the FERC to develop "consumer-friendly contracts" for the interconnection of distributed generating facilities up to 250 kilowatts (see Section 215(i)). A comparable provision would be an appropriate addition to any bill coming out of this Committee.

Conclusions

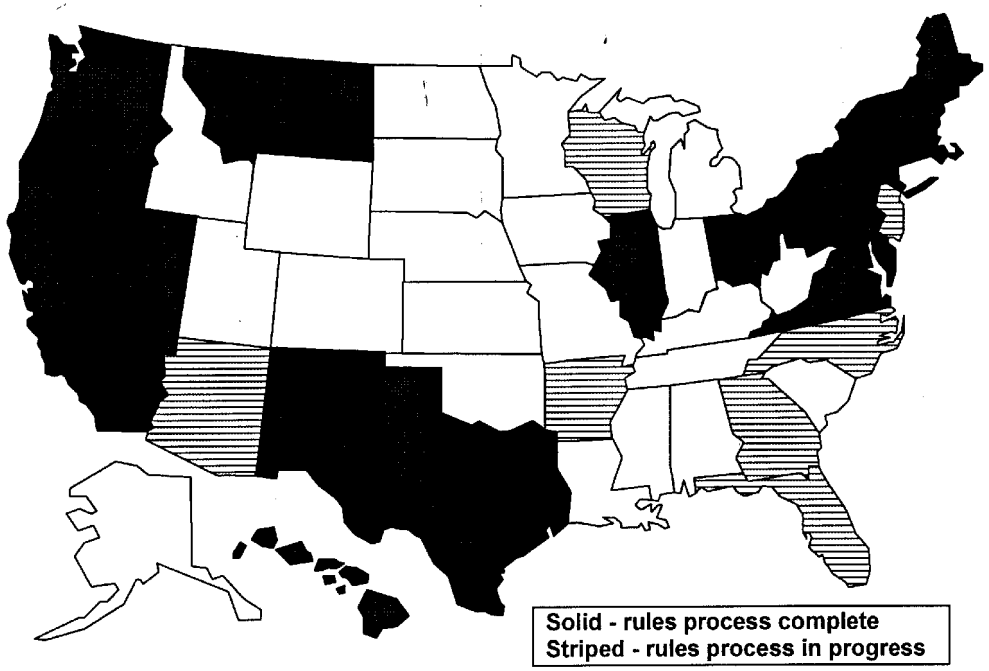
Twenty years ago, the telecommunications industry in the U.S. was a cumbersome, heavily regulated business dominated by regulated monopolies that demonstrated little appetite for innovation. Today, the telecommunications industry is highly competitive and highly innovative, with consumers able to choose among a remarkable array of products offered by many different manufacturers. One of the key elements in that transformation was overcoming the telephone utilities' institutional resistance to interconnecting facilities and equipment from competing providers into the wireline network under fair, non-discriminatory terms and conditions.

The electricity industry in the U.S. is in the early stages of a similar transformation. The traditional paradigm of large, central-station generating plants feeding a network of high-voltage transmission lines and local distribution systems in a geographic region, all owned by a single, vertically-integrated company, will evolve in the coming decades to a complex web of interconnected facilities for generating and storing electricity, owned by many different companies and even individuals. The utilities' role will shift to the management of electricity flowing in every direction through the network. Fortunately, this transition has the potential to provide substantial benefits for all Americans, including a more efficient, more responsive, more reliable, and more environmentally-benign electricity system. But our nation's ability to make this transition efficiently and smoothly is threatened by the same reluctance on the utilities' part—except that it is the electric utilities this time—to integrating these facilities into their distribution networks. The bills cuurently before this Committee can help overcome this reluctance and encourage the utilities to embrace this new era.

I would like to thank Senator Bingaman and the others members of the Committee for expressing interest in distributed technologies and in demonstrating leadership by proposing specific initiatives to encourage the development of viable, competitive markets for these technologies.

Thank you for the invitation to appear before you today. I would be happy to answer any questions the Committee may have.

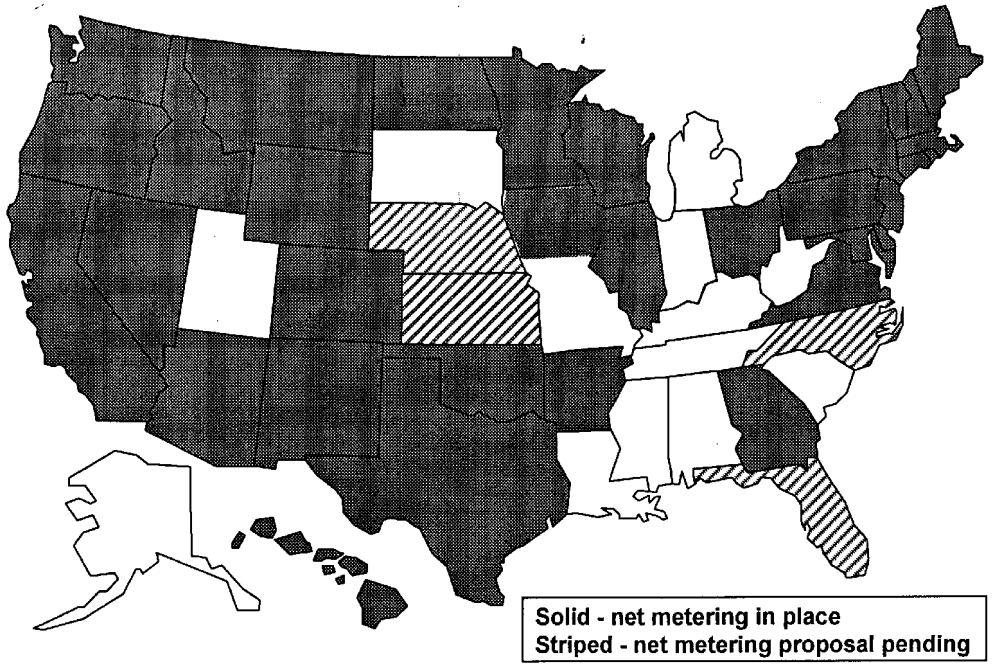
Fig. 1: State Adoption of Interconnection Rules



U.S. Senate, Energy & Natural Resources, 19 July 2001

Kelso Starrs & Associates LLC, 206-463-7571

Figure 2. State Adoption of Net Metering



U.S. Senate, Energy & Natural Resources, 19 July 2001

Kelso Starrs & Associates LLC, 206-463-7571

The CHAIRMAN. Well, thank you very much. I think all of this is very good testimony.

Let me ask the same question I asked Secretary Garman a few minutes ago. And that is, on the issue of fossil fuel efficiency, that is a concept, I know, that has been kicking around Washington for a long time and think tanks for a while.

I would be interested in knowing whether any of you have looked at this, whether you think it would make sense for us to consider adopting a fossil fuel efficiency standard in order to try to ensure that the fossil fuels used in power generation in this country are, to the extent possible, used efficiently and that we incentivize investment in more efficient power production at every stage as we move forward.

If any of you have thoughts about that, I would be anxious to hear them. Mr. Hall?

Mr. HALL. Thank you, Mr. Chairman. I think the underlying premise of the fossil fuel efficiency standard is to come up with another way of thinking about energy production, its pollution prevention characteristics and the way that that relates to environmental regulations. So like what Mr. Garman said this morning, I think it is very important that we retain the connection between a fossil fuel efficiency standard or some other form of modernized environmental regulation along the lines of what I have included in my testimony this morning to replace new source review with a program that recognizes that there are better ways to address our environmental permitting of energy facilities in the country, that the addition of a fossil fuel efficiency standard without addressing the underlying environmental regulatory issues would add an additional layer of regulation, as opposed to simplifying our overall regulatory approach, which I think the fossil fuel efficiency standard is intended to do, similar to the proposal that you see in my testimony from the Clean Power Group.

So my only comment is, to the extent that this committee would be able to address the underlying environmental provisions, that would be great. I do not believe that you are in a position to do that. So I would not encourage you to pursue the fossil fuel efficiency standard without the ability to address new source review at the same time.

The CHAIRMAN. Anybody else have a thought? Mr. Demeter?

Mr. DEMETER. Mr. Chairman, I think it is an intriguing idea. I agree very much that we have to deal with new source review issues. Several projects which I am involved in, working with power companies to co-fire biomass fuels with coal, have dragged a bit because of the threat for new source reviews, these modifications being looked at perhaps major modifications.

Even though we are not increasing the capacity of these boilers, and in fact we are reducing emissions, the NSR has been a barrier to this particular renewable energy and this particular conversion technology. So NSR is integral here.

It also brings up another issue in terms of how renewable energy might be considered in this. I would have to look at exactly how you would calculate the energy in and the energy out. Perhaps on the energy out side you would give credits to some of the renewable energy production involved in the equation.

And also, I think that it would be, again, just off the top of my head, worth at looking at how there might be interference with existing allowance markets, sulfur dioxide NO_X emission traits. There might be an impact there on how those markets operate. It would require a little more thought at this point.

The CHAIRMAN. Okay. On wind projects, Mr. Boyd, let me ask you, is there something needed? Should we be legislating some change in Federal law with regard to use of Federal lands for wind farms or wind power generation? I have anecdotes repeated to me in New Mexico where people have been looking for sites to locate wind farms and have felt that the delay in getting authority or permits to use Federal land were such that they really did not consider that option and instead went to private land. Have you encountered that problem at all, or do you think that is a problem worth worrying about?

Mr. BOYD. My company has not really encountered the problem, but I know of some other companies that have. I think the biggest problem is that you trigger a NEPA review, which is at minimum a year and sometimes longer, depending on the agency that you are dealing with and how good they are at permitting.

But certainly it is something worth looking at. I think that we have a lot of Federal lands that could bring income into the treasury, if they were used for wind energy.

The CHAIRMAN. Okay. Mr. Starrs, let me just ask you a final question. The previous administration set a goal for the solar industry, to have a million solar roofs installed by 2020. Do you know if there anything going on to try to achieve that goal at the current time, or has this sort of gone by the board? What is your view on that?

Mr. STARRS. Well, I know that under the prior administration there were a number of regional partnerships set up across the country. And I know that those regional partnerships are still in place. And there has been a lot of good work that has come out of the efforts at the Federal level in conjunction with these regional partnerships to support local and regional efforts to develop solar.

I do not think that there has been any particularly strong statement of support by the current administration with respect to continuing the funding of that program. So I do not think there is a lot going on right now.

Senator Craig.

Senator CRAIG. Thank you, Mr. Chairman. I will be brief.

But I want to thank all of you gentlemen for your testimony. I think our business here is to get the basket of energy full again. And that means with all different types of resource. And our business should not be to pick and choose but to create the flexibility to allow that to happen in the marketplace where there is a disadvantage or a disincentive to try to stop that.

Mr. Boyd, I understand, or I think I understand, having talked with folks of your company and others that are in the business of wind, that this tax credit on a 5-year increment is critical, is it not?

Mr. BOYD. Yes, sir.

Senator CRAIG. Anything less than that probably deters the installation of wind.

Mr. BOYD. Well, what happens is that we have to go out in the market to finance projects. And you know how skittish the financial community can be. And if we have short-term increases or extension when we do go out, people get nervous that the project will not get done in time for the credit. So they are unwilling to lend. So a longer extension, the 5-year program, we feel would be very helpful.

Senator CRAIG. Are most of your projects now of the new and larger turbine design?

Mr. BOYD. Yes. Our turbine, current-sized turbine, that we are building is a 1.5 megawatt. We will be putting 300 of those in, primarily in Texas, Pennsylvania, New York, and Wisconsin.

Senator CRAIG. The wind also blows in Idaho.

Mr. BOYD. I know. I lived in Idaho for 8 years.

Senator CRAIG. Well, if you lived over in that southeastern toe of the boot that I see represented on that particular diagram, it seems there might be some opportunities there.

Mr. BOYD. Yes. We are looking at Idaho.

Senator Craig. Thank you.

Gentlemen, thank you all.

The CHAIRMAN. Senator Dorgan.

Senator DORGAN. Mr. Chairman, thank you very much. I regret I was not here for the first part of the testimony today. But I really appreciate this hearing. I agree with Senator Craig that we have to produce more. I do not necessarily agree that we just let the market decide what we do here. I think in some respects, especially with respect to——

Senator CRAIG. That is not really a constructive idea, the market.

Senator DORGAN. Well, that cranky little Judge Judy makes $7.4 million a year on television. And the Chief Justice of the Supreme Court makes $180,000. So much for the market.

Senator CRAIG. Then you and I are miscast.

[Laughter.]

Senator DORGAN. I think the market is a wonderful allocator of goods and services, but there are perversions in the market that require sometimes corrections and adjustments and incentives and stimulus. And I think with respect to renewable sources of energy and limitless sources of energy, I think we need to have public policies to stimulate it beyond market forces, stimulate it and give it an opportunity and an seed bed and some nurturing.

And so again, while the market—I did not mention $255 million for a shortstop in major league baseball in the market analysis. But wind energy is something that we are working on in North Dakota. And the charts from the Department of Energy say that we are number one in wind energy potential. North Dakota is the Saudi Arabia of wind.

[Laughter.]

Well, that is what they say, especially when I am home, I might suggest.

[Laughter.]

And we are very anxious to make good use of the wind energy potential, but limit it by transmission capabilities. And so we have to marry the opportunities that exist in some of these areas with the ability to transport the energy where the energy is needed. And

I was interest in some of the discussions about wind energy. Mr. Boyd, I know that your company is very involved and very active around the country in these areas.

But I think distributed generation, biomass, wind energy, a whole series of technologies that have always kind of been relegated as an afterthought by some. I think they can provide significant new sources of energy for our country. And I think the testimony that all of you have given is important testimony.

We need to produce a piece of legislation that does use the market in an effective way and that always provide stimulus beyond the marketplace and other areas so that we have a balanced energy package. And we need to produce more fossil fuel and renewables and efficiencies. And a whole series of things need to come together in a balanced energy package. And your contribution, I think, in this hearing called by the chairman is a very significant contribution.

Might I just ask one question? The issue of transmission, I assume all of you recognize that from a number of sources of energy that you describe in your testimony, the ability to transport that energy to where it is needed, except with respect to the testimony of Mr. Hall, I believe, which I find interesting.

The chairman and I, and also Senator Craig, sat in a briefing on that subject within the last week or so. And I think you make some good points about the loss of efficiency and so on and some things we can do in that area in the power heat generation.

But again, can you just again respond on the issue of the transmission capability? Mr. Boyd, you know. I mean, you are involved in wind. You know North Dakota is number one in the country, right?

Mr. BOYD. Yes, sir.

Senator DORGAN. And so you are not there because of transmission problems. Why are you not building wind turbines on the prairies of North Dakota?

Mr. BOYD. Because we cannot get the power out of the State into the markets that need it. It is pretty simple.

Senator DORGAN. But were it not for that, you would be there building some wind turbines and some blades.

Mr. BOYD. Yes, because, you know, wind energy, the better the wind, the cheaper the cost. So we would certainly be there.

Senator DORGAN. Can you give us just a description of how the new, more efficient wind turbine technology has improved our capability and brought down costs?

Mr. BOYD. Well, the major way it has is just the increase in size. It turns out that the economics for wind are such that the cost that you pay to get larger is less than what you can generate from the turbines. So you make more revenues from larger turbines. And the cost is not in the same ratio.

The second thing is that we have a power electronic system, which allows you to have variable speed. And that way you can get more power out of the turbine. We used to absorb a lot more of the forces into the frame of the machine. Now we are able to take those through and generate power.

Senator DORGAN. Mr. Chairman, could I just good naturedly observe that there is no solar energy in these rooms. We always keep

the drapes closed, presumably for television coverage. And even when there are no television cameras present, in every hearing room in the U.S. Senate we, who participate, have this gray pallor because we continue to have the drapes closed. And I hope that perhaps we can reform that as well.

The CHAIRMAN. Well, I think that is a very good suggestion. We have talked about that once before. Why do we not try to fix that? We will try to fix that.

Thank you very much.

Senator Smith.

Senator SMITH. Thank you, Mr. Chairman. I wonder if any of you can comment upon the administration's proposal of offering up to $1,500 for residential solar power, whether you think that would be helpful and stimulating, solar power as a renewable.

Mr. STARRS. Senator Smith, I can respond to that. The short answer is yes, that it would be helpful. And as Senator Dorgan just noted, I think that these kinds of modest incentives have played a role in the past in encouraging the development of some of these cleaner, locally available energy generating technologies. And solar is certainly no exception.

In fact, comparable incentives that have already been adopted at the State level in some States are driving very, very substantial increases in the market for solar energy systems. California in particular has a rebate program in place that has spurred tremendous growth in the market there. And as we speak, there are solar electric systems going in in residences and businesses all over the State of California at a rate that is really unprecedented.

Senator SMITH. Mr. Boyd, can you talk to me about the windmill farms you are doing? What have you done to mitigate vibration and impact on wildlife and birds?

Mr. BOYD. Well, the major thing that we have done is do biological studies before we put in a project to make sure that we are not going to affect the population of animals and birds that are in the area. That did not happen in some of the early projects in California. And we learned from that mistake.

Senator SMITH. And in doing that, you are doing that in private land.

Mr. BOYD. Yes.

Senator SMITH. But you think the environmental impact is de minimis or——

Mr. BOYD. Yes, I really do. I think the major impact of wind turbines is probably visual, as you mentioned. In terms of affecting the land, these larger turbines, you do not have very many of them on a piece of land. Wind turbines are kind of land intrusive more than land intensive.

Senator SMITH. That is all, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Senator Carper.

Senator CARPER. Welcome. Thanks for joining us today. I am a new member of the committee. Some of these folks have been here for years; I have been here for days. And some of what you talked about, frankly, I do not fully understand. And I am going to ask us to go back, a couple of you, and ask you to give me a primer on some of what you have been taking about.

Mr. Boyd, I missed your testimony entirely. I have another committee that is meeting at the same time. Could you just start off by taking a minute or so and just tell me, among the things that you said, I know a lot was important, but just hit me with some of the highlights, please.

Mr. BOYD. Well, the wind is the fastest growing renewable technology in the world today. And that is primarily because the price has been driven down so it is as close to being competitive with other generation technologies. The growth that we will see will probably double, almost double, in the United States this year. Over the next 5 years, we will see about $40,000 megawatts go in around the world. Europe is much farther ahead in terms of deploying wind energy than we are here in the United States.

Senator CARPER. Why is that?

Mr. BOYD. Because they have given a lot of incentives to wind energy. Germany, for example, has what they call a feed law. They pay 90 percent of the retail rate to people to put in wind. Other countries have different types, but pretty good incentive programs.

The have decided that wind is a technology that they want to supply. I think in the case of Denmark now they are about 20 percent is wind energy.

Senator CARPER. What kind of potential do you see in our country for utilizing wind energy?

Mr. BOYD. Well, it is unlimited. I mean, in terms of resource, we could easily duplicate what the power generation capacity of the United States is right now. That is not likely to happen, because wind will just be a part of the mix; it is not going to take over the world.

Senator CARPER. In terms of what we should be doing in this country, in this body, to encourage the harnessing of wind energy, just, again, what further should we do?

Mr. BOYD. Well, I think I mentioned two things in my testimony. Number one is we have a wind production tax credit, which is very valuable to us in terms of getting our costs down.

Senator CARPER. How would that work?

Mr. BOYD. For each kilowatt hour of win energy, you get a tax credit of 1.5 cents. So this lowers the effective cost of wind energy when you sell it.

Senator CARPER. Would that credit have had to have been higher 5 or 10 years ago, in order to make wind competitive?

Mr. BOYD. I am sorry, the question again?

Senator CARPER. Would that credit have had to have been higher 5 or 10 years ago, in order for wind to be competitive?

Mr. BOYD. Actually, the credit was in the Energy Policy Act of 1992. That is when it started. And there was a time where it went away, and then it was reinstated. And it could have been higher. I think it would have been helpful if it was higher at the time. But, looking at the other side, I think that the technology had time to catch up with the market. So I do not think that it hurt us that badly.

Senator CARPER. Okay. Thank you.

Anybody else want to comment in response to any of the questions I asked Mr. Boyd?

Mr. STARRS. I would just like to mention one issue that has not really come up much, Senator Carper, and that is that, as Senator Dorgan mentioned, there may be reasons to encourage or discourage certain technologies. And one of the things that we have not really emphasized adequately, I think, is the importance of fuel diversity.

Although we have somewhat diverse electricity resource base in this country today, the fact is that almost all of the new generating capacity coming on line is fueled by natural gas. And I think the evidence from the last 6 months or so adequately illustrates the fact that natural gas prices and other fossil fuel prices can be highly volatile.

And one of the reasons that I think it does make good public policy sense to encourage the development of renewable technology, such as solar and wind energy, is that they are really immune from those sorts of supply price volatility issues. And even if they are at the margin incrementally more expensive—and as we have already heard, wind may not be. But even if they are, I think there is a strong public interest in encouraging the broader diversification of our energy resource base.

Senator CARPER. Thank you.

Now for the primer for me. Probably everybody in the room, Mr. Chairman, understands what these fellows were talking about when they talked about interconnection standards and distributed generating facilities and net metering policies. I may be the only person who does not fully understand those terms.

But for my benefit, alone perhaps, for my benefit alone, give me a primer on what we mean by interconnection standards. How are they relevant to this discussion? What should I understand about them, distributed generating facilities and net metering policies, those three?

Mr. STARRS. Mr. Carper, let me jump in because I actually had a bit of testimony that I did not get to address in this context. And I think I am going to explain by offering what I hope is a useful analogy to the telecommunications industry.

Twenty years ago, the telecommunications industry was a cumbersome, heavily regulated business dominated by regulated monopolies that had little appetite for innovation. Today, the telecom industry is highly competitive and highly innovative with consumers able to choose among a remarkable array of products from many different manufacturers. And one of the key elements in that transformation was overcoming the telephone utilities' traditional reluctance to allow competing companies to interconnect their equipment under fair and reasonable terms and conditions.

The same kind of transformation is happening in the electricity industry today. The traditional paradigm of large central station generating plants feeding a network of high voltage transmission lines and local distribution systems, which are all owned, have been owned, by a single vertically integrated company is changing.

And it is going to evolve in the coming decades to a complex web of interconnected facilities for the generation and storage of electricity that are owned by many different people, including residences, residential customers, and businesses, with the utilities

role shifting to one of basically managing the flow of energy through the network.

I believe that this transition has the potential to provide substantial benefits for all Americans, including greater efficiency, more responsiveness, more resilience, and a more environmentally benign electricity system.

But probably the single biggest obstacle to that, to moving towards this new energy system, is the same reluctance on the utilities' part, except this time it is the electric utilities, to integrate these facilities into their distribution networks. And that is the basis for our interest in having the Senate and the Congress address this issue of interconnection standards.

Senator CARPER. That was helpful. That was helpful.

Mr. Hall.

Mr. HALL. If I could just add one additional element to that, which is that, unlike in the telecommunication debate, where there were not lots and lots of different companies that were controlling access to the distribution and transmission system in this case, the way that we have historically addressed interconnection, or those that wanted to interconnect, was a utility-by-utility activity.

And there are certainly many cases of utilities that have been very open and willing to allow people to interconnect where they saw that there was value for them. But there is just as many cases, if perhaps not more, where they felt that the ability to disagree or the perceived disagreement over technical elements of the physical interconnection were used to drive the costs up for people that wanted to connect such that it became uneconomic to go forward with that project.

Senator CARPER. Okay. Mr. Chairman, is there going to be another round for this panel, or is this it?

The CHAIRMAN. Well, we have two additional panels. And so I think this is it.

Senator CARPER. All right. Thank you very much.

The CHAIRMAN. Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman.

And, again, thank you, panelists, for being here today. And I apologize, too, for missing the earlier part of the hearing, given another markup in a committee that I serve on. I have read through some of your testimonies, and obviously some of you have mentioned in here the very fortunate focus of our new economy and the closeness of distributed power marrying up very well in the sense of having that power be uninterrupted power and close to the source. It ties in very well with a lot of the computing advances we have made.

I did not see too much in—I saw mentioned in Mr. Starrs's testimony about hydrogen fuel cells. I do not know if you could comment on—I mean, a lot of the comments on developing standards, a uniform standard, at the national level have been focused on wind and solar and other comments. But any comments on the hydrogen fuel cells as it relates to us coming up with the standard processing for metering?

Mr. STARRS. I will touch on that, Senator Cantwell. Fuel cells is a technology with tremendous promise. And I think that has been reflected in some of the recent efforts in the States to encourage

these new energy technologies. For example, many of the recent net metering laws, which I mentioned earlier, and, by the way, which also tend to include interconnection standards, have made fuel cells an eligible technology. So there are maybe a dozen or so States right now——

Senator CANTWELL. Which States?

Mr. STARRS. Well, they include Washington and Oregon. I cannot give you a complete list, but I am most familiar with ones in the Northwest, where I do most of my work. And so in those States fuel cells are eligible for these streamlined interconnection procedures that we have been discussing.

Senator CANTWELL. Any of the other panelists want to comment?

Mr. DEMETER. I would just add, Senator Cantwell, that, yes, fuel cells would be a technology that would benefit from all the issues that we have been discussing today. They tend to be a little more expensive as a conversion device than some others. So they require, I think, a little more Federal investment in the R&D side, as well as other policies.

And when you mention hydrogen fuel cells, it is not only hydrogen gas that we are talking about here, but it is anything that carries hydrogen with it. Ethanol, for example, can be used. Another chemical derived from biomass, ethyl-levlionate, can be used as sources in these fuel cells. But the fuel cell device itself would benefit from much of what we have talked about today.

Mr. HALL. And if I could just add, the language in S. 933 for interconnection is really a technology agnostic or technology neutral standard for interconnecting any kind of technology to the distribution or transmission system. So in the case of the interconnection and the provision of backup power, it is not necessary to differentiate between one technology and another.

Senator CANTWELL. As we go through this process of marking up legislation, and there is riot of bills here, including the chairman's—and thank you, Mr. Starrs, for your detailed description about the positive aspects of a variety of pieces of legislation on this—we obviously have industry standard organizations like the IEEE and UL and NEC. And then we have FERC. And obviously, we are in these various pieces of legislation directing or saying let us direct FERC to move faster.

So what do you think is the relationship in us moving forward on these in the sense of not an over-reliance on FERC, but not—it sounds like we will not get there unless we have some national standard. And yet these standard bodies probably have been the best—I am assuming. I would like your comment on that—have been the best in actually coming up with and eliminating the concerns and problems so that State standards could be established.

So do these bills have the right balance in that equation?

Mr. STARRS. That is a very good question, Senator. And I think it is a delicate balance to allocate the jurisdiction, the authority, between the FERC and the States on these topics. As we have heard from various speakers this morning, including Mr. Garman, there have been a number of States that really have demonstrated very substantial leadership on this topic and have really stepped out to the forefront and have established policies that are very en-

couraging while still being fair and balanced to these new technologies.

So——

Senator CANTWELL. But in—I am sorry to interrupt.

Mr. STARRS. Sure.

Senator CANTWELL. But in those cases, these standard-setting bodies probably have led the way and legislatures have been adopting them correct, as opposed to legislators really getting into the details——

Mr. STARRS. Absolutely.

Senator CANTWELL [continuing]. Or a utility commission getting into the details. I am assuming that they have——

Mr. STARRS. That has generally been the case. Although I will note that sort of the most important of the proceedings of the IEEE—IEEE is currently in the process of developing a standard called IEEE 1547, which is a broad standard for all distributed technologies. And that standard is not yet in place.

So the States that have had to—well, who have been interested in stepping out in this issue, have not been able to rely on an IEEE standard with respect to these broader technologies. Now there is another IEEE standard called IEEE 929 that is in place for, this is a technical issue, but for what are called invertor-based technologies, which include solar electric, some small wind systems, fuel cells, some gas turbines, and so on.

And that IEEE 929 standard has been called out in many of these State laws as the basis for the technical standards that have been adopted there.

So, some of the States have incorporated those national standards explicitly by reference. Others have not. I think the main issue is that we have a good start among the States in adopting these national standards, or the work that has been done by these national authorities. But I think that some of the manufacturers of equipment in this room and elsewhere would agree that it is still very cumbersome to have sort of the piecemeal adoption of different requirements in different States. And that is the main driver, the main interest, in having national standards.

And so an equipment manufacturer can build something in Ohio or in Oregon or wherever and know with confidence that that equipment is eligible to be interconnected in any State in the country without having to go through a lot of State-specific or, even worse, utility-specific hoops.

Mr. HALL. If I could just add to that, I think it is important to recognize that, first, IEEE is a voluntary, develops standards on a voluntary basis. And that process normally is a long process. I have not personally been involved with the IEEE process, but there—well, I do have someone from my company that has been involved in it. A lot of these standards often can take many, many years to evolve.

And but for the investment by the Department of Energy in accelerating the development process of this particular standard, we would be much further away than we are right now.

Correct me if I wrong, Tom, but the places where we do have standards that have been established in places like Texas and New York, those have been driven by the commissions, commission-driv-

en stakeholder processes that do not rely on these sort of voluntary standard setting bodies. So it is in those cases that they have actually been driven by State legislatures or State commissions or some other legislative or regulatory body to make sure that they could move forward in a timely fashion.

And it is for that reason that I think we really do strike the right balance here between what we need FERC to do, which is to be in a position to affirmatively say we are going to have uniform interconnection standards, we are either going to get it out of IEEE or we are going to get it out of another process that is equitable and open, but addresses the issues that we need to address so that we can move on. Otherwise we could be held hostage to a voluntary process that could take a very, very long time, some of those processes which evolve very slowly under normal circumstances.

Senator CANTWELL. Thank you.

I see my time has expired, Mr. Chairman.

The CHAIRMAN. Thank you very much. Why do we not go ahead and dismiss this panel? The second part of this hearing is on hydroelectric relicensing. Let us take about 5 minutes here while we bring forward the witnesses from panel three and panel four and ask them all to sit here at the front table. And we will commence again here in 5 minutes.

[Recess.]

The CHAIRMAN. Why do we not go ahead here? If the witnesses could take their seats, I would appreciate it.

This portion of the hearing, as I indicated, is on hydroelectric relicensing. Our first two witnesses are from the administration. One is Mr. William Bettenberg, who is the Deputy Director of the Office of Policy Analysis in the Department of the Interior. And the second is Mr. Mark Robinson, who is the Director of the Office of Energy Projects with the Federal Energy Regulatory Commission.

We appreciate you being here very much. And why do you not go ahead and begin? And then we will introduce the other three witnesses once you have completed your testimony.

Mr. Bettenberg, why do you not start? If you would take one of those microphones and put it right in front of you, that would be a help.

STATEMENT OF WILLIAM BETTENBERG, DEPUTY DIRECTOR, OFFICE OF POLICE ANALYSIS, DEPARTMENT OF THE INTERIOR

Mr. BETTENBERG. Thank you, Mr. Chairman. It is a pleasure to be here today to present a statement on behalf of the Department of the Interior. I have been working with Secretary Norton on energy issues for more than 5 months now and can assure you that she takes very seriously her charge to efficiently and effectively balance national interests and natural resource and environmental preservation with energy needs, and to do so through timely, cooperative, and efficient processes.

You have my statement for the record. Let me simply highlight several sections of it.

The committee has held several hearings on the hydropower licensing process, and many of you are quite familiar with it. For the sake of newer members, I thought I might simply point out, on

page 2 of my statement I identify the primary roles of the Interior Department under the Federal Power Act. Basically under section 4(e) we set standards related to protecting lands and resources that Interior administers. Under section 18 we share with NOAA authority for setting conditions for fish passage. And then under section 10(j) we make other recommendations.

On pages 3 and 4 we have summarized some results of a study that we did a few months back regarding processing times. And I would note that while applications are due 2 years in advance of license expiration, the average license process takes about 4½ years. There is clearly room for improvement there.

Out of 157 licenses issued over the past 6 years, it turns out that Interior and NOAA established conditions on about one-quarter of them. So there are about three-quarters that do not include Interior conditions. This included 4(e) authorities in only 9 cases.

Interestingly, whether Interior establishes conditions or not, there is essentially no difference in the amount of time taken in the licensing process. FERC reached this same conclusion in their 603 report.

On pages 4 through 6 the statement describes the interagency task force process and highlights commitments in that forum to improve the licensing process. We think these represent very substantial improvements on the part of all of the agencies that were involved in that. I would like to note here that I suspect that Mr. Craig's prodding and proposed legislation had a lot to do with Interior and the other agencies paying much closer attention to problems with the licensing process and working to improve it.

On pages 7 and 8 the statement identifies key steps in the Department's undertaking or examining to continue to improve the process. I would like to draw your attention to three of those steps.

At the top of page 7 we point out that Interior and Commerce have committed to filing preliminary conditions within 60 days after FERC says the project is ready for environmental analysis, a modified condition 60 days after the close of the comment period on the draft IS. Interior agencies are available to work iteratively with applicants and others throughout the process.

At the top of page 8 I cite the commitment to develop an interagency consistency mechanism. This recommendation is included in the President's national energy policy. For step 7 on page 8, I note that Interior is currently reviewing mechanisms and criteria for its exercise of conditioning authority. This will include examination of higher level review mechanisms and consideration of various factors to be considered in making conditioning decisions.

On pages 8 through 11 the statement reviews some key aspects of the bills under consideration. Let me just highlight three of those. S. 597, as well as the Tauzin bill marked up by the Energy and Commerce Committee 2 days ago, provided that parties can propose an alternative set of conditions and sets criteria for their acceptance. We find this useful, but point to the need to have some deadlines for this filing and to limit it to the applicants. Also with the filing, we need to include substantial evidence to back it up.

On pages 9 and 10 we commend on the core process provisions of S. 71 and S. 388. Basically, we have concerns with the timetables in those processes and a few other issues as well. On coordi-

nated environmental reviews in S. 71 and S. 388, we think those are promising, but need to overcome some problems with FERC's *ex parte* rules in order to be cooperators in their need for process while protecting our standing in their proceedings.

Finally, on the last two pages we provide five additional areas where we think legislation could be helpful. These cover settlements, studies, deadlines, basin-wide assessments, and Indian trust responsibilities. We are available to work with the committee on these bills and legislation generally in search of improvements to the licensing process.

Mr. Chairman, that concludes my summary. I will be pleased to respond to questions.

The CHAIRMAN. Thank you very much.

[The prepared statement of Mr. Bettenberg follows:]

PREPARED STATEMENT OF WILLIAM BETTENBERG, DEPUTY DIRECTOR, OFFICE OF POLICY ANALYSIS, DEPARTMENT OF THE INTERIOR

Good morning. My name is William Bettenberg. I am Deputy Director of the Office of Policy Analysis in the Department of the Interior and currently serve as the Hydropower Coordinator for the Department, as well. On behalf of Secretary Norton, I wish to reaffirm the commitment of the Department of the Interior (Department or Interior) to improve and streamline the hydropower licensing process. The Secretary takes very seriously her charge to efficiently and effectively balance national interests in natural resource and environmental preservation with energy needs, and to do so through timely, cooperative, and efficient processes. I will present the views of the Department on hydropower issues and legislation, and I have also been asked to speak to the practices of the U.S.D.A. Forest Service (USDA/FS) today.

In this review, I will address S. 597, the Comprehensive and Balanced Energy Policy Act of 2001, S. 388, the National Energy Security Act of 2001, and S. 71, the Hydroelectric Licensing Process Improvement Act of 2001, all as they relate to hydropower. Because of its relevance, I will also refer to the Energy Advancement and Conservation Act of 2001 as marked up by the House Energy and Commerce Committee on Tuesday.

The President's National Energy Policy (NEP) supports actions to streamline and improve the hydropower licensing process. I am pleased to report to you on the status of the progress being made by the resource agencies in effecting such improvements, to share with you the positions of the resource agencies on the legislation being considered by this Committee, and to suggest several additional legislative steps that could improve the licensing process. To begin, I will provide the Committee with some background on hydropower and a description of the responsibilities of resource agencies in the hydropower licensing process to place the issues in context.

A. BACKGROUND

Hydropower represents about 7 percent of annual generation and is almost always the lowest-priced source of electricity when compared to any other means of producing electricity. While subject to the vagaries of river flows and droughts, hydrogeneration plays a unique role in meeting power demands. While often presenting serious problems for fish migration and spawning, hydropower avoids production of air pollutants and a variety of other concerns compared to the use of other energy resources.

About 45 percent of hydropower generation is administered by the Department's Bureau of Reclamation, the Corps of Engineers (Corps), and other Federal agencies. Non-federal projects account for the remaining 55 percent of hydropower generation and about 4 percent of the nation's total electricity supply. The use of navigable rivers for non-federal hydropower is conditioned through licenses issued by the Federal Energy Regulatory Commission (FERC). These licenses also contain conditions set by Interior bureaus and the USDA/FS to address effects of the hydropower projects on Federal and Indian lands, by the U.S. Fish and Wildlife Service (FWS) and the National Oceanic and Atmospheric Administration (NOAA) with regard to fish passage, by the Corps with regard to navigation, and by States with regard to water quality. The process for obtaining a license can be time consuming and contentious.

The licensing process, however, is itself complex. From the standpoint of the resource agencies—Interior, Agriculture and Commerce—it is important to ensure that appropriate safeguards are put in place, particularly given the fact that hydropower licenses authorize the use of public resources for 30 to 50 years. We believe substantial advances have been made recently in improving the process; more can be done and we are working together on that.

Federal Power Act

The resource agencies have the important assignment under the Federal Power Act (FPA) to participate directly in the hydropower licensing process. Our participation is intended not to interfere with licensing, but to ensure that key resources for which the resource agencies are responsible are protected when navigable waterways are used for hydropower generation.

Since enactment of the FPA in 1920, it has been the responsibility of the Departments of the Interior and Agriculture to establish conditions for non-Federal hydropower licenses as necessary to protect the lands and resources that we administer. These lands include Federal reservations such as Indian lands, National Wildlife Refuges, Bureau of Reclamation projects, National Forests, some units of the National Park System, and certain lands and projects managed by the Bureau of Land Management. This responsibility includes protecting the structural integrity of Department of the Interior dams and canals, meeting trust responsibilities on behalf of Indian tribes and individuals, and otherwise assuring compatibility with the purpose for which the Federal reservation was made. These conditions are set pursuant to section 4(e) of the FPA.

Also, since 1920, FWS and NOAA (or their predecessor agencies) have had responsibility for establishing the terms for safe passage of fish at licensed hydropower facilities. This authority is somewhat analogous to conditions set by the Corps to ensure passage of boats for navigation. Most hydropower facilities received their original licenses roughly 30 to 50 years ago; many of those facilities had actually been put in place many decades before then, long before the advent of national concern for environmental resources including fish, or widespread recognition of the cumulative impact of dams on fish resources. Of the dams licensed by FERC, only 9.5 percent include upstream fish passage; only 13 percent included downstream fish passage other than over the spillways or through the turbines.[1] This responsibility for establishing conditions for fishways is carried out under section 18 of the FPA.

These agencies also make recommendations to FERC for other environmental protections which they believe should be considered for inclusion in hydropower licenses. These include additional recommendations for protection, mitigation, and enhancement of fish and wildlife resources, as well as recommendations related to recreation, cultural resources, and irrigation. This is done under sections 10(a) and (j) of the FPA.

Hydropower License Conditions Frequency, Timeliness, and Contested Cases

The licensing process has often been complex and resource intensive for all parties, including energy producers, property owners, recreationists, fisherman, and conservationists. Recently, the Department examined all licenses issued between 1994 and 2000, and found that the average processing time, from the time an application is filed with FERC to the time a license is issued, is just over four and a half years. A copy of that analysis is attached to this testimony. There are many steps that contribute to this lengthy process:

- The average time from filing by the applicant to acceptance of the application by the Commission is about one year;
- The average time from acceptance of the application by the Commission to the declaration by the Commission that the project is Ready for Environmental Analysis (REA) is about 11 months; and
- The average time to conduct the environmental analysis and issue the license is a little over 2.5 years following issuance of the REA notice.
- Even after the license is issued, there are often motions for rehearing with the Commission, and sometimes even challenges in court.

Ninety-one percent of new licenses at existing projects covered by the Department's analysis (144 of 155) were issued after the existing license expired, and 61 percent were issued more than one year after the expiration date. Clearly, there is room for improvement in this process.

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[1] Environmental Mitigation at Hydroelectric Projects, Volume II, Idaho National Engineering Laboratory, January 1994, DOE/ID—10360(V2).

Many of the recent reform proposals have focused on federal agency conditions. While attention to the conditioning process is warranted, we believe that it may be too narrowly focused. Departmental conditions are issued less frequently and contested less frequently than may be commonly supposed. For the 157 new and existing projects licensed from 1995 through 2000, the Department established section 4(e) conditions for only 9 projects—about six percent of the projects licensed by FERC during that period.[2] Section 18 fishway conditions were established by FWS or NOAA for 32 projects, or 20 percent of the 157 projects licensed. When these Interior numbers (both section 4(e) and 18) are combined with those for NOAA, they still only account for about 25 percent of the projects licensed during the period studied.

Interestingly, the process of Interior bureaus and NOAA establishing conditions does not appear to have lengthened the overall licensing process. The Department's analysis found that there was no significant difference between the time it took to process license applications for which mandatory conditions under Sections 4(e) and 18 of the FPA were established, and the time to process those for which prescription authority was not exercised. FERC corroborated this conclusion in their May 8th Section 603 report.[3]

Also interesting is that of the 157 licenses issued during this period, 57—slightly more than one-third—were contested by the applicants; only 13 of those contested included Interior and NOAA conditions. The 13 challenges to Interior and NOAA conditions represent 8 percent of the licenses issued. There were no contests of USDA/FS conditions at FERC during this period. Our understanding is that no relicensing applicant has rejected a license due to the setting of conditions by the resource agencies.

What these numbers point to is that the length of the hydropower licensing process and the extent of contested licenses are less a function of the processes by which the resource agencies establish conditions, or even the nature of those conditions themselves, than they are a more pervasive artifact of the overall hydropower licensing process. The net needs to be cast more broadly to effectively streamline the process.

Recent Progress on Improving the Hydropower Licensing Process

In 1998, the Federal agencies responsible for key parts of the Nation's hydropower licensing process created the Interagency Task Force to Improve Hydroelectric Licensing Processes (ITF) to develop practical ways to improve the licensing process across all the agencies. The ITF was a coordinated effort between FERC, the Departments of Interior, Commerce, and Agriculture, the Environmental Protection Agency, and the Council on Environmental Quality. To ensure review and comment on the ITF work products by all stakeholders, the ITF convened an advisory committee comprised of industry, non-governmental organizations, tribes, and local, State, and Federal agencies. Numerous recommendations were developed and commitments made in a series of agency guidance documents that are posted on the www.doi.gov/hydro website. Most significantly, the commitments include:

(1) the commitment of the Commission to alert the public and other agencies of proposed hydropower licensing actions to expedite issuance of notices and improve overall communication among Federal agencies;

(2) the commitment of the Commission and resource agencies to changes that will facilitate better coordination among Federal agencies and enable all interested parties to understand and more efficiently work within the National Environmental Policy Act (NEPA) process;

(3) the commitment of the Commission and resource agencies to provide basic guidelines on how to identify resource issues, identify and conduct necessary studies during the pre-filing stage, resolve disputes over studies, and address issues related to post-filing studies, making the licensing process more efficient and eliminating disputes early in the process. For example, the resource agencies have committed to identifying in any study request the nexus between study requests and licensing conditions and recommendations, on the one hand, and project operations and resource impacts on the other. In addition, in developing its conditions and prescriptions, the Departments have committed to reviewing alternatives including those

[2] Note that this differs from the 10 cited in the attached letter; the difference is that a proposed National Park Service 4(e) condition was converted to a settlement term.

[3] Report on Hydroelectric Licensing Policies, Procedures, and Regulations, Comprehensive Review and Recommendations Pursuant to Section 603 of the Energy Act of 2000, prepared by the staff of the Federal Energy Regulatory Commission, May 2001 (cited hereafter as FERC 603 report), p. 38.

submitted by the license applicant, and selecting the least cost alternative which meets the Department's management goals;

(4) the commitment of the Commission and resource agencies to streamline the process by which they coordinate section 7 consultation under the Endangered Species Act and integrate it into the licensing process in order to facilitate timely licensing actions;

(5) the commitment of the Departments of the Interior and Commerce to the publication of review procedures for their exercise of mandatory conditions under sections 4(e) and 18 of the FPA, and the Commission's commitment to identify and follow consistent procedures in implementing recommendations that it receives under section 10(j) of the Federal Power Act; and

(6) the Commission's and resource agencies' guidance and recommendations for all participants in the newly evolving alternative licensing process.

In the coming year we expect to realize further reductions in processing time as a result of continuing administrative reforms. Recent initiatives such as those stemming from the ITF have affirmed a commitment to collaborative processes, to setting and meeting deadlines, and to providing timely notifications. The Commission has already reported a noticeable reduction in the number of Additional Information Requests which they have had to issue.[4] The Department and NOAA are committed to adhering to set deadlines for establishing their conditions under sections 4(e) and 18; preliminary requirements are provided within 60 days of FERC's REA notice, and any needed modifications are provided within 60 days of the close of the Draft NEPA document comment period. All reserve the authority to make final modifications when the final Environmental Impact Statement (EIS) is completed and reviewed, but changes at this point are rare.

Both the Department and NOAA also now require that the conditions be the least-cost means of achieving the objectives. FWS and NOAA are also working on a fishway policy that will provide clearer guidance for the prescription process and improve consistency between the Departments of the Interior and Commerce. We are optimistic that the implementation of these and other administrative reforms will facilitate the licensing process.

The established expiration dates for licenses make the licensing workload predictable. Over the next decade, about 220 FERC hydropower licenses will expire. These projects have a combined capacity of about 22,000 megawatts, or 20 percent of the Nation's installed hydropower capacity. The relicensing process is focused primarily on bringing the 30 to 50 year old projects into balance with current national standards. It also serves to remind operators to consider upgrades to their generating capacity. Compliance with current standards comes at a price, though the effect on generation is not as large as one might expect. FERC's estimate of the average annual generation loss due to new conditions established through licensing is 1.59 percent.[5] This is substantially less than the annual variation in generation caused by changes in hydrologic conditions. This year's extreme drought in the Northwest is expected to adversely affect generation in that region by 25 percent, and national hydroelectricity production by 4 percent.

B. IMPLEMENTATION OF THE PRESIDENT'S NATIONAL ENERGY POLICY

The Administration's National Energy Policy report included recommendations for hydropower reform. The Report recommended that the President encourage FERC, and direct Federal resource agencies, to pursue administrative and legislative reforms to make the licensing process more clear and efficient, while preserving environmental goals. More specifically, the NEP report called for federal resource agencies to reach interagency agreement on conflicting mandatory license conditions before they submit their conditions to FERC for inclusion in a license, and for FERC to adopt appropriate deadlines for its own actions during the licensing process.[6]

The Department intends to implement the National Policy Group's recommendations by taking the following steps to continue to streamline the Department's actions and increase the consistency of decision-making and transparency of process for establishing hydropower licensing conditions:

1. The Department will continue implementation of an accelerated decision and documentation schedule for establishment of mandatory conditions and prescriptions. The Departments of the Interior and Commerce have implemented the commitments made in the ITF including, particularly, implementation of deadlines for filing preliminary and modified conditions and prescriptions with FERC: within 60

[4] Personal communication with FERC staff.
[5] FERC 603 Report, p. 50.
[6] President's National Energy Policy Report, May 2001, p. 5-18.

days of FERC's REA Notice and within 60 days after the close of the Draft NEPA comment period, respectively. These deadlines expedite the Department's timing for developing conditions and dovetail with FERC's existing regulations and NEPA process. These commitments also include better and more consistent documentation of the basis for the conditions. These commitments are just beginning to be applied in individual proceedings. Interior has been conducting a review of guidance on these and other recently implemented measures to identify additional steps to streamline licensing decisions and to make those decisions and the decision process more transparent.

2. The Department will continue implementation of public input processes. Departmental procedures contain provisions for participants in the licensing process and the general public to comment on departmental conditions, and require the Department to set forth the rationale for the preliminary conditions and prescriptions. They also provide for the review and signature of modified conditions and prescriptions at a level at least as high as the State director, regional director, or regional administrator. This approach encourages greater collaboration among agencies and licensees earlier in the process, thereby avoiding needless delays and costly litigation.

3. The Department will increase consistency and transparency in fishway prescriptions. A joint Fishway Policy of the Departments of the Interior and Commerce was proposed to standardize general agency practices and procedures for developing fishway prescriptions. This proposed policy was intended to help facilitate consultation among the Departments, license applicants, and other interested parties in developing fishway prescriptions, and to ensure a consistent and effective fishway prescription process. The proposed policy outlines an interactive, collaborative process for arriving at fishway prescriptions. By providing clear guidance on how the fishway prescription process works, it was intended that the policy would improve predictability, ensure uniformity, and reduce uncertainty for applicants. The public comment period on the proposed Fishway Policy closed in February 2001. The agencies are in the process of reviewing and responding to the comments received. Particular attention in this review is being paid to the definitions of "fish" and "fishway." The proposed definitions generated substantial comment and controversy.

4. The Department will continue to work with other agencies and process participants to identify additional opportunities for streamlining and process improvements. The Department will identify additional opportunities for streamlining and improving license processes with other agencies as well as continue efforts to identify improvements through collaborative, multi-stakeholder forums such as the National Review Group convened by the Electric Power Research Institute (EPRI). Representatives from industry, environmental organizations, FERC, and the three resource agencies are currently participating in an EPRI-sponsored forum examining some of the more difficult process issues.

5. The resource agencies will develop an interagency consistency mechanism. Pursuant to the NEP, Interior will work with other resource agencies to develop a streamlined, interagency, issue-resolution process to resolve any inconsistencies that might develop between agencies in making recommendations or in establishing conditions. I expect that we will get this completed yet this year.

6. Interior will issue more specific guidance and a hydropower licensing handbook to its bureaus and field offices to standardize and expedite its processes for establishing conditions and making recommendations. Initial training of management and field staff in new processes and commitments from the ITF process was just completed this spring. These will be reinforced with regular training sessions, specific departmental guidance, and a hydropower licensing handbook to better standardize the process, document considerations and expedite decisions throughout the Department. These are expected to be completed and implemented before the end of the year.

7. Interior will examine alternative review mechanisms and criteria for its exercise of conditioning authority. Two issues that have received substantial comment involve the extent of the factors to be taken into account in establishing mandatory conditions and opportunities to contest those conditions. In the first case, the question is how project economics and other factors should be taken into account in the decision process. All three resource agencies now require that the least-cost alternative condition or prescription that achieves the agencies' objectives be adopted. Our bureaus also report that they take project scale and economics into account when establishing their conditions. This latter element is less transparent, however, and is being reviewed. Recent administrative changes and the anticipated fishway policy also provide an iterative process for consideration of alternative conditions and prescriptions proposed by project applicants and others, and consideration of those recommendations at the regional director level. This approach is also being

reviewed and alternatives will be considered. For instance, it has long been the practice of USDA/FS to provide iterative comment and appeal opportunities regarding its mandatory conditions through both the FERC process and its own NEPA appeals process. As we see it, there are many alternative approaches to be considered in addressing these issues that would be consistent with agency responsibilities and good environmental practice, and they will be examined. We have had preliminary discussions about them, but have substantial work ahead of us.

C. DISCUSSION OF LEGISLATIVE PROPOSALS

There are a number of bills before this Committee and a bill marked up by the House Committee on Energy and Commerce on Tuesday dealing with hydropower licensing. Also, I should note that the issues identified below may not be an exhaustive list of all of the concerns of the agencies with provisions of various bills. Rather than take them up sequentially and in detail, I would like to address them more topically. Our sense is that members of Congress may be converging in their approaches. We would like to work constructively with both Houses and members on both sides of the aisle to produce legislation that will improve the hydropower licensing process.

1. Alternative Conditions: All of the bills share one thing in common—they have as a major element a means of petitioning the resource agencies to modify their proposed conditions. Indeed,this is the core element of the bills. Both Sec. 701 of S. 597, and Sec. 201 of the House bill accomplish this, with minor variations in wording, by providing opportunity for a petitioner to propose an alternative set of conditions. Generally, if the alternative is at least as effective in meeting the objectives as that proposed by a resource agency, and less costly, then it must be adopted. Implicitly in S. 597 and H.R. 2458 and explicitly in S. 71 and S. 388, the basis of the decision must be documented. The House bill also provides a requirement to establish by regulation a means of resolving disputes if the decision on the petitioners' proposal is contested.

We do not believe this approach can substitute for the give and take between applicants, agency resource personnel and others in attempting to examine alternatives and to fine tune the establishment of conditions, including reassessing goals, while proposals are being formulated. Once conditions are proposed by the resource agencies, however, we find the approaches in these bills to provide a reasonable balance between agency actions and an applicant's ingenuity, and they allow sufficient flexibility to craft a well-considered and expeditious review process. We would like to work with the Committee on wording—for instance, we believe proposal of the alternative condition should be limited to the applicant—but can generally endorse this approach. We also believe that there should be a time requirement for presentation of the alternative condition. Under the Department's and NOAA's current policies, draft conditions are due within 60 days of FERC's issuance of the REA notice and proposed final conditions are due within 60 days of the close of the comment period on a draft NEPA document. None of these bills specify a time period for filing alternative proposals, suggesting that alternatives can be proposed possibly after the NEPA process and long after the resource agencies have provided their conditions and prescriptions. All stakeholders should be consistent in early and full disclosure of alternative preliminary terms and conditions, both pre- and post-filing of licensing, and one party should not be given special approval or exemption to file alternatives late. Also, to help maintain an expedited process, we have attempted to nest the process for establishing conditions within the timetable established by the FERC regulatory process. Any proposed alternative conditions process should attempt to similarly minimize the amount of delay in FERC's process.

Sec. 4 of S. 71 and the comparable section of S. 388 use a different approach, setting a requirement that conditions be established three months before an application for a license is submitted and establishing an expedited appeals process before an administrative law judge. If the administrative law judge doesn't render a decision within 6 months, the condition is converted into a section 10(j) recommendation. If the administrative law judge upholds the agency decision, it appears that it can still be overturned by FERC, though under more stringent criteria. This section also requires that all conditions be subjected to "substantiated" scientific review and establishes an extensive list of reviewable criteria that must be considered on the record in setting conditions.

We think it would be extremely difficult, costly, and problematic to develop appropriate preliminary conditions, weigh and document the consideration of all of the factors set out in amended Sec. 32, subject the conditions to scientific peer review, and publish them three months before an application is filed. Currently, as documented earlier in this statement, it takes FERC approximately two years after the

filing of a license application to conclude that the application is complete and that it is ready for environmental analysis. The filing of a final license applications formally commences the licensing proceeding, as well as FERC's preparation of environmental review of the application. Accordingly the final license applications contain the complete project proposal, from which the agencies measure the impacts of the proposed project on resources of concern. The Department's conditions are based upon the need to mitigate against such impacts. Among other things, many of the studies required to make condition and prescription determinations may not have been completed by the time of filing. We are also concerned that none of the factors to be weighed include protection of the resources for which the reservation was made or the need for fish passage.

Also, the caseload and backlogs of the administrative law judges in Interior, at least, lead us to believe that it would be unlikely that review decisions could routinely be issued within 6 months. Indeed, the provision may create an incentive for the applicant to effect delay in the appeals process for the purpose of defeating the possibility of conditions. The effect is likely to be that all or most conditions are downgraded to the status of Sec. 10(j) recommendations.

Additionally, the peer review requirement raises an additional concern in the case of Indian trust property held by the United States, and could conflict with the Secretary's role as a trustee. This is particularly problematic when the issue involves cultural resources or financial conditions.

2. Coordinated Environmental Review Process: Amended Sec. 33 of S. 71 calls for a single environmental review process. Subject to several reservations, we support such a single review process. Generally, the Department and NOAA rely on FERC's NEPA process, though somewhat reluctantly. We have not been willing to join that process as a cooperator because we would lose our right to intervene to contest a FERC license decision (among other things, this has particular relevance to decisions affecting Indian reservations). USDA/FS conducts its own NEPA review, but would be willing to use FERC's NEPA process if they could be treated as a cooperator in the development of the EIS without losing their right to intervene. In both cases, the agencies would want to assure that issues important to their decisions are covered in the single NEPA analysis.

The executive branch agencies routinely conduct joint NEPA reviews for the purpose of assessing the effect of various alternatives before making decisions. FERC's interpretation of its ex parte communication requirements as an independent regulatory agency, however, has led FERC to insist that becoming a cooperator in their NEPA review comes at the cost of losing intervention rights. None of the resource agencies has been willing to pay this price. However, the resource agencies believe the intervention issue could and should be remedied so that a single, cooperative NEPA review could be conducted. We are willing to work with the Committee on language for that purpose. We would also like clarification in amended Sec. 33(b) that the broadly stated "environmental review" references reviews under NEPA, and would not be construed to eliminate the right of the agencies to conduct environmental studies and assessments as they develop their Sec. 4(e) and 18 conditions, and 10(j) recommendations.

3. Disposition of Hydroelectric Charges: Sec. 702 of S. 597 changes the disposition of charges collected from licensees for the government's cost of administering hydropower licensing programs and for the occupation of government lands. Collected revenues would go directly to the agencies to reimburse them for their expenses or to protect and improve certain environmental resources in the reservation areas covered under Sec. 4(e). The administration is reviewing this provision, and it may have scoring implications.

4. Relicensing Study: Sec. 703 of S. 597 directs FERC, in consultation with the Departments of Commerce, Interior, and Agriculture, to study all licenses issued since 1994, analyzing: the length of time that FERC has taken to issue new licenses, the additional cost to the licensees attributable to new license conditions, the change in generating capacity attributable to conditions, the environmental benefits achieved by conditions, and litigation arising from conditions. The Department recently offered to conduct a somewhat similar study jointly with FERC (see attachment, page 9).* The length and complexity of the licensing process make it a challenge to analyze and to determine the causes of specific outcomes. For this reason, we suggested applying an analytic technique known as "event history analysis" to the problem. We believe that this study would benefit from having all four agencies (FERC, Commerce, Interior, and Agriculture), as well as EPA, intimately involved in its execution. We find "consultation" as practiced by FERC as an independent agency to be much less inclusive than we expect of ourselves when we consult with

*The attachment has been retained in committee files.

other parties as executive branch agencies. Hence, we recommend amending section 703 to provide for the study to be done "jointly" rather than "in consultation."

5. FERC Data: Sec. 202 of the House bill would require FERC to revise its data collection procedures to provide much improved information about the licensing process. We suspect this section resulted from consideration of a recent report of the General Accounting Office indicating that systematic data for management decision-making on the licensing process was not available. We at Interior have been frustrated similarly by the lack of consistent time-series and other analytic data that would help us better understand the causes of process delays and uncertain schedules, and would welcome this requirement. We would suggest, however, that the requirement be bolstered by requiring that the data be made available to the public and the resource agencies routinely and regularly. It would also be useful to seek public and interagency comment on the most useful data to maintain.

D. INTERIOR PROPOSALS

Although we acknowledge the complexity of the process, the Department is optimistic about the prospects for improvement. We are encouraged by the administrative reforms now being implemented by FERC and the resource agencies. We expect the cumulative effect of these initiatives to significantly improve the timeliness of the licensing process, the quality and cost-effectiveness of the decisions made through that process, and the promptness with which mitigation is implemented. Although the recent Interagency Task Force did not address all of the issues of concern, we believe that remaining issues are amenable to resolution through administrative reform. However, we have identified areas which warrant consideration for legislative action.

Settlements: One of the great reforms of the past decade for the relicensing process was FERC's establishment of an alternative licensing process designed to bring participants together well before the license filing deadline to develop project conditions in a cooperative manner. While resource intensive at the front-end, substantial time and cost savings often result once the application is filed, and appeals and litigation are substantially reduced. The Department has participated in several landmark settlements within both the traditional and alternative processes and is committed to resolving complex licensing matters through settlement. Several recent FERC decisions, however, have created a high level of uncertainty as to which parts of an agreement become enforceable terms of the issued license. Because FERC maintains that its enforcement jurisdiction extends only to the licensee, it will not enforce any settlement provision that binds parties other than the licensee, such as provisions governing dispute resolution and management committees. This has impacted the Department's ability to effectuate meaningful settlements. Industry and NGOs share the view that uncertainty as to which elements of a settlement will ultimately be included as enforceable license terms is a deterrent to successful negotiations. We believe that it would be helpful if Congress authorized and required FERC to enforce settlement provisions entered into voluntarily by the parties. Doing so will help ensure the enforceability of settlements, thereby providing certainty, reducing litigation and streamlining the FERC licensing process.

Studies: One of the more contentious and difficult to resolve issues is the extent and nature of the studies required to be completed by license applicants. FERC, States, and the resource agencies rely on the information generated by these studies to make decisions regarding potential license conditions. Unfortunately, licensees often fail to complete required studies in a timely manner or, alternatively, their timely studies fail to contain necessary data. In either case, delays in the process result. Applicants, on the other hand, complain that the studies can be expensive and that FERC and the resource agencies ask for more information than is necessary. In addition, FERC and the resource agencies also occasionally disagree about what studies need to be completed. In an attempt to address these conflicts, the Department, through the ITF process, has agreed on criteria designed to minimize its study requirements and ensure that they are based only on information needed for the decisions at hand. Still, issues remain. The Department would welcome a dialogue with Committee staff on whether a fair and expeditious approach could be developed—legislatively or administratively—that would reduce the level of contention surrounding this issue, while assuring that adequate information is provided in a least-cost, but timely manner.

Deadlines: To ensure that the Department exercises its conditioning authorities without delaying the licensing process, the Department has adopted and is implementing tight schedules for submitting it conditions that coincide with deadlines contained in FERC's regulations. Through those regulations, FERC imposes strict deadlines on all participants in the licensing process except itself. The result is that

both licensees and resource agencies are forced to provide information to FERC in a timely manner, only to wait indefinitely for FERC to respond. FERC's lack of deadlines is particularly problematic for resource agencies because, in many instances, FERC's eventual response triggers another set of deadlines to which agencies must respond. In these instances, because resource agencies are unable to predict FERC's actions, they are at a disadvantage in attempting to anticipate the timing of actions they may need to take in the future. The Department is of the view that the establishment of both deadlines and clearer process schedules for FERC would help streamline the licensing processes by establishing expected completion dates for various steps in the process, as well as help the resource agencies allocate resources. This proposal is entirely consistent with the National Energy Policy which recommended that FERC should be encouraged to adopt appropriate deadlines for its own actions.

Basin-wide Assessments: FERC has a general policy encouraging the use of basin-wide assessments for the purpose of relicensing multiple projects in the same river basin. This policy is not applied in most cases, however. Instead, FERC typically treats each individual project licensing in a serial fashion according to the order in which individual project licenses expire. The resource agencies believe that there is opportunity for both efficiency and resource protection gains in the licensing process from basin-wide permitting. Studies can be consolidated and conditions, if needed, may be amenable to a more distributed approach. The resource agencies view is that Congress should require a basin-wide approach unless FERC can demonstrate that it is clearly not in the public interest to employ such an approach as compared to processing each license in the river basin individually. This might reasonably be limited to basins where the project licenses expire within 7 years of one another, with allowance for extension of the earlier licenses to the termination date of the later licenses. Our review of the data indicates that this would cover all of the licensed facilities in most river basins.

Indian Trust Responsibility: Finally, executive branch agencies separately address the manner in which their decisions affect Federal trust and treaty responsibilities to Indians. Normally, this is done in NEPA analyses and records of decision. It is our view that this practice should apply to FERC decisions, and that Congress should require FERC to include in its FPA process specific and separate consideration of project effects on trust property, and its trust responsibility.

Mr. Chairman, this concludes my prepared remarks. Again, we are available to work with the Committee on legislation to improve the licensing process. I will be happy to answer any questions you or other Committee members may have.

The CHAIRMAN. Mr. Robinson, why don't you go right ahead?

STATEMENT OF J. MARK ROBINSON, DIRECTOR, OFFICE OF ENERGY PROJECTS, FEDERAL ENERGY REGULATORY COMMISSION

Mr. ROBINSON. Thank you, Mr. Chairman, Senators. My name is Mark Robinson, and I am Director of the Office of Energy Projects at the commission. I have provided written testimony, so I will be very brief this morning. I will touch on S. 597, S. 388 and S. 571.

First of all, you have to understand that the licensing process at the Commission is a result of the laws that we work under the regulations and the policies that the Commission sets. The resulting licensing process is one of distributed decision making. There are fully five different entities that can set conditions that are not subject to review by the Commission that must be placed in those licenses.

As a result of that, it puts the Commission staff in the role of trying to facilitate agreements, negotiate understandings that can be logically incorporated into a license and make sense, a license that can be issued and we can conclude that it is in the public interest. We do a good job of that. We have been doing a good job of that, but it is not easy. It takes time, and it costs money. No one would say that negotiating those types of agreements across

the types of issues that we have to address in licensing is a quick or cheap process.

As a result, in looking at the legislation that is being considered by yourselves, I look for two elements to see whether or not it would address the primary criticism of licensing process, basically that it takes too long and it costs too much. Those two elements that I am looking for go to are there time frames placed upon the agencies involved in the process for concluding their actions and giving their recommendations, their conditions, to the Commission.

The second element is, are those conditions that everyone has the opportunity to provide to the Commission all held to the same standard? Are they driven by the same considerations? In other words, are they broadly considered? Are they public interest determinations across those conditions, or are they driven by just a single purpose?

If the legislation goes to those points, I think that will go a long way to addressing the criticism that we receive of taking too long and costing too much. Turning directly to the three pieces of legislation that we have here, if I look at S. 597, the Comprehensive and Balanced Energy Policy Act, it provides for a new process, another process.

It looks at how we can get alternative conditions in place, something that goes on right now through the normal process, I should say, but this would formalize it and give us some additional process that we would have to go through.

It does not set time constraints on any of the agencies. And it does not require that those conditions be viewed in the same way that we have to at the commission in the broad public interest aspect. So it would not, I think, address the criticism. It takes too long and costs too much.

If I look at S. 71 and S. 388, it does in fact put constraints upon all the agencies involved to provide their information on a time frame. And also, it requires those agencies to take a broad look at those conditions in determining whether or not they are, in fact, appropriate, that it does meet that criteria that I spoke to earlier and would address it takes too long and costs too much.

In closing, I would like to say that all three pieces of legislation go well beyond what I have discussed here. It is in my testimony. But I would like to repeat something that our Chairman said recently. We have as an objective to issue licenses that fully protect the environment. We try to maximize the production of power that we can get from those projects. And certainly in today's environment, that is understandable. And we try to do it at minimum cost.

We will continue to do that regardless of what regulatory model that we act under, be it the distributed decision-making process that we have now or some other one. But it is extremely hard. And we are, I believe, doing our best to try to do it efficiently and quickly.

Thank you very much.

The CHAIRMAN. Thank you very much.

[The prepared statements of Mr. Robinson and Mr. Hébert follow:]

PREPARED STATEMENT OF J. MARK ROBINSON, DIRECTOR, OFFICE OF ENERGY PROJECTS, FEDERAL ENERGY REGULATORY COMMISSION

Mr. Chairman and Members of the Committee:

My name is Mark Robinson, and I am the Director of the Office of Energy Projects at the Federal Energy Regulatory Commission. I appreciate the opportunity to appear before you to discuss proposed legislation relating to the Commission's hydropower licensing program. As a member of the Commission's staff, the views I express in this testimony are my own, and not those of the Commission or of any individual Commissioner.

My testimony today will provide a brief overview of the hydropower licensing program. I will then focus on three proposed pieces of legislation: S. 597, the Comprehensive and Balanced Energy Policy Act of 2001; S. 388, the National Energy Security Act of 2001; and S. 71, the Hydroelectric Licensing Process Improvement Act of 2001. Because S. 71 is incorporated in its entirety in S. 388, I will address the subject matter of S. 71 during my discussion of S. 388.

1. THE COMMISSION'S LICENSING PROGRAM

The Commission currently regulates over 1,600 hydropower projects at over 2,000 dams pursuant to Part I of the Federal Power Act (FPA). Non-federal hydropower projects are required to obtain Commission authorization if they are on lands or waters subject to Congress' authority. Those projects represent more than half of the Nation's approximately 100 gigawatts of hydroelectric capacity and over 5 percent of all electric power generated in the United States. Hydropower is an essential part of the Nation's energy mix and offers the benefits of an emission-free, renewable energy source.

The Commission's hydropower work generally falls into three categories of activities. First, the Commission licenses and relicenses projects. Relicensing involves projects that originally were licensed 30 to 50 years ago. The Commission's second role is to manage hydropower projects during their license term. This post-licensing workload has grown in significance as new licenses are issued and as environmental standards become more demanding. Finally, the Commission oversees the safety of licensed hydropower dams. This program is widely recognized for its leadership in dam safety.

The Commission is in the second year of a 10-year period (CY2000 to CY2010) during which 218 applications for hydropower relicenses are due to be filed. The Commission has already received 84 of these relicense applications. This group of projects has a combined capacity of approximately 22,000 megawatts (MW), or 20 percent of the Nation's installed hydroelectric capacity. Approximately forty percent of these 218 projects will have filed their relicense applications by the beginning of 2002.

Over the last three decades, the enactment of numerous environmental, land use, and other laws, and new interpretations of certain provisions of the FPA, have significantly affected the Commission's ability to control the timing of licensing and the conditions of a license. Under the standards of the FPA, projects can be authorized if, in the Commission's judgment, they are "best adapted to a comprehensive plan" for improving or developing a waterway for beneficial public purposes, including power generation, irrigation, flood control, navigation, fish and wildlife, municipal water supply, and recreation. The Electric Consumers Protection Act of 1986 (ECPA) amended the FPA to require the Commission to give "equal consideration" to developmental and non-developmental values.

While the Commission's responsibility under the FPA is to strike an appropriate balance among the many competing developmental and environmental interests, various statutory requirements give other agencies a powerful role in the licensing process. Among others, those requirements include:

- Section 4(e) of the FPA, which authorizes federal resource agencies such as the Departments of Agriculture and the Interior to impose mandatory conditions on projects located on Federal reservations they supervise.
- Section 18 of the FPA, which authorizes the Departments of Commerce and the Interior to impose mandatory fishway prescriptions.
- Section 10(j) of the FPA, which in essence establishes a presumption for inclusion of Federal and State fish and wildlife agencies' recommendations to protect fish and wildlife.
- Section 401 of the Clean Water Act, which authorizes States to impose mandatory conditions as part of the State water quality certification process.
- The Coastal Zone Management Act, which requires that projects affecting coastal resources be consistent with State management programs.

- The Endangered Species Act, which directs the Departments of the Interior and Commerce to propose measures to protect threatened and endangered species.
- The National Historic Preservation Act, which requires Commission consultation with Federal and State authorities to protect historic sites.

There have been three important court decisions concerning the roles of the Commission and the resource agencies under these statutes.

- In *PUD No. 1 of Jefferson County* v. *Washington Department of Ecology*, 511 U.S. 700 (1994) (*Jefferson County*), the Supreme Court held that a State acting under the CWA could regulate not only water quality (such as the physical and chemical composition of the water), but water quantity (that is, the amount of water released by a project), as well as State-designated water uses (fishing, boating, etc.). It is important to note that the Court specifically acknowledged that its decision did not address the interaction of the CWA and the FPA, since no license had been issued for the project in question. Its decision therefore did not discuss which regulatory scheme would prevail in the event of a direct and critical conflict.
- In *American Rivers [I]* v. *FERC*, 129 F.3d 99 (2nd Cir. 1997), the Court held that the Commission lacked authority to determine whether conditions submitted by State agencies pursuant to Section 401 of the Clean Water Act were beyond the scope of that section. The court held that challenges to such conditions were to be resolved instead by the courts.
- Finally, in *American Rivers [II]* v. *FERC*, 187 F.3d 1007 (9th Cir. 1999), the Court ruled that the Commission lacked authority in individual cases to determine whether prescriptions submitted under color of Section 18 of the FPA were in fact fishways. As in the Second Circuit case, the Court held that challenges to a fishway prescription were to be resolved by the courts, not the Commission. (On December 22, 2000, the Departments of the Interior and Commerce issued a joint Notice of Proposed Interagency Policy on the Prescription of Fishways. The Commission staff filed comments noting that the unilaterally-developed policy would define the term "fishway" in an extremely broad manner that in staff's view is inconsistent with the definition of that term enacted by Congress in the Energy Policy Act of 1992).

As a result of these judicial rulings, if the Commission were to conclude that one or more mandatory conditions would render a project inconsistent with the public interest, its only recourse would be to deny the license application. Not only is this a blunt instrument, but in most relicense proceedings denial is not a viable alternative.

2. THE COMMISSION'S LICENSING PROCESS

The Commission currently uses two different processes in licensing: the "traditional" process and the "alternative" process. Under the alternative process, pre-filing consultation and environmental review can be integrated and proceed concurrently, in a collaborative manner, thereby dramatically shortening the processing time for an application.

Earlier this year, Commission staff submitted a report of the hydropower program to Congress, as required by Section 603 of the Energy Act of 2000 (the Section 603 Report). In the report, the staff found that using the traditional process takes approximately 23 months longer than the alternative licensing process.

Further, for the traditional process, the average cost of application preparation is $109/kW, and the cost for protection, mitigation, and enhancement measures is $264/kW. In contrast, for the alternative licensing process, the average costs for application preparation and protection, mitigation and enhancement measures are $39/kW and $58/kW, respectively—substantially lower than for the traditional process.

The Commission has worked to improve the licensing process by making its regulations more clear and specific, enhancing opportunities for stakeholder participation, and providing flexibility to license applicants and others to design collaborative efforts that meet the needs of all participants. In addition, Commission staff routinely holds "outreach" meetings throughout the country to inform all stakeholders about the licensing process, and has taken an active role in facilitating settlements and introducing alternative dispute resolution procedures. The staff has also participated in Interagency training on hydropower licensing, and in the which shares "lessons learned" in the hydropower licensing process.

3. THE PROPOSED LEGISLATION

A. S. 597

S. 597 contains three provisions regarding the relicensing of hydroelectric projects, which I will discuss in turn.

i. Section 701 would amend FPA Section 4(e) to provide that, where a licensee proposes an alternative to a mandatory condition proposed by the Secretary with supervision over a reservation on which a hydropower project is located, the Secretary shall accept the alternative condition, if the Secretary determines that the alternative would provide equal or greater protection than the original condition, is based on sound science, and will either cost less than the original condition or will result in a smaller loss of generating capacity than would the original condition.

I support the idea of greater interaction between the resource agencies and licensees in the development of environmental measures, which Section 701 could encourage. However, given that this section leaves to the resource agencies the discretion as to whether to accept an alternative condition proposed by a licensee, I am uncertain that this measure would have much impact. The resource agencies already possess the ability to change their mandatory conditions if the applicant convinces them that an alternative is preferable.

In addition, this proposal appears too limited to the extent that it only requires consideration of measures from applicants that provide "equal or greater protection" than the condition deemed necessary by the resource agencies. This would mean that the agencies would not have to consider, for example, an alternative that cut costs by 90 percent or that sharply increased capacity, but had 99 percent of the environmental protection. Also, the proposal does not provide for consideration of a measure's effect on other project purposes such as flood control, irrigation, and recreation.

Finally, while as a general matter I support proposals to increase communications among interested parties to a licensing proceeding, I am concerned that, individually and especially in the aggregate, such processes may add burdensome, time-consuming steps to the licensing process, increasing its costliness and further delaying Commission action.

ii. Section 702 would amend the FPA to provide that the Commission pass on directly to federal resource agencies that portion of the annual charges collected by the Commission that is attributable to the costs incurred by those agencies in administering Part I of the FPA.

Commission staff included in the Section 603 report a recommendation similar to Section 702. Chairman Hébert has supported that recommendation, and I do so as well. Ensuring that Federal agencies recover appropriated funds spent for the licensing process would support the federal agencies' participation in that process.

However, I am concerned that, as drafted, the bill would allow the Federal resource agencies to use annual charge funds not only to administer Part I of the FPA, but also for environmental enhancements, including measures that have no nexus to the project. This greatly expands the current scope of the annual charges provision, which I believe is intended to cover administrative costs, not to pay for environmental measures.

iii. Section 703 provides that, within six months of the date of enactment of the legislation, the Commission shall submit to Congress a study, prepared in consultation with the Secretaries of Commerce, the Interior, and Agriculture, analyzing the length of time for issuing new licenses, the additional cost to licensees attributable to new license conditions, the change in generating capacity attributable to new license conditions; the environmental benefits achieved by new license conditions; and litigation arising from relicensing proceedings.

Commission staff is always prepared to submit to Congress whatever information Congress deems necessary. I note, however, that the first three items are discussed in the recent Section 603 report. With regard to the environmental benefits achieved by new license conditions, Commission staff has begun reviewing methods for determining the effectiveness of license conditions. There does not appear to be a general agreement as to how to quantify environmental benefits (and, indeed, the value of particular benefits may vary from project to project), it would be difficult, if not impossible, to develop useful figures regarding the benefits of individual license conditions. Litigation arising from relicensing proceedings (which occurs in only a minority of cases) tends to be based on the facts of each case, and may not lead to general conclusions. Thus, I am uncertain that the proposed additional study will yield useful results.

B. S. 388 (including S. 71)

i. Section 724 of S. 388 would amend the FPA with the respect to mandatory license conditions submitted by the Secretaries of the Interior and Commerce under Sections 4(e) and 18 of that Act, and by Federal agencies supervising lands on which project works are located. The bill would require them to take into consideration various factors, including the impacts of proposed conditions on economic and power values, electric generation capacity and system reliability, air quality, drinking water, flood control, irrigation, navigation, or recreation water supply, compatibility with other license conditions, and means to ensure that conditions address only direct project environmental impacts at the lowest project cost. The Departments would be required to provide written documentation for their conditions, submit them to scientific review, and provide administrative review of proposed conditions.

Section 724 would also provide for the Commission to establish a deadline for the submittal of mandatory conditions in each case, to be no later than one year after the Commission issues notice that a license application is ready for environmental review. If an agency fails to submit a final condition by the deadline, the agency loses the authority to recommend or establish license conditions. The Commission must conduct an economic analysis of conditions proposed by consulting agencies, and, upon request of license applicants, must make a written determination whether such conditions are in the public interest, were subjected to scientific review, relate to direct project impacts, are reasonable and supported by substantial evidence, and are consistent with the FPA and other license conditions.

I support the purpose of the bill, which is to promote sensible and timely decisions by all agencies involved in licensing matters. Reasoned decision-making with respect to mandatory conditions must be the responsibility of the resource agencies, given the Commission's very limited discretion with respect to such conditions. As Congress considers any legislation, however, it should be careful to ensure that any procedures that could add time or expense to the process are justified by improved outcomes.

Several portions of Section 724 of S. 388 are consistent with the recommendations in the Section 603 Report. For instance, having the resource agencies consider economic as well as environmental impacts would lead to better-informed determinations on what mandatory conditions are in the public interest. The Commission is required to take into account a range of public interest factors for matters within its discretion. The requirement for resource agencies to document their decision making is essential for due process. *See Bangor Hydroelectric Co.* v. *FERC*, 78 F.3d 659 (D.C. Cir. 1996). Establishing reasonable deadlines for submission of conditions (as the Commission's regulations now provide) could help make the licensing process more timely. These sensible requirements should make licensing more timely and efficient, while supporting well-reasoned licensing decisions.

As Commission staff recommended in the Section 603 report, I believe that the best way to rationalize the hydropower licensing process would be to retain the authority of Federal resource agencies to impose mandatory license conditions, but to make that authority subject to a statutory reservation of Commission authority to reject or modify the conditions based on inconsistency with the Commission's overall public interest determination.

In addition, Commission staff recommended that Congress provide that the Commission license be the only federal authorization required to operate the project, e.g., special use authorizations for projects on Forest Service lands and similar authorizations would be eliminated. A single administrative process would be established by the Commission to address all Federal agency issues in a licensing case, with schedules and deadlines established by the Commission, and with one administrative record compiled by the Commission in consultation with the other Federal agencies. The Commission would prepare a single NEPA document. The Federal agencies would not be required to adopt the Commission's conclusions, but would have to provide for the record their own analysis and conclusions based on the evidentiary record. The agencies' analyses and conclusions would be included in the record of the Commission's order acting on the application, and judicial review would be obtained by seeking rehearing of the Commission's order.

These measures, if enacted, could shorten the license process, give greater certainty to licensees and other participants, and ensure that the FPA's public interest standards are used in developing all parts of a license.

Staff recommended that, should Congress not allow the Commission to determine whether mandatory conditions imposed by other Federal agencies are in the public interest, Congress could nonetheless improve the mandatory conditioning process by requiring resource agencies to consider the full panoply of public interest values, support their conditions on the record, and provide a clear administrative appeal process. The Section 603 Report supports this by noting that the costs for protection,

mitigation, and enhancement measures for licenses containing Section 4(e) and 18 mandatory conditions ($590/kW) were 2.7 times the costs for licenses that did not contain those conditions ($218/kW). The Commission staff does not routinely highlight disagreements with mandatory conditions. However, the report concluded that, in the 12 percent of cases where staff did so, many of the resource agencies' conditions were substantially more expensive than conditions that staff thought adequate to protect environmental resources. Requiring agencies to better document and support mandatory conditions could help ameliorate this problem.

ii. Section 725 of S. 388 provides that the Commission shall be the lead agency for environmental review under the NEPA, and that other Federal agencies will not perform additional environmental review.

As noted above, Commission staff has recommended that the Commission prepare the sole NEPA document in licensing proceedings. At the same time, I do not want to eliminate the ability of individual agencies to perform the environmental review that they need to support their portion of the licensing process in a timely fashion.

iii. Section 726 of S. 388 would require the Commission to prepare and submit to Congress a study of the feasibility of establishing a separate licensing procedure for small hydroelectric projects. As a general matter, Commission staff does not support differing regulation based on the size of hydroelectric projects. A project with a small capacity can have a significant impact both at the project site and beyond its immediate environs. Pursuant to the mandates of the Federal Power Act, the Commission evaluates that impact, and, in rendering a licensing decision, gives equal consideration to development interests and environmental resources in determining whether, and with what requirements, to authorize hydropower development. The Commission's current licensing "exemption" program for projects 5-MW or less, pursuant to Sections 405 and 408 of the Public Utility Regulatory Policies Act of 1978, has demonstrated the difficulty of establishing diminished requirements for this group of projects. Of course, we are prepared to study this matter and report back to Congress.

4. CONCLUSION

Commission staff is well aware of the importance of hydropower, and of the significant role the Commission plays in licensing and overseeing crucial hydropower projects. We also recognize that the hydropower licensing process can be long and costly. The Commission and its staff will do everything we can to improve that process. At the same time, we are prepared to work with Congress and other agencies to craft legislative solutions. Together, we can develop the efficient, comprehensive licensing process that our Nation's energy needs demand.

Thank you. I will be pleased to answer any questions you may have.

PREPARED STATEMENT OF CURT L. HÉBERT, JR., CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION

Thank you for the opportunity to provide a statement for the record on recent bills designed to remove barriers to distributed generation, renewable energy, and other advanced technologies in electricity generation and transmission. I appreciate this opportunity to share my views on this important topic.

Specifically, my testimony provides comments on: sections 110 and 112 of S. 388 and section 301 of S. 597 dealing with federal agency reviews and reports; section 603 of S. 597 and the entirety of S. 933 concerning interconnection standards; section 604 of S. 597 regarding net metering for renewable energy and fuel cells; and section 605 of S. 597 concerning transmission service to intermittent generators.

I. FEDERAL AGENCY REVIEWS AND REPORTS

A. Annual Reports on Availability and Capacity of Generation

I support efforts to monitor more effectively the adequacy of our nation's electricity generation resources. Section 110(a) of S. 388 would require the Secretary of Energy, in consultation with the Commission and other entities, to provide an annual report to the President and Congress, on the "availability and capacity of domestic sources of energy generation to maintain the electricity grid in the United States." The section goes on to state that the report should "specifically" evaluate "grid stability."

Evaluation of the availability and capacity of generation entails an analysis of whether local utilities have access to enough electricity generating facilities; whether there is adequate high voltage transmission facilities to move electric energy from those generating facilities economically over long distances; and whether there are

sufficient lower voltage distribution lines to deliver the power to customers in a local area. Evaluation of grid stability is different and entails an analysis of whether all these facilities are operating within safe limits and in a coordinated manner. Section 110 appears to focus on monitoring availability and capacity of generation; therefore, the references to "grid stability" may be inadvertent.

B. Regulatory Reviews

Section 112 of S. 388 and section 301 of S. 597 would both require each federal agency to review its regulations every five years for potential barriers to market entry of emerging energy technologies. While federal regulation should not thwart the development and use of advanced energy technologies, the same objective may be achievable in a less burdensome way. First, the regulations of many agencies have little or no effect on entry of emerging energy technologies, and these agencies could be exempted from this review requirement with no adverse effect on market entry. Second, if the first review is conducted properly and does, in fact, result in the removal of any unnecessary barriers to entry, there may be no need to incur the cost of additional reviews every five years.

As for my agency, I can assure the Committee that the Commission is continually reassessing its regulations and policies to encourage the development of emerging energy technologies. More generally, the Commission is continually reassessing its regulations and policies to promote market entry and the removal of regulatory barriers to enhanced competition in the wholesale supply and interstate delivery of energy products and services. For example, on March 14, 2001 and May 16, 2001, the Commission issued orders removing regulatory obstacles and providing incentives to increased energy supply and reduced demand in California and the rest of the West.

II. INTERCONNECTION STANDARDS

A. Interconnection With Transmission Facilities

Section 4(f) of S. 933 would amend the procedures for obtaining interconnection with transmission facilities contained in section 210 of the Federal Power Act (FPA). S. 933 would add a new streamlined process for a "generating facility," defined as any "facility that generates electric energy," to obtain interconnection with a "transmitting utility," defined as any entity that "owns, controls, or operates an electric power transmission facility that is used for the sale of electric energy." S. 933 calls for the Commission to promulgate a rule establishing technical standards for interconnection. After promulgation of that rule, a generating facility would be entitled to interconnection so long as it complied with the rule and paid the just and reasonable cost of the interconnection, which could in some circumstances be determined by a nonfederal regulatory authority.

Reviewing applications for the interconnection of generators to transmission facilities has become a growing workload for the Commission, and I am interested in considering ways of making the review process more efficient. The development and implementation of broad regional transmission organizations will, in turn, promote the development of standardized and nondiscriminatory interconnection procedures. Moreover, the Commission recently announced that it intends to evaluate the importance of developing standardized interconnection procedures.

S. 933 requires the Commission to promulgate a rule establishing "technical" standards for interconnection under the new streamlined process but does not specify what is meant by "technical." While one interpretation is that the term refers to safety, reliability, and power quality matters (as in S. 597), I do not read the S. 933 requirement to limit the scope of the standards that may be included in the rule (other standards might address priorities for obtaining interconnections, requirements for appropriate studies, etc.). If the bill is intended to define the term narrowly, however, this should be clarified. Further, I do not interpret this provision of the bill as affecting any Commission authorities to address interconnection matters under other FPA provisions, and recommend that the bill be so clarified.

In addition to creating the new process for obtaining interconnection with a transmission facility discussed above, S. 933 would also make a number of changes to the existing process for obtaining such interconnection. Most significantly, S. 933 would clarify the Commission's authority to decide interconnection matters based on a paper hearing. I support this proposal.

S. 933 would also amend the criteria for evaluating an application. Under the existing language of section 210 of the FPA, the Commission may grant an application if it is in the public interest and it would either encourage overall conservation, optimize efficiency, or improve reliability. S. 933 would allow the Commission to grant an application if it were in the public interest and promoted competition. I support this change. The use of more general language allows the Commission to continue

to consider conservation, efficiency and reliability, while focusing the Commission on competitive goals that will truly benefit consumers.

However, I am concerned that S. 933 appears to remove some of the Commission's current authority under sections 210 and 212 of the FPA to establish rates for transmission interconnections for nonpublic utilities. S. 933 would allow nonfederal regulatory authorities to determine costs (is, establish rates) for interconnections to nonpublic utility transmission facilities. This removal of the Commission's authority could result in disparate treatment of new generating facilities, depending upon where on the transmission system they seek to interconnect and the nonfederal authority that has jurisdiction over the particular transmission facilities involved. In short, rather than ensure fair, nondiscriminatory pricing rules for all interconnections on the interstate transmission grid, this legislative change may result in some facilities being treated in an unduly preferential or discriminatory manner. (Also, the title used in S. 933, "Effect of FERC Lite," is ambiguous.)

Finally, S. 933 directs that the owner of the generating facility "pays the costs of the interconnection." This could be interpreted as requiring the Commission to assign all costs of an interconnection directly to the owner of the generating facility. However, another feasible approach would be to allocate these costs among all customers benefitting from the addition of generation facilities, and this approach may help expedite generation additions. I believe the Commission should retain the flexibility to adapt its rate policy on this issue as appropriate.

B. Interconnection With Local Distribution Facilities

Section 603 of S. 597 and section 4(b) of S. 933 would both amend section 210 of the FPA to provide procedures for interconnection with local distribution facilities. S. 597 addresses only interconnection of "distributed generation facilities," which are defined as electric power generation facilities "designed to serve retail customers at or near the point of consumption." S. 933 addresses interconnection of all "generating facilities," which, as mentioned above, are defined as any "facility that generates electric energy." As in section 4(f) of S. 933 regarding interconnection to transmission facilities, these sections concerning interconnection to local distribution facilities call for the Commission to promulgate a rule establishing standards for such interconnection. After promulgation of that rule, a generating facility, or under S. 597, a distributed generation facility, would be entitled to interconnection so long as it complied with the rule and paid the just and reasonable cost of the interconnection.

As an initial matter, I must point out that S. 933 defines the term "local distribution utility" as an entity that owns, controls, or operates an electric power "distribution facility" instead of "local distribution facility." This distinction is important given the Commission's jurisdictional authorization under section 201 of the FPA, which distinguishes between "transmission" and "local distribution" facilities. I recommend that in order to avoid confusion the definition of "local distribution utility" use the term "local distribution facility" and that conforming changes be made elsewhere in the legislation.

These provisions also appear to depart from the previous allocation of jurisdiction between the federal and state governments. Since the enactment of the FPA, regulation of transmission in interstate commerce by public utilities has been the exclusive responsibility of the Commission, while regulation of local distribution has generally been left to state and local authorities. Similarly, wholesale sales of electric energy in interstate commerce by public utilities have been subject to the sole jurisdiction of the Commission, whereas state and local authorities have had exclusive jurisdiction over retail sales. The issue of the appropriate federal role in regulating interconnection with local distribution arises in both bills, but is particularly significant in the case of S. 597, which applies only to generators who intend to serve retail, rather than wholesale, customers.

Moreover, S. 597 specifically calls for the Commission's local distribution interconnection rule to establish requirements on "safety, reliability, and power quality." However, the Commission has no current expertise in these matters. Congress should consider whether the responsibility could be better met by another agency, such as the Department of Energy.

Finally, S. 597 fails to identify which regulatory authority would determine whether costs were just and reasonable. If legislation on local distribution interconnection were adopted, it should include clarification, like that in S. 933, that the justness and reasonableness of costs would be determined by an appropriate regulatory authority.

III. NET METERING FOR RENEWABLE ENERGY AND FUEL CELLS

Section 604 of S. 597 would amend title VI of the Public Utility Regulatory Policies Act of 1978 to require retail electric suppliers to provide net metering service to residential and commercial customers that have small renewable-energy generators on site. Section 604 calls upon the Commission, after consultation with state regulatory authorities and nonregulated local distribution systems, to develop control and testing requirements for such metering systems. As discussed above, state and local authorities, rather than the Commission, have traditionally regulated local distribution, including retail metering. The Commission has no current experience or expertise on the mechanics of net metering. Congress should consider whether the responsibility could be better met by another agency, such as the Department of Energy.

In addition to requiring the Commission to develop standards for net metering, S. 597 would also require that net metering systems comply with "all applicable safety, performance, reliability, and interconnection standards established by the National Electrical Code, the Institute of Electrical and Electronics Engineers, and Underwriters Laboratories." These different sets of standards may or may not be fully compatible.

IV. TRANSMISSION SERVICE TO INTERMITTENT GENERATORS

Section 605 of S. 597 would amend the FPA to require the Commission to ensure that transmitting utilities do not penalize wind- or solar-powered generators "for characteristics that are (1) inherent to intermittent energy resources; and (2) are beyond the control of such generators." Section 605 goes on to specify that prevention of such penalization would necessitate the Commission, at a minimum, to ensure that these intermittent generators: (1) are not penalized for scheduling deviations; (2) are assessed embedded costs only on the basis of kilowatt-hours generated, rather than capacity; and (3) are offered ten-year contracts for nonfirm transmission service.

The Commission would be allowed to exempt a transmitting utility from the ban on penalizing scheduling deviations if that utility could demonstrate that scheduling deviations by intermittent generator customers were likely to have a substantial adverse impact on reliability. However, there would be a rebuttable presumption of no adverse impact where intermittent generators collectively constituted 20 percent or less of the total generation interconnected with the transmitting utility's system.

I agree with the concept that wind- and solar-powered generators should be able to compete on a level playing field with other types of generators. However, the issue of how best to address these difficult issues in today's new electricity markets is still evolving. As we move forward in developing any market rules that accommodate all forms of generation, including intermittent energy sources, we need flexibility to ensure that those rules work in a fair and nondiscriminatory fashion. In my opinion, legislation that would prescribe ratemaking in the degree of detail provided in section 605 may not be appropriate.

V. OTHER ISSUES

S. 597 and S. 933 call for the Commission to promulgate a number of rules. Section 603(f) of S. 597 and sections 4(b) and 4(c) of S. 933 would require that when promulgating these rules, the Commission would establish an advisory committee. The Commission is already subject to the notice and comment requirements of the Administrative Procedures Act when it promulgates rules. These requirements should provide adequate opportunity for involvement of interested persons and qualified experts, and the additional time and expense of conducting a parallel process under the Federal Advisory Committee Act may not be warranted.

VI. CONCLUSION

I support the Senate Energy and Natural Resources Committee's efforts to address potential barriers to the entry of alternative technologies into the electricity markets. As discussed above, certain revisions may be appropriate to the specific language of S. 388, S. 597, and S. 933. However, the Commission is committed to working with you to address those concerns and to offer any other assistance that you may need.

The CHAIRMAN. Let me just introduce the other three witnesses we have on this subject. Ms. Elizabeth Birnbaum is the director of government affairs with American Rivers. Thank you for being here. Mr. Gerry Gray is the vice president with the Forest Policy

Center with American Forests here in Washington. Thank you for being here. And Ms. Julie Keil is the director of hydro-licensing and Water Rights with Portland General Electric Company. Thank you for being here.

Why don't you each go ahead and summarize your testimony, if you would, please.

Ms. Birnbaum.

STATEMENT OF S. ELIZABETH BIRNBAUM, DIRECTOR, GOVERNMENT AFFAIRS, AMERICAN RIVERS

Ms. BIRNBAUM. Good afternoon, Mr. Chairman and members of the committee. My name is Liz Birnbaum. I am the director of government affairs in American Rivers, a national river conservation organization with more than 30,000 members nationwide.

We also chair the Hydropower Reform Coalition, a consortium of more than 80 conservation and recreation organizations from around the country with a combined membership of more than 800,000. We appreciate the opportunity to testify here today.

Our organizations strongly oppose any efforts to diminish environmental protections in hydropower licensing, either directly or through misguided process reforms. While we have participated in and encouraged administrative efforts to make the licensing process more efficient, we strongly disagree with the proposition that the faults in the process lie with State and Federal natural resource agencies.

The two remaining in efficiencies are FERC's unwillingness to develop a single cooperative environmental review process involving all State and Federal agencies and the licensees' incentives to delay relicensing and withhold necessary information regarding environmental impacts of their projects. We appreciate the chairman's efforts to find ways to streamline the licensing process without causing additional environmental harm, but we would like to see further improvements to address these remaining problems.

I would like to talk about three basic themes today. One, protect the public trust resources threatened by hydropower operations; two, improve the process without causing harm; and three, oppose rolling back environmental protections in the current licensing structure.

First, I think that all the participants in this process will acknowledge that hydropower relicensing is a natural resource issue, a rivers issue, not simply an energy issue. The improvements made through relicensing at hydropower dams will have huge implications for hundreds of species, thousands of river miles, and millions of dollars in recreational opportunities for decades to come.

In contrast, these decisions have a relatively small impact on energy generation, electric rates or industry viability. By requiring dam owners to build passage for fish, protect critical riparian habitat, adjust river flows to conform to a more normal pattern, and provide recreational access and opportunity, we can protect and restore valuable fisheries, native species diversity, recreational amenities, and natural ecosystem functions. At the same time, we can enhance economic opportunities, such as recreation, tourism, and ecological services.

Because original licenses were issued before the enactment of modern environmental statutes and prior to our understanding of the impacts of dams on river ecosystems, virtually none of these dams meets modern environmental standards before relicensing. If awarded a license, a utility can monopolize a river for half a century with little oversight. We must take this once in a lifetime chance to set conditions that require hydro operators to modernize the way they operate their dams on our rivers.

We are encouraged by the chairman's bill. And subsequent negotiations by his staff have begun to take a more rational approach to hydropower legislation. We will be happy to continue working with staff to meet the goals and reducing the time and cost of obtaining a license while improving environmental quality.

The chairman's provision to allow alternative licensing conditions is a new benefit for the industry that we find reasonable, so long as it does not delay the licensing process and is available to all parties to the proceeding. We support the chairman's proposals to directly reimburse Federal resource agencies for licensing costs, to improve the collection of electric charges, to require development of cooperative process among FERC and the Federal resource agencies, and to address the key problem with the current relicensing process, inadequate information.

Determining the necessary studies should be the province of the responsible resource agencies and not subject to the interpretations and biases of FERC. We would strongly oppose any provision that would require complex formal hearings.

Such a requirement would not streamline the licensing process; it would only make it longer and more costly and would leave the public at a distinct disadvantage against the well-heeled resources of an electric generating corporation.

While the chairman's legislative proposals will not further harm environmental quality, they are not likely to improve it significantly either. Therefore, we would urge some additional provisions that would improve the licensing process for environmental purposes: Grant shorter license terms or more flexible conditions within license terms; limit and condition the issuance of annual licenses; institute a royalty fee for the private use of public rivers; and reauthorize the office of public participation in the statute.

The one thing that must be avoided in hydro-licensing legislation is the roll-back of existing environmental protections. In developing a balance of authorities in the Federal Power Act, Congress determined that some basic environmental protections must be afforded at every dam and should not be balanced away to promote cheap hydropower. Expert Federal and State resource managers established conditions based on substantial evidence to protect public trust resources. These basic protections form a floor above which FERC can balance license conditions in the public interest.

Shifting these responsibilities to FERC would be inefficient and would change the standards for licensing. State and Federal agencies have considerable expertise in the relicensing arena. They work in the field on a specific river, as opposed to the FERC staff, who spend most of their time in Washington. There is little reason to believe that consolidation with FERC would either make the process faster or improve the outcomes.

The good news is that relicensing provides significant protection to rivers with a low cost to power production. According to FERC's recent report, relicensing has reduced the average per project generation only 1.6 percent. Such losses in relicensing over the next 10 years would result in a .04 percent reduction in the Nation's overall electricity generation.

In any case, the amount of lost generation is significantly less than the 5 percent average fluctuation of energy demand caused by factors such as weather, fuel prices, and advances in technology.

The losses in generation are comparable to those caused by installing a scrubber on a coal-fired plant. Being a good environmental steward is a legitimate cost of doing business. Unlike other industries, such as offshore oil development, mining or timber, hydropower licensees pay nothing for the use of public resources, our rivers. After 30 to 50 years, the initial capital investment in these projects is fully amortized. Asking that these dams make some small investment in environmental quality after decades of profitable operation is a reasonable and minor request. Paying for these changes continues to leave hydropower as the cheapest source of energy nationwide.

In the scramble to find a magic bullet for the energy crises, we should be careful not to over rely on our nation's already troubled rivers. Through careful and deliberative evaluation involving the expertise of a range of agencies, we can bring hydropower dams up to modern environmental standards without compromising power generation.

Thank you for the opportunity to speak.

The CHAIRMAN. Thank you very much.

[The prepared statement of Ms. Birnbaum follows:]

PREPARED STATEMENT OF S. ELIZABETH BIRNBAUM, DIRECTOR, GOVERNMENT AFFAIRS, AMERICAN RIVERS

INTRODUCTION

American Rivers, a national river conservation organization with more than 30,000 members nationwide, strongly opposes any efforts to diminish environmental protections in hydropower licensing either directly or through misguided process reforms. We do support efforts to make the hydropower licensing process work better for all stakeholders and eliminate historic inequities in this complex regulatory process. These comments are also joined by the Hydropower Reform Coalition. The Hydropower Reform Coalition is a consortium of more than 80 conservation and recreation organizations from around the country (see attachment). The Coalition was formed in 1992 with the purpose of improving river health and recreational opportunities through the licensing, relicensing, and regulatory enforcement of hydropower dams under the jurisdiction of the Federal Energy Regulatory Commission (FERC). Coalition members are national, regional and local conservation organizations, and together have a combined membership totaling more than 800,000.

I would like to talk about three basic themes today, geared primarily toward the hydropower title of the Chairman's Energy Bill and subsequent discussions about revisions to that title, FERC's recently released report to Congress pursuant to Section 603 of the Energy Act of 2000, and the Administration's energy plan released in May:

1. Protect our public trust resources—Hydropower harms rivers, but a strong process for relicensing can result in significant improvements to environmental quality;

2. Improve the process without causing harm—The Commission should work cooperatively with federal and state agencies to improve licensing through administrative changes that seek a unified process, acknowledge diverse, multiple authorities and improve environmental quality. If FERC is unwilling to undertake this cooperative effort, Congress should require FERC to do so.

3. Oppose environmental roll-backs—The current balance of authorities in hydropower relicensing is appropriate and effective; some proposed changes to that balance would threaten environmental quality.

HYDROPOWER AFFECTS PUBLIC RIVERS

Hydropower relicensing is a natural resource issue—a rivers issue—not simply an energy issue. The improvements and changes made through relicensing at hydropower dams will have huge implications for hundreds of species, thousands of river miles, and millions of dollars in recreational opportunities for decades to come. In contrast, these decisions have a relatively small impact on energy generation, electric rates, or industry viability.

American Rivers and members of the Hydropower Reform Coalition are not anti-hydropower. We simply wish to ensure that these dams are operated to protect and restore river resources using best available technologies and best management practices. While decommissioning is a popular topic these days, we believe that dam removal will be the exception and not the rule.

As early as 1908, President Teddy Roosevelt understood the need to safeguard our nation's rivers and helped to devise a system of periodic review to protect these national treasures.

> "The public must retain control of the great waterways. It is essential that any permit to obstruct them for reasons and on conditions that seem good at the moment should be subject to revision when changed conditions demand."

More than 75 years later, the 9th Circuit Court of Appeals in *Yakima Indian Nation* v. *FERC* found that:

> "Relicensing is more akin to an irreversible and irretrievable commitment of a public resource than a mere continuation of the status quo. Simply because the same resource had been committed in the past does not make relicensing a phase in a continuous activity. Relicensing involves a new commitment of the resource . . ."

The impacts of hydropower dams on public trust resources are well known and well documented. The President's own plan acknowledges and catalogues the impacts of hydropower dams on natural resources.

> "Hydropower, although a clean energy source, does present environmental challenges. Unless properly designed and operated, hydropower dams can injure or kill fish, such as salmon, by blocking their passage to upstream spawning pools. Innovations in fish ladders, screens, and hatcheries are helping to mitigate these adverse impacts. Ongoing dam relicensing efforts are resulting in community involvement and the industry's application of the latest technologies to ensure the maintenance of downstream flows and the upstream passage of fish. These efforts also have been successful in identifying and removing older, nonfunctioning dams and other impediments to fish movements." (President's Plan, 3-8)

Because original licenses were issued before the enactment of modern environmental statutes and prior to our understanding of the impacts of dams on river ecosystems, virtually none of these dams meets modern environmental standards before relicensing. By requiring dam owners to build passage for fish, protect critical riparian habitat, adjust river flows to conform to a more natural pattern, and provide recreational access and opportunity, we can protect and restore valuable fisheries, native species diversity, recreational amenities, and natural ecosystem functions. At the same time we can enhance economic opportunities such as recreation, tourism, and ecological services.

The widespread recognition of the environmental impacts of hydropower projects affirms the need for a careful review process that addresses some of the sins of the past. If awarded a license, a utility can monopolize a river for half a century with little oversight and no motivation to make environmental improvements. It's imperative to take this once-in-a-lifetime chance to set conditions that require hydro operators to modernize the way they operate their dams on our rivers.

RELICENSING—AN IMPORTANT BALANCING ACT

Because rivers are public resources with many competing interests and significant environmental issues, the licensing process for hydropower dams involves multiple stakeholders. Unlike most electricity generating technologies, hydropower does not have "end of pipe" standards to ensure that the dam's operations do not unduly damage the environment. This is because every dam and every river is different, and generic standards cannot be applied to each project. The Federal Power Act (FPA), although commonly considered an energy statute, also occupies an important

role in environmental protection. The statute was amended in 1986 to require FERC to give "equal consideration" to power (electricity generation) and non-power (fish and wildlife protection, recreation, etc.) benefits of the river. The economics of the hydropower facility should be taken into account by FERC in this balancing process.

In developing this balance, Congress determined—and rightly so—that some basic environmental protections must be afforded at every dam, and should not be balanced away to promote cheap hydropower. Under these statutory requirements, expert federal and state resource managers establish conditions based on substantial evidence to protect public trust resources. Just as there are mandatory ceilings on emissions from fossil-fuel plants, these basic resource protections form a floor above which FERC can balance license conditions in the public interest.

Sometimes referred to as mandatory conditions, these requirements assure that:

(1) Fish can be passed upstream and downstream of a dam (FPA Section 18);

(2) If the private dam is located on federally owned land, other purposes of the federal land are protected (FPA Section 4(e)); and

(3) The dam complies with state-developed water quality standards (CWA Section 401).

Both fish passage and federal lands protection have been part of the relicensing process since enactment of the Federal Power Act in 1920.

The current structure of the Act, which sets fishways apart as a special consideration, is in keeping with the law and practice that came to us from Europe at the time of settlement. Requiring millers—dam owners—to provide fishways at their own expense dates back many hundreds of years, based on the recognition that fish are equally important to commerce.

The provision under Section 4(e) of the Federal Power Act that grants authority to land management agencies to ensure that projects on their lands meet current management goals and objectives is simple and based on common sense. Projects that are located on federal or tribal lands are already getting the benefit of cheap rent. In order to adequately manage the lands entrusted to them, federal land management agencies must have a say over how these projects are operated.

The protection of water quality is a responsibility that has been delegated to the states under the Clean Water Act (CWA). Section 401 of the act ensures that private hydro projects will not interfere with state standards, by requiring that each federally licensed project receive a certification from the state where it is located, demonstrating that the project is consistent with the standards, including the designated uses for each water body. The Supreme Court has confirmed that standards may be numeric or narrative and include chemical, physical, and biological parameters.

Any effort to shift these responsibilities to FERC would be inefficient and would fundamentally change the standards upon which we base these decisions. State and federal agencies have already developed significant expertise in the relicensing arena and work in the field on a specific river—as opposed to FERC staff who spend most of their time in Washington. In addition, FERC's mandate for "equal consideration" might mean that these basic environmental protections would be assured only if they did not affect a utility's bottom line. Considering recent GAO findings, there is no evidence that consolidation with FERC would improve the process in any event.

FACTS DON'T SUPPORT THE CLAIMS OF A CRISIS

If we are worried about hydropower's impact on the environment, then where do we turn for energy? The good news is that changes to dam operations derived from relicensing can provide significant protection to rivers with almost no cost to power production. According to FERC's own report, relicensing has resulted in an average per-project reduction in generation of only 1.6% and an increase in capacity of 4%. Based on this track record, we can reasonably expect similar results from projects due to be relicensed over the next ten years (these represent 2.5% of the annual generation of the US). Such losses in relicensing would result in a 0.04% reduction in the nation's overall annual generation. In any case, the amount of "lost" generation is significantly less than the 5% average fluctuation of energy demand caused by factors such as weather, fuel prices, and advances in technology.[1] We should not forget that these losses in generation are derived from comparing a baseline of operation that had NO environmental conditions to one with modern environmental standards—the losses in generation are comparable with those caused by installing

[1] The mean net generation of electric utilities and non-utility power producers for 1990 to 1996 is 3,203,998 million kilowatt-hours, with a standard deviation of +/–159084.6 million kwh or +/–4.96%.

a scrubber on the smokestack of a coal-fired plant. We need not trade healthy rivers for power production. We can have both.

Being a good environmental steward is a legitimate cost of doing business. Should the federal government guarantee profitability for hydropower utilities? If a project is already unprofitable because of market forces or because it is run poorly, should it be exempted from any environmental conditions? The answer to these questions is clearly no. According to the courts, "There can be no guarantee of profitability of water power projects under the Federal Power Act; profitability is at risk from a number of variable factors, and values other than profitability require appropriate consideration."[2]

Unlike other industries such as offshore oil development, mining, or timber, hydropower licensees pay nothing for the use of public resources—our rivers—and are not required to post any kind of bond to ensure that at the end of the projects useful life there is money to properly dispose of it. After 30 to 50 years, the initial capital investments in these projects are fully amortized. The only costs left to the licensee are basic operations and maintenance (the lowest of any electricity source) and environmental protection measures. Asking that these dams make some small investment in environmental quality after decades of profitable operation is a reasonable and minor request. Paying for these changes continues to leave hydropower as the cheapest source of electricity nationwide.

It is simply a false threat to suggest that dams are being surrendered or abandoned due to the cost of environmental regulation. Since 1996, only three operating licenses have been surrendered—each because the facilities fell into disrepair or were damaged by flooding. According to FERC, since1993 "no licensee has refused to accept or surrender their license citing project economics."[3]

The Administration's own energy plan confirms that the principal factors limiting hydropower development have nothing to do with environmental regulation. The President's report explains that, "Hydropower generation has remained relatively flat for years. The most significant constraint on expansion of U.S. hydropower generation is physical; most of the best locations for hydropower generation have already been developed. Also, the amount of hydropower generation depends upon the quantity of available water. A drought can have a devastating effect on a region that depends on hydropower. In fact, this year's water availability has been a contributing factor in California's electricity supply shortages." (President's Plan, 5-18)

In the scramble to find a magic bullet for the energy crisis, we should be careful not to over-rely on our nation's already troubled rivers. Through careful and deliberate evaluation involving expertise of a range of agencies, we can bring hydropower dams up to modern environmental standards without compromising power generation.

SOLUTIONS IN SEARCH OF PROBLEMS

Over the past several years, a number of legislative proposals have been put forward by members of the electric utility industry and most recently by FERC. We have consistently opposed those efforts. The common element of those reform bills has been to blame the resource agencies for costs and delays and to consolidate greater authority with FERC. We believe that these reforms address the wrong problem and therefore offer a poor solution to inefficiencies with hydropower regulation. Until recently, these proposals have been based on little more than anecdotal evidence and industry assertion. While, the publication of FERC's 603 Report offers new data and presents the first comprehensive look at the relicensing process in several years, it has been soundly criticized by the Government Accounting Office (GAO), federal and state agencies, and the environmental community, and offers no rigorous evidence or statistical verification for the claim that resource agency participation in the process creates major costs and delays.

CRITIQUE OF FERC'S 603 REPORT

In November 2000, Congress required FERC within six months "to undertake a comprehensive review of policies, procedures, and regulations for the licensing of hydroelectric projects to determine how to reduce the cost and time of obtaining a license." Congress specified action by the Commission, but the report filed in May 2001 was explicitly a product of Commission staff (Report pg. 5). While it is entirely appropriate for staff to assist the Commission in the development of this report, we

[2] *Wisconsin Public Service Corp.* v. *FERC*, 32 F.3d 1165, 1168 (7th Cir. 1994).

[3] Written supplemental testimony of Doug Smith, FERC General Counsel, before the Senate Energy and Natural Resources Committee, 10/27/99.

are troubled by the fact that the persons with decision-making authority—the Commissioners—have no ownership of this document.

Congress also required the Commission to consult with other appropriate agencies, yet no draft was provided to those agencies for comment despite repeated pleas for cooperation. Although FERC includes agency comments in its appendix (as well as those from members of the public), it does not address these recommendations with any thoroughness, fails to include their recommendations or alternatives, and fails to provide any explanation of the consultation process.

We are also troubled by an April report by the Government Accounting Office (GAO), which strongly criticized the Commission for failing to keep adequate records of its regulatory activities.[4] According to GAO's report, until FERC does a better job collecting data on the cost and timing of its process, "FERC will not be able to reach informed decisions on the need for further administrative reforms or legislative changes to the licensing process." (pg. 17) This opinion was restated during a hearing of the House Energy and Commerce Committee along with a more specific GAO critique of the 603 Report.

In light of the GAO's indictment of FERC's data and record keeping, let me highlight several conclusions in FERC's report about timing and cost, some of which appear reasonable, others suspect.

Timing Data

The report suggests that Section 4(e) and 18 requirements by the federal resource agencies are not a major cause for relicensing delays (Report pg. 38). This is supported by an independent analysis by the Department of the Interior, which draws the same conclusion. The report does identify state agencies as being associated with significant delays, but it fails to show whether these delays are within the sphere of influence of those agencies or whether they are a victim of industry procrastination and delay. Other evidence would suggest the latter.

We do know that license applicants have caused significant delay of the relicensing process by failing to provide complete license applications. Of the 157 relicensing applications filed by industry in 1993, only nine provided sufficient scientific information about project impacts, forcing FERC to issue hundreds of additional information requests in the other 148 cases.[5] The need to conduct further studies to complete their applications was a significant reason that there were major delays in these relicensings.

FERC's median time to respond to requests for administrative appeal or rehearing is 13.6 months, with a minimum of 6 months and a maximum of 62 months—more than 5 years. Other types of petitions also go unaddressed by the Commission for months or years. For instance, in one case environmental groups filed a petition to the Commission to initiate consultation under Section 7 of the Endangered Species Act four years ago and have yet to receive any response. In these situations, parties are prohibited from seeking judicial review until FERC acts, but cannot force FERC to act. In the meantime the environment continues to be harmed and legislative interpretations go unanswered.

Cost Data

FERC's section on costs is even more problematic. The report considers costs of the relicensing process to be limited to only those of the licensee and the agencies. They do not consider the cost to the public whether due to direct participation, or through the attendant impacts to the environment. They also offer no measure of what costs should be measured—no standard of analysis.

Cost is closely linked to time. Due to the lengthy term of original hydropower licenses, those issued before the era of environmental consciousness have been largely insulated from the responsibility of paying for the environmental cost that they impose on society. No other major source of power—coal, nuclear, gas, or oil—has been so privileged. All these others have confronted their environmental obligations, and begun to internalize the costs. For hydropower, Congress has designated the issuance of a new hydropower license as the time when the maldistribution of costs and responsibilities is to be corrected.

Delays in the process often save the project owners money in the short-run by maintaining status quo terms and conditions that allow the postponement of expenditures for mitigation. These savings come at an enormous expense to the environment, the public, and the tribes because of delayed mitigation, and provide a perverse incentive on the part of licensees to drag their feet and stonewall. Thus, it

[4] Licensing Hydropower Projects: Better Time and Cost Data Needed to Reach Informed Decisions About Process Reforms, U.S. General Accounting Office GAO-01-499, May 2001.

[5] Barnes, *FERC's "Class of '93": A Status Report*, Hydro Review (Oct., 1995).

is often in the interest of the public and the environment to minimize licensing time—but finding ways to make the process more efficient should not override the need to protect other public interests in public resources.

FERC's main evidence in support of its recommendation for "one-stop shopping"—eliminating mandatory conditioning by other federal agencies—is the fact that projects with mandatory conditions incur higher mitigation costs per kilowatt of capacity. However, consistent with the criticisms outlined in the GAO report, this turns out to be a very superficial analysis. Do the two groups of projects analyzed (those with mandatories and those without) display any other differences? Are projects without mandatories smaller? Less controversial? Have they done less damage to the environment? In order to make any sense out of these numbers, one would have to organize the projects so that the only significant difference between the two groups is that one group had mandatory conditions and one did not. In any case, one must question whether FERC is suggesting that it would dramatically reduce those costs if it were the agency in charge? How would such efficiencies be found? Would that mean a reduction in environmental protection? FERC offers no specifics as to how the Commission would reduce costs to licensees but still maintain the same level of environmental protection.

Clean Water Act

In its 603 report recommendation on Clean Water Act Section 401, FERC demonstrates a complete misunderstanding of the Clean Water Act and a total disregard for state delegated authority. Water quality is inextricably linked to water quantity. The Clean Water Act requires the protection of physical, chemical and biological components of a water body. Protection of "designated uses" is a fundamental component of the Clean Water Act. Designated uses ensure that waters will be "fishable, swimmable, and boatable"—uses that require that water be present in the waterway. Yet the Commission advocates limiting the definition of "clean water" to apply to only a few simple parameters, excluding water quantity and designated uses.

One Stop Shopping—A Common Theme But a Bad Idea

At no time in its history has the Commission had sole decision-making authority in hydropower licensing. The Federal Power Act has always been clear. The courts have consistently confirmed this plurality of decision-making over the past 10 years. The problem is not the multiple actors but FERC's unwillingness to cooperate and cede authority.

COMMITTEE DRAFTING PRINCIPLES

American Rivers and the Hydropower Reform Coalition have been highly critical of hydropower legislation coming out of this committee over the past several years; however, we believe that the Chairman's bill and subsequent negotiations by his staff have begun to take a more rational approach. We will continue to work with his staff to ensure than any legislation developed by the Committee will meet the goals of reducing the time and cost of obtaining a license while improving environmental quality.

While we continue to believe that the Chairman's legislative proposals will not further harm environmental quality, they are not likely to improve it significantly either. There is a great deal for industry to cheer about in this package. The requirement that resource agencies accept cheaper alternative mandatory conditions provided that they meet or exceed the resource management goals is generous and unprecedented. There is also a great deal in this package that should benefit everyone and lead to real streamlining. Proposals to require issuance of draft and final decisions from both FERC and the agencies are welcomed and should make things run more smoothly. There are fewer meaningful benefits to the environment but we look forward to working with staff on a number of the proposals below that we believe will make significant improvements.

Alternative Conditions

A provision that requires consideration of alternative mandatory conditions for addressing costs does not benefit environmental interests but it does not directly hurt them either. Unless a permissive administration with a bias toward energy development were willing to forgo critical environmental, recreational, and cultural resources, the standards currently under discussion for accepting alternative conditions would guard adequately against diminishing environmental protections. Such a provision does have the potential to create additional delays in the licensing process, and to that extent could harm environmental interests by deferring implementation of all environmental measures. We would urge that the provision be expressly

coordinated with the agencies' existing processes for proposing and finalizing mandatory conditions and with draft and final NEPA analysis of the licensing decision in order to minimize delay.

In addition, any provision that provides an opportunity to offer alternative conditions must contain provisions for participation of all stakeholders and not be limited to the licensee. Public participation has become a fundamental tenet of the hydropower licensing process and is consistent with every other procedure in the Federal Power Act. This section should also include a reciprocal provision that allows not only proposals for conditions that are equally protective but cost less but also proposals that are more protective but cost the same. This would not present a significantly greater burden on the resource agencies and would still be limited to consideration of alternative conditions, subject to the same requirements of substantial evidence, and leave significant discretion to the Secretary.

We do not support inclusion of a new and undefined standard of "sound science." The current standard of "substantial evidence," which is the one that must be met by FERC and is defined under the Administrative Procedures Act, is common and well-understood. "Sound science" would simply open up a whole new round of litigation. We are also unclear about the definition of electric "reliability" and believe that the term should be understood and defined before using it in statute. We would object to any definition that led to new peaking operations of a hydropower facility.

Disposition of Licensing Charges

Lack of resources and funding is the biggest contributor to resource agency difficulties with in the relicensing process. The Chairman's proposals to directly reimburse federal resource agencies is a critical first step in remedying this problem. The 1992 Energy Policy Act directed FERC to charge licensees a fee to cover the costs of agency participation in the relicensing process. However, this program has not gone forward as Congress originally intended. While those fees are being charged, the moneys are not making their way back to those agencies. This simple change will remedy the problem.

The same amendment in 1992 also directed the reimbursement of state fish and wildlife agencies. FERC has taken no steps to collect or distribute those funds. We believe that this is a necessary improvement. We would also support including state water quality agencies in the Commission's cost recovery program.

Industry has requested clarification of which agency costs are eligible for reimbursement. We support their position that those charges should not include FERC appeals or litigation costs and should instead be limited to participation in the relicensing process.

The other major component to the amendments to collection of electric charges is returning the fees collected for the use of public lands back to the respected land managing agency for protection and restoration of headwaters. We strongly support this idea but offer two significant amendments to improve upon what the Chairman has already accomplished.

The first addresses the need to charge a fair market price for the use of public lands. Currently industry pays only a token fee for the use of federal lands an average of $30 per acre. This does not accurately reflect the value of these mostly riparian lands, nor does it reflect the financial benefits derived from using these public resources. This fee is based upon twice the linear right-of-way fee charged for pipelines and power lines. We recommend the following amendment to address this problem:

> Section 10(e) of such Act is amended by inserting after "for recompensing it for the use, occupancy, and enjoyment of its lands or other property" the following: ", based on the fair market value of such lands or other property, as determined by the Secretary of the Department administering such lands or other property.

The funds dedicated to this restoration fund are limited to those currently earmarked for the Treasury, or 12.5% of the total collected. Currently 50% of the funds collected for the use of federal lands are dedicated to the Reclamation Fund, which benefits water development projects in the West. We believe that it is inappropriate for those moneys to be used for projects unrelated to licensed hydropower projects. Because hydropower projects on federal lands are located throughout the country and not simply in the West, we also believe that payments to the Reclamation Fund are inappropriate. For these reasons, we offer the following amendment in lieu of diverting payments to the Treasury:

> Section 17(a) is amended by replacing, "the reclamation fund created by the Act of Congress known as the Reclamation Act, approved June 17,

1902" with, "a revolving fund to be administered by the Secretary of the department upon whose lands the project resides".

The rest of the provision about where the money should go and how it should be used requires no further amendments.

Resource Studies

We strongly support language to address an important problem with the current relicensing process—inadequate studies and information. He who controls the information controls the process, and without being able to require an applicant to provide certain types of information and studies, agencies are at a distinct disadvantage when developing conditions that meet their statutory mandates. To date, FERC has show an unwillingness to require studies by the license applicant other than those needed for FERC's own purposes. This leaves the resource agencies without the information necessary to meet their obligations.

Inadequate information is a leading cause of delays in hydropower licensing proceedings. As mentioned above, of the 157 relicensing applications filed by industry in 1993, only nine provided sufficient scientific information about project impacts.[6] The resulting delays have significantly harmed environmental quality by issuing annual licenses and delaying implementation of modern environmental conditions.

In our view, studies and information requested by a federal agency with authority under FPA Sections 4(e) and 18 or a state agency with authority under the Clean Water Act or the Coastal Zone Management Act should be the province of those agencies and not subject to the interpretations and biases of FERC. The current ambiguity over who determines what studies are "reasonable and necessary" simply creates a struggle about who has final say over study requests. We oppose any provision that leaves this determination with FERC.

Joint Agency Procedures

Cooperation among FERC and state and federal resource agencies will greatly improve the efficiency of the relicensing process. Under a charter signed in October 1998, the four principle federal agencies involved in relicensing—FERC, Interior, Agriculture, and Commerce—formed an Interagency Task Force to Improve Hydroelectric Licensing Processes (ITF). This committee was established to coordinate federal and state mandates. In July of 1999, the ITF established a Federal Advisory Committee to provide a forum for non-federal entities consisting of industry, states, tribes and environmental groups, to review and provide feedback on the activities of the ITF.

This forum concluded its work at the end of 2000, publishing six guidance documents covering a broad range of issues that confront hydropower regulation. The process also resulted in several rulemakings and formal policy changes within each of these agencies. We believe that these reforms represent significant steps forward in improving the relicensing process, but they have not been given much time to work. Additional reforms, particularly by FERC, are still desirable. American Rivers supports a licensing process that is structured around NEPA with draft and final decisional documents, complete information for all participants, flexible but reliable timeframes, and transparency of analysis.

Unfortunately, as an independent agency, FERC cannot be compelled by the administration to make administrative or regulatory changes. This fact was recently confirmed by the President's energy plan. "The NEPD Group recommends that the President encourage the Federal Energy Regulatory Commission (FERC) and direct federal resource agencies to make the licensing process more clear and efficient, while preserving environmental goals." (President's Plan emphasis added, 5-18 and 5-22). While the President can "direct" federal resource agencies to act, just as his predecessor did through the efforts of the ITF, he can only "encourage" FERC. Congressional action is necessary. To date, FERC has been unwilling to undertake major changes to its licensing process other than those that reduce its own costs and time such as the ALP. If FERC were required to issue a staff draft license decision document along with its draft NEPA document, parties would have a meaningful and substantive document upon which to comment and the Commission would be able to better share its NEPA document with other agencies instead, of treating it as a draft decision.

We oppose any provision that would requires complex, formal hearings. Such a requirement would not streamline the licensing process—it would only make it longer and more costly. The public does not have the resources to participate in such

[6] Barnes, *FERC's "Class of '93": A Status Report*, Hydro Review (Oct., 1995).

formal adjudicatory proceedings, leaving the public at a distinct disadvantage against the well-healed resources of an electric generating corporation.

ADDITIONAL LEGISLATIVE CHANGES TO CONSIDER

American Rivers continues to believe that legislation is unnecessary to improve the licensing process for hydropower dams; however, if the Senate insists on moving forward with a legislative package, we believe that it should include provisions that will improve the environmental status quo. We offer the following additional elements that should be included:

- Grant shorter license terms or more flexible conditions

Some members of the Coalition believe that the Commission and Congress should consider reducing the maximum term for license renewal from 50 to 15 years in an effort to improve the licensing process. There are several reasons to suggest this dramatic change. First, energy policy has changed since the Federal Power Act (FPA) was first enacted in 1920. The nation is no longer developing new hydropower on the same scale or investing significant financial resources in capital-intensive development. In fact, we now find ourselves in an increasingly competitive marketplace with short investment horizons and rapid exchange of assets. Fifty-year license terms are not consistent with these changes.

Second, our knowledge of complex ecosystems and engineering is expanding and evolving at a phenomenal pace, enabling us to make more informed and effective decisions about resource management and energy production, but also requiring that management change when new information is developed. Licenses that lock in management decisions for 50 years preclude agencies from applying this ever-growing knowledge and understanding as it emerges. In contrast, shorter license terms allow modification of management decisions on a more regular basis to accommodate new information.

Finally, the varied interests competing for use of our nation's rivers continue to increase. Hydropower is compatible with some of the interests, incompatible with others. Licenses of 15 years would provide FERC an opportunity to revisit on a more regular basis the uses to which our rivers are put in light of changing values.

These factors have led some to conclude that shorter license terms would certainly lead to improvements in the licensing process. With a reduced term, stakeholders would not treat licensing as a "once in a lifetime" opportunity, but instead would view it as an ongoing process. This would be far more conducive to adaptive management, allowing greater flexibility in license conditions with regular monitoring and more frequent opportunity for technical advances. Therefore, we offer the following amendment:

> Section 6 and section 10(i) of The Federal Power Act are each amended by striking "fifty years" and inserting "thirty years for original licenses and not more than 15 years for new licenses";
>
> Subsections (d) and (e)(1) of such Act are each amended by striking "twenty" and inserting "5".
>
> Section 15(e) of such Act is amended by striking "not less than 30 years, nor more than 50 years", and inserting, "not more than 30 years for original licenses and not more than 15 years for new licenses".

While the reduction of the license term is arguably a dramatic proposal, we still believe that a more regular review of license conditions than the current 30 to 50 years would diminish the stakes of each subsequent review and would be more consistent with other regulatory proceedings such as those for municipal solid waste facilities or thermal power plants.

Toward that end, we recommend that FERC be directed to institute an adaptive management program that would specifically allow states to ensure compliance with changing water quality standards on a regular basis or to allow federal agencies to revisit endangered species protection measures on a more regular basis. While at first blush this would seem to require additional work, we believe that once the initial relicense is issued following 30 to 50 years of unfettered operation, subsequent proceedings would be less cumbersome, involving mere refinements. We offer the following amendment as an example of this concept.

Section 15(e) of such Act is amended by adding after the last period, "all licenses issued shall be reviewed every five years by the Commission with the cooperation of relevant state and federal agencies who are authorized to recommend or prescribe license conditions, and pursuant to such review, the Commission and state and federal agencies shall reopen the license as necessary to adequately and equitably protect, water quality standards, new endangered or threatened species listings, and address other circumstances unforeseen in the original license."

• Limit and condition the issuance of annual licenses

As noted earlier, annual licenses provide an incentive for licensees to delay the licensing process by allowing continued operations without regard to current environmental standards. To minimize this incentive, FERC should require interim terms and conditions to be incorporated into annual licenses, limit the duration and number of annual licenses, and raise the standards for obtaining an annual license. Without a backstop to the process, licensees may allow things to drag on and avoid doing studies in order to receive annual licenses on old terms and conditions. Short of a Commission policy or rule to this effect, Congress should compel the Commission to take steps in this direction. We offer the following amendment as an example of this concept.

Paragraph (1) of section 15(a)(1) of The Federal Power Act is amended by replacing, "of the existing license," with, "required to meet state water quality standards" and inserting at the end of the subsection, "Notwithstanding other sections under this Act, the term of any new license issued under this subsection shall be reduced by one year for each annual license issued by the Commission.".

• Institute a royalty fee for the private use of public rivers

Hydropower continues to be one of the least costly forms of electricity on the market, largely because hydropower generators do not pay any costs for fuel. However, rivers belong to the public and the public should therefore be compensated by dam owners for the ability to profit from this resource. In the natural resources arena the concept of a royalty payment is consistent with oil and gas leasing, mineral leasing, and timber harvesting. These industries pay a royalty while still mitigating for their impacts to the natural environment. Hydropower should do the same. A small royalty payment of 3 mils per kilowatt hour would have little effect on power prices and would provide a return to taxpayers for the use of a public resource. A portion of those fees could be returned to the state where the project resides for river restoration, parks development, and other public benefits. We offer the following language as a proposed amendment:

Section 10(e) of The Federal Power Act is amended by adding the following at the end thereof:

"In addition to the annual charges under the preceding provisions of this subsection, the Commission shall require the licensee of each project under this part to pay to the United States for deposit into the General Fund of the Treasury a royalty in the amount of 3 mills per kilowatt hour of electricity generated by the project. Such royalty shall be paid at such times and in such manner as the Commission shall prescribe. Fifty percent of the amount of such royalties received with respect to licensed projects in each State in each fiscal year are authorized to be appropriated to the State for purposes of fish and wildlife enhancement projects in such State."

• Reauthorize the Office of Public Participation

The licensing process significantly taxes the resources of the general public. These stakeholders represent a wide array of interests, have differing levels of understanding of the process, and sometimes lack the technical expertise to meaningfully participate in all aspects of the licensing process. In collaborative proceedings, when non-governmental organizations are often expected to set forth coordinated positions, managing such a diverse group of interests and making difficult decisions can be quite challenging and often leads to delay.

Congress should reauthorize funding for FERC to provide the public with compensation for ". . . reasonable attorney's fees, expert witness fees, and other costs of intervening or participating in any proceeding before the Commission . . ." consistent with 16 U.S.C. § 825q. We offer the following amendment to Section 319(b) of the Federal Power Act:

Paragraph (2) is amended to read as follows:

> "(2) The Commission shall reimburse any person granted intervener status in any proceeding under Part I of this Act for reasonable attorney's fees, expert witness fees, and other costs incurred by such person to intervene and participate in such proceeding."

Paragraph (4) is amended to read as follows:

> "(4) There are authorized to be appropriated to the Commission to carry out this section such sums as may be necessary. If, during any fiscal year, the Commission determines that the reimbursement for costs referred to in paragraph (2) cannot be provided because of insufficient appropriations, the Commission shall establish a reasonable schedule of fees that license applicants shall pay

to the persons referred to in paragraph (2) to reimburse such persons for such costs."

CONCLUSION

Our nation's rivers and fisheries are facing a crisis of slow but steady extinction. Resource agencies with expertise in these areas are in the best position to address this threat. We can find better ways to generate hydropower and new sources of energy but we cannot bring back species once they have gone extinct. Reforms of the hydropower licensing process must focus on improved relations among the agencies and appropriate incentives for licensees rather than on reduced protections for our river resources. We applaud the Chairman for his efforts in this direction and encourage the Committee to follow his lead.

The CHAIRMAN. Mr. Gray.

STATEMENT OF GERALD J. GRAY, VICE PRESIDENT FOR POLICY, AMERICAN FORESTS

Mr. GRAY. Thank you, Mr. Chairman, members of the committee. I am Gerry Gray, vice president for policy at American Forests. American Forests is the oldest national citizens' conservation group in the country. Our mission is to help people improve the environment with trees and forests. And we do this through programs that provide information, tools and resources to both urban and rural community groups across the country.

The need for greater public and private investments in the protection, restoration and maintenance of watersheds is a very important concern to both us and many of our partners across the country. I am delighted to be here today to present some of our views on a specific section of S. 597, the Comprehensive and Balanced Energy Policy Act. That section deals with providing a portion of hydroelectric charges back to the reservation where these projects are for watershed protection activities.

I have several points I would like to make. First, there is a great need for investment in watersheds. These are the natural assets, the capital, that provides the water resource, the ecological service to society. These assets are being degraded. There has been a lack of investment in them. And we need to find mechanisms to reinvest in these watersheds.

There is also a need to reinvest in the rural communities, the human and social capital that will provide the ability for these communities to help sustain these watersheds. We called this a community-based approach. And it integrates the needs of the communities with the help of the watersheds. And we think it is the best way to approach some of these concerns.

Section 702 contains critical elements of the community-based approach, which I will discuss later. But we do believe it needs to increase the amount of funding to really address the needs of these watersheds. To highlight the need for investment in watersheds, I would like to discuss the Sierra Nevada ecosystem project for a second. This 1996 study was one of the first in the Nation to look at large-scale ecosystems.

And it found that the Sierra Nevada system produces about $2.2 billion worth of commodities and services from natural resource production activities, primarily related to water, timber, recreation, tourism, grazing, and other agricultural activities.

About 60 percent of that value was from water, about $1.5 billion a year. The study further found that of all of those activities, only

water did not provide resources to Federal and local governments to reinvest in the maintenance of those watersheds. The SNEP report referred to the lack of funding for watershed maintenance as an under-investment problem. And it concluded that a massive and directed investment of time and money is needed to sustain and enhance the Sierra Nevada ecosystem and communities. It also concluded that there needs to be additional mechanisms to promote investment to maintain these important Federal lands watersheds.

On a smaller scale in the northern part of the Sierra, the Feather River watershed, about 3.2 million acres and its 71-percent federally managed as national forest-national parks, had some similar analysis. And it found that there, too, water was the most significant economic resource from the watershed. And yet the watershed continued to be degraded, and there was no reinvestment in maintaining watershed health.

Further research showed that with investments in improving watershed health, they could both increase water storage and improve water supply from the watershed. A group called the Feather River Coordinated Resource Management Group, a consortium of 21 local, regional, and national entities has developed a number of initiatives over the past 15 years to look at ways to improve watershed health and productivity.

Recently it put together a list of short- and long-term activities that are necessary to maintain watershed health in the Feather River. And these activities mirror pretty much those outlined in section 702 of the bill. And we would call this a community-based approach once again, because it attempts to strengthen the ties between ecosystem health or watershed health and community well-being.

These elements include activities to analyze and assess watershed conditions and trends, to highlight on-the-ground priorities dealing with endangered or threatened resources, roads issues, soil erosion and other things. It includes a very innovative multi-party monitoring process to ensure accountability and learning through these efforts, and to build trust among the diverse interests at the local level. And it includes a skill training or job training component to help build local capacity to undertake these types of watershed improvement activities.

Finally, I would like to mention that we are very much in support of this innovative mechanism to redirect these funds from hydroelectric charges to watershed maintenance activity directly in these watersheds. Our estimate, however, is that it will provide less than about $1 million a year to all the national forest lands across the country, just insufficient to really accomplish a great deal.

Therefore, we call this a very positive first step, but we believe that we need to look for additional mechanisms to increase both public and private investment in watershed protection.

We would urge Congress and the Federal Government to examine the economic value of these ecological services being provided in these watersheds on Federal lands to identify the beneficiaries of those values, both within and beyond the boundaries of the watersheds, and to look for new mechanisms through which the bene-

ficiaries of these activities can invest their fair share in watershed restoration and maintenance.

Thank you very much, Mr. Chairman.

The CHAIRMAN. Thank you very much.

[The prepared statement of Mr. Gray follows:]

PREPARED STATEMENT OF GERALD J. GRAY, VICE PRESIDENT FOR POLICY, AMERICAN FORESTS

Mr. Chairman and Members of the Committee:

I am Gerry Gray, Vice President for Policy at American Forests, the oldest national citizens' conservation organization in the U.S. The mission of American Forests is to help people improve the environment with trees and forests. We do this through programs that provide information, tools, and resources to urban and rural communities to protect, restore, and maintain healthy ecosystems. Over the past five years, we have worked with many partners in forest-based communities to advance understanding of community-based approaches to ecosystem management. The need for greater public and private investment in the protection, restoration, and maintenance of watersheds has been an important concern of our partners across the country, in various landscapes and ownership contexts. I am delighted to be here today to present our views on Section 702 of the Comprehensive and Balanced Energy Policy Act.

My comments are based in part on American Forests' national policy agenda for ecosystem restoration and maintenance. One of our major policy goals is "to increase public and private investment in ecosystem restoration and in building the capacity of communities to maintain healthy ecosystems." My comments are also based on a paper that I recently co-authored with Leah Wills of Forest Community Research and Plumas Corporation in northern California. The paper, entitled *Exploring Reinvestment from a Community-based Watershed Perspective*,[1] presents the view that watersheds, or ecosystems, are capital assets that are being degraded and need investment so they can continue to provide ecological services critical to the environmental, social, and economic well-being of communities.

Key points I would like to make today are:

- There is a great need for investment in the protection, restoration, and maintenance of watersheds. Water resources provide tremendous economic values, and there has been a lack of investment in maintaining the capacity of watersheds—the natural capital—to continue providing these natural resources and economic benefits.
- There is also a need to invest in communities—especially their human and social capital-to protect, restore, and maintain healthy watersheds.
- We believe that a community-based approach—an approach that integrates the needs of the watersheds, or ecosystems, and communities—is the best approach to maintaining watershed health.
- Section 702 contains critical elements of a community-based approach. It directs a continued annual flow of financial resources toward a range of essential activities that will help build capacity in rural communities and provide for analysis, planning, implementation, and monitoring of projects that will improve watershed health.

We would like to thank the Chairman for including this provision in the Comprehensive and Balanced Energy Policy Act of 2001. This provision demonstrates federal leadership in recognizing the need for increased watershed investment, identifies an innovative source for funding, and promotes a community-based approach for planning and implementing the resource management activities.

THE NEED FOR WATERSHED INVESTMENT

Water-supply issues are becoming critical in many areas of the arid West, while in the East and South, water-quality concerns are driving new ecosystem management approaches. California's extremely high water values provide a dramatic example of the need for investment to maintain the capacity of ecosystems to provide these resources. This example is highly relevant to discussion of Section 702 because significant portions of California's key watersheds, particularly the headwaters of major waterways, are located on federal lands, such as national forests and national

[1] In Gray, G., Enzer, M., and Kusel, J. 2001. Understanding Community-Based Forest Ecosystem Management. Haworth Press, Binghamton, NY.

parks. The example is not unique to California, however. The U.S. Forest Service has increasingly been recognizing the importance of national forests as the source of water supplies, particularly drinking water, for many of our nation's major metropolitan areas. The agency's growing emphasis on water is illustrated by its recent large-scale watershed initiative, which focuses on learning how to protect and manage twelve pilot watersheds through collaborative efforts with other federal, state, and local entities.

The California water example makes a strong economic case for maintaining the environmental health of watersheds upstream of large water and hydropower supply dams. The largely federally managed watersheds of California are critical for catching, storing, and channeling low-sediment flows of otherwise dispersed precipitation into elaborate and expensive water supply and hydropower production facilities. Combining the natural (watershed) and manufactured (engineered) infrastructure enables water and hydropower purveyors to produce billions of dollars of wealth through water and power sales. Affordable water and hydropower, in turn, support a vast array of other economic endeavors in California, most notably a multi-billion dollar agricultural economy.

Although national policy has long recognized the value of federal lands as producers of high-quality water, neither national nor state policy has developed a way to foster investment in maintaining these water-supply watersheds. The 1897 Organic Act that clarified the role of the national forests focused on two primary purposes: "securing favorable conditions of water flows, and to furnish a continuous supply of timber" for the nation. Since then, a variety of mechanisms has been developed to obtain revenues from timber, recreation, forage, and other resource production activities and reinvest them in restoration and maintenance of federal lands. Examples of these mechanisms include direct payments to local jurisdictions, off-budget trust funds, yield taxes, and user fees. However, a limited amount of funding from these mechanisms has been directed toward the maintenance of federal lands for water production (quality and quantity). Support for watershed maintenance has only been provided through direct federal appropriations, and this amount has been insufficient to protect watershed health.

The congressionally authorized and funded Sierra Nevada Ecosystem Project (SNEP) developed estimates of the economic values of natural resource activities in the Sierra Nevada ecosystem. As one of the nation's first efforts to estimate economic values for a large-scale ecosystem (20 million acres), the 1996 SNEP study broke new ground. The study examined and compared the value of natural resource production activities related to water, timber, recreation and tourism, and grazing and other agriculture. It found that the Sierra Nevada ecosystem produces approximately $2.2 billion worth of commodities and services annually and that water accounts for $1.5 billion—more than 60 percent of the value. Most of the water values accrued to users of hydroelectricity and municipal and agricultural water supplies, virtually all of who were located outside the boundaries of the Sierra Nevada ecosystem. Water production activities generated no funding to help to federal and local governments maintain watersheds or communities. The SNEP report referred to the lack of funding for watershed maintenance as an "under-investment problem" and concluded that "a massive and directed investment of time and money" is needed to sustain and enhance the Sierra Nevada ecosystem and communities (SNEP, p. 1057). The report also concluded that "additional mechanisms to promote reinvestment are necessary to maintain and enhance the Sierra Nevada ecosystem so that it can continue to provide the socially desirable outputs."

A COMMUNITY-BASED APPROACH TO WATERSHED MANAGEMENT

Over the past 15 years, the Feather River Coordinated Resource Management (FR-CRM) group, a consortium of 21 local, regional, and national entities, has developed a number of initiatives exploring collaborative approaches to watershed management in the Feather River watershed. Their initiatives seek to strengthen local capacity, identify watershed reinvestment mechanisms and priorities, and forge alliances with groups beyond the watershed's boundaries. They have explored multi-issue, multi-scale approaches to investing in watershed management through efforts with regional networks, such as the California Urban Forest Advisory Council, the California Brownfields Communities working group, and the Regional Council of Rural Counties, and national networks. They have also worked with the Communities Committee of the Seventh American Forest Congress, a national network of organizations focused on the interdependence of forests and communities.

The 3.2 million-acre Feather River watershed is the northernmost drainage in the Sierra Nevada; 71 percent is federally managed as national forests and national park land. The watershed delivers 4.6 million acre-feet of unimpaired flow to the

famous 1,330.1 MW "Stairway of Power," currently owned by Pacific Gas and Electric Company (PGandE) and the California Department of Water Resources. PGandE serves 600,000 customers using the Feather River hydrosystem as part of its electrical supply grid. The Feather River watershed historically supported a premier timber management and woods products industry, and "Feather River Country" is increasingly attractive for recreational developments. Recent research shows that investments in improving watershed health could increase the water storage in and supply from the watershed. Dr. Jeff Romm, an economist at the University of California at Berkeley, found that "in certain conditions, riparian and meadow restoration actually can enhance water storage more efficiently than dam augmentation." And, Dr. Linda Bond, a consulting hydroecologist in Sacramento, and Dr. Rick Kattelmann, a hydrologist at the Forest Service's Pacific Southwest research station, estimated that investing in watershed health improvements could provide at least an additional 250,000 acre-feet or, 7 percent more useable water annually, to downstream water users. These watershed-specific analyses mirror SNEP's earlier Sierra-wide findings and document water as the most economically important output from the Feather River watershed, yet the environmental health of the watershed continues to degrade.

In 1995, the FR-CRM began an initiative to identify the most effective short- and long-term reinvestment activities for maintaining the health of the Feather River watershed. Based on the group's years of experience, it concluded that a wide range of watershed management activities need to be funded under an effective reinvestment program. These activities include: watershed rehabilitation projects, planning, economic incentives, critical habitat protection and enhancement, stewardship education, project effectiveness monitoring and watershed trend monitoring, resource condition assessments, job training and development, and testing and evaluation of best management practices, with some money set aside for unallocated expenses, such as contingencies or emergencies. The breadth of the activities recognizes that reinvestment efforts must integrate environmental and economic concerns by developing comprehensive assessment information at the outset of projects and comprehensive monitoring information at the conclusion.

Beyond identifying its local reinvestment priorities, the FR-CRM has also developed white papers for community forestry and watershed groups as a means of moving reinvestment strategies forward on a broader, regional basis. Its most in-depth work was sponsored by the Collaborative Learning Circle, a regional consortium of community forestry and watershed groups in the Pacific Northwest. The list of watershed management activities developed through this initiative is very consistent with the activities identified in Section 702 for the protection of water resources.

COMMENTS ON SECTION 702

Given the need I have described for investment in watershed protection, restoration, and maintenance, we are pleased with provisions in Section 702 that direct federal funds from the proceeds of hydropower charges directly to watershed protection activities on federal lands. Our understanding is that the amount of funding available from these proceeds will not be very large, however. Based on annual proceeds of hydropower fees on the national forests in FY 2000, we anticipate that the 12½ percent that would be directed toward watershed protection will amount to less than $1 million per year under the current fee structure for hydropower facilities. This amount of funding, although helpful, will not accomplish a great deal in addressing the needs of watersheds throughout the nation. Therefore, we support the provision as a positive step, but we believe Congress and the federal government should do more to generate revenues for investment in watershed protection, restoration, and maintenance. We believe that greater investment is needed, to ensure that watersheds are not degraded, and that those who derive economic benefit from a watershed, or ecosystem, should pay their fair share of the maintenance costs. With respect to water resource issues, we believe it is critical for the federal government to examine the economic value of the ecological services being provided by federal-land watersheds, to identify the beneficiaries of those values, both within and beyond the watershed boundaries, and to identify mechanisms through which those beneficiaries can invest their fair share into watershed restoration and maintenance activities.

The watershed protection activities in Section 702 comprise important elements of community-based approaches, which seek to strengthen ties between ecosystem health and community well-being. These elements include assessment activities to understand watershed conditions and trends; on-the-ground activities to address high-priority resource needs; multiparty monitoring of water protection activities to ensure accountability and learning, as well as build trust among diverse interests

involved in the process; and job training to help develop a skilled workforce and job opportunities in rural communities. The provisions that allow the appropriate federal agency to make grants or enter into cooperative agreements or contracts with non-profits, small businesses, or other cooperative entities within or near watersheds are also important to meet the goal of building community capacity.

Finally, I would like to suggest two specific changes to the list of watershed protection activities:

- For item (F), add "riparian and upland forests" to the list of land areas on which activities for erosion control and restoring hydrologic function might be done. The condition of these forest areas can greatly impact the health and function of a watershed.
- For item (E), add "on public and private lands" to the language. It is important for watershed assessments to include all lands within a watershed to fully understand investment needs and priorities.

Thank you for the opportunity to testify on this legislation. I would be happy to respond to any questions.

The CHAIRMAN. Ms. Keil, why don't you go ahead?

STATEMENT OF JULIE KEIL, DIRECTOR OF HYDRO-LICENSING AND WATER RIGHTS, PORTLAND GENERAL ELECTRIC COMPANY

Ms. KEIL. Chairman Bingaman and other members of the committee, thank you for the opportunity to testify today. I am the director of hydro-licensing and water rights for Portland General Electric Company, a modestly sized investor owned utility based in Portland, Oregon. We own five FERC license projects. These form the cornerstone of our resource portfolio that allows us to provide efficient and economical services to our customers.

Senator Smith was kind enough to mention before our aggressive conservation efforts. The portfolio includes that along with large investments in wind and the other resources that you heard about this morning.

I have appeared before Congress twice before on this topic. I have a sincere hope that the next time I do it I will be here to discuss with you all the benefits that we see from the changes that you have enacted this session. The time has become only more urgent for us to enact these changes. Over the next 15 years, one-half of the non-Federal hydro capacity, nearly 29,000 megawatts of energy, must undergo the relicensing process. PGE alone, despite our modest size, we are relicensing nearly 600 megawatts all before the year 2006.

Unlike the previous Congresses that I spoke before, the current discussion is based on a deep and, I think, well-informed record before you, based on my testimony and the testimony of others. It is consensus driven and, most importantly, bipartisan in nature. We are hopeful that this spirit of bipartisanship will produce a balanced bill this year.

I want to especially thank Chairman Bingaman and Senator Craig, along with my home State Senators, Wyden and Smith, for their commitment and efforts to try and reach consensus. But I must emphasize that absent legislative reform of the FERC relicensing process, hydro's role in the Nation's energy supply is in jeopardy.

As you have heard today, hydropower is our largest and most commercially viable renewable resource. And I want to emphasize again that it would be a shame to increase other renewables to the

detriment of hydro. You need to rely on that base that was talked about earlier.

More than any other form of power produce, it also provides a myriad of other benefits, including recreation, flood control, and irrigation. It is also emissions free, which, in the time of ongoing concern over greenhouse gases, cannot be overlooked.

All across the West, utilities are struggling to keep the lights on and to provide the reliable power that is the engine of economic growth. The margin for error these days is perilously thin. In these circumstances, hydro's unique reliability attributes have taken on increased importance. Unlike most thermal power projects, hydropower projects can be turned on and off almost instantaneously. This is a critical component of a system that must exactly match generation to load every minute of the day and every day of the week.

While we are committed to other renewables and to conservation, none of those sources provide the flexibility and system support that hydropower projects provide for us in the West. Despite these benefits, America is in danger of losing significant hydropower capacity and operational flexibility at a time when it is most needed. Characterized by excessive costs and delays, the Federal hydro-licensing system threatens to reduce generation capacity and operational flexibility in projects throughout the Nation.

You might well ask, how did we get to this point? Simply put, the process fails to balance the environmental impacts of hydro projects with the crucial energy and non-energy values of the resource. It suffers, as Mr. Robinson mentioned, from dispersed decision-making authority and an inability to balance competing values. The net result is that no one has the authority to speak on behalf of the public interest in general, no one has the authority to make that final balance.

In relicensing our largest hydro project, Pelton Round Butte, 11 agencies, each with a single mandate and mandatory conditioning authority over some or all of the project, have a role to play and have been involved. No one is responsible for making their various mandates consistent. No one has the authority to look at the broader picture and make sure that important energy benefits are considered in the exercise of those mandates. To call the process a three-ring circus does not do justice to the complexity that we face.

To take the analogy one step further, in my role I juggle many interests. I am responsible for providing reasonably priced and reliable service to PGE's customers. I must also ensure that the company's investors get a fair return on their investment in the company. And I must negotiate terms and conditions, which is what I do on a daily basis, which reflect PGE's deeply held environmental stewardship ethic.

Our goal in relicensing is to make the environmental footprint of the project as small as possible while still maintaining a viable project.

My agency counterparts, on the other hand, often juggle only one ball, the protection of natural resources. This fundamental disparity is at the core of the hydro-licensing conundrum. You will find attached to my written testimony many other examples of how the

process fails, and I would strongly encourage you to read that attachment.

You will undoubtedly hear the argument that the problems with hydro-licensing can be resolved solely through administrative means. I have to disagree. And I do have firsthand experience in this arena. I have served 3 years as a member of the Federal Advisory Committee that advised the Interagency Task Force and on a parallel level have been deeply involved in the National Review Group founded by EPRI, which has explored many different for administrative reforms.

The problem is they simply do not address the fundamental problem with the system. The system as it is now benefits no one. It certainly does not serve the interests of energy production and, I would strongly argue, ill serves the environment as well, as environmental protection delayed is protection denied.

To craft a process that truly advances all interests, energy and environment, legislative solutions are necessary. For the hydro industry, our number one priority is to reinject balance into the licensing process, to make sure, if you will, that everyone has more than one ball to juggle, that everyone in the process must balance and consider competing and difficult interests.

Our other priorities include scientific administrative review of mandatory conditions, deadlines for timely submission, coordination of the environmental review process under NEPA. The two legislative proposals you have before you, S. 71 and S. 597, both address these needs in a variety of ways. The question that we face now is, can these two approaches be merged in a way that will allow us to wisely make the most difficult of decisions: How do we provide for the energy needs of today while protecting and enhancing precious environmental resources for the future?

The industry stands ready to work with the committee and with other interests, and we want to encourage you to continue the bipartisan efforts to date. Keeping the lights on in the Northwest and throughout the Nation is not a partisan issue. And it demands your prompt attention.

Thank you.

[The prepared statement of Ms. Keil follows:]

PREPARED STATEMENT OF JULIE KEIL, DIRECTOR OF HYDRO-LICENSING AND WATER RIGHTS, PORTLAND GENERAL ELECTRIC COMPANY

Chairman Bingaman, Ranking Member Murkowski, Members of the Committee, thank you very much for giving me the opportunity to appear before you today to discuss legislation that has been introduced in the Senate that would improve the Federal Energy Regulatory Commission's hydroelectric relicensing process.

I appear before you today in two capacities. First and foremost, I am Director of Hydro Licensing and Water Rights for Portland General Electric Company. PGE is an investor owned utility based in Oregon, serving more than 700,000 customers in the Portland metropolitan area and the Willamette Valley. PGE owns 5 FERC-licensed hydroelectric projects. The capabilities of these projects form the cornerstone of our ability to provide efficient and economical service to our customers.

I am also here representing the hydropower industry. As a former President of the National Hydropower Association, I have participated over the years in hundreds of discussions with industry colleagues and non-industry stakeholders as to the challenges and opportunities facing hydropower in the 21st century. I am a member of the Federal Advisory Committee (FACA) that worked with the Interagency Task Force towards administrative improvements to the hydro relicensing process; similarly, I am a member of the EPRI National Review Group that has also explored administrative relicensing process reform. In addition, Portland General is

an active member of the Hydroelectric Licensing Reform Task Force, a coalition of public and investor-owned hydropower generators drawn from the memberships of the American Public Power Association, the Edison Electric Institute, and the National Hydropower Association. As such, my testimony today reflects the sentiments of a broad cross-section of the hydropower industry.

PGE is also a member of WaterPower: The Clean Energy Coalition, a group of over 660 consumer, labor, environmental, farming and other organizations that recognize the need to improve the hydro relicensing process. At the local level, PGE has been a key participant in numerous state task forces aimed at improving the process of state participation in the relicensing of hydro projects.

The issue of hydro relicensing improvement is not new to this committee. In oversight and legislative hearings held before this committee during the previous two Congresses, a detailed record has been compiled as to the complexity, costs, delays, and conflicting mandates inherent in the FERC relicensing process. The energy crisis that currently plagues California and the Pacific Northwest has only underscored the need for and importance of Congress acting as soon as possible to reform the relicensing process so as to preserve consumer access to clean, reliable, and cost-efficient hydropower.

The urgency surrounding this issue has not dissipated with the passage of time. In fact, with each passing year the stakes increase considerably. Today, as we look at the next 15 years, one-half of all non-federal hydroelectric capacity—nearly 29,000 MW of power (enough to serve 29 million homes)—must undergo the FERC relicensing process. This includes 240 projects in 38 states, much of it in Western states where power supply is a major concern. Portland General alone is in the process of relicensing nearly 600 megawatts, all before 2006. We are not unusual in this respect.

What has changed, however, is the bipartisanship that now characterizes efforts to improve the relicensing process. All of us within the hydropower industry are encouraged by this shift towards a bipartisan consensus on hydro relicensing. The fact that both Republican and Democratic-sponsored Senate energy policy packages introduced earlier this year contain sections on hydro relicensing improvement is a testament to the important consumer benefits to be gained from relicensing reform. We are hopeful that this spirit of bipartisanship will produce a balanced, comprehensive, substantive bill this year. I want to especially thank Chairman Bingaman and Senator Craig, and my home-state Senators Wyden and Smith, for their commitment to this issue and good-faith efforts to date at trying to reach consensus. The fact is, hydropower has played—and must continue to play—a key role in our nation's energy policy; and absent legislative reform of the FERC relicensing process, that role is in jeopardy.

Hydropower accounts for about ten percent of the nation's electricity and over 80 percent of its renewable energy. The benefits of hydropower, and its continued importance to our nation's environmental and energy policy objectives are well documented. Hydropower is not only our largest, renewable energy resource; it is low cost and efficient; it is a purely domestic resource; and it provides Americans with abundant recreational opportunities, as well as many flood control and irrigation benefits. It is also an emissions-free resource, which in a time of ongoing concern over greenhouse gases cannot be overlooked. In 1999, hydro displaced the emissions of 77 million metric tons of carbon; that is the equivalent of removing 62.2 million passenger cars, nearly 50% of the current fleet, from our nation's roadways. In addition, emissions-free hydropower generation helps us avoid significant amounts of Nitrogen Oxide (NO_X) and Sulfur Dioxide (SO_X), which are major contributors to decreased air quality.

As California and the West continue to grapple with an energy supply insufficient to meet growing consumer and industrial demand, it is another of hydropower's attributes that has taken on increased importance: its reliability. The management of the nation's electric grid depends upon fast, flexible generation sources like hydropower to meet peak power demands and to restore service after a blackout. Hydropower's ability to go from zero power to maximum output quickly and predictably makes it exceptionally good at meeting changing loads and providing ancillary electrical services.

Despite these multiple benefits, our supply of hydropower is waning and America is in danger of losing significant hydropower capacity and operational flexibility at a time when it is most needed. As we face rising energy prices, increased levels of pollution, energy shortages and reliability concerns, we must consider ways to counter these trends. In short, now is the time for policymakers at the federal level to fix the hydro relicensing process, for it is this process that poses the greatest threat to the future viability of this important resource.

As documented in recent Congressional hearings and most recently by FERC in its Section 603 Report, the relicensing process suffers from dispersed decision-making authority and an inability to balance competing values. The bottom line is that costs, delays, and conflicting mandates inherent in the process threaten to reduce generation capacity and operational flexibility throughout the nation. As we lose megawatts and operational flexibility, we must rely on less efficient generation sources that both cost more and produce greenhouse gas and other emissions.

How did we get to this point? Why such a dysfunctional process? While there is no shortage of explanations, most of it can be boiled down to one unfortunate reality: the relicensing process fails to properly balance the environmental impact of hydro projects with the crucial energy and non-energy values of the resource.

Since 1986, FERC has been required, under the Federal Power Act, to give "equal consideration" to a variety of factors when issuing hydro project licenses and relicenses. This balancing authority requires FERC not only to consider the power, economic, and development benefits of a particular hydro project, but also to consider energy conservation and the protection, mitigation of damage to, and enhancement of fish and wildlife. In other words, under Federal law, FERC has the responsibility and authority to strike a balance between power and environmental values. If this were the provision of the Federal Power Act that governed in this situation, relicensing might have a chance to succeed. The courts, however, have interpreted the Federal Power Act so as to prevent any balancing from taking place. The courts, in effect, have given Federal resource agencies unilateral authority to set "mandatory" conditions on FERC relicenses. FERC has no opportunity to question the basis of mandatory conditions set by the agencies, or to fit those conditions into the final license.

This would not be a problem if federal resource agencies, when imposing a mandatory condition, considered the many factors that FERC is required to examine pursuant to the Federal Power Act. However, this is simply not done. While all of the agency personnel with whom I have worked over the years have been intelligent, well-intentioned people, their statutory mandates simply do not permit them to look beyond the narrow resource areas they are charged to protect. The net result is that no one is balancing. No one has the authority to look at the big picture of how hydro fits into our national energy policy. I go back to my earlier observation: in today's energy-short climate, where every megawatt counts, this is a situation that must be remedied, and remedied soon.

A brief example from my experience may serve to illustrate. In relicensing PGE's Pelton Round Butte Project, 11 agencies each with a single focus and mandatory conditioning authority over all or part of the project have been involved. No one is responsible for making their various mandates and authorities consistent. As importantly, no one has the authority to look at the broader picture and make sure that important energy benefits are considered in the exercise of those mandates. To call the process a three ring circus does not do justice to the complexity we face.

Attached to my written testimony is a compilation of recent relicensing experiences, reflecting the problems many of our hydropower colleagues have witnessed first hand with the current relicensing process.* For example, the National Marine Fisheries Service last year imposed a fish passage requirement on the Enloe Dam project license in Washington that was contrary to the wishes of a Congressionally authorized regional collaborative planning council. Look at PacifiCorp's North Umpqua project in Oregon where the relicensing process took over 10 years. Even though a settlement was recently reached in this proceeding, relicensing process improvements could have resulted in smoother settlement negotiations, at far less cost and resulted in investments being made in environmental improvements rather than in study upon study upon study.

Some have suggested that the problems with the FERC relicensing process can be solved solely through administrative, rather than legislative means. I disagree. And I draw that conclusion having invested considerable time and energy in recent years in search of substantive administrative remedies. As I mentioned earlier, for the last three years I have been a member of the Federal Advisory Committee (FACA) that worked with the Interagency Task Force towards administrative improvements to the hydro relicensing process; similarly, I am a member of the EPRI National Review Group that has also explored administrative relicensing process reform. While the EPRI NRG and an ITF successor group continue to explore administrative reform, I have come to the following conclusion: properly developed and implemented administrative remedies can certainly help on a number of fronts and should be encouraged. But taken alone, administrative reforms can not fully address the fundamental and substantive problems with the process.

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*The attachments have been retained in committee files.

These thoughts were echoed in a letter that was sent earlier this year to members of this Committee, signed by me and the other 5 industry FACA representatives, expressing the following assessment of the ITF's work product. In that letter we said:

> While the [ITF] reports themselves are helpful, they do not resolve the fundamental conflict inherent in the existing system of government oversight of hydropower projects, nor will they assure maintenance of this reliable and low-cost source of electricity . . . The reforms necessary to achieve substantive improvements in the licensing of hydroelectric facilities can best be obtained through legislation addressing the Federal Power Act.

Let me say once again: legislative fixes are necessary if we are to reform the hydroelectric relicensing process in a manner satisfactory to most stakeholders.

So, what legislative fixes are needed? For the hydro industry, the number one priority is to re-inject balance into the relicensing process—a balance between environmental protection and the all-important energy and non-power benefits of hydro projects. Both of the legislative proposals that are before this Committee address this need, albeit in different ways and to varying degrees.

S. 71, the "Craig bill", which also serves as Title VII of S. 388, requires agencies to take into consideration project benefits, including economics and power values, system reliability, air quality and flood control, and requires the agencies to document consideration of these factors. It does not require agencies to subordinate their natural resource responsibilities to these factors, it simply requires them to take other factors into account. The hydro industry supports this concept and believes it would secure the requisite balance that is lacking in an environmentally compatible manner.

Title VII of S. 597, the Bingaman bill, seeks balance through introducing the concept of an alternative mandatory condition. The bill requires agencies to adopt applicant-drafted alternatives that provide equal or greater environmental protection; are based on sound science; and will either cost less to implement than the original condition or result in less loss of generating capacity than the original condition. We support this concept with the following qualifications:

i) it is important that the environmental standard not be too restrictive so as to disqualify what might otherwise be the most effective approach to achieving an environmental goal;

ii) since a mandatory condition does not generally impact capacity at a project, the criteria for an alternative should be "less loss of electric generation, capacity or operational flexibility;"

iii) if an alternative must be based on sound science, then a Secretary's rejection of an alternative should also be based on sound science; and

iv) in the case of a disputed issue of material fact, there is a need for a hearing on the record.

With these changes, the "alternative condition" language of the Bingaman bill could be an effective and useful tool to encourage innovative approaches to regulations without sacrificing important environmental outcomes.

On a related note, some have suggested that any party should be allowed to propose an alternative mandatory condition. We disagree. Allowing any party to do so would not only clog the system with dozens upon dozens of alternatives, but it also ignores the fact that other parties will already have had ample opportunities to propose license conditions in the proceeding. At the end of the day, it is the applicant who must decide whether to accept a license with the condition or to reject it; accordingly, it is the applicant and the applicant alone who should have the opportunity to put forth a least-cost alternative.

Other industry legislative priorities include:

Scientific Review of Mandatory Conditions

Industry believes that mandatory conditions should be grounded in the best available scientific evidence. As such, federal resource agencies should be required to subject each condition both to appropriately substantiated scientific review based on best available and current empirical data or field-tested data and to peer and public review. The Craig bill gets us there, requiring a scientific basis for all conditions and peer review. As for the Bingaman bill, our above-mentioned qualifications to the alternative condition section would insert a requisite grounding in "sound science."

An Objective Administrative Review Process for Mandatory Conditions

Usually, under the current relicensing regime, federal resource agency field biologists are the ones who draft mandatory conditions, without any opportunity given for an objective administrative review. In order to shed greater light on the formulation of mandatory conditions, federal resource agencies should be required to:

- provide notice of draft conditions;
- provide an opportunity for a hearing on the record;
- consider all comments received; and
- include comments in the documentation submitted to the Commission as evidence.

The Craig bill provides for administrative review of contested conditions before the issuance of a final order. This review could both improve and shorten the relicensing process by eliminating the likelihood for post-license litigation. While such administrative review is absent from the Bingaman bill as introduced, we are pleased that Chairman Bingaman and his staff have indicated a willingness to revisit such concepts in a revised bill.

Establishment of Deadlines for the Timely Submission of Mandatory Conditions

We must get away from excessively lengthy relicensing proceedings—some taking more than 26 years. Under current FERC regulations, resource agencies are already required to meet deadlines for submission of conditions; rarely, however, do agencies adhere to these deadlines. To be effective, these deadlines must be codified through amendment to the Federal Power Act. The Craig bill sets firm deadlines for the submission of draft and final mandatory conditions, which is a concept we support. While the Bingaman bill does not set such deadlines, we support the notion of FERC issuing an estimated schedule for all subsequent actions by the applicant, FERC, resource agencies and other parties—a notion that Chairman Bingaman and his staff are currently considering.

Coordination of the Environmental Review Process Under NEPA Into One Document

Finally, there is a palpable need for greater coordination among agencies with jurisdiction over the hydro relicensing process. This is especially the case in the area of environmental review. In order to avoid duplication of efforts, we would recommend legislative efforts, such as those contained in the Craig bill, to confirm FERC's responsibilities as lead agency for environmental reviews of hydro projects under NEPA, including a requirement that FERC set deadlines for submitting input on environmental review by Federal, state and local agencies. NEPA coordination is currently absent from the Bingaman bill, but is under consideration by Chairman Bingaman and his staff; we would encourage its inclusion in any final legislation.

The question then for this Committee is, can elements be drawn from the Craig bill and the Bingaman bill in a way that would substantively address the problems with the current process in a manner fully compatible with environmental law? In answering this question, the hydropower industry encourages Chairman Bingaman and Senator Craig, and all the members of this Committee, to sit down and forge consensus legislation. The hydropower industry stands ready and willing to assist in this effort as needed. What is most important, is that the extraordinary work done by Senators Bingaman and Craig to date not fall prey to partisanship. The energy supply problems in my region, and throughout the nation, are not partisan issues and demand prompt attention. Accordingly, I urge the Committee to continue its good faith efforts and pass consensus language on hydro relicensing reform this summer.

In conclusion, I would like to offer the following thoughts on the relationship between energy priorities and natural resources. The river and fisheries resources administered by hydro project operators are very important ones, and essential and long-lasting commitments are being made in relicensing processes. Portland General and the hydropower industry as a whole take seriously their role as stewards of the rivers we are privileged to use. Licensees go to great lengths to involve stakeholders and members of the public in licensing and relicensing processes. These consultations take years and, without question, natural resource issues constitute the bulk of those discussions. Ultimately, the majority of direct and indirect expenditures made by licensees are spent on environmental protection, mitigation and enhancement measures.

Some rhetorically argue that the hydropower industry wants to "roll back" environmental regulations in this process. That is absurd. With hydropower process improvements, resource enhancement and protection will continue. But they must continue in a process that also recognizes and protects the value of the product that is the subject of the relicensing in the first place. We can and must achieve balance in this arena. We strongly believe that healthy rivers and hydropower can coexist and we continue to work toward that end.

Time is short. As we look to self-sustaining energy strategies, now is the time for policymakers to better incorporate hydropower into the nation's energy mix. We urge you to pass hydro relicensing improvement legislation this Session. It is a goal

that can benefit hydro producers, the environment and consumers, and one that all Americans should support.

Thank you.

The CHAIRMAN. Thank you very much.

Thank you all for your testimony. Let me just ask one question here and then defer to Senator Craig. Mr. Robinson, you indicated in your testimony that under the court rulings that have come down, that if the Commission were to conclude that one or more of the mandatory conditions that have been imposed would render a project inconsistent with the public interest, then the commission's only course would be to deny the license application. Am I correctly understanding what you said?

Mr. ROBINSON. yes.

The CHAIRMAN. Has there been any circumstance where that has occurred, where an agency has imposed a mandatory condition which you felt was so out of line that you went ahead and denied a license application?

Mr. ROBINSON. I think the very scenario that you bring up is one that goes to some of our longest running relicensing actions. It is really not a viable option to deny a license at relicensing. We are not sure where the project would go. So what we have to do is to continue to try to facilitate a set of conditions that will allow for a sustainable project and one that does meet that public interest standard. And sometimes that takes a number of years.

The CHAIRMAN. So instead of denying the license, you wind up just prolonging the pre-licensing process.

Mr. ROBINSON. Well, we continue to work with all the parties that are providing conditions to try to get a license that meets that public interest standard. And that does at times—from project to project can take some time. I would note that we are the only agency that is required to balance all those conditions and meet that standard when we issue that license. And sometimes that is a difficult standard to meet, when you are receiving mandatory conditions that do not have that same standard of review.

The CHAIRMAN. Okay.

Senator Craig.

Senator CRAIG. Thank you, Mr. Chairman. And to all of you, thank you for your valuable testimony. Obviously the issue of licensing hydro projects is of great concern to all of us and to all of you who are here. We appreciate your testimony.

First of all, Mark, I want to thank you and one of your colleagues, John Katz, Office of General Counsel.

Mr. Chairman, recently we had a very difficult situation in Idaho, and these gentlemen facilitated in a settlement process between a investor-owned utility and a Federal agency that was most helpful. And that was greatly appreciated by Idaho. And Idaho consumers and rate payers, I suspect, were collectively the beneficiary of that.

Mark, there have been many studies recently that address loss of generation. Some say it is 4 percent, some say it is 8 percent. Mr. Bettenberg referenced that as it relates to the consequence of FERC's current process. Are there other effects in the relicensing process that is aside from the loss of generation that have not received the appropriate attention?

Mr. ROBINSON. I think the answer is yes. In fact, I know the answer is yes. The easiest thing to determine, when you look at a relicense, is the effect on generation, the effect on capacity. Those are numbers that you can pick out pretty quickly.

What you cannot do as easily, and in fact no one has really attempted to do this, is what the effect of relicensing and changed conditions on how the project operates, what that does, the ability of that project to factor into the reliability of the system, to provide for peak load requirements, and to just be a flexible component of the electric generating system that that project exists within.

That is, for a hydropower project in particular, is so interrelated to changing hydrological conditions that it is hard to separate it out. But there is no doubt that, when you take a project that has been operating with great flexibility within an electric system and you put a condition on it that says you will now operate what is called run of river, in other words, no longer adjust the reservoir elevation to satisfy power demands, that you have reduced its ability to be a factor in system reliability and peak load demand. That has not really been studied.

Senator CRAIG. I think we can all focus on numbers or percentage of loss of generating capability. And that is probably whey we have gone that route instead of the ability to operate some flexibility.

Mr. ROBINSON. That is correct.

Senator CRAIG. Mr. Bettenberg, your colleague sitting next to you today filed some lengthy written testimony with the committee. Have you had a chance to review that testimony?

Mr. BETTENBERG. I read it over quickly last night. Yes, sir.

Senator CRAIG. Have you had a chance to read Mr. Bettenberg's, Mark?

Mr. ROBINSON. Yes, sir.

Senator CRAIG. Is there anything in Mr. Bettenberg's testimony that you would like to address or that you believe needs to be clarified in order for this committee to be more fully and completely informed on the issue? And I am talking generally about agency responsibility. That is a question of you, Mark.

Mr. ROBINSON. Okay. There were a couple points, and I will try to be brief on them. And I heard them repeated at——

Senator CRAIG. The reason I am following this line of questioning, Mr. Chairman, because I am using all of the other testimony as a template to question Mark based on how FERC sees these kinds of relationships.

Mr. ROBINSON. Okay. One of the statements that was made is that there is no difference in the time required to relicense between a project that contains mandatory conditions and those that do not. If you look grossly at the statistics, in fact, that is correct. However, given the number of projects we relicense and the number of different things that can cause delay, one delay masks another.

In the grand scheme of things, the issuance of a section 401 certificate under the Clean Water Act really drives the train in about 40 percent of our projects. I mean, that is the cause of the largest delay. But inside of that, inside of that delay, clearly the receipt of 4(e) conditions, which runs about 17 months on the average, when the commission has asked for those within about 2 months,

leaving you about a 15-month delay on average when we receive 4(e) conditions, it is a delay. And a delay is a delay is a delay. And we cannot do anything about that.

So to say that there is no difference between the two really does not look at it in fine enough detail. And what we found, what we did, is that you have about a 15-month period in there, on average, where we do not receive 4(e) conditions, just as an example. That is one instance.

The second thing I would like to bring up is the commitment in the testimony, and again as expressed here, that conditions will be provided within 60 days after we establish a notice that says we are ready for your condition, which is consistent with our regulations and what we would like to see those conditions come in.

And then a second commitment, that they will come in with their modifications to those conditions 60 days after the draft NEPA document, and then a commitment to come in after the final EIS with their ultimate conditions. Well, that is three bites at the apple. We would like to have those conditions 60 days after we establish that we are ready for those conditions.

Senator CRAIG. Let me go to a similar line of questioning with the testimony that was given by Ms. Birnbaum. Did I do that right, Liz? Thank you.

Have you had the opportunity, Mark, to review Ms. Birnbaum's testimony, either her testimony filed here today or she recently gave some, I think it was June 27, before the House? And I was fascinated by many parts of her testimony, but particular with her discussion of the Federal Resource Agency's mandatory conditions and how they are used by Federal agencies to, in her words, "form a floor above which FERC can balance license conditions."

Do you have any thoughts in relation to that concept? I thought that was an interesting statement as it related to the overall process.

Mr. ROBINSON. Yes, sir, I do. It projects a visual in my mind. If you look at it as you set the floor from which you balance, it projects one type of image. The actual image is this: If you have a—if you can think of it as a scale, like a—I am a biologist. So I will say a triple beam balance type of a scale, which is a long stick with a point in middle where, you know, you balance things.

What really happens is, you come in one side of that balance, and you set those conditions. Well, that will move that up and down on one side. Once those are set, it is pointed to, and it also sets the other side of the balance. Those non-developmental—I am sorry, those developmental types of issues, like power production, irrigation, safety, those things someone mentioned from the table earlier.

So it does not exactly set the floor; it actually sets the point that you are going to have on the power production sides by setting the point that you are going to have for the environmental protection.

I hope that was somewhat clear.

Senator CRAIG. Well, I think I understand it. Because that was my frustration, agencies coming in with mandatory requirements, I understand that. But it does change the circumstance——

Mr. ROBINSON. It certainly does.

Senator CRAIG [continuing]. Under which an ultimate license can be formed and ultimately a project operated.

I will return to you. I have more questions.

Mr. ROBINSON. Go right ahead.

Senator CRAIG. All right. Let me give you an opportunity, Mark, to respond to what I considered to be a very charge that Ms. Birnbaum made.

And certainly, Ms. Birnbaum, you, too, can respond.

And this came from her June 27 testimony in the House. She asserts that, again in her words, "FERC over relies on what is characterized as the public interest." And you certainly have mentioned that today, Mark. "But is little more than best professional judgment clouded by institutional biased."

I believe that was your quote, Ms. Birnbaum.

She continues in her testimony to assert that the Commission's decisions are often made in a black box and are arbitrary and capricious. I guess I would have to say, do you know what she is talking about here? Has American Rivers ever formally raised this with the Commission and given particulars so that it could respond to those kinds of allegations?

Mr. ROBINSON. I did notice that in her statement. It did not escape me, I tell you. I am quite surprised at that.

Senator CRAIG. Well, they are not fighting words, but they certainly are illustrative of a process or a condition.

Mr. ROBINSON. I am surprised at those statements. We have worked with American Rivers and others for a number of years to develop the process that we have now. And I cannot believe that anybody at this table would say that the FERC licensing process is anything other than one of the most public-intensive, public-involvement, above-the-table, transparent regulatory systems in place here in D.C. today.

We have—and as a result of that, you get an enormous amount of process, and you get more time, more cost, which of course now generates the criticism that we have. But that is the truth of it.

And I would like to just go one step farther, if I could, because another criticism we hear from American Rivers, and hopefully I can address it and maybe will never hear it again, but we might, is that the expertise only exists with the agencies. There are two aspects of the expertise that come into play in licensing a hydropower project on the environmental side. And it is more than the environment, but just on the environmental side.

One set of expertise rests with the agencies. There is no doubt about it, and we rely on it. And we would propose nothing that would diminish that input to the process. That is what goes on with those resources locally. They know where the fish are. They know where the elk range. And we have to have that information to make good judgments and good decisions about these projects.

The other set of information is what does a hydropower project do to those kinds of resources? We have without doubt the greatest concentration of environmental expertise. There are 80 more people just like myself with advanced degrees in environmental sciences that exist back at the Commission, who 5 days a week and at least 8 hours a day work on hydropower licensing from an environ-

mental perspective. They are professionals. We have that expertise, and we know what hydropower projects do to those resources.

If you combine those two, we have the best possible chance of issuing a license that meets the public interest standards. Neither one can stand alone. And hopefully American Rivers will appreciate that and make note of that from this point forward.

Senator CRAIG. Liz, in fairness to you, certainly you are entitled to respond.

Ms. BIRNBAUM. Thank you. I wanted to comment on the elements of my earlier testimony that you commented on. The institutional bias referred to, as is pretty clear, based on the fact that FERC simply does not deny hydropower licenses. They are a licensing agency. And they are supposed to be deciding whether or not a hydropower project should be placed where it is proposed. In fact, they do not deny licenses. They are much more of a hydropower promotion agency.

Now under those conditions, Congress has put a number of constraints and in 1986 determined that there needed to be more of a requirement that FERC balance non-power interests, as well as power interests, because it recognized that FERC's general approach is to grant licenses.

On the black box perspective, although FERC's public docket is very often, what happens at FERC is very much behind closed doors. FERC does not, for example, publish a draft decision, even a staff draft, before they come out with the final decision on a license. And then as virtually everybody who has had to deal with the FERC rehearing process knows, once a petition for a rehearing is filed, nobody knows how, when, or why a decision will be made. The statute requires that it be done within 30 days.

Typically FERC issues a decision accepting the request for a rehearing solely for the purpose of further consideration. And then a final decision does not come out for 6 months to several years.

All of that is a black box. Nobody knows what is going on inside of it.

Senator CRAIG. Well, I understand the process, and I appreciate some of the reasons and some of them economic as to why those decisions are made in that light. You have made the absolute statement that FERC has never denied a license. Do you want to repeat that?

Ms. BIRNBAUM. I actually do not know whether FERC has ever denied a license for sure, but I know that they do not in general. The Corps of Engineers——

Senator CRAIG. I know of a few, and I will bet Mark could come up with others.

Ms. BIRNBAUM. You know, the Corps of Engineers grants thousands of wetlands permits and occasionally denies one. FERC has been known to go back and tell people that they needed to file a different application for a different license. But in general, FERC is strongly biased towards granting license applications.

Senator CRAIG. Again, Mark, for years now, many opponents of hydro have asserted that FERC's licenses once issued are immutable for periods of 30 to 50 years. First of all, is that true? And what can the Commission do when environmental resources are

threatened as a consequence of changed circumstances at the projects?

Mr. ROBINSON. Since about 1975, licenses issued by the Commission have included what have commonly become known as reopener provisions.

These are provisions that allow the commission, if there are changed circumstances or unanticipated consequences of licensing that appear during the course of the 30- to 50-year license to go back in and, on its own merits or at the request of the Department of the Interior or Commerce, I believe, make adjustments to that license for the protection of fish and wildlife, for the addition of recreational resources, and for a number of other environmental types of conditions.

That really, around, I will say, 1991 or so, was highlighted through what is known as the Platte River decision, where we were asked to go in and make rough and ready changes to a project, by the courts, to facilitate whooping crane habitat.

Since that time, we have had about 50 other reopener actions at the Commission, where we have gone back in during the course of the license and modified those projects. We have about 15 of those 50 pending right now. All but 3 or 4 of those others that we have already treated were typically handled by again negotiation with the licensee and the agencies that were involved in coming up with a solution where the licensee would come in and amend their project to take care of whatever problem was there.

So we have a completed a large number of these. But it is a provision that we include in all licenses now to ensure, if we have changed circumstances or unintended consequences, we can go back and make adjustments to those projects, recognizing that we do that with great—I mean, there has to be the ability to rely on those licenses by the people who are developing these projects and investing their money.

But we also know that we have balance that with making sure that we know when a new species is listed, endangered species is listed, that we can go in and make some adjustments to that project to satisfy the endangered species concern.

Senator CRAIG. You say it is a provision within the license now. Is it a relatively new provision? How long have you been doing this?

Mr. ROBINSON. I think it has been about since 1975 that almost all of them include it. Right now it is very few licenses that remain that do not include that provision.

Senator CRAIG. But historically speaking, and I know that Ms. Birnbaum referred to that, I think what she said was historically accurate in a sense, but I had understood there was flexibility now, based on certain circumstances.

Mr. ROBINSON. We have been making use of the reopener provision with much greater frequency since about 1991, about ten years.

Ms. BIRNBAUM. May I comment on that?

Senator CRAIG. Yes, please.

Ms. BIRNBAUM. Although FERC has indeed used the reopener provision where licensees have been willing to come in and amend their licenses, some of the good actors who recognize that they need

to deal with new endangered species listings, there are also some notable cases in which they have declined to reopen licenses where they have reopener clauses, when new species have been listed, and even where there have been die-offs of endangered stocks of fish. And they have declined to reopen those licenses.

Senator CRAIG. Okay. Mr. Chairman, I have other questions, but you have been very generous with time. And it is late, and this panel has been held longer than I think they probably thought they would be here. I will submit some questions in writing. And thank you very much.

The CHAIRMAN. Thank you, all, very much. I think it has been very useful testimony. And we will conclude the hearing.

[Whereupon, at 12:25 p.m., the hearing was recessed, to be reconvened on July 24, 2001.]

NATIONAL ENERGY ISSUES

TUESDAY, JULY 24, 2001

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 9:42 a.m. in room SD–106, Dirksen Senate Office Building, Hon. Jeff Bingaman, chairman, presiding.

OPENING STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

The CHAIRMAN. The committee will come to order. This is one of several hearings we have had both this year and in the last Congress on the science of climate change, but in the past we focused on the science of climate change, the cost of implementing the Kyoto Protocol, and appropriate research and development agenda to ensure technologies are developed to reduce and eventually eliminate greenhouse gases from energy sources. The committee has not held a hearing specifically on measures undertaken by the private sector to actually reduce emissions. I think this focus on a pragmatic and proactive plan to reduce greenhouse gas emissions is certainly timely today.

We are all aware that the administration has removed the United States from substantive participation in the international negotiations that have been occurring in Bonn. Agreement was reached on rules for the Kyoto Protocol yesterday that include, as far as I can tell from press reports, all of the flexibility mechanisms that the U.S. Government and U.S. industry has long argued were critical to a cost-effective strategy.

The meeting of the parties in Bonn will continue through the end of the week as the details of the implementation are being worked out. Unfortunately, those details will be worked out without our involvement.

The two major criticisms of the protocol, first that the market mechanisms essential to avoiding economic harm were not clearly defined, and second that developing countries were not required to take on defined commitments, those two criticisms should in my view not have resulted in the administration walking away without a serious effort to remedy those defects. It appears to me from the press reports I have seen that the first criticism that market mechanisms essential to avoiding economic harm were not clearly defined, that criticism is well on its way to being addressed.

The second criticism, that developing countries were not required to make defined commitments I think also is in flux. According to

testimony that the committee received last month, China has reduced its greenhouse gas emissions, or taken actions to reduce greenhouse gas emissions from the levels they otherwise would have achieved by as much as a third during the past 20 years.

That same testimony indicated that our own greenhouse gas emissions since the signing of the Rio treaty have increased substantially.

While the Congress has debated the subject, many members of the business community have been taking actions to reduce greenhouse gas emissions. They are now seeking to build on this experience through development of a clear legal framework for domestic emission reductions.

Establishing risk parameters will enable the private sector to make informed investment decisions and minimize cost. There is no simple, universal answer for meeting the challenges of climate change. The study that the Department of Energy came up with, the Scenarios for a Clean Energy Future, written by five of our national laboratories, makes the case that a vigorous program of energy technology research, development, demonstration, and deployment, coupled with an array of public policies and programs to overcome market failures and organizational barriers, can be an effective public response to the Nation's energy-related challenges.

Such policies could significantly reduce inefficiencies, reduce oil dependance, reduce air pollution and greenhouse emissions at essentially no net cost to the U.S. economy. That is the conclusion of this report that I referred to. I urge my colleagues on the committee to review the report if they have not done so. We need to develop a set of public policies that will set up the necessary infrastructure to leverage our resources to accomplish that goal.

I am obviously interested in hearing what the panelists' views are on how policy changes, coupled with the implementation of efficient new technologies and practices, can move us forward in our effort to reduce greenhouse gas emissions. Let me call on Senator Murkowski for any comments he has, and then we will go to the witnesses.

[A prepared statement from Senator Hagel follows:]

PREPARED STATEMENT OF HON. CHUCK HAGEL, U.S. SENATOR FROM NEBRASKA

Mr. Chairman, I want to thank you for holding this important hearing today on climate change.

The timing is very appropriate, coming on the heels of the Bonn negotiations on the Kyoto Protocol. I believe the outcome of those negotiations clearly indicates that the U.S. should take action domestically to address the challenge of climate change, because the path the international community is taking is veering further and further from the interests of the United States.

The agreement reached in Bonn underscores President Bush's position that the Kyoto Protocol is not in America's national interest. It severely restricts the use of market mechanisms by reducing the use of emissions trading, placing severe discounts on the use of carbon sequestration efforts and including other measures that reduce a nation's flexibility. The participation of developing nations wasn't even discussed. The Bonn agreement moves the Kyoto Protocol further from the provisions established by a 95-0 Senate vote on the Byrd-Hagel resolution, and further away from any treaty that could ever be ratified by the U.S. Senate.

The United States is committed to addressing the issue of climate change. But we will not subjugate the economy of the United States, which would have global implications, to an international agreement that would have little to no impact on reducing global greenhouse gas emissions. By completely leaving out any commit-

ments from the developing countries, the Kyoto Protocol is no solution for a global challenge.

The United States will also work to take domestic actions to enhance our knowledge of climate change, to develop technologies necessary to address this challenge and to reduce greenhouse gas emissions. I am working with my colleagues on this committee, Senators Murkowski and Craig, to develop legislation which would do this.

I look forward to hearing from today's witnesses on various approaches that can help us reduce our greenhouse gas emissions. We need to look at a wide variety of voluntary measures that can be undertaken now, and the technology we can develop in the future that will allow the United States to take significant steps to reduce our greenhouse gas emissions without wreaking havoc on our economy.

We also must continue our efforts to increase scientific investigation into climate change in order to close the gaps that exist in our knowledge of this extraordinarily complex issue. The actions we take should be grounded on a sound scientific base.

I would like to note the presence of a fellow Nebraskan this morning, John Campbell of Ag Processing Inc. I have worked with John on numerous issues, particularly renewable fuels, and I believe he will have some interesting things to say about how ethanol and biodiesel can help us reduce greenhouse gas emissions.

Again, thank you Mr. Chairman for holding this timely hearing. I look forward to the testimony from our witnesses.

STATEMENT OF HON. FRANK H. MURKOWSKI, U.S. SENATOR FROM ALASKA

Senator MURKOWSKI. Thank you, Mr. Chairman. Good morning. It is a pleasure to begin another week with hearings on various aspects of our energy legislation. With regard to Kyoto, I think we have gone from bad to worse, relatively speaking. On the other hand, the timing of the hearing is appropriate, given the decisions that were made in Bonn.

As we look at finalizing the operational rules for the Kyoto Protocol, it is my opinion that the partial agreement reached by negotiators this past weekend has made a flawed treaty, if you will, even worse.

Now, we do not have all the details relative to the administration's views on this, but I expect we will shortly. The negotiators basically placed more restrictive rules on market mechanisms like emission trading, which basically increases the cost to the economy. It is beyond me that they would exclude nuclear power as part of the solution. Evidently, the environmental ministers of many of the European countries are so fearful that somehow—we have some feedback in the room, Mr. Chairman.

The CHAIRMAN. I do not think it is feedback. I think somebody is watching the soap operas towards the back of the room.

Senator MURKOWSKI. Either that, or they are listening to the news, which may be better news than we are making.

The CHAIRMAN. You have got someone fixing it? Okay. We will proceed.

Senator MURKOWSKI. Well, we will proceed anyway. I wonder who has got jurisdiction over the Energy Committee? Clearly somebody does.

In any event, it is beyond me that those that are looking for relief on global warming would exclude nuclear energy, and evidently some of the developing nations are fearful—and perhaps our witnesses can give us a little explanation on this—that somehow the developed nations would dump the nuke waste into the environments of the developing nations, but if you are looking for relief on global warming, why, nuclear clearly has a role, and I think that

in itself, exclusion of nuclear power, I am told that the French have decided to remain neutral on it, and they are some 80, 85 percent dependent on nuclear energy.

They limited use of carbon sequestration to reduce net emissions to the atmosphere. We all know we could assimilate an awful lot more carbon by encouraging second growth forestry. Old growth does not assimilate carbon sequestration at the same rate that second growth timber does. They cut a series of political deals. I think that sets a bad precedent for future efforts to limit emissions.

It is kind of interesting, we note China's reduction. China made the reduction outside the global warming climate change debate. One of the things that we were quite critical of was the Three Gorges Dam, the development of that, and that in itself will make a significant case to reduce emissions. I think that dam alone was supposed to replace about 36 500-megawatt coal-fired plants, to give you some idea, as we criticize China's efforts to reduce emissions, of the trade-off here.

The result of the discussion in Bonn I think probably takes us further away from the Byrd-Hagel resolution, which—I do not know if Hagel is with us this morning. I think it passed 95 to zero.

Global participation by all nations was not even on the agenda for discussion, and decisions on rules made the Kyoto Protocol more expensive and less effective. These recent actions on the international level I think only confirm the President's wisdom to reject the flawed Kyoto Protocol and seek an alternative way forward to reduce emissions of greenhouse gases while providing the energy that we are going to need.

Kyoto is not the only game in town, as many in the international community would have you believe. Today's witnesses are voluntarily reducing their emissions without the Kyoto Protocol in force, and they are developing promising new options, including carbon sequestration to reduce emissions to the atmosphere. There are several policy actions we can take to foster more of these voluntary activities and make sure that they yield quantifiable reductions, and I hope the witnesses will provide us with their views.

For example, I believe we can improve the Department of Energy program for reporting voluntary greenhouse gas emission reductions by turning it into a robust registry that allows companies to register baselines and actions taken to reduce emissions. This registry can be used as a scorecard for our efforts to reduce emissions in a cost-effective manner.

We should also invest in more energy research and development to develop the energy technologies of tomorrow, that is, energy without emissions, and to develop a range of tools, including carbon sequestration, that we can use to manage our risks. A lot of that is planting more trees. I proposed this last year, and Senators Byrd and Stevens have included this proposal in their legislation.

I think we should focus on the potential to avoid emissions in developing countries through energy transfer technologies. As I said earlier, we have the technology. We can assist those countries.

This is clearly the right way forward, not the flawed Kyoto Protocol made worse by decisions made in Bonn. Several of us are working on legislation to help manage the risk of climate change and

provide an alternative for Kyoto, and I certainly encourage those Senators who are sincerely concerned about this effort to join us.

Thank you.

The CHAIRMAN. Thank you very much.

Our first panel is Hon. Francis Blake, who is the Deputy Secretary of Energy here in Washington. He is a frequent visitor to our committee, which we are very pleased about, and Mr. Christopher Risbrudt—is that the correct pronunciation?—who is the Acting Associate Deputy Chief for Programs and Legislation with the U.S. Forest Service. I thank you both for being here. Mr. Blake, why don't you go right ahead.

STATEMENT OF FRANCIS BLAKE, DEPUTY SECRETARY OF ENERGY

Mr. BLAKE. Thank you, Mr. Chairman and members of the committee, and thank you for inviting me here this morning. I would like to submit my testimony for the record and just briefly summarize it, if that is all right.

The CHAIRMAN. That would be fine, and your full statement, both of your statements will be included in the record.

Mr. BLAKE. The issue you are considering today is of tremendous importance. At our current rate and pattern of energy consumption, DOE estimates that U.S. carbon dioxide emissions will increase at an annual average growth rate of about 1.4 percent through 2020. We are going to need a concerted effort to reverse this trend, and technology is going to have to play a central role.

For that reason, President Bush created the National Climate Change Technology Initiative. He has directed the Secretary of Commerce to evaluate the current state of climate technology research and make recommendations for improvement. He has tasked the Department of Energy, in coordination with other agencies:

First, to strengthen the basic research at our national labs, looking to the development of advanced mitigation technologies;

Second, to enhance public-private partnerships and expedite innovative and effective reduction technologies;

Third, to make recommendations for funding of demonstration projects; and

Fourth, to develop improved methods for measuring and monitoring greenhouse gas emissions.

We are already well underway in that effort. Recently, we announced a grant to the Nature Conservancy, studying land use practices for studying carbon more effectively. We have made a couple of awards to consortiums of companies that are looking to develop new technologies for capturing and sequestering CO_2 from oilfields and from fossil fuel combustion plants.

Across the Department, we have multiple programs aimed at reducing the energy intensity of our economy, that is, the Btu consumed per dollar of GDP, and reducing the carbon intensity, that is, the amount of carbon per unit of energy.

We have major research and development programs focused on efficiency improvements and in reducing CO_2 emissions through greater use of lower carbon fuels and, of course, through renewables. Geothermal, wind, nuclear, solar, these are all technologies

that promise tremendous opportunities for reducing our greenhouse gas emissions, and I know from our discussion last week and the support of this committee on further research and development efforts, that we share a number of perspectives on how we can move forward and address this important issue.

I look forward to answering any questions and working with this committee on the legislation that you have before you. Thank you very much.

[The prepared statement of Mr. Blake follows:]

PREPARED STATEMENT OF FRANCIS BLAKE, DEPUTY SECRETARY OF ENERGY

Mr. Chairman and members of the committee, I welcome the opportunity to testify on S. 597, the Comprehensive and Balanced Energy Policy Act of 2001; S. 388, the National Energy Security Act of 2001; and S. 820, the Forest Resources for the Environment and the Economy Act.

In June 2001, the President announced his commitment to develop an effective and science-based approach to addressing global climate change. A cornerstone of that commitment is the deployment of existing technologies and the development of new technologies that can increase energy supply, promote energy efficiency, and reduce greenhouse gas emissions.

The Energy Information Administration is projecting that U.S. carbon dioxide emissions from energy consumption will reach 1,800 million metric tons of carbon equivalent in 2010, and continue to rise to 2,000 million metric tons of carbon equivalent by 2020, an average annual growth rate of 1.4 percent. We will need a concerted effort to reverse this trend.

While many different policy approaches to greenhouse gas reductions may be considered, none can be successful without a continuing supply of new, more economically and environmentally sound technology. Prudent technology research and development reduces the costs of new technologies, and expands economic opportunities while lowering emissions. Accompanying public policy can provide incentives for technology investment, diffusion and deployment.

Public support for reducing greenhouse gas emissions depends on combining economic growth with environmental protection. Both can occur if new, lower-emitting, cost-effective technologies are profitable and economically efficient. Forcing costly and less productive technologies into the economy reduces economic growth and inevitably drains public support for emissions limitations. No climate change strategy, no matter how flexible and efficient, can support robust economic growth unless lower cost and higher productivity technologies reducing greenhouse gas emissions are readily available.

Because greenhouse gas emissions come from many sectors of the economy, a broad range of technologies will be needed. Such a portfolio of technologies could include energy efficient technologies, lower carbon-emitting technologies, carbon capture, storage and sequestration technologies, and new technological discoveries yet to be made.

To assure that we can meet our technology needs to reduce greenhouse gas emissions, the President created the National Climate Change Technology Initiative and directed the Secretary of Energy, the Secretary of Commerce and the Administrator of the Environmental Protection Agency to: 1) evaluate the current state of U.S. climate change technology research and development and make recommendations for improvements; 2) provide guidance on strengthening basic research at universities and national laboratories, including the development of the advanced mitigation technologies that offer the greatest promise for low-cost reductions of greenhouse gas emissions; 3) develop opportunities to enhance private-public partnerships in applied research and development to expedite innovative and cost-effective approaches to reduce greenhouse gas emissions; 4) make recommendations for funding demonstration projects for cutting-edge technologies; and 5) develop improved technologies for measuring and monitoring gross and net greenhouse gas emissions. The National Climate Change Technology Initiative also will enhance coordination across federal agencies and among the federal government, universities, and the private sector. We are now at work implementing the President's initiative and will be able to report back to the President later this year.

We are making progress on other fronts as well. In mid-July, the President announced new agreements that involve DOE. The first is an agreement with the Nature Conservancy to study land use and forestry practices for storing carbon more effectively in Brazil and Belize. The second is with an international team of energy

companies to develop a new set of technologies for reducing the cost of capturing and sequestering carbon dioxide from fossil fuel combustion plants. There are other Federal agencies, notably the Environmental Protection Agency and the Department of Agriculture, with programs that address climate change through technology research and development and deployment.

The Administration is engaging on the international front as well. As we speak, the United States is participating constructively in international discussions on climate change at the continuation of the Sixth Conference of the Parties to the Framework Convention on Climate Change in Bonn, Germany.

At the Department of Energy, we have multiple programs aimed at addressing climate change both indirectly through improvements in energy efficiency and R&D on renewable energy sources, and directly through R&D programs aimed at sequestering carbon. Our programs, many in partnership with industry, address: efficiency improvements in end use, distribution, transmission, and generation of electricity; increased use of energy-efficient electro-technologies; reducing CO_2 emissions through increased efficiency of coal and gas-fired plants; promotion of greater use of lower carbon fuels such as natural gas, nuclear, or renewable energy; transportation actions, including greater use of natural-gas-powered and electric vehicles; recovery of methane from landfills and coal seams; and the use of fly-ash as a cement substitute.

We've enjoyed numerous successes over the years and I'd like to highlight a few examples.

DOE-sponsored technology advances in wind power has led to an eight-fold drop in cost, to about five cents per kilowatt-hour in areas with the best resources. In these locations, wind is competitive with many traditional generation technologies. Geothermal power plants, once restricted to the geysers area in northern California, are now operating throughout California and in Nevada, Utah, and Hawaii. Scientific advances have enabled successful geothermal power plant construction and operation in these four states. Installed geothermal power plant capacity now exceeds 2,800 megawatts. Over 400,000 geothermal heat pump applications have a total thermal capacity of 3,600 megawatts in the United States. Biomass power has grown to 350 U.S. power plants providing 7000 megawatts of power. New technologies that boost the efficiency and cleanliness of biomass power are now being tested. Through technology advances achieved by DOE research and development, the performance of renewable technologies has increased while the costs have dropped dramatically. Combined with a more detailed knowledge of renewable energy, these advances have accelerated the market for renewable technologies.

Starting from a few research and development firms supported by federal funding, the U.S. photovoltaics industry has developed into a thriving business with annual sales of $500 million. Thin-film photovoltaic cells are now doubling as rooftop shingles. DOE research on thin-film photovoltaic cells and a growing interest in integrating photovoltaic cells into buildings have resulted in this new building material that generates electricity-using sunlight. The energy generated from a building's rooftop shingles can provide power both to the building and to the utility's power grid. Several demonstration projects, including a solar rooftop system showcased at the Southface Energy and Environmental Resource Center in Atlanta, Georgia, have proven that these innovative shingles can provide clean electricity.

Geothermal heat pumps are one of the most cost-effective heating and cooling systems available. A typical system can reduce energy consumption by 23 to 44 percent compared to traditional heating and cooling systems. While geothermal heat pumps are typically more expensive to install, their greater efficiency means the investment maybe recouped in three to ten years. Experience has shown that use of geothermal heat pumps can be beneficial to electric utilities and their customers.

DOE's appliance standards program for clothes washers, furnaces, air conditioners, water heaters and fluorescent lamp ballasts helps reduce carbon emissions by reducing demand for electricity generated by fossil fuels.

Nuclear energy will continue to play a significant role reducing greenhouse gas emissions. DOE's research program on fuel improvements for light-water nuclear reactors created a technology that currently enables 50 percent more energy to be extracted from each unit of nuclear fuel, with prospects for greater increases in the future. This technology, called "extended burnup," is now being implemented worldwide in water-cooled reactors. Its widespread use also has several other independently valuable consequences, such as increasing the output of nuclear power systems, which do not produce greenhouse gases. Extended burnup reduces fuel cost for each operating reactor by several million dollars per year and permits utilities to extend the time interval between refueling outages from 12 months to 18 or 24 months. Also, by more fully using each unit of nuclear fuel, the amount of spent nuclear fuel that must be stored today is reduced by one-third.

The President's National Energy Policy will build on these successes. The Policy addresses conservation, energy efficiency, and cleaner sources of energy. In particular, the President's clean coal initiative builds on the success of prior public-private partnerships in clean coal technology. From 1986 to 1993, government and industry sponsored 38 first-of-kind clean coal technology projects in 18 States. Before this program, only a few options existed for reducing pollutants released from coal, and almost all were expensive. DOE's Clean Coal Technology Program changed that. Today, because of the clean coal investment, 75 percent of U.S. coal-fired power plants now use, or are installing, low-cost, low-polluting burners to reduce smog-forming nitrogen oxides. Power plants can now turn coal into a gas and remove virtually all of its smog- and acid rain-forming impurities, creating a fuel that rivals natural gas in environmental cleanliness. Also like natural gas, coal gas can power "combined cycle" arrangements of gas and steam turbines that boost fuel efficiencies and reduce greenhouse gases.

I would like now to turn my attention to the several energy policy bills that are the topic of the hearing today.

In examining these three bills (S. 388, S. 597, and S. 820), it is clear that we share common goals though there are, of course, differences in the relative emphasis placed on different goals. I think, for instance, that we can all agree on the importance of energy research and development and the role of new technology in helping us to blunt the horns of our energy and environmental dilemma. There appears to be a consensus on the importance of public investment in energy efficiency. And there are several areas where the need for updating the regulatory regime under which energy is produced, transported, and sold is manifest.

Consistent with the emphasis on R&D and technology in the energy bills under consideration, we are, as I mentioned earlier, working on the President's National Climate Change Technology Initiative, which will help us define a technology future that explicitly addresses climate change. In addition, DOE, in partnership with USAID and the Department of Commerce, has been working on the Clean Energy Technology Exports initiative, which originated in Senate report language accompanying the FY2001 Energy and Water Development Appropriation Bill and is a component of the President's National Energy Policy as well as being reflected in Section 111 of S. 597. The goal of the initiative is to facilitate private sector efforts to launch clean-energy technologies into international markets by improving the government's role in clean energy research, development, demonstration, and deployment.

In closing, the Administration welcomes the committee's efforts to address our Nation's climate change challenge and its strong support of the Department's energy science, research and technology development programs. The legislation under consideration by the committee is ambitious and many of its provisions would have consequences that must be weighed carefully before enactment. In this regard, I request that the Department be given the opportunity to continue to work with the committee on those provisions in the bill that affect DOE's programs.

Mr. Chairman, that ends my testimony and I would be happy to answer any questions the committee may have at this time.

The CHAIRMAN. Thank you very much.

Mr. Risbrudt, please go right ahead.

STATEMENT OF CHRISTOPHER RISBRUDT, ACTING ASSOCIATE DEPUTY CHIEF FOR PROGRAMS AND LEGISLATION, FOREST SERVICE, DEPARTMENT OF AGRICULTURE

Mr. RISBRUDT. Thank you.

Mr. Chairman and members of the committee, thank you for the opportunity to appear before you today to discuss S. 820, the Forest Resources for the Environment and the Economy Act. My name is Chris Risbrudt, Acting Associate Deputy Chief for Programs and Legislation.

The administration agrees with the goals of S. 820, to promote sustainable forestry in the United States and encourage carbon sequestration on Federal, State, and nonindustrial private lands, and would like to examine the bill in more detail and work with the committee on an acceptable bill.

On June 11, the President announced a series of initial steps, including plans for advancing the science of climate change, advancing technologies to address climate change, and promoting cooperation in the Western Hemisphere and beyond. The Cabinet is continuing to work on this issue, and is considering approaches that will tap the power of markets, help realize the power of technology, and ensure the widest possible global participation. Secretary Veneman is actively engaged in this process.

The concepts and ideas contained in S. 820 will receive serious consideration by the administration as we move forward in developing an overall approach to address the serious problem of climate change. Although there is much debate about how to address climate change and the specific impacts of climate change on the global environment, there is general agreement that atmospheric CO_2 levels are increasing. Increasing forestland area, greater adoption of agroforestry by agriculture, and improving forest and rangeland management and productivity can help reduce the rate of CO_2 accumulation.

Trees are efficient at sequestering large amounts of CO_2. Simply put, trees store carbon in their stems and branches, as well as below-ground in their root systems. In fact, about 50 percent of the dry weight of a tree is carbon. We believe that in forest ecosystems carbon accumulates over time on the forest floor and in the soil due to woody debris, leaves, and roots. Storing, or sequestering this carbon in forests removes it from the atmosphere while providing other environmental and economic benefits.

Approximately half of the land in the contiguous United States is devoted to agriculture. Due to this extensive agricultural land base, incorporating tree planting into a small portion of these lands through windbreaks and riparian forest buffers could result in an enormous amount of carbon sequestration, as well as promoting conservation and economic diversification.

The goals and objectives of S. 820 fit within the construct of existing forest programs, and would give the agency more tools to manage the national forests and grasslands, provide assistance to State and private landowners through the Cooperative Forestry Assistance Act, and continue cutting-edge research and development activities.

Through research and development, the Forest Service would continue to develop the science and technology needed to understand, manage, enhance, monitor, and estimate forest carbon stocks, including the above-ground, below-ground, and forest product pools. The administration would like to review its program across the Agricultural Research Service, Cooperative State Research, Education and Extension Service, the Department of Energy, the Forest Service, and the National Science Foundation to evaluate what is now being done and the best means to gather this information in the least burdensome way.

In closing, Mr. Chairman, the administration appreciates the effort and thoughts that have gone into developing S. 820. The ideas contained in this bill warrant serious consideration. However, the bill will affect direct spending. The administration recommends that the activities called for by this bill be funded through discretionary appropriations.

The forest-based initiatives articulated in this bill would contribute to sustainable forestry and carbon storage on Federal, State, and private lands. The administration is developing a comprehensive plan for addressing climate change, and welcomes this input. We would ask that, as Congress develops its own ideas on methods to address this global problem, it also considers opportunities to encourage agroforestry and improve the management of agricultural soils to increase carbon sequestration.

Thank you for the opportunity to comment today. I would be pleased to answer any questions that you or members of your committee may have.

[The prepared statement of Mr. Risbrudt follows:]

PREPARED STATEMENT OF CHRISTOPHER RISBRUDT, ACTING ASSOCIATE DEPUTY CHIEF FOR PROGRAMS AND LEGISLATION, FOREST SERVICE, DEPARTMENT OF AGRICULTURE

Mr. Chairman and members of the committee: Thank you for the opportunity to appear before you today to discuss S. 820, the Forest Resources for the Environment and the Economy Act. I am Chris Risbrudt, Acting Associate Deputy Chief for Programs and Legislation.

The Administration agrees with the goals of S. 820 to promote sustainable forestry in the United States and encourage carbon sequestration on federal, state, and non-industrial private lands, and would like to examine the bill in more detail and work with the committee on an acceptable bill.

On June 11, the President announced a series of initial steps, including plans for advancing the science of climate change, advancing technologies to address climate change, and promoting cooperation in the Western Hemisphere and beyond. The Cabinet is continuing to work on this issue and is considering approaches that will tap the power of markets, help realize the promise of technology, and ensure the widest-possible global participation. Secretary Veneman is actively engaged in this process.

The concepts and ideas contained in S. 820 will receive serious consideration by the Administration as we move forward in developing an overall approach to address this serious problem.

S. 820 would amend the Energy Policy Act of 1992 to authorize a role for the Secretary of Agriculture in the Climate Change program relating to carbon sequestration on forested lands. S. 820 would direct the Secretary of Agriculture to:

- Report to Congress on carbon storage and the potential to increase carbon storage on national forests through management actions, and the contribution of U.S. forestry to the global carbon budget;
- Establish a Carbon and Forestry Advisory Council to advise the Secretary on developing guidelines for accurate voluntary reporting of greenhouse gas sequestration from forest management actions; evaluating the potential effectiveness of the guidelines; and estimating the effect of the proposed implementation on carbon sequestration and storage;
- Review and advise the Secretary of the Department of Energy on existing voluntary reporting guidelines for greenhouse gases;
- Establish incentives for States, non-industrial forest land owners, and nonprofit entities for forest management activities and carbon sequestration through a revolving loan program; and
- Establish reporting requirements for State, non-industrial forest landowners, and nonprofit entities that participate in the revolving loan program for carbon sequestration.

BACKGROUND

Although there is much debate about how to address climate change and the specific impacts of climate change on the global environment, there is general agreement that the atmospheric CO_2 levels are increasing. Increasing forestland area, greater adoption of agro-forestry by agriculture, and improving forest and rangeland management and productivity can help reduce the rate of CO_2 accumulation.

Trees are efficient at sequestering large amounts of CO_2. Simply put, trees store carbon in their stems and branches as well as below ground in their root systems. In fact, about 50% of the dry weight of a tree is carbon. We believe that, in forest

ecosystems, carbon accumulates over time on the forest floor and in the soil due to woody debris, leaves, and roots. Storing or sequestering this carbon in forests removes it from the atmosphere, while providing other environmental and economic benefits.

Existing forests produce benefits because actively managed forests produce fiber at the same time that they are storing carbon. Active forest management results in a mixture of age-classes and younger, faster growing forests produce fiber and store carbon at a faster rate.

Approximately half of the land in the contiguous U.S. is devoted to agriculture. Due to this extensive agricultural land base, incorporating tree planting into a small portion of these lands through windbreaks and riparian-forest buffers could result in an enormous amount of carbon sequestration as well as promoting conservation and economic diversification. Other federal programs, such as the Conservation Reserve Program or the Environmental Quality Incentives Program encourage the planting of trees and shrubs in agricultural settings.

The goals and objectives of S. 820 fit within the construct of existing Forest Service programs and would enable the Agency to fully utilize its authority to manage the national forests and grasslands, provide assistance to State and private landowners through the Cooperative Forestry Assistance Act, and continue cutting edge research and development activities.

Through R&D (Research and Development), the Forest Service would continue to develop the science and technology needed to understand, manage, enhance, monitor, and estimate forest carbon stocks, including the above-ground, below-ground, and forest product pools. The Administration would like to review its program across Agricultural Research Service (ARS), Cooperative, State, Research, Education & Extension Service (CSREES), Department of Energy (DOE), Forest Service, and the National Science Foundation (NSF) to evaluate what is now being done and the best means to gather this information in the least burdensome way.

The new incentives and revolving loan program would fit neatly into existing Cooperative Forestry Programs. These programs provide technical and financial assistance to private landowners for reforestation and other forest management activities that result in enhanced forest productivity, improved environmental quality, and ultimately, increased carbon storage. The Rural Communities Assistance programs would also help rural places develop and sustain economic diversification and a market-based infrastructure.

In particular, the proposed revolving loan program is essentially the same as the existing Smart Growth Partnership Program, a program that is part of the conservation spending category. That program provides funding to Intermediate Relending Program (IRP) entities at low interest rates so that these entities can establish revolving loans. The purpose of funding the IRP's is to help landowners manage and develop woodlots and forests to protect these lands from development.

The recent release of the President's Climate Change Review Interim Report and the National Energy Policy complement these goals. We commend the sponsors of this bill for their recognition of the important role of our Nation's forests in carbon sequestration and recognizing that long-lived forest products, such as construction materials and furniture, are important carbon stocks that can be estimated and managed as part of active forest management programs that increase overall carbon storage. Estimates of carbon pools that do not include forest products currently in use and in landfills are inaccurate and misleading.

The bill should be clarified to reconcile the potential conflict between carbon sequestration and ecosystem restoration. In many parts of the country, particularly the Interior West, the health of our national forests and public lands has deteriorated due to the excessive growth of small diameter thatch. The result is high carbon density, but low ecological health, not to mention high risks of catastrophic fire damage. The bill needs to consider how, in various circumstances, increasing carbon sequestration in a forest may run counter to other important goals.

SUGGESTIONS

The Administration would recommend a technical change to the title of the bill by removing the reference to "national forests derived from the public domain." Unless this change is made, the initiatives in the bill would not apply to national forests in the east and south that were established from acquired lands.

We would also like to work with you to clearly define the intent of term "watershed."

Because S. 820 amends the Energy Policy Act of 1992, which is administered by the Secretary of Energy, there are several places in the bill where it is not clear

whether the authority or requirement referring to "the Secretary" refers to the Secretary of Energy or the Secretary of Agriculture.

The Administration would recommend several clarifications in Section 4 of the bill, because the authority and administration of several paragraphs is confusing. Section 4 of the bill amends 42 U.S.C. 13385 and requires the Secretary of Agriculture to undertake a review of the guidelines for the voluntary collecting and reporting of information on sources of greenhouse gases established by the Secretary of Energy, Administrator of the Energy Information Administration, and make recommendations for amendments and refinements of the guidelines. The Administration would recommend redrafting the requirement for the Secretary of Agriculture to complete public involvement on any recommended changes before recommending them to the Secretary of Energy. Instead, perhaps a collaborative approach to public involvement might be more useful.

It is also unclear from the construction of Section 4 whether the Secretary of Agriculture or the Secretary of Energy is ultimately the keeper of carbon storage information generated by States and non-industrial forest landowners participating in the revolving fund program. The language of the bill needs to be clarified concerning the role of the Administrator of the Energy Information Administration, Department of Energy and the role of the Department of Agriculture in data collection and storage.

Throughout Section 4 of the bill, which amends the Global Climate Change Title of the Energy Policy Act administered by the Secretary of Energy, the existing law refers to requirements and authorities of the Secretary of Energy. This becomes problematic in Section 5 of the bill where the question arises concerning the Forest Carbon Cooperative Agreements and Loan program, whether "The Secretary" mean the Secretary of Energy or "The Secretary of Agriculture?"

The interactions with the State Foresters and activities on non-industrial forest lands are similar to language in the Cooperative Forestry Assistance Act that is within the authority of the Secretary of Agriculture. The Administration would recommend that Section 5 of the bill be redrafted to amend the Cooperative Forestry Assistance Act of 1978 (16 U.S.C. 2101-2114, 16 U.S.C. 1606) to clarify the administration of the State and non-industrial private land carbon sequestration program to the Secretary of Agriculture through the Chief of the Forest Service. This would speed implementation of the incentive programs and movement of funds and direction through existing processes and authorities under the Cooperative Forestry Assistance Act.

We commend your intent to be consistent with Executive Order 13112 on Invasive Species by identifying eligible tree species. This approach provides important environmental safeguards while offering landowners opportunities for increased productivity, increased local income, and increased carbon sequestration that would not otherwise be realized. This also provides the landowner with opportunities to take advantage of science and technology advances in woody cropping systems that can provide bioenergy feedstocks, thereby offsetting the use of fossil fuels.

SUMMARY

In closing, Mr. Chairman, the Administration appreciates the effort and thoughts that have gone into developing S. 820. The ideas contained in this bill warrant serious consideration. However, the bill will affect direct spending; the Administration recommends that the activities called for by this bill be funded through discretionary appropriations. The forest-based initiatives articulated in this bill would contribute to sustainable forestry and carbon storage on federal, state, and private lands. The Administration is developing a comprehensive plan for addressing climate change and welcomes this input. We would ask that, as Congress develops its own ideas on methods to address this global problem, it also consider opportunities to encourage agro-forestry and improve the management of agricultural soils to increase carbon sequestration.

Thank you for the opportunity to comment today. I would be pleased to answer any questions you or members of your committee may have.

The CHAIRMAN. Thank you very much. Let me start by asking Secretary Blake, I have been concerned as I read the newspapers about the action in Bonn. I have been concerned about the same issue that Senator Murkowski discussed in his opening comments, and that is the apparent decision that nuclear energy would not be looked on, or a power producer of nuclear energy would not be

looked on as part of what a country would be given credit for, or part of the framework that has now been agreed to in Bonn.

I had thought that this meeting in Bonn would have been an excellent opportunity for us to lobby for the consideration of nuclear power as part of what is included there, and we missed that opportunity. Am I misreading the situation, or what is your view on that?

Mr. BLAKE. Excuse me, I am not familiar with the background of the treaty negotiations myself, and I am just getting a note confirming that nuclear energy is out of the Clean Development Mechanism and Joint Implementation.

I think your broader comment is whether that is an appropriate conclusion for the Protocol. I think we would share Senator Murkowski and your concerns on that approach.

The CHAIRMAN. What was the judgment made—perhaps you are not the right person in the administration to ask, but what was the judgment that caused us to not want to be there lobbying for inclusion of nuclear power?

Mr. BLAKE. I think we were there assisting throughout the discussions. We had a team there. Whether that team discussed the nuclear issue specifically I just do not know. I would not be the right person to ask on that.

The CHAIRMAN. The Department of Energy was in no way involved in any of that?

Mr. BLAKE. Yes, we were. Yes, we were. We had a number of representatives there. What I cannot tell you is whether that issue was specifically raised by any of our representatives there with some of the other delegates.

The CHAIRMAN. If it was raised, since we had withdrawn from the negotiations we were really not at the table to make suggestions, were we? How were we participating?

Mr. BLAKE. I think we were able to make suggestions, but as you say, we were not at the table as such.

The CHAIRMAN. Well, as I say, it seems to me that is an unfortunate result which I do not know if it could have been avoided had we been at the table, but I certainly am concerned.

Similarly, as I understand it, the framework that has now been described, or the agreement that has now been described there in Bonn, they are still working through the details for the rest of this week on that, and again we are not there participating in any of those negotiations. I am right about that?

Mr. BLAKE. Again, we have people there who are there to help in the discussions, and certainly provide the U.S.'s views.

The CHAIRMAN. We are observers, and there if someone asks us for our opinion, is that our essential position?

Mr. BLAKE. Well, we have the Convention itself, and then there is the Protocol, and there are two sets of discussions, and I think on the Convention we are more directly engaged than on the Protocol. That is my understanding.

The CHAIRMAN. But the Protocol is the one they are now working out the details of, is that correct?

Mr. BLAKE. That is correct.

The CHAIRMAN. So that is the part we are not engaged in.

Mr. BLAKE. Well, I think we are engaged. We are there helping the other countries and certainly providing what is the U.S. position.

The CHAIRMAN. Let me also ask, one of the concerns I had: the President, of course, has issued the energy plan for the country, and one of the concerns I had when I read it, there was much in there I agreed with, but there was also a lack of attention to the issue of climate change, as I saw it. It did not seem to be integrated into that plan.

We in this committee are going to try to put together a comprehensive energy bill as the administration has urged, and I am anxious that we try, as best we can, to integrate policies that we can agree upon on climate change into that energy bill. It seems to me the best opportunity that we have in this year, and maybe in this Congress, to do that. Do you have a position, does the administration have a position on whether we should be trying to address these issues as part of a comprehensive energy bill?

Mr. BLAKE. I think when you look at the administration's energy plan, probably 50 percent of the recommendations have a direct bearing on carbon dioxide emissions, whether it is energy efficiency renewables, increased research and development. So there is already attention through the plan on this question both of the energy intensity of our economy, as well as the carbon intensity of the fuels that we use.

The CHAIRMAN. So the emphasis that is in your plan on research and development and on renewable sources of energy, you see that as essentially the climate change component.

Mr. BLAKE. The President has also directed us, to review, on all of the efficiency and renewable portfolio. For example, what we are doing, what we need to be doing, and we are taking a top-to-bottom review of that, as well as directing us on the R&D efforts that more particularly focus on our carbon dioxide reduction program.

The CHAIRMAN. This internal working group, the administration's got on climate policy or climate change, will it have anything in the way of a recommendation that this committee could consider as we put together comprehensive energy legislation, or what is your intention with regard to that?

Mr. BLAKE. Well, there are a number of aspects to it, as I indicated. The Department of Commerce has been tasked with looking at the state of climate change research, and I think they will be coming up with some response to the President on that, if I understand the time frame correctly, in August.

We are also working on the R&D technology side of that, the efforts underway. I think we are working on an as soon as possible report-out date, but I cannot give you a specific time.

The CHAIRMAN. There are a couple of items I wanted to particularly just mention which I would appreciate you looking at that are not related to climate change, as such. One is the Strategic Petroleum Reserve. Last week, we sent this letter to Secretary Abraham urging that he initiate a full management review of the operating cost of the Strategic Petroleum Reserve. We are spending $160 million per year to maintain the reserve, and it seemed to us that was an excessive amount, so I would like—I hope you folks are working on getting us a response to that.

Mr. BLAKE. Mr. Chairman, when we got your letter I met with Director of that office last week, and we have begun the full review.

The CHAIRMAN. Okay. Thank you very much.

One other item that we are just sending you a letter on today, these are the remaining oil overcharge refunds. The Department of Energy is still, as I understand it, sitting on about $250 million of refunds that are due to the public for oil overcharges that occurred about 20 years ago. I understand a significant portion of those refunds are owed to utilities. We are sending Secretary Abraham a letter today on the subject. I would appreciate you looking at that as well and seeing if you could give us a status report.

Mr. BLAKE. I will do that, yes, sir.

The CHAIRMAN. All right.

I think I have probably used all of my time. The timers are not working here. I do not know if anyone has failed to turn them on, but I think I have probably used all my time.

Senator Murkowski.

Senator MURKOWSKI. Thanks very much.

I would like for the record to note the submission of positions by the American Petroleum Institute and NEI, the Nuclear Energy Institute, into the hearing today, and I would ask unanimous consent that the statements be entered into the record as submitted, and as if read.

I think it is important to note that as far as the submission of the Nuclear Energy Institute, it covers a letter to the governments around the world indicating the important role nuclear power plays in meeting the challenge of reducing emissions, and further states the continued safe, effective use of nuclear electricity and of advanced nuclear power technology are an integral part of the international effort to manage risks from global warming. The letter is signed by 93 CEO's from around the world. These are leaders in the nuclear industry worldwide.

You know, it is just incomprehensible to me why at this meeting in Bonn they would simply ignore the role of nuclear energy. That is why it is my feeling there is a tremendous inconsistency here with getting on with just how we are seriously going to reduce emissions and ignore the role of nuclear energy.

There is also a letter submitted by the American Petroleum Institute which basically suggests that the petroleum industry, refining industry and so forth, have made substantial reductions in emissions as a consequence of greater awareness and concentration of capital into reducing emissions through technological breakthroughs, and I think that is an important contributor as we recognize our obligation here in America to try and do our share in reducing emissions.

Another item that I wanted to bring up, Mr. Blake is, there is a bill around here—I do not know whether it is S. 556—I think Senator Lieberman and Senator Jeffords are sponsors, but I understand that the EIA has indicated in a recent study that multipollution legislation for the utility sector as proposed under this legislation would lead to about an $80-billion higher annual electric cost by the year 2010, nearly a 30-percent cost increase per kilowatt hour, and it would require massive early retirement of coal-fired

generation as a consequence of eliminating that as one of the major sources.

I think coal provides about 50 percent of our energy, and I would ask you if this is your analysis? Is this the reason why the administration opposes caps on CO_2 emissions from powerplants?

Mr. BLAKE. Certainly the EIA study, which did analyze the costs for a multi-pollutant approach, and particularly CO_2, pointed out the economic impacts. As you indicated, they are about $80 billion higher electricity costs in 2010, and average retail prices up over 40 percent. In addition, and perhaps even more importantly in terms of the Protocol, I think the concern was the lack of participation of the developing countries. For example, from 1990 to 2010 the increased emissions from developing countries not included would more than double the reductions that the United States would have been making. So for all of this dislocation of the economy the net environmental benefit seemed very questionable.

Senator MURKOWSKI. Senator Bingaman brought up a point that I wanted to follow up on a little bit concerning SPRO, because you remember our experience under the last administration when we had the heating oil crisis in the Northeast Corridor about a year ago, a little bit more than that, we were concerned about relief, and we pulled 30 million barrels out of the Strategic Petroleum Reserve and then found that we did not have the refining capacity to refine that in an expeditious manner, and I think we got about 3 million barrels or so of refined product from that pull of 30 million barrels out of SPRO.

I certainly agree, $160 million per year seems an awful lot of money to manage a program for reserves, but I would appreciate it if you would provide us with an analysis of just how fast we can move oil out of SPRO, reminding all of us that it is crude oil, it is not refined product, and if we need it in a hurry we still have to move it to a refinery, and if all we do is offset an equal amount of that that we import we have not accomplished much.

Is there any change in that, based on your recollection, because my understanding is our refineries are running at very, very high capacity now, so if we had to pull out SPRO, would we have gained anything?

Mr. BLAKE. Senator, you are correct, and we can do the analysis. As you indicate, the issue is not just the withdrawal, it is the refining, and whether the refining capacity is available, which was an issue the last time.

Senator MURKOWSKI. Let me ask one more question relative to the President's national energy plan. Does it not, in effect, identify and highlight the reduction of greenhouse gases from the concept of business as usual through some specifics that are in this legislation, like cleaner fossil fuels, clean coal technology, expanded nuclear energy and dependence, improved energy efficiencies, enhanced alternative fuels, so is it not really true that the President's energy plan does address climate change specifically?

Mr. BLAKE. Yes, sir, in the sense that a number of the recommendations, as I indicated, were exactly to the point of cleaner burning fuels and lowering the energy intensity of the United States. That is exactly correct.

Senator MURKOWSKI. I think as we come off this question of, well, gee, the rest of the world went ahead and signed on and the United States did not, and therefore, why is it the United States taking a position contrary to the views of some that we ought to be a leader, and I think we are going to have to wait for the administration to come back with their analysis, but it seems to me that to go in seriously with a commitment to try and do something about emissions and then eliminate the one technology that provides substantial relief, and that is nuclear energy, shows in itself the weakness and the fallacies associated with those that were basically responsible for the agenda, and I am just very disappointed that they started in with the premise that they were going to eliminate nuclear energy, so I think the administration certainly did the right thing saying we are not going to be a party to it, we are going to provide the leadership and technology and make it available to the developing countries and the rest of the world as well.

Thank you.

The CHAIRMAN. Senator Feinstein.

Senator FEINSTEIN. Thanks very much, Mr. Chairman. Good morning, Mr. Blake. I wanted to make a couple of comments to you. I just came out of an election last year in California. California is the fifth largest economy on earth. I had very good business support.

I talked about global warming. Global warming was one of my top priorities for reelection, and I won the reelection by over 1½ million votes. Californians I believe want action. This Senator finds the U.S. absence from the Kyoto Protocol both deplorable and I think really arrogant.

About a year-and-a-half ago, I spent the day at Scripps Institute, talked with all of their senior scientists. I came away believing without a doubt that climate change is a real phenomenon. You have expressed that in some of the figures you put forward in your written paper, but when it comes to really taking the actions that are necessary, I find us really backwards.

I am staggered by the fact that we are 5 percent of the population and we consume 25 percent of the energy of the world, and recently some have pointed out that in my State in the next 100 years we are going to lose the entire Sierra Nevada snow pack, and that is the drinking water for 22 million people. It is the water for the largest agricultural-producing State in the Nation, and for I think the largest segment of high tech.

Californians are not afraid of doing what we need to do with respect to retard global warming. The transportation sector is responsible for one-third of it. Senator Snowe and I have introduced legislation, as you know, to bring SUV and light truck standards up to that of sedans within 6 years after passage of the bill. That would save 10 percent on oil imports, about a million barrels of oil a day, and it would keep 240 million tons of carbon dioxide from entering the atmosphere a year.

Scientists have told me that it is the most effective single stroke that the United States can take to really do our share in reducing global warming. In view of what you say in your paper, particularly about the 1.4 percent annual growth rate of carbon emissions to the year 2020, I know the administration's position has been, let

us wait to see the report of the National Academy of Sciences on bringing SUV's and light trucks up to that of sedans, but I feel very strongly supportive of the chairman's comments, and that whatever comes out of this committee has to really be forceful. We have to be leaders in this area. If we do not, and if we do not take the steps now, I do not think we are ever going to be able to catch up.

My question to you is, have there been any discussions in the administration on Senator Snowe's and my bill on SUV light trucks beyond the wait-and-see attitude, and secondly, are you willing to take any steps to revisit the standards on air conditioners and energy efficiency standards for other devices?

Mr. BLAKE. Senator, first on the issue of the NAS study and CAFE standards, the administration's position is and remains interested in removing the moratorium on DOT's development of new standards, awaiting the report on the NAS—although a draft was released to the press, the formal report has not been forwarded—and then to balance the recommendations of that report with the factors of safety and the environment and consumer interest. That remains the administration's position.

On appliance standards, on air conditioners, increasing the appliance efficiency requirements for air conditioners, we took a very serious look at increasing where it is now 10 SEER, and it was proposed to go to 13, and we are suggesting 12, so it is still an increase.

One of the basic reasons for staying at 12 versus 13 was the concern that actually 13 was going to be counterproductive, that it would discourage certain kinds of purchases of efficient equipment, and we would actually be better off from an efficiency perspective with the 12 standard.

Senator FEINSTEIN. I think I have just time for one more question.

What other recommendations would you have, other than fuel efficiency, assuming we can come to some agreement on that, as to what Congress could do, kind of looking for bold strokes to really play a major role in what I think is the largest environmental problem we have?

Mr. BLAKE. I believe that the research and development opportunities here are the single most interesting and most effective role both Congress and the administration can play.

I would hope, in response to your earlier comments, when you see some of the things that we are looking at, carbon sequestration technologies that take—I mean, a lot of these are still on the drawing board. For example, to take CO_2, put it in storage, have a biological agent react it to methane, and the methane is used again for power production. These are ideas on the drawing board that we are looking at funding. We think this dramatically changes the nature of this discussion. Instead of a forced march, where basically the compliance mechanism is shift from coal to natural gas, which has a lot of other implications, we look at a much broader suite of technological solutions.

This committee had a hearing on the research and development issues last week. I think there is a lot of common ground on that, and some enormous progress that can be made there.

The CHAIRMAN. Senator Burns.

Senator BURNS. Thank you very much, Mr. Chairman. I have a statement I just would put in the record at this time.

[The prepared statement of Senator Burns follows:]

PREPARED STATEMENT OF HON. CONRAD BURNS, U.S. SENATOR FROM MONTANA

I'd like to welcome the witnesses here today and thank the Chairman for holding this hearing. This is the third hearing we've held in this committee on global climate change, and finally we have reached the place where we are ready to begin talking about where to go from here.

One of the big concerns in this debate has been carbon dioxide, how much should we produce, whether it should be regulated, and its role in climate change overall. I would ask that any time we look at legislation or a change in policy we do two things: first, make sure the response made is firmly rooted in science rather than emotion; and second, resist the urge to write a new rule and build a bigger role for government at every turn of this debate. Instead, I would suggest we maximize the role of the free market and provide the incentives for businesses and individuals to do whatever we'd like them to do.

I have said it before and I'll say it again. We need solid science to make decisions about global climate change or any other issue of this type that affects us as a country. We have had an entire hearing on the basic science aspects of this research. In addition, I think it is important we understand the wider implications of any plan to reduce carbon dioxide. The plans I have seen would have huge effects on the United States economy, and that is something we need to understand before we rush into anything.

One of the most interesting studies I have seen was a recent report by the Energy Information Administration which predicted the increase in energy prices if carbon dioxide were added to a multi-pollutant strategy which would be enforced by the EPA. The study found that energy prices would increase 2 cents per kilowatt because of restrictions which would hit the energy industry so hard. Two cents may not seem like a lot when you look at it one kilowatt at a time, but imagine the larger effects on manufacturing and even our clean industries which rely heavily on computer technology. You need electricity to run all that, and the more expensive it gets, the bigger drag you will have on this economy.

The Senate recognized this in 1997 when it passed S. Res. 98 by a vote of 95-0. Every Senator voting that day agreed that the United States should enter into a global climate change treaty it should be done globally, and with the least cost possible to the United States economy. The Kyoto Protocol does neither of these, especially after last week when the negotiations were taken up and severe limits were put on emissions trading and carbon sequestration.

Carbon sequestration is a very interesting concept. I have a lot of farmers and foresters alike in Montana who would like to know what this means for them. I don't know yet, and I don't know if anyone does. I am interested to hear the opinions of our witnesses today on what further research is needed to implement any system of carbon sinks here in the U.S.

We have several pieces of legislation from this Congress, and a few from last Congress that I expect to see again, that I am interested in learning more about. As with any issue, there are some good ideas out there, and some that I fear would cripple our American prosperity with little hope of solving any real problem.

Senator BURNS. In the area of sequestration, Mr. Blake, I am wondering if the administration is taking a look at—you know, our farmers and ranchers are very much interested in that and want to play a role in that, our forests, and of course you have the U.S. Forest Service here today who wants to play a role in that. We can capture some of that carbon from the atmosphere. How can these be used as a part of the larger plan to reduce the total carbon in the atmosphere?

Mr. BLAKE. Senator, my response, I defer to the gentleman to my left as well, but we are looking within the Department at technologies for biomass use in fuel-burning so that you get the advantage—if you did, for example, a 5-percent co-fire in a coal plant with biomass switch grass and the like, you get a 5-percent reduc-

tion in CO_2 emissions. You get the benefit of the carbon sink, and growing it, and then you have got a benefit in burning. I think it has a very interesting potential role to play in the overall carbon dioxide reduction program.

Senator BURNS. Give me your thoughts on coal bed methane.

Mr. BLAKE. I think the same principle applies there. It is a new technology that would allow substantial reductions of CO_2.

Senator BURNS. That is about all the questions I have. I was going to listen to their testimony and I had to step out for a second, but I did want to ask those couple of questions.

You know, I am not real sure that agriculture cannot play a role in capturing—maybe if industry is going to get credits for taking so much carbon dioxide and using it, why would not agriculture be—it could be handled the same way, and looked at the same way. After all, we feel, in growing crops, there is a necessity to have a little of it. We cannot cut it all out because it grows things, but we ought to get some credit for that also.

So thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Senator Wyden.

Senator WYDEN. Thank you, Mr. Chairman.

First, Mr. Risbrudt, let me thank you for the generally supportive comments that you made of the legislation that Senator Craig and I authored, the Forest Resources for the Environment and the Economy Act, and I will have a couple of questions for you on that in just a minute.

Mr. Blake, you look at what the world is saying today about the United States and this question of global climate change. I mean, today, people are reading headlines all over the globe, United States isolated, United States out in the cold, United States only looks on—I mean, I could just kind of go on, one after another, and like several of my colleagues I just think this country cannot afford to be a bystander in this issue, and my question to you is, how does the administration envisage finding common ground at this point with the close to 180 other nations?

I mean, it is not clear to me how, out of all these various and sundry processes that we are following, the studies but not participating and the like, how do you all envisage getting to common ground so that we can do what Senator Craig and I did, and actually make some progress?

Mr. BLAKE. Well, that is a very broad question that I am not sure I am fully competent to answer in terms of the larger geopolitical concerns.

Senator WYDEN. Well, give me a sense of how out of all of this bystanding, which is where we are today, we are actually going to do what Senator Craig and I did, which is come up with a practical proposal? I mean, I think it would be helpful if we even had some general sense of how the administration was going to get there from here.

Mr. BLAKE. What we are doing now is doing the basic review of our technologies, and what roles our technologies can play in providing answers to carbon dioxide removals. I think these are going to be of dramatic interest to our allies, may well set out a path that convinces them the U.S. position is correct, and looks to what the

developing countries can do, what opportunities there are there, what are our opportunities here. I say, things that are on the horizon that make a great deal of sense for the entire world to be working towards.

Senator WYDEN. I do not want to doubt your sincerity here, but I think the proposition that out of this research you are going to get something that convinces 180 countries that they are essentially wrong and we are right is a very dubious proposition.

And again, I want to work with you all in a bipartisan way. We have shown in this committee again and again—Senator Craig, Senator Burns and I put in a significant energy bill yesterday—that we want to work in a bipartisan way, but you have got to give us some material to work with, and I will not belabor it at this point.

Mr. Risbrudt, a question for you. I do appreciate your generally supportive comments this morning on the forest resources legislation. What is left in your mind for Senator Craig and I to do? I would rather not walk out of the room uncertain about what is left to do.

I gather that you all would like to see some kind of appropriation which is invariably written for this kind of exercise, but are there other things that Senator Craig and I should be trying to do, but what in your mind is left in order to actually get this signed into law?

Mr. RISBRUDT. I think the general outlines of the bill are very good, Senator. We are really just asking for some fine-tuning of the portions of the bill that will make it work better for the administration.

Senator WYDEN. Which provisions are most in need of fine-tuning, in your mind?

Mr. RISBRUDT. Since it is amending the 1992 bill that is directed specifically at the Secretary of Agriculture, we think we need to review the bill to make sure it is clear which Secretary we are talking about in this bill. It needs to be clear to us whether it is the Energy Secretary or the Agriculture Secretary that is getting new authorities, for example, so it is clarifications, I believe.

Senator WYDEN. That seems very reasonable, and Mr. Chairman, I will not go any further. I think that is the kind of cooperation we need throughout this process, and that was the point of my question, Mr. Blake.

Mr. Risbrudt leaves me, on a bipartisan bill, with a sense of what we need to do, and he thinks that it is substantively by and large a good bill. There needs to be some clarification in going back to the 1992 statute. That certainly makes a lot of sense to me.

But what I leave with respect to the big picture, Mr. Blake, is the stark paradox between these headlines of all over the world have the United States basically sitting this issue out, and your discussion of how we are going to do some research into various technologies and then we are going to convince 180 people they are wrong and we are right, and I think we need to do better.

Mr. Chairman, thank you.

The CHAIRMAN. Thank you.

Senator Craig.

Senator CRAIG. Thank you very much, Mr. Chairman.

Gentlemen, I am pleased you are here this morning, and Mr. Chairman, thank you for holding the hearing.

From Buenos Aires to Kyoto, was it politics, or was it science? My guess is that Kyoto was formed a great deal under politics because the science could not come together and Kyoto was falling apart, and the Vice President had to run to Japan and tack it back together for all of the politics involved.

It is important that that be said this morning in the context of this hearing, and the comments that are coming from some of my colleagues. Is it wrong or misguided to argue that something is wrong or misguided, and therefore say so? Is that a statement of leadership, or a statement of arrogance?

I think what George W. Bush has proven is that his statement is a statement of leadership, not a statement of arrogance. Now, Mr. Chairman, I say that because I and others, including yourself and Senator Murkowski, have spent a great deal of time with this issue, more time on this issue than I have spent on a good many others in the last several years, so it is not by accident that two of the pieces of legislation, one just referred to by my colleague from Oregon, S. 820, is a part of my effort and Senator Wyden's effort, and S. 1776, which is a much more comprehensive effort, to try to bring the science together, create the modeling that we can agree to and not rely on foreign modeling to result in the kinds of conclusions that we can base public policy on.

I went so far as to spend a week at The Hague, the last stop before the one that is now involved in Germany. I learned a lot about the politics of Europe, but not much about the science, because I will tell you, The Hague was a great deal more about politics and how do we scheme, as a group of Europeans and other nations of the world, to try to control the U.S. economy, and if we can squeeze it and stifle it in the name of something green, we win, they lose.

Well, I was there to protect sequestration, and I spent long hours arguing with the U.S. delegation not to compromise or give away one of the very tools we have and can improve upon as a part of a total package, Mr. Chairman, when it relates to climate change.

I know that everyone looks for the silver bullet on this issue. They fail to recognize that all of the bits and pieces put together that we have been working on collectively for the last long while, including the Clean Air Act and a good many others, and a lot of new technological applications, have resulted in a dramatic reduction in the rate of CO_2 emissions as it relates to a unit of production in this country. We are doing very well today, but that is not to suggest we cannot do a lot better.

But to drive ourselves toward Kyoto was, in itself, a folly, and the Senate in S. Res. 98 in 1997, with an expression of 95 to zip, said so, and yet we still want to maul this issue to death for the politics of it because somehow we think it will gain us votes.

I am very proud that President Bush called it for what he saw it to be, and is now recognizing the importance of creating new dynamics and new paradigms to lead this issue, and I must tell you that if the Prime Minister from Japan stays where he is, we win and the politics loses.

Now, I will have to admit, Mr. Chairman, that in that process this President by his action has created a major international void

that needs to be filled, and that is what is going on right now. The working group, the major effort to analyze all of the bits and pieces is an effort to put leadership into the science of this issue and not the politics of this issue, and I say bravo, Mr. President.

Now, you and I and others have met with that working group. They are looking at all of the pieces of legislation we have collectively put together and I hope we can get there. We must get there. You and I and others know that we have a problem out there. The science is converging on the issue of warming, but it is not converging on why, because the modeling is faulty, and if we can come up with the right kind of models—and, Mr. Chairman, we have the tools.

We have Mr. Blake's supercomputers that are sitting idle at this moment on this issue because we have not brought the science together to program them to do the modeling necessary to give us accurate figures instead of Canadian figures or German figures. We ought to do that. That is part of what S. 1776 does. It brings the science together, and it allows us to begin to shape the issue.

Now, a part of that issue, and why I defended so vigorously sequestration, and why I convinced people like Frank Loy and others who were involved in the last meeting in The Hague not to cut a bad deal when a good deal was possible, and thank goodness they did not cut a bad deal, was to take away or tie behind our back some of our tools.

You are going to have others talking about sequestration this morning, but S. 820 works at that in a vigorous way, and I am glad, Chris, that you have talked about that this morning and looked at the dynamics of forest management. We need to look at agriculture and rangeland management not in a nonactive way, but very much an active way.

Nonactive forest management last year put more carbon into the atmosphere out over Idaho and Montana than we have seen in decades. Last year, for all of you who are interested, we burned more public land acres in the United States than ever in the history of the United States, and that was water vapor and carbon going into the atmosphere, because when forests grow, they collect carbon. They are carbon.

When they burn, they release it, and to understand that inactive management creates monstrous fuel-loading that results in ultimate carbon releases does not solve a problem. Active growing, multidiverse forests, intermediate stands, all kinds of uneven age stands creates the dynamics of an active forest that sequesters huge volumes, potentially 300-plus million metric tons. I think it is called a million metric tons of carbon equivalent is the figure we use, Mr. Chairman.

Well, that is the issue here. Gentlemen, thank you. Or, at least that is the issue from my perspective. We have an opportunity to come together, but I do not see the United States standing this one out, Mr. Chairman. I see it creating an opportunity to lead us into true science and ultimate policy, instead of just the raw politics of economic control.

Thank you.

The CHAIRMAN. Thank you very much.

Senator Landrieu.

STATEMENT OF HON. MARY L. LANDRIEU, U.S. SENATOR FROM LOUISIANA

Senator LANDRIEU. Thank you, Mr. Chairman. First let me thank you for continuing to emphasize the importance of the issue of climate change in the context of our national energy policy. I think that is clearly the right approach, a comprehensive approach, and I really commend you for keeping it in the forefront of our discussion as we move forward to develop an energy policy that we can clean up our air and our water with and also grow with and expand and recognize the potential, or appreciate, experience the potential of this great economic expansion for our Nation and the possibilities for the world, so I thank you for that.

I just want to make a few brief points and then just ask one question. One, I want to add my voice to those who have expressed disappointment in the sort of lack of focus on the nuclear issue, and how that worked out at the Bonn conference.

I am hoping and thinking and believing that nuclear should be part of our energy policy and strategy, that we need greater capacity generated by nuclear, or through nuclear in this country and in the world, and so I want to add my voice to the disappointment and hope that we can continue to make progress.

I know because we are not signers we are not at the table in the details of the negotiation, but I again want to commend Senator Domenici for his work on this area. I look forward to working with him on several bills that have been introduced, and believe that while there are challenges still with the waste issue, nuclear is a road that we should travel if we want to make significant headway in reducing the warming of the earth's atmosphere.

No. 2, I am also happy to see the focus on natural gas, and the role that natural gas can play in helping us meet our challenges with our climate, and in particular want to submit and will to the record the front page article of the *New York Times* this week about the significance of moving forward with an energy policy, looking for new production sources for natural gas, and then the transmission part of that, to meet the goals that we are discussing this morning.

A third brief point before I get to my question is, I want to acknowledge, since sometimes the energy companies get beat up pretty badly around here, I want to acknowledge that there has really been a sea change in the industry recently, and that every major oil company is part of a United Nations International Petroleum Industry Environmental Conservation Association.

I think almost every major company is involved in this effort, and I want to particularly acknowledge Chevron and BP-Amoco and Texaco, just to name a few. I am somewhat disappointed that Exxon-Mobil continues to drag their feet a little bit, but other than that company, most of the other companies are really stepping forward with some very constructive solutions and ideas, and I do believe that the less political rhetoric we can bring to this subject and the more we can bring industry and the environmental community together to really meet our goals—and I wanted to acknowledge them for the record and thank them for their good work.

Now, my question is to you, Mr. Risbrudt, whether you are familiar, if you could comment, maybe, on the additional work that we

are doing on carbon sequestration, and how we could verify the actual increases in the carbon sequestered through this process. Do you agree that more research needs to be done, or what could you elaborate a little bit on that point, because I was party to a wonderful press conference that we had this last week with one of our major power companies, and in a grand area that was set aside in Louisiana.

It was one of the first models, the Catahoula Wildlife Preserve, where this private-public partnership was modeled, and I was very supportive of the idea conceptually, I think it is quite good, but the real, I guess where the rubber hits the road is, can we be confident that we are actually meeting the goals of this public-private partnership, so do you agree that more research needs to be done on this particular point, or what are your views at this time?

Mr. RISBRUDT. I think more research would be appropriate.

The Forest Service has a national inventory system called the Forest Inventory and Assessment System, where we sample the Nation's forests on a 5-kilometer grid, and we try and do that on a 10-year cycle, to measure the amount of vegetation that is there, and we are also using that to measure the changes in carbon sequestration.

On a project-by-project basis, that is a little different issue. We probably do not want to be the verifiers of small projects relative to the national forest system, but we would be very supportive of the research in the methods and protocols for verifying that on those projects, yes.

Senator LANDRIEU. Well, do you think someone needs to be in charge of monitoring the outcomes of these smaller projects? What would your suggestion be if you all are not in the position to monitor that?

Mr. RISBRUDT. I think maybe with partnerships with the States through our State and private branch. Each State has a State Forester that we provide technical and financial assistance to private landowners through the State Forester's organization, and so I would suggest in partnership of the States and possibly other organizations we could deal with that issue.

Senator LANDRIEU. Okay. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Senator Domenici.

STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

Senator DOMENICI. Mr. Chairman, thank you very much for the hearings. I personally was very late, and I apologize for that, but I gather that you have had more success today, that a number of Senators have come down to listen to this issue, and I am glad to be last and try to take only a few minutes.

First, for those who were talking about implementing Kyoto, and why our President is saying he will not, I remind everyone that the U.S. Senate voted 95 to zero not—saying at that time, do not send us the treaty, because we will not ratify it. Now, that is 95 percent of the then-sitting U.S. Senate, which must mean it is bipartisan.

It actually was led by a Democrat, partnering up with a new Senator from Nebraska when this resolution was adopted, do not bother to send it to us because we will be not ratify it.

Now, Mr. Chairman, I went to see how many of the Senators are still in the Senate, and there are 78. Seventy-eight of the sitting Senators today were among the 95 who said Kyoto is not the right way to do it, and I guess inherently saying it is not good for America, there may be—there must be a better way.

Now, I am not terribly impressed with the French leader constantly lecturing us. I wish a Senator could be along, anyone, and every time he tells our President what to do, maybe the Senator could say, don't you know 95 out of 100 Senators said this was not good for America? It is not George Bush. He took over way after the signing of this resolution of nonapproval.

Secondly, it is most interesting, for being what it is supposed to be, the Kyoto agreement and all attendants to it did not mention nuclear power. It is as if there were two worlds. There is a world that wants to solve the problem their way, and their way does not include even mentioning nuclear power.

I think for some it renders it susceptibly invalid, susceptibly impossible that the countries could follow it and not find out that there are much better ways than they have.

My last, third observation at the top end of this is, while Kyoto only attempts to put restraints on the industrialized nations, clearly it is also a restraint on worldwide growth. It will put a restraint. That means that some of the very poor countries in this world that we say are free of Kyoto will have no energy source of any significance unless we move ahead with research to develop better, clean sources at reasonable prices for them, too.

So I have on my own, to the extent that it is possible, I have lined up as many Senators as I can, and we are going to begin talking about America post Kyoto. We are going to start talking about growth and prosperity beyond Kyoto.

We are going to start talking about growth and prosperity for the poor countries of the world post Kyoto, because the vision is, if you can move ahead with some of these clean technologies, included among them are hydrogen and nuclear, set up in a totally new generation, much less toxic, easy to manage the toxicity, along with extraordinary efforts at clean coal, and then fit those into the world market with a goal—with a goal—there will not be a Kyoto problem in X number of years. Somebody might want to keep a tab on CO_2, but it will not be relevant, because the world as it grows will not be using energy that pollutes the atmosphere and causes global warming.

So every time I come here, I do not help our chairman by asking questions. I did one day on part of this subject which I am very concerned about, that is the subject of waste management, which we are working on, too.

But with that, I stand willing to work with this President, with Democrats, Republicans, to try to get before the American people an international plan that we would lead that could set a 10-year and a 20-year goal, and put the standards that are to be achieved right in the goals, and then say to American scientists pooled with those around the world, marry up the brethren that are in business

and produce this kind of new, clean technology within X number of years.

I think that is a marvelous thing to run up alongside a Kyoto agreement that has created so much animosity, some of it not right, but much of it right, and such accusations that if you are not for that, you are not for the environment in the world, those kinds of statements are just not true. Do you think all 95 Senators when they voted not to do this, not to enforce it, do you think they were all up there saying I want to vote for a bad environment for my children and grandchildren? Of course not. They knew fairly well that this was a very different approach, and that maybe it would hurt America rather than gain a lot, and maybe we could do a better job another way.

Thank you, Senator Bingaman.

[The prepared statement of Senator Domenici follows:]

PREPARED STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

Mr. Chairman, your hearing today focuses on legislative proposals to mitigate greenhouse gas emissions. I appreciate your holding this series of energy-related hearings to develop future legislation. The nation will be well-served when we respond to the challenge of the President's National Energy Policy with new legislation, and this area should be part of that response.

Today, I'd like to remind this committee that the Senate is already moving rapidly to reduce our greenhouse gas concerns through the strong Energy and Water Development Appropriations bill that we just finished last Thursday. In addition, I'd like to share with this committee a vision that I've developed for a national response to move beyond debates over details of the ill-conceived Kyoto Protocol towards actions to truly help the world achieve prosperity through clean energy.

The Energy and Water bill passed the Senate last Thursday by a 97-2 margin. It represents a major step in fulfilling the President's commitment to a balanced and diversified energy policy—particularly in the area of expanding the supply of clean energy from renewable sources and nuclear power.

I've heard some argue that the President's Policy doesn't address the possible threat of global warming. Those who have read the Policy shouldn't make that statement. The Policy has strong support for clean energy sources.

Renewable sources are encouraged in many ways, including tax credits for wind, biomass, solar, and the purchase of clean fuel vehicles. The Policy supports a major research program in clean-coal technologies, advocates increased funding for renewable energy R&D and recognizes nuclear energy for its very positive environmental benefits.

It is in these last two areas, renewable energy and nuclear energy, that the Energy & Water bill takes a major step in implementing the President's national energy policy.

The renewable energy programs are funded in this bill at $435 million. That's $60 million and 16% above the current year level. There's no question that renewable sources can and should play a larger role in our energy supply, and this budget will accelerate progress towards that vision.

Nuclear energy received significant increases as well in this bill. I strongly agree with the President's National Energy Policy in its recommendation supporting the expansion of nuclear energy in the United States. Nuclear plants offer emission-free power sources, help maintain diversity of fuel supply, enhance energy security, meet growing electricity demand, and protect consumers against volatility in the electricity and natural gas markets.

The bill strongly supports a number of nuclear energy R&D programs, including one devoted to reducing the quantity and toxicity of spent nuclear fuel—called "transmutation". It's vital that we identify national strategies for that spent fuel, failure to do so will stand as a serious roadblock to nuclear energy's important contributions.

As a final thought on energy security, Mr. Chairman, I want to share with you and my colleagues a vision, which is encompassed in that Appropriations bill and which I've shared with President Bush.

I strongly believe that we need to reach beyond the debate over Kyoto with a blueprint that provides the tools to combat global warming.

I'm convinced that we can have growth and prosperity in America without global warming.

And I'm equally convinced that we can help provide those same benefits for the world.

I propose that we provide worldwide leadership to eliminate the threat of global warming by a commitment to prosperity and growth through clean energy.

And I further propose that we accomplish this goal through partnerships with our friends and allies, especially those in developing countries.

I've specifically urged the President to lead this new initiative, to accelerate our own research and to build international partnerships for joint development of all the clean sources of energy—renewables, clean fossil fuels, nuclear energy, and hydrogen-based fuels. Then as we transition to improved technologies in the future, our partner nations will also be building up their energy infrastructure with the latest and cleanest technologies.

With the new Energy and Water Appropriations bill and the President's Policy, our nation will develop energy supplies that provide us with clean, reliable, economic energy far into the future. But we should be looking beyond our own borders.

We should be seizing every opportunity to help the developing nations around the world achieve much higher standards of living. They simply can't do that without reliable electricity supplies.

Each nation will make their own choices for fuel sources, exploiting their own strengths. We have abundant natural gas—and it will make a huge contribution to a cleaner future for our country. But every nation needs diverse energy supplies, not a reliance on one source. Other nations may be well positioned to exploit their solar or wind resources—through this program nations can make the choices best matching their circumstances.

The leadership shown by Senator Byrd on clean coal technologies matches this vision very well. Some other nations have immense coal resources, through this vision they can benefit from our investment in clean coal technologies.

We can leave the poorest countries to their own resources to develop whatever energy they can, or we can offer substantial help to partner with these nations to help them develop sources that are not only reliable and reasonably priced, but also clean.

It's strongly in our self interest to do this. After all, we all share the same air. And in addition, countries with strong economies are our best choice for trading partners.

Mr. Chairman, I hope my vision for a world with abundant clean energy options is accepted by this committee. As we work toward the comprehensive energy legislation called for in the National Energy Policy, I hope that this vision can help to guide our discussions.

The CHAIRMAN. Senator Johnson.

STATEMENT OF HON. TIM JOHNSON, U.S. SENATOR FROM SOUTH DAKOTA

Senator JOHNSON. Thank you, Mr. Chairman. I would ask consent to simply submit a full statement for the record and only comment briefly that headlines all across the world this morning are screaming that the United States is isolated from the rest of the world by the decision the Bush administration has made relative to the Kyoto treaty.

I do not believe that a Kyoto debate in this committee is particularly fruitful at this time. I would observe that as I recall the 95 to nothing vote in the U.S. Senate on the Byrd amendment that it had to do with whether poor countries also ought to be included in the Kyoto protocol, rather than up or down directly on the Kyoto treaty, but in any event, whether we participate or do not participate, the harsh reality exists that the United States, with 4 to 5 percent of the population, produces 25 percent or so of the greenhouse gases in the world, and so whether in one context or another,

we have an enormous obligation to move forward, I think aggressively, with strategies designed to address that issue.

The thrust of the hearings today, as I understand it, were intended to focus in particular on the views of the private sector with respect to pending legislation before the committee, including provisions for reduced greenhouse gas emissions, and for that reason, and with my particular interest that I have in biofuels, I would withhold from any further questions of this panel and thank them for their participation, but expedite movement onto the private sector panel, and I yield back.

[The prepared statement of Senator Johnson follows:]

PREPARED STATEMENT OF HON. TIM JOHNSON, U.S. SENATOR FROM SOUTH DAKOTA

Mr. Chairman, this is a timely hearing as it coincides with the latest round of meetings and agreements on global climate changes in Bonn. Unfortunately, the United States did not choose to engage in substantive discussions in Bonn. This was a lost opportunity because the challenges facing the world on emissions and climate change are real and extremely important. Scientific studies are showing more connection between our energy uses and their impact on the environment and well-being of the globe. Any legislation we pass must maintain and improve the delicate balance between increasing our energy needs and improving our environment.

I am particularly interested in the role that biofuels can play in helping to reduce emissions. As many of you know, Sen. Hagel and I have introduced legislation, S. 1006, the Renewable Fuels for Energy Security Act of 2001, that would require that a certain percentage of all transportation fuels include a renewable fuels component. Not only would this help to reduce our dependence on foreign oil but it would also reduce emissions and improve our air quality.

Studies have shown that increase of biofuels would be beneficial to the environment. The Department of Energy released a report in 1999 which stated that the use of ethanol as a transportation fuel reduces greenhouse gas emissions. The report stated that the energy effects per gallon of ethanol blended in gasoline could be significant—as much as a 95% reduction in petroleum use, with an approximate 25% reduction in greenhouse gas emissions and 45% reduction in fossil energy use. Renewable fuels currently constitute 0.7% of the total U.S. consumption of gasoline. The figures from the DOE report demonstrate increasing the renewable percentage to 5%, as would be required by the Hagel/Johnson bill, would greatly improve our air quality.

Moreover, an important but often overlooked fuel is biodiesel. Diesel fuel is used to power big trucks and buses but emits high level of particulates and harmful gases. Biodiesel, however, can have improve this situation. Biodiesel production is small but has been growing steadily. Like ethanol, biodiesel improves our air quality and environment. Biodiesel is four times as efficient as diesel fuels in utilizing fossil energy. The overall emissions of carbon dioxide from biodiesel are 78% lower than regular diesel while particulate matter emissions from biodiesel are 32% lower than regular diesel.

In addition, with the new EPA rules requiring dramatically lower amounts of sulfur in diesel fuel by 2007, the market prospects for biodiesel, an intrinsically low sulfur fuel, are very bright for helping to meet this requirement.

Mr. Chairman, the increased use of biofuels is a small component of the overall effort to improve our environment and reduce emissions. But it is an important effort that must be pursued. It is a prime example of how we can maintain and improve the need to fuel our transportation sectors while improving our quality of life. Renewables fuels can help to fill our existing transportation needs while making the environment safer. Differences exist on how we can increase the use of renewable fuels in a way that is economically viable. But I am confident that we can do so in a way that benefits everyone. The fact that we can improve our quality of life while also strengthening our energy security shows means it is worth pursuing. The increased use of biofuels is the type of initiative that has been envisioned in Bonn and Kyoto and should be included in our long-term energy strategy.

Thank you, Mr.Chairman and I look forward to the testimony.

The CHAIRMAN. Thank you very much. Unless anyone has a burning issue, I think I will move to the second panel. Thank you both very much for your testimony.

Let me introduce the second panel as they come forward, please. Mr. John Campbell, who is the vice president for industrial products and government relations with Ag Processing, Inc., in Omaha, Nebraska, Mr. Gardiner Hill, who is with BP, he is the CO_2 program director, Mr. Jim Lyons, who is a professor at the Yale School of Forestry and Environmental Studies, Mr. Frank Cassidy, who is the president and chief operating officer of PSEG Power in Newark, New Jersey, and Mr. Gene Gebolys, who is the president of World Energy in Chelsea, Massachusetts.

Why don't we just start and go right across, starting on the left-hand side and right across the panel here, and if each of you would take 5 or 6 minutes to summarize the statement, and we will include your full statement in the record, so thank you very much for being here.

STATEMENT OF JOHN B. CAMPBELL, VICE PRESIDENT, AG PROCESSING, INC., OMAHA, NE

Mr. CAMPBELL. Thank you, Mr. Chairman. Ag Processing is a regionally federated cooperative. We are owned by farmers in several Midwestern States. Our primary business in soybean processing, feed manufacturing, and the traditional value-added businesses out there. However, we in 1995 got into the biofuels business. We built a 30-million-gallon ethanol plant and expanded it to 50 million gallons, and then in 1996 jumped into the biodiesel business, which is a soybean-oil-derived additive oxygenate, essentially, for diesel fuel, and have been in that business since that time, so we are highly interested in whatever value we can bring to our farmer members through the efforts that we are making to reduce greenhouse gas emissions as part of our normal business activities.

As you know, renewables are going to be a part of the national energy strategy. With respect to agriculture, though, I think renewables need to be considered in the context of not only the direct greenhouse gas emission reductions through displacement or replacement or enhancement of fossil fuels, but also in the context of viewing agricultural production as part of that system.

We have talked a lot about sinks. The literature on sinks is very dramatic when it comes to agriculture. Farmers and ranchers effectively own the greenhouse. We talk about greenhouse gases. Well, that terrestrial ecosystem between what the public sector owns in forests and what the private sector owns in farmland and pastureland is essentially the foundation of the greenhouse. We have enormous potential to sequester greenhouse gases.

Part of this potential is enhanced or discouraged by Federal farm policy. What we got in 1996 was called Freedom to Farm, and in Freedom to Farm, farmers gained new flexibility to use crop rotations, and what that has done is brought on several, many millions of acres of soybean land, and what soybean and corn rotations do is reduce nitrogen use, they increase soil organic matter, or have the potential to, there is all kinds of side environmental benefits from the use of these crop rotations.

Agriculture is currently engaged in practices that are already reducing greenhouse gases. Biofuels is one of them. Our company alone, if you look at the ethanol and biodiesel that we produce, are

probably saving on the order of 300 million pounds of CO_2 equivalent per year.

When you look at the soils that these fuels are grown on, the national estimate for carbon sequestration in agricultural croplands is 5 billion tons of CO_2. I mean, these are enormous figures. Some scientists estimate that soil sequestration alone could meet the hypothetical Kyoto targets entirely for a 12- to 24-year period.

Now, after that period you reach a point of saturation where you cannot really absorb any more carbon, and it becomes a—you reach equilibrium, but agricultural land has released about 50 percent of the soil organic carbon through traditional tillage. As we bring modern tillage and enhanced tillage mechanism and practices to farmland, we can gain back probably half or more of that soil organic matter.

It is just like forests. The politics of soil and cropping sequestration has not fit with the agenda, so what we have essentially is we are in disagreement. There was more of a consensus about the reforestation benefits of sinks, but agricultural sinks are still out there in Never-Never Land as far as the negotiations and the protocols are concerned.

The same is true with a lot of the other things we do in agriculture. Just modern farming technology alone has reduced the use of nitrogen fertilizer inputs, as an example. In Iowa alone, where we have most of our processing plants, the nitrogen fertilizer reductions in that State are the equivalent of planting 1 million acres of trees, and these have been voluntary efforts. They have happened because economics has pushed farmers to reduce inputs, become less energy-intensive, and increase soil organic matter as a part of natural farming technologies.

I see the red light flashing. I will conclude by saying this committee has a mission, a critical mission in developing a national energy strategy. There is a bill pending before your committee Senators Johnson and Hagel have introduced to increase renewables. That bill alone would be worth about 16 million metric tons of CO_2 equivalent if it were implemented. If you combine that with measures in the farm bill or other places to enhance and encourage and incentivize sequestration activities, the compliance potential is enormous, and along with forestry measures, gives the United States options to voluntarily reduce greenhouse gas emissions in a very significant way.

I thank you.

[The prepared statement of Mr. Campbell follows:]

PREPARED STATEMENT OF JOHN B. CAMPBELL, VICE PRESIDENT, AG PROCESSING INC., OMAHA, NE

Thank you and good morning Mr. Chairman. On behalf of Ag Processing Inc. and Ag Environmental Products LLC, I appreciate the opportunity to testify and commend the committee for holding this hearing. I know your time is short and that you have many witnesses so I will highlight this testimony and ask that the complete text be entered for the record.

Mr. Chairman, most people associate AGP with the regional cooperative that crushes more soybeans and refines more soybean oil than any other farmer-owned cooperative in the world. While that may be nice bragging rights, our farmer and local cooperative manager Board of Directors wanted to go farther and do more.

Popular buzzwords in rural America today are "value-added" and "farmer-owned". Other than sounding nice, what do these phrases really mean? For our cooperative it means doing what we have always done but also striking out in new directions.

In 1986 it meant building our first soybean oil refinery so that we could add value to soybean oil. Throughout the years it has meant expanding our overseas and domestic customer base. It has meant expanding plants and building new ones to keep up with the growing soybean and livestock industry. It has meant introducing the first and only component pricing program for soybeans.

More specific to this hearing, our Board decided in 1995 to build a grain ethanol plant in Hastings, Nebraska. That particular plant started out as a 30 million-gallon plant and has been expanded to 50 million gallons. A year later we jumped into the biodiesel market by building the first dedicated soydiesel plant in the Midwest at Sergeant Bluff, Iowa.

The preceding is given as background not to toot our own horn, but to let the committee know that "value-added" and "farmer-owned" are not just cliches at AGP. We have put our money where our mouth is. Many in the soybean industry thought we had lost our senses when we started into the biodiesel business. There was no biodiesel industry. There were no customers. Nobody in the government had even heard of biodiesel. All there was back in the early 1990's was a small group of farmers in Missouri, a couple of academics, a couple of entrepreneurs and AGP.

Today, as you can see, things have sure changed. Biodiesel and ethanol are the flavors of the week. Renewable and green energy have gained credence as energy costs soar. America is reawakened to our reliance on energy and our vulnerability to supply and demand changes.

I am not here to claim that renewables can alter fundamental energy balance issues. I am here to say the renewables can make a difference. If we add up a lot of small differences—be they slightly larger domestic oil production, slightly larger refinery capacity, slightly more conservation and a small portion of the market reserved for renewables—we can begin the process of reversing the trend toward ever increasing dependence on unstable and sometimes hostile regions of the world for our economic well-being.

Mr. Chairman, the topic that I was invited to discuss before the committee regards the nexus between greenhouse gasses and renewable fuels. As a producer of renewable fuels, both ethanol and biodiesel, our cooperative is highly interested in whatever value we might be able to bring to our farmer-owners through credits for reductions in greenhouse gas emissions.

Agriculture and renewable fuels go hand in hand and must be considered a multidimensional path to both fossil fuel emission reductions and greenhouse gas sinks should the United States embark on a voluntary or incentivized path toward reductions in greenhouse gasses.

To put things in perspective it is helpful to state the current understanding of global CO_2 respiration. Scientists estimate that on an annual basis about 9 billion tons (Pg.) of CO_2 are emitted. (6.4Pg. from fossil fuels, 1.1Pg. from land use change and 1.6 Pg. from deforestation.)

Where does the CO_2 go? Scientists estimate that 3.4Pg. goes into the atmosphere, 2.0Pg. is absorbed by forest growth and 2.0Pg. is absorbed by the ocean. The "missing" 1.6Pg. is thought to be absorbed by the "terrestrial biosphere"—meaning mainly soils and non-forest plants. The object of those concerned about climate change is to reduce the atmospheric loading. That may be accomplished by reductions in emissions or increased retention in oceans, forests and soils (otherwise known as "sinks").

No other industry has as much to offer, at so cheap a price, in the effort to reduce greenhouse gasses as agriculture. After all, we are the stewards of the natural carbon cycle when we grow plants. We farm hundreds of millions of acres that take in CO_2, as plant matter is grown and act as storage for carbon dioxide—the major greenhouse gas. To say it simply, farmers and ranchers own the greenhouse in America. Agriculture can make a huge difference in how much greenhouse gas is emitted.

For example, the greenhouse gas emission reductions from burning biodiesel and ethanol are greatly enhanced if the grain and oilseed feedstocks are grown in a crop rotation using the best available tillage and farming technologies. Not only would fossil fuel emissions be reduced through replacement with a renewable, but also CO_2 (carbon dioxide) would be sequestered in the soil as organic matter builds. In addition, NO_X (nitrous oxide) emission can be reduced through nitrogen fertilizer management and crop rotations.

These agricultural practices are encouraged or discouraged by Federal farm policy. The "Freedom to Farm", or FAIR Act of 1996, as it is officially known, changed the way government and farmers interact. No longer does government control what farmers produce by telling them where, what and how much of each crop they may plant. Government also gave up attempting to manipulate grain prices by holding reserves and idling land.

Farmers are now free to make planting and management decisions based on the market. American agriculture has embraced the change with gusto. Millions of acres have been freed up and are being switched by farmers every year to the type of crops they want or need to grow.

One of the great benefits of this new policy has been the shift toward crops like soybeans that are less energy intensive and chemically dependent. The shift to soybeans also means an increase in crop rotations that are recognized as good for the environment.

Way back in 1985, rotations were one of the main benefits Senators Boren of Oklahoma and Boschwitz of Minnesota highlighted with their "decoupling" bill. That bill was the predecessor to Freedom to Farm.

The farm lobby was generally opposed to decoupling and is now similarly concerned about the Kyoto agreement and other attempts to reduce greenhouse gasses.

Some studies suggest that the cost of attaining the goals of the Treaty would fall heavily on agriculture—with some projecting reductions in net farm income exceeding 20 or even 40 percent.

Agriculture will be in tough shape if some of the policy options suggested come to pass. The Commerce Department estimated that a 25 cents per gallon fuel tax would need to be imposed—other estimates are much higher. However, an even more important consideration for agriculture are the areas of manufactured inputs, fertilizers and chemicals. These are energy sensitive products. For example, energy in the form of natural gas typically accounts for 75 percent of the cash cost of manufacturing anhydrous ammonia, a basic feedstock or ingredient for all nitrogen fertilizer products.

Obviously, we cannot cut farmers loose from farm bill supports and then hang them on the tree of global warming.

Agriculture should be viewed as a key part of the solution to global warming. The fact that the Kyoto negotiators could not come to terms with how to treat agricultural sinks gives a hint of their enormous potential. One study reports that agricultural soils alone could capture enough CO_2 to offset any further increase in the atmospheric inventory for 12-24 years. That is why Treaty negotiators could not agree on the treatment of agricultural sinks.

Take ethanol for example. Argone National Laboratory published a study in January 1999 that demonstrates that the use of corn-based ethanol significantly reduces both greenhouse gas emissions and fossil energy use. According to the study, every gallon of grain-based ethanol used in 10 percent blends with gasoline achieves:

- 90-93% reduction in petroleum use.
- 12-19% reduction in greenhouse gas emissions, and
- 40% reduction in fossil energy use.

Another study published by Argone in December of 1997 indicated that 10 percent blends of ethanol resulted in net greenhouse gas savings on the order of 2-3 percent. (If all gasoline were a 10% ethanol blend, greenhouse gas emissions would be reduced 2-3%.)

The same is true for biodiesel. According to the Institute for Local Self-Reliance the energy balance for biodiesel 1:2.5 meaning two and one half times more energy is produced than consumed in the full life cycle production of biodiesel from soybeans. The greenhouse gas reductions are even greater than those for ethanol because less fertilizer is used as well as less energy in the conversion process to fuel.

In May of 1998 the USDOE/USDA released the Biodiesel Lifecycle Inventory Study. The study concludes that the total fossil energy efficiency ratio (i.e. total fuel energy/total fossil energy used in production, manufacture, transport, and distribution) for diesel fuel and biodiesel shows that biodiesel is four times more efficient in utilizing fossil energy.

The overall lifecycle emissions of CO_2 from biodiesel are 78 percent lower than the overall CO_2 emissions from diesel. "The reduction is a direct result of carbon recycling in soybean plants," notes the study. The biodiesel results are more dramatic than ethanol because of the dramatically reduced need for nitrogen fertilizer and the lower energy costs of conversion to fuel. Basically, the soybean plant does almost all the work.

Farm management is another area of potential. Farmers continue to become more efficient with the use of inputs. Since 1988, national nitrogen use for corn has dropped from 137 lbs. to 127 lbs. per acre; phosphorous use dropped from 63 to 56 lbs. per acre.

In Iowa, average nitrogen use dropped from 90 lbs. to 73 lbs. per acre in 1995.

Why is this important in the climate change debate? Nitrous oxide is a more potent greenhouse gas than CO_2. Nitrous oxide has a carbon dioxide equivalent of 270 times a carbon dioxide molecule. Nitrous oxide emission reduction in Iowa has been

estimated at 37,908 tons, or 10.2 million tons of CO_2 equivalent. These reductions were at no loss in yield and $363 million in production input savings.

Let's put this in perspective. The savings in nitrogen fertilizer use—on a voluntary basis—in Iowa alone are the equivalent of planting nearly one million acres of trees.

Now lets examine carbon sinks. Trees, for example, are referred to as carbon sinks. They take carbon from the atmosphere and store it in their trunks, branches and roots. Projects have already been approved as part of "joint implementation" strategies whereby utilities in one country pay to plant trees in another country in order to reduce their net carbon loading impact.

Soils are also a carbon sink. And who controls soils in this country? The same people who own the wetlands, endangered species habitat and a good portion of the forests—farmers and ranchers.

If the United States is about to embark on a program to reduce greenhouse gasses why not incentivize farmers to fill up their sinks?

Typical farmland has about a 2 percent organic matter content. Farms that utilize no-till or minimum till have around 4 percent and grasslands have about 6 percent organic matter content.

Said another way; our 30 million acres of Conservation Reserve Program (CRP) tripled in carbon value. The tens of millions of acres of no-till and minimum till are on their way to doubling their organic carbon content. Hundreds of millions of acres with lower organic matter content could store enormous amounts of greenhouse gas components.

SOIL MANAGEMENT AND TILLAGE PRACTICES

Soils act as a gigantic carbon sink. Just as plants and trees use CO_2 gasses, soils capture carbon as roots grow underground.

The carbon sequestration ability of farmland is enormous. For example, the average organic matter of a traditionally tilled acre is 2 percent. Through the use of no-till or minimum-till methods the organic matter can be increased to 4 percent over 20-30 years. Some scientists believe soil organic carbon could be restored to 6 percent or above on cropped ground. The CO_2 equivalent of greenhouse gasses saved would be around 65 tons per acre. That is 39,000 tons of CO_2 equivalent sequestered on a 600 acre farm verses the previous tillage practice.

Why is that important? It could mean dollars in farmers' pockets.

I have seen estimates that CO_2 could be worth $70/ton. That is $2.7 million worth of CO_2 gas credits on a 600-acre farm.

OTHER MANAGEMENT PRACTICES

Increasing soil organic matter through farming practices is just one of many greenhouse gas reduction options. Others include:

- More efficient nutrient applications. (10-15 tons CO_2 equivalent/acre)
- Reduced fuel and energy use for production, drying and processing of crops. (3-5 percent annual reductions = .02 tn./a./yr. = 8 ml.tn.CO_2/yr.)
- Manure management for methane—especially from large units.
- Growth and use of fuel crops such as ethanol and biodiesel. (current ethanol use saves 4.4 ml.tns. CO_2/yr.)
- Growth and use of trees in marginal areas such as buffer strips or CRP. (1.4 tns. CO_2/a./yr. of trees in growth phase).

The private and public sectors are already engaged in creating a mechanism to trade greenhouse gas credits. If the world is headed down this road, agriculture needs to become fully engaged in figuring out how to take financial advantage of the resources they control.

We have to spread the word that planting trees is fine and good but incentivizing farmers to increase the organic matter of soils could do in 5-10 years what it would take a forest to do in 40-50 years.

So where is this all leading? As I said before, the science about greenhouse gasses and global warming and what impact human activity has on all this is pretty incomplete.

What we need to focus on is the fact that the previous Administration signed an agreement to cut our greenhouse gas emission to 7% below 1990 levels. This means cuts of 20-25 percent of the business as usual baseline in the out years. President Bush, while not supportive of the Treaty, recently stated his support for voluntary measures to reduce greenhouse gasses.

If we in agriculture do not get inventive and imaginative on this issue I am confident we will bear a good portion of the costs. Rather than get stuck with the bill,

I hope that we work together with Congress, the Administration and other industries to see how we can contribute to the plus side of the ledger on greenhouse gasses.

If greenhouse gas reduction strategies are imminent, agriculture needs to figure out a way to benefit from the contributions we make and the increased contributions we could make if the incentives were structured properly.

What would happen for example if utilities were required to purchase 5 percent of their energy needs from renewable sources as part of electricity deregulation legislation?

Or, how about a carbon credit on income taxes for the extra carbon a farmer or rancher stores with their new production practices?

What about giving renewable industrial products a tax incentive based on the amount of greenhouse gasses they displace?

Mr. Chairman, this committee is tasked with one of the most important missions in decades—formulate and gain approval of a National Energy Strategy. This strategy will be considered in an environment where climate change issues are also a high priority. Your committee has the opportunity for the proverbial "two birds with one stone" kill.

Legislation has been proposed by Senators Hagel and Johnson and referred to this committee. The bill establishes a renewable standard for transportation fuels. Transportation fuels also happen to be the leading source of increased greenhouse gas emissions. With one fell swoop we could reduce our dependence on foreign oil and strike a blow for greenhouse gas reduction.

I urge your favorable consideration of this and other measures that would encourage renewable fuels and simultaneously reduce greenhouse gas emissions.

The CHAIRMAN. Thank you very much.

Mr. Cassidy, why don't you go right ahead.

STATEMENT OF FRANK CASSIDY, PRESIDENT AND COO, PSEG POWER LLC, NEWARK, NJ

Mr. CASSIDY. Thank you, Mr. Chairman, and members of the committee. I am pleased to be here today representing my company, PSEG, and our coalition, the Clean Energy Group.

PSEG is a diversified energy holding company based in New Jersey, with assets and operations overseas as well as in the United States. We serve over 5 million energy consumers in the United States and abroad. The other Clean Energy Group members are Consolidated Edison, Key Span Energy, Northeast Utilities, Connective, Exelon, PG&E National Energy Group, and Sempra Energy.

This coalition shares a number of significant attributes and principles. We operate and are developing powerplants in almost every region of the United States. We operate coal, gas and oil-fired fossil fuel generating plants as well as nuclear-powered facilities. We believe in responsible environmental stewardship and we are committed to working cooperatively with the environmental community, government, and other stakeholders to promote adoption of progressive policies to provide meaningful environmental improvements on an economically sound and sustainable basis.

There is no question that the issue of carbon dioxide reductions presents a tremendous challenges for our industry. However, members of our coalition share the view that the scientific evidence on climate change has progressed to the point where prudent action on reducing greenhouse gas emissions is warranted. We also share the concerns expressed by members of Congress, President Bush and his administration about the necessity of maintaining a secure, diverse, reliable, and affordable electric energy supply.

The Clean Energy Group believes we can make progress on reducing carbon dioxide and other greenhouse gas emissions without

bankrupting the economy or eliminating coal as a viable fuel supply. This testimony is not about reducing carbon dioxide emissions through efficient operations and technology, although my company has reduced its greenhouse gas emissions by 7 percent since 1990. It is about the legislation we believe is necessary to properly incentivize these reductions going forward.

One of the key questions that I and my industry colleagues confront is how best to accommodate the requirement for environmental improvement as we make business decisions that affect the lives and livelihood of hundreds of thousands of investors and involve billions of dollars. The Clean Energy Group believes the best way to provide the business certainty on which to base these decisions is through an integrated environmental strategy and a multipollutant approach that includes carbon.

We have developed a legislative proposal that would deliver significant reductions in powerplant emissions of nitrogen oxide, sulfur dioxide and mercury, and implement mandatory carbon dioxide reductions in a manner that would not compromise the reliability, fuel source diversity, or affordability of the Nation's electric energy supply.

The legislation calls for mandatory emissions caps to be achieved on established timetables, and the use of emissions trading and other cost-effective, creative, and market-based compliance techniques such as multisource trading and an all-source allocation for credits that will allow industry to meet the emission caps efficiently and at low cost.

I have attached a copy of the Clean Energy Group's legislative proposal to my written testimony, and we look forward to discussing it with interested members at any time. We believe the legislation will provide real and significant environmental benefits. However, there is also a strong business rationale for an integrated approach and for establishing a clear policy on carbon reductions now. Our industry needs to know what the future environmental requirements will be in terms of the amount of reductions and the timetable.

Our view is that the best and most prudent course of action, and the one that will foster investment in new energy technologies in the electric infrastructure our country needs is a comprehensive program that establishes clear, unambiguous environmental targets and timetables over the next 15 years.

We also believe that such a program should be mandatory. If the goal is to provide business certainty, our view is that only a mandatory program in which all participants in the electric generating industry are required to internalize the cost of making necessary reductions will work. This is especially relevant in the highly competitive wholesale power market in which even small cost differentials can provide material competitive advantage for those who choose not to participate in a voluntary program.

Again, I am honored by the opportunity to make this statement, and we look forward to working with Congress and the administration to craft policies under which our industry will make substantial environmental progress while it fulfills its mission of providing secure, reliable, and affordable electric energy.

I would be happy to respond to any of your questions.

[The prepared statement of Mr. Cassidy follows:]

PREPARED STATEMENT OF FRANK CASSIDY, PRESIDENT AND COO, PSEG POWER LLC, NEWARK, NJ

Mr. Chairman and members of the committee, I am pleased and honored to appear before you this morning to represent my company, PSEG, and our coalition, the Clean Energy Group.

PSEG is a diversified energy holding company based in New Jersey with assets and operations overseas as well as in the United States. The subsidiary I head, PSEG Power, is an independent power producer with more than 17,000 megawatts of electric generating capacity in operation, construction, or advanced development. PSEG's other subsidiaries include Public Service Electric and Gas Company, one of the nation's largest electric and gas utility companies, and PSEG Global, which develops and operates energy production and distribution facilities internationally. As an entity, PSEG serves more than five million energy customers in the U.S. and abroad.

The Clean Energy Group members are Consolidated Edison Company, KeySpan Energy, Northeast Utilities, Conectiv, Exelon Corporation, Northeast Utilities, PG&E National Energy Group, Sempra Energy, and my company, PSEG.

Members of our coalition share a number of significant attributes and principles:

- We operate and are developing power plants in almost every region of the United States.
- We operate coal, gas, and oil-fired fossil-fueled generating plants and nuclear-powered facilities.
- We believe in responsible environmental stewardship.
- We are committed to working cooperatively with the environmental community, government, and other stakeholders to promote adoption of progressive policies that provide meaningful environmental improvements on an economically sound and sustainable basis.

There is no question the issue of carbon dioxide reductions presents tremendous challenges to our industry. However, members of our coalition share the view that the scientific evidence on climate change has progressed to the point where prudent action on reducing greenhouse gas emissions is warranted.

We also share the concerns expressed by Members of Congress, President Bush, and his Administration about the necessity of maintaining a secure, diverse, reliable, and affordable electric energy supply.

The Clean Energy Group believes we can make progress on reducing carbon dioxide and other greenhouse gas emissions without bankrupting the economy or eliminating coal as a viable fuel supply.

One of the key questions I and my industry colleagues confront is how best to accommodate the requirement for environmental improvements as we make business decisions that involve billions of dollars and affect the lives and livelihoods of hundreds of thousands of investors and employees.

The Clean Energy Group believes the best way to provide the business certainty on which to base these decisions is through an integrated environmental strategy and a multi-pollutant approach that includes carbon.

The Clean Energy Group has developed a legislative proposal that would deliver significant reductions in power plant emissions of nitrogen oxide, sulfur dioxide, and mercury, and implement mandatory carbon dioxide reductions in a manner that will not compromise the reliability, fuel-source diversity, or affordability of the nation's electric energy supply.

The legislation calls for mandatory emissions caps to be achieved on established timetables and use of emissions trading and other cost-effective, creative, and market-based compliance techniques such as multi-source trading and an all-source allocation for credits—including renewables, hydro, and nuclear—that will allow industry to meet the emissions caps efficiently and at low cost. Use of these mechanisms would be scaled back over time—and on a specific schedule—as the transition to a less carbon-intensive energy infrastructure gains momentum.

I've attached a copy of the Clean Energy Group's legislative proposal to my written testimony. We would look forward to discussing it with interested Members and staff at any time.

We believe the legislation will provide real and significant environmental benefits. However, there also is a strong business rationale for an integrated approach and for establishing a clear policy on carbon reductions now.

Our industry needs to know now what the future environmental requirements will be in terms of the amount of reductions and the timetable.

The issue boils down to one of business certainty for both the electric power industry and the capital markets we turn to for financing of new generating projects. We don't want to confront a situation in which we are forced to waste or put at risk large-scale investments predicated on one set of requirements only to have the rules changed a few years down the road.

Our view is that the best and most prudent course of action—and the one that will foster investment in new energy technologies and the electric energy infrastructure our country needs—is a comprehensive, program that establishes a clear, unambiguous environmental targets and timetables over the next fifteen years.

We also believe such a program should be mandatory.

Clean Energy Group companies have participated in a number of voluntary programs in the past that have been useful tools for the industry. However, if a goal is to provide business certainty, our view is that only a mandatory program in which all participants in the electric generating industry are required to internalize the cost of making necessary reductions will work. This is especially relevant in the highly competitive wholesale power market in which even small cost differentials can provide a material competitive advantage for those who choose not to participate in a voluntary program.

Again, I am honored by the opportunity to make this statement on behalf of my company and the Clean Energy Group. We look forward to working with Congress and the Administration to craft the policies under which our industry will make substantial environmental progress while it fulfills its mission of providing a secure, reliable, and affordable supply of electric energy. I would be happy to respond to your questions.

The CHAIRMAN. Thank you very much.

Mr. Hill, why don't you go right ahead.

STATEMENT OF GARDINER HILL, CO_2 PROGRAM DIRECTOR, BP

Mr. HILL. Thank you.

Mr. Chairman, and members of the committee, good morning. My name is Gardiner Hill, and I am the director of BP CO_2 program worldwide based here in the United States. I am also joined today by my colleague, Jeff Morgham, who is the manager of our emissions trading program.

I have been asked to focus today on carbon sequestration and emissions trading. I am delighted to have this opportunity to share with you BP's ideas on the role of sequestration, to address the concern around greenhouse gas emissions and climate change.

BP is no stranger to the topic of climate change. We began our no-regrets policy several years ago in a speech given in May 1997 by John Browne, our chief executive officer. In that speech, we announced a voluntary no-regrets policy which began with, among other things, the creation of emissions baseline data across all of our facilities, and the commitment with Environmental Defense to develop an emissions-trading program across our assets worldwide.

Later in September 1998, we announced targets and timetables for a reduction in BP's greenhouse gas emissions of a 10-percent figure below the 1990 baseline by 2010. As of today, we are halfway there in meeting this target, having reduced our emissions by 5 percent. On top of that, our emissions trading system has exchanged 5 million tons of greenhouse gases. This has been achieved by our employees by actively identifying a number of innovative solutions, and the majority of these solutions have actually been good business sense.

What has become clear is that there is no one silver bullet. There is no one-size-fits-all in how business must address the issue of climate change. The most common emission reduction approaches

being considered today typically include improvements in energy efficiency, land use practices such as forest management and biofuels, and sequestration technology for CO_2 separation, capture, and storage.

BP believes that geologic storage offers enormous potential for safe and permanent sequestration of carbon dioxide. To put this into some perspective, geological storage has the potential to close the entire gap which exists between projections of future emissions and emission levels required to stabilize atmospheric concentrations at 550 parts per million. This technology builds on the oil and gas industry's considerable experience of safely injecting, storing and monitoring gases in geological formations.

Carbon sequestration can broadly be broken down into three main categories, capture, transportation, and storage. In the area of capture, we are looking at technologies which remove the carbon before or after the combustion process, as well as innovative combustion technologies to produce a concentrated stream, which is easier to capture.

In the area of transportation, we are looking at the relationship between purity and pipeline material requirements.

Lastly, as to storage, we are currently examining geological formations of how CO_2 can be permanently and safely stored in existing oil and gas reservoirs. An additional benefit of this application is increased production from current fields.

Today, carbon sequestration projects are small in size and scope. The main hurdle is cost. BP is working hard on developing new technologies to substantially reduce the cost of CO_2 separation, capture, and geological storage. In one such program, BP is a partner in an international industry effort called the CO_2 Capture Project. The project has nine oil and gas companies from the USA, Canada, EU, and Norway.

The CO_2 Capture Project was recently announced by the White House and the U.S. Department of Energy as a type of project that will be important in the development of new, lower cost technologies. The recent announced funding support from the DOE recognizes the importance of forming public-private partnerships, and we look forward to working with them on this exciting program.

Equally as important as the specific technology development are strategies for enabling the effective application. What BP has learned is that market-based mechanisms such as greenhouse gas trading can be effective at spurring innovation and action. For example, in BP's internal emissions trading system, each business leader is accountable for delivering the emissions target, which is directly tied to his performance review and his rewards. At the end of the year, a business must have permits in hand to match their actual emissions.

Trading between business lines has allowed BP to implement CO_2 reductions in the most cost-effective manner. Essential to any trading system are clear goals, clear methods of establishing baselines, and clear incentives for taking early action.

Mr. Chairman, I would like to conclude by saying that BP believes that technology has a fundamentally important role in the solutions set for climate change. Carbon sequestration is one example that offers the potential for providing a minimum of 30 years

of permanent storage at today's emission rates. We believe the recently announced DOE partnership is essential in expediting and improving the potential for these technologies.

Lastly, we believe that voluntary market-based mechanisms have enormous potential to bring early emissions reductions forward in the most cost-effective manner. Indeed, we would urge the Congress to consider a policy which would reward these early actors for these reductions they voluntarily choose to make.

On behalf of the men and women of BP, we thank the committee for the opportunity to appear before you today. I look forward to working with the committee in the future as you pursue policy solutions to deal with climate change.

Thank you.

[The prepared statement of Mr. Hill follows:]

PREPARED STATEMENT OF GARDINER HILL, CO_2 PROGRAM DIRECTOR, BP

Mr. Chairman and members of the committee, good morning. My name is Gardiner Hill and I am the Director for BP's CO_2 Program worldwide based here in the United States. I have been asked to focus today on our efforts on carbon sequestration and emissions trading. I am delighted to have this opportunity to share with you BP's ideas on the role of sequestration to address the concern around greenhouse gas emissions and climate change.

BP is no stranger to the topic of climate change. We began our no regrets policy several years ago in a speech given in May of 1997 by John Browne, our chief executive officer. In that speech we announced a voluntary, no regrets policy, which began with the creation of emissions base line data across all of our facilities, a pilot sequestration project in the Bolivian Rainforest with the Nature Conservancy, a challenge to grow our solar business ten fold in ten years, and the commitment with Environmental Defense to develop an emissions trading program across our assets worldwide. Later, in September 1998, we announced targets and timetables for a reduction in BP's greenhouse gas emissions of 10 percent below a 1990 baseline, by 2010.

As of today, we are halfway there in meeting this target by reducing our emissions by five percent. On top of that, our emissions trading system has exchanged five million tons of greenhouse gases. This has been achieved by our employees proactively identifying a number of innovative solutions. Many of these solutions have actually made good business sense. I'd be delighted to provide the committee with some specific examples.

What has become clear is that there is no one silver bullet, i.e. no one-size-fits-all in how business must address the challenge of climate change. The most common emission reduction approaches being considered today by active members in the industrial community typically include: improvements in energy efficiency, land use practices such as forest management and biofuels, and sequestration technology for CO_2 separation, capture and storage.

BP believes that geologic storage offers enormous potential for safe and permanent sequestration of carbon dioxide. To put this into perspective, geologic storage has the potential to close the entire gap which exists between projections of future emissions and emission levels required to stabilize atmospheric concentrations at 550ppm—a level considered by some as sufficient to avoid dangerous interference of the world's climate. This technology builds on the oil and gas industry's considerable experience in safely injecting, storing and monitoring gases in geologic formations.

Carbon sequestration can broadly be broken down into three main areas: capture, transportation and storage. In the area of capture we are looking at technologies which remove the carbon before or after the combustion process as well as innovative combustion technologies to produce a concentrated stream which is easier to capture. In the area of transportation we are looking at the relationship between purity and pipeline material requirements. Lastly, as for storage, we are currently examining geologic formations and how CO_2 can be permanently and safely stored in existing oil and gas reservoirs. An additional benefit of this application is increased production from current fields.

Today, carbon sequestration projects are small in size and scope. The major hurdle is cost. BP is working hard on the development of new technologies to substantially reduce cost of CO_2 separation, capture and geologic storage. In one such pro-

gram, BP is a partner in an international industry effort called the "CO_2 Capture Project." The project has nine major oil and gas companies from the USA, Canada, EU, and Norway. The CO_2 Capture Project was recently announced by the White House and the U.S. Department of Energy (DOE) as the type of project that will be important in the development of new, lower cost technologies. The recently announced funding support from the DOE recognizes the importance of forming public-private partnerships and we look forward to working with them on this exciting program, which holds much promise for the future.

Equally as important as the specific technology development, are strategies for enabling the effective application. What BP has learned is that market based mechanisms such as greenhouse gas emissions trading can be effective at spurring innovation and action. In BP's internal emissions trading system the group emissions target, is held by each of our business managers throughout the company. Each business leader is accountable for delivering the emissions target which is directly tied to his performance review and rewards. At the end of the year, a business must have permits in hand to match their actual emissions. Trading between businesses has allowed BP to implement CO_2 reductions in the most cost effective manner. Essential to any trading system are clear goals, clear methods for establishing baselines and clear incentives for taking early action.

Mr. Chairman, I would like to conclude by saying that BP believes that technology has a fundamentally important role in the solutions set for climate change. Carbon sequestration is but one example that offers a potential to provide a minimum of 30 years of permanent storage at today's emissions rates. We believe the recently announced DOE partnership is essential in expediting and proving the safety and potential for this technology. Lastly, we believe that voluntary market based mechanisms have enormous potential to bring early emissions reductions forward in the most cost effective manner. We would urge the Congress to consider policy which would reward those early actors for those reductions they voluntarily choose to make. On behalf of the men and women of BP we thank the committee for the opportunity to appear before you today and look forward to working with the committee in the future as you pursue policy solutions to deal with climate change.

Thank you for the opportunity to share our thoughts on the importance of technology in connection with climate change.

The CHAIRMAN. Thank you very much.

Mr. Gebolys.

STATEMENT OF GENE J. GEBOLYS, PRESIDENT, WORLD ENERGY ALTERNATIVES, LLC, CHELSEA, MA

Mr. GEBOLYS. Mr. Chairman, and members of the committee, thank you for the opportunity to share the views of one company striving to make the promise of renewable fuels the reality in America today.

Mr. Chairman, just 2 days ago the lead story in the Sunday *New York Times* heralded: "Allies Tell Bush They Will Act Alone on Climate Accord." Another front page story that same day in the same newspaper reported: "Boom in Natural Gas Drilling Cannot Match Soaring Demand." Everywhere we turn today, it seems that the need to find new energy solutions is becoming more urgent even as our existing options seem less suited to the task.

Even as this global pressure to change intensifies, a new and perhaps more pragmatic approach to energy diversification is emerging. In both vehicle and fuel formats, hybrid technologies are beginning to take center stage. In the vehicle sector, gasoline hybrid electric vehicles have recently been introduced.

Practical-minded consumers as well as socially minded health and environmental groups have quickly embraced these new cars and buses because they offer great efficiency without great discomfort or inconvenience. With less fanfare, but perhaps far greater impact, the same type of transformation has been taking place in alternative fuel consumer markets as well.

Fuels, too, are going hybrid. Ethanol, and more recently biodiesel, have become increasingly popular because they augment our existing energy infrastructure rather than replace it. Biodiesel, which can be used as a one-for-one replacement for diesel, is most often used in blends ranging from 2 to 20 percent. As such, anything that can be powered by diesel can be powered by a biodiesel blend. This ease of use and versatility has enabled this technology to realize faster initial market penetration than any other fuel.

Biodiesel blends are being used in existing diesel vehicles, and they are being dispensed through our existing fossil fuel infrastructure. This ease of use also makes for ease of distribution. Energy stalwarts such as Gulf and BP have begun making biodiesel blends available to their customers. Growth in demand is leading to greater availability, and in kind, greater availability is leading to greater use.

It has not been easy, and we have only begun to make our mark, but I am proud to report that World Energy, AGP, and others are making enormous strides in advancing the new hybrid renewable fuel frontier. With offices in Massachusetts, Florida, and California, and distribution outposts in virtually all areas of the country, World Energy is actively promoting biodiesel throughout the Nation.

Last month alone, World Energy sold more biodiesel than we did in all of 1999. By midyear 2001, we had exceeded our sales totals for all of the previous year, and by year end we expect a fourfold growth over last year's totals. When the U.S. Department of Energy recently announced that biodiesel was the fastest-growing form of alternative energy in the United States, it came as no surprise to us.

I am here today to testify to the fact that renewable hybrid fuels can work in the United States, and I am here to support legislative initiatives that will enable us to advance practical and cost-effective measures to gradually increase the use of renewable energy into the Nation's energy portfolio. The struggle to introduce a cleaner renewable fuel in to the Nation's diesel supply is no fad. Since 1994, World Energy and its predecessor, Twin Rivers Technologies, have been pioneers in bringing biodiesel to America. Far earlier, the Europeans had embraced this straightforward technology as a way to provide increased energy security, cleaner air, agricultural support, and domestic energy stabilization.

Now, with global warming surfacing as the leading environmental topic of our time, the question has begun to change from, "is global warming occurring?" to "what can we do to stem the growth of greenhouse gases?" There is certainly no single answer to that question, but certainly a component of the answer must lie within the lessons we are learning about the growing popularity of hybrid vehicles and hybrid fuels. That lesson is that if we are to begin to make progress, we must find solutions that are easy to introduce, and those that provide a wide spectrum of benefits. Under any definition, a greater reliance on hybrid renewables meets this criterion.

According to the National Renewable Energy Lab, life cycle emissions of CO_2 for biodiesel are 78 percent lower than conventional diesel. According to a recent USDA study, even relatively modest

increases of the use of biodiesel will have a significant impact on farmer income. A recent EPA study found that more than 75 percent—75 percent—of all cancer risk associated with outdoor air contaminants relates directly to diesel exhaust. Meanwhile, biodiesel exhaust has been found to be completely nontoxic.

I cite these numbers not to suggest that we should or even that we could replace all diesel with biodiesel. The point is simple. Fossil fuel resources, vehicles, and infrastructure dominate our energy landscape today. Further, we are likely to depend on this same infrastructure well into the future. With this reality as a starting point, we must begin thinking about our existing energy infrastructure as a medium for a diversified energy supply, rather than as an obstacle to it.

Today, Senators Hagel and Johnson have given us the opportunity to do just that. S. 1006 provides us the opportunity to get started. This is the renewable portfolio bill, and this bill is good for air quality, good for energy security, good for farmers, good for public health, and good for America. The time for hybrid renewables has come. This bill gives us the opportunity to get started. I urge you to pass it.

Thank you for the opportunity to be here.

The CHAIRMAN. Thank you very much.

Mr. Lyons, we are glad to see you back here.

STATEMENT OF JAMES R. LYONS, PROFESSOR, YALE SCHOOL OF FORESTRY AND ENVIRONMENTAL STUDIES, NEW HAVEN, CT

Mr. LYONS. Thank you very much, Mr. Chairman. It is certainly a pleasure to be back before the committee and have an opportunity to address you today on the important issue of global climate change. What I would like to do briefly this morning is touch on a few things. First of all, I think it is important to emphasize why we need to be concerned not only about the opportunities for sequestration of carbon in agriculture and forestry, but the impacts of climate change on our agricultural production systems and on America's forests.

I would like to talk a little bit about the opportunities to increase sequestration opportunities in agricultural and forestlands, and then raise some important considerations as you look at policies to promote the use of these lands for sequestration purposes, and time permitting, maybe I will offer a few comments on S. 820, introduced by Senators Craig and Wyden.

Let me emphasize that although many reports, including the most recent National Assessment Synthesis Team report, emphasize that generally carbon fertilization should increase production in agriculture and forestry, there are some dramatic and important regional and localized impacts that need to be considered.

Overall, if there is an increase in fertilization as a result of CO_2 and an increase in agricultural production, that may not necessarily be good news for America's farm sector. In fact, according to the NAST report, increased production could result in an estimated $4 to $5 billion reduction in producers' profits, which represent a 13 to 17 percent loss of income for America's farmers, and as the Agriculture Committee today is attempting to mark up an-

other disaster bill for agriculture, I think it is fair to say we do not need to try and increase production any further and exacerbate low commodity prices.

For forests, while productivity might increase in certain areas, there are dramatic regional effects. For example, again according to the NAST report, seasonal severity of fire hazard would be projected to increase about 10 percent over the next century under several of the more popular models that project impacts of carbon on terrestrial ecosystems. This translates into small decreases in fire hazard in the northern plains, but a 30-percent increase in fire hazard for the Southeast and for Alaska.

Also, as one might imagine, there will be dramatic changes in the forest landscape. Trees favoring cooler climates would move northward, some species would probably disappear in their entirety. While that may not seem significant for those of us from New England, who have come to enjoy the fall foliage, we would see a dramatic change in what occurs there, and it would be interesting if, in fact, as a result of the disappearance of Aspen, Aspen, Colorado no longer had any Aspen, and those are some of the real potential effects of change over time.

With regard to sequestration potential, let me emphasize as a part of our preparation for the first COP-6 at The Hague, we prepared some estimates of the opportunities for sequestration. We found, for example, that managed forests had the potential to remove 288 million metric tons of carbon equivalent under a business-as-usual scenario, that croplands had the potential to sequester another 16 million metric tons per year, and that pasturelands could, in fact, sequester about 8 million metric tons per year, so there is a significant benefit and opportunity associated with sequestration for agriculture and forestry.

Generally speaking, as management practices improve the organic content of soils through changes in tillage practices, and the establishment of permanent cover, that sequestration benefit will increase.

Others on the panel have already addressed some of the other potential opportunities in agriculture such as the production of biomass for energy crops which can serve multiple benefits, particularly reducing air pollutants and also, depending on cropping practices for crops such as switch grass, also help to maintain soil organic matter and improve sequestration.

With regard to forest opportunities, many of the opportunities are associated with improvements in management practices associated with marginal lands, with improving and increasing agroforestry activities, and improving management on private industrial and nonindustrial and forestlands.

For example, it is estimated that 23 to 45 million acres of marginal lands may be available for conversion to forests in the United States. Much of this is in the East and the Southeast, and the estimates indicate that potential gains from this conversion could be as much as 50 million metric tons per year.

Now, some utilities have been creative and are already capitalizing on those opportunities, and in fact in projects currently underway in Louisiana, Arkansas, and Mississippi, the planting of these marginal lands is actually leading to creation of new habitat oppor-

tunities and creation of new lands that might be added to the national wildlife refuge system.

Opportunities to increase sequestration rates on forest lands are probably greatest on private forest lands, and I want to emphasize there that probably the most limiting factor right now is simply knowledge and information and resources to help private nonindustrial landowners which manage two-thirds of the forestlands in the United States with the opportunity to do a better job managing the resources.

Finally, with regard to some key considerations in the use of agriculture and forestlands for carbon sequestration, I would emphasize the following, Mr. Chairman. First of all, I think it is important, as you look at new policies, that emphasis be placed on the development of sound scientifically based and viable standards for measuring carbon sequestration.

Ideally, a single, internationally acceptable standard should be developed that provides the means to credit or debit carbon sequestered in accordance with a given management practice or land use change. I would note that the International Panel on Climate Change, IPCC, is currently studying this issue, and established a program to develop standard for methodologies to estimate anthropogenic emission of greenhouse gases by sources and removals by sinks.

A second important consideration is the need to recognize that the value of carbon cycles for farm and forestland will be a function of policy and markets. Values must be viewed separately from the science of determining what impacts land use changes and management activities have in terms of their effect on carbon cycles. Clearly, one of the impediments to establishing values for carbon associated with changes in management practices and land use is the uncertainty associated with regulation of carbon emissions. Frank Cassidy has already addressed this issue.

I think it is critically important that that uncertainty be addressed. The best way to do that would be passage of legislation and the development of regulations to establish requirements for reductions in greenhouse gases domestically. That would open a wide range of opportunities for investors, farmers and ranchers and forestland owners, utilities and others to use private markets to address global climate change concerns.

In turn, this would likely spur additional investment in carbon sequestration activities, particularly if mechanisms exist to trade carbon sequestration credits for emission reduction targets.

Now, some of these markets are already developing on an experimental basis. I know you are aware of the Chicago Climate Exchange, but they are largely speculative. I think if we want to get to the point of promoting emission trading, or carbon trading, if we want to spur private investment in sustainable forestry and agriculture activities, and if we want to encourage investment in bioenergy and related technologies, then we need to cure the issue of uncertainty that certainly clouds where we are, and I would suggest to you that S. 556, introduced by Senator Jeffords and a number of his colleagues, the multi-pollutant bill, might be a good place to start.

The last key consideration I think is that efforts to enhance carbon sequestration activities on farm and forestlands cannot be viewed in isolation. Through certain management practices and land use changes, carbon sequestration values can increase, and significant additional environmental benefits would accrue, benefits such as improved water quality, wildlife habitat, improvements in air quality and the environment overall, and if some value were established for carbon that might spur investment in these sequestration-enhancing activities, then private money might be invested where currently landowners and the taxpayer through financial assistance programs are footing the entire bill.

Now, of course, the reverse is also true. Efforts to enhance sequestration through practices that improve forest productivity should not be permitted to do harm to water quality, wildlife habitat, and the like. I would argue that the full environmental budget for these activities needs to be taken into account.

So in establishing any rules for measuring carbon sequestration, perverse incentives that enhance carbon values but lead to conversion of old growth forests or the loss of biologically important natural resources or the conversion of entire ecosystems should be disallowed.

If you like, Mr. Chairman, I would offer just a few comments on S. 820. I want to commend Senator Craig and Senator Wyden for their efforts in bringing this to the fore and bringing a focus to the opportunities to promote sequestration of carbon through better utilization of America's forests. I would offer the following comments, though, for their consideration.

First, I think it is important that carbon sequestration potential for all forest lands in the United States be accurately assessed and reported upon. It is not clear to me from the text of the bill if the bill simply focuses on public lands. I think it should take into account private lands as well, because that is actually where the greatest potential exists, with so many lands in private ownership, and so many of those lands frankly more productive in terms of their forest potential.

Second, in lieu of the Carbon and Forestry Advisory Council established by the bill, what I would suggest is an independent scientific panel be established under the rules of the Federal Advisory Committee Act. The reason for this is simple. I think the charge given to this advisory panel is largely technical and scientific in nature, and not fully consistent with the qualifications that are required for that panel in the bill.

Third, as I noted above, I think it is important for any methodologies devised in accordance with that legislation be consistent with other methodologies for measuring carbon emission and sequestration rates developed in the United States, and they have to be applicable internationally as well. I think that amplifies the need to have scientific expertise in that advisory panel.

Fourth, I think consistent with the stated purposes of the bill, it is important that recommendations stemming from any required study and actions of the advisory council give full consideration to other environmental consequences associated with enhancing carbon, and that is noted in the bill. I think it should be emphasized.

And finally, I want to commend the authors for recommending the establishment of cooperative agreements and loan program to provide for additional investment in forest stewardship in the United States. However, I might suggest that the management activities provided for by these funds in forest management plans that would be developed be managed through existing forest stewardship activities, and perhaps through the existing forest stewardship program.

With that, I will cease, Mr. Chairman, and again I want to thank you for the opportunity to appear before the committee today.

[The prepared statement of Mr. Lyons follows:]

PREPARED STATEMENT OF JAMES R. LYONS, PROFESSOR, YALE SCHOOL OF FORESTRY AND ENVIRONMENTAL STUDIES, NEW HAVEN, CT

Mr. Chairman, Senator Murkowski and members of the committee. My name is Jim Lyons and I am honored to appear before you today to discuss proposals related to global climate change and measures to mitigate greenhouse gas emissions. I am currently Professor in the Practice of Resource Management at the Yale School of Forestry and Environmental Studies in New Haven, Connecticut.

It is a pleasure to return to this room to address you today. I want to commend you and your leadership in investigating the many issues associated with the nation's current energy concerns, most especially the issues associated with climate change that we will discuss today. I also want to commend you for your introduction of S. 597, the Comprehensive and Balanced Energy Policy Act of 2001. Mr. Murkowski, it is also a pleasure to be with you again and similar commendation is due you in your efforts to provide leadership on energy issues through introduction of S. 388, the National Energy Security Act of 2001. I look forward to our discussions this morning.

My testimony this morning will focus on three aspects of the climate change debate. First, I will briefly summarize some of the concerns raised regarding the potential impacts of climate change on forestry and agriculture. Second, I will address the role that forests, crop and rangelands play in mitigating the effects of CO_2 through carbon sequestration and how these functions can be enhanced. Finally, I will discuss some important considerations in the use of forest and agricultural lands as carbon sinks, and the need to be mindful of the greater ecological considerations of changes in policy intended to enhance the value of forests and agricultural lands as sinks.

THE IMPACTS OF CLIMATE CHANGE ON AGRICULTURE AND FORESTRY

A number of studies have assessed the likely impacts of increasing global climate on the nation's forests and agricultural lands. For example, the U.S. National Assessment of Climate Change, released last November, noted that "The impacts of climate change will be significant for Americans, [but] the nature and intensity of impacts will depend on the location, activity, time period, and geographic scale considered." (NAST, 2000). According to the National Assessment Synthesis Team (NAST) report, nationally, agriculture and forestry are likely to benefit in the short term due to climate change and rising CO_2 levels. The reason is assumed CO_2 fertilization effects. But a closer look at the regional and more localized effects of increased climate leads to greater concern.

Results of the Assessment suggest that the productivity of many major crops will likely increase nationally. Pastures, too, will benefit. However, for some crops, particularly wheat, rice, oats, hay, sugar cane, potatoes, and tomatoes, yields will either increase or decrease depending upon the scenarios analyzed. For example, as noted by the NAST report, "while wheat yields are likely to increase at the national level, yields in western Kansas, a key breadbasket region, are projected to decrease substantially under the Canadian climate model scenario."

The Pew Center on Global Climate Change report, "Agriculture and Global Climate Change" (Adams, 1999) warns that other factors such as precipitation and temperature can act to affect crop yields, in addition to the effects of increased CO_2. With regard to climate change effects on livestock, the authors noted that warmer summer temperatures might impact livestock production (e.g., low milk production) and suppress livestock appetites, leading to lower weight gain.

An interesting analysis of the economic effects of overall increased crop yields suggests that while consumers might benefit slightly from greater commodity produc-

tion and slightly lower food prices, the effects of producers' profits could be substantial. As noted by the NAST, "The estimated $4-5 billion reduction in producers" profits represents a 13-17 percent loss of income, while the savings of $3-6 billion to consumers represent less than a 1 percent reduction in the consumers' food and fiber expenditures." (NAST, 2000).

For forests, modeling indicates that forest productivity increases are likely to occur as a result of increased atmospheric CO_2, but that these increases will be tempered by local variability in moisture and nutrient availability. Other environmental factors also are affecting forest productivity. For example, "current ozone levels . . . have likely decreased production by 10 percent in the Northeast forests and 5 percent in southern pine plantations." (NAST, 2000)

As in agriculture, regional variations in response to climate change may be more striking and disturbing. For example, the NAST reported that "seasonal severity of fire hazard is projected to increase about 10 percent over the next century over much of the U.S. under both the Hadly and Canadian climate scenarios." (NAST, 2000) This translates into small decreases in fire hazard in the northern plains, but a 30% increase in fire hazard for the southeastern U.S. and Alaska (emphasis added).

Potential changes in the range and distribution of tree species could also result from increasing global climate. Trees favoring cooler climates are likely to shift to the north while some alpine and sub-alpine spruce-fir could possibly be eliminated. In the northeast, a transition could occur from the present maple, beech, and birch tree species to oak and hickory. Aspen and eastern birch communities could contract dramatically in the U.S. and largely shift to Canada. As a result, the fall foliage of New England could be dramatically different than we're accustomed to knowing and Aspen, Colorado could find itself without aspen if these predictions hold true.

With changes in forest types would come changes in associated plant and animal species. As noted in the Pew Trust report, "Ecosystems and Global Climate Change", "The effects of climate change on ecosystems and species are likely to be exacerbated in ecosystems that already are under pressure from human activities, including air and water pollution, habitat destruction and fragmentation, and the introduction of invasive species." (Malcolm, 2000). The NAST report notes that, "Invasive (weed) species that disperse rapidly are likely to find opportunities in newly forming communities." (NAST, 2000).

And how might we respond to these changes? With limited knowledge of ecosystem structures and functions, adaptation to changing climate regimes would be extremely difficult. As noted by the Pew Trust report, "Even the seemingly simple task of reintroduction plants into former parts of their range has met little success so far." (Malcolm, 2000).

In short, the effects of increasing CO_2 levels and increases in global climate, though regional or localized, may be substantial and dramatic. These findings were recently verified by the National Academy of Sciences report, "Climate Change Science: An Analysis of some Key Questions" which was prepared in response to a White House request for assistance in its ongoing review of U.S. climate change policy. The Committee noted,

> The impacts of these climate changes will be significant, but their nature and intensity will depend strongly on the region and timing of occurrence . . . [O]n a regional basis the level and extent of both beneficial and harmful impacts will grow. Some economic sectors may be transformed substantially and there may be significant regional transitions associated with shifts in agriculture and forestry. . . . The possibility of abrupt or unexpected changes could pose greater challenges for adaptation. (NAS, 2001)

AGRICULTURE, FORESTRY, AND CARBON SEQUESTRATION

Crop, pasture, and forest lands can play a significant role in mitigating the effects of climate change precisely because of their ability to sequester or absorb carbon in CO_2.

Last summer, an analysis was conducted of the capability of forests, croplands, and pasture to sequester carbon to determine what role these so-called "sinks" might play in helping to mitigate the effects of increasing CO_2 emissions. This analysis provided the foundation for the U.S. position on the role of sinks in mitigating global climate change at the COP VI in the Hague, Netherlands.

As of 1997, managed forests in the United States removed between 278 and 341 million metric tons of carbon equivalent (MMTCE) per year, with an estimate of central tendency of 310 MMTCE per year. During 2008 to 2012, the first commitment period under the Kyoto Protocol, managed forests are projected to remove between 245 and 331 MMTCE per year or an average of 288 MMTCE. Much of this

uptake occurs in the Southeastern, Pacific Northwest, and Northeastern regions of the country.

Based upon these estimates, managed forests in the U.S. currently remove about 17 percent of total U.S. greenhouse gas emissions per year on a carbon-equivalent basis or about 21 percent of fossil fuel-related CO_2 emissions. Assuming business as usual, during the period 2008-2012, managed forests in the U.S. could remove from 12 to 16 percent of total U.S. greenhouse gas emissions on a carbon equivalent basis.

Cropland soils in the U.S. are projected to remove between 9 and 24 MMTCE per year during the commitment period with a central tendency of 16 MMTCE per year. Assuming business as usual, grazing land soils will remove between 3 and 23 MMTCE per year from 2008-2012 or 8 MMTCE, on average, per year.

So it is clear that forests, crop lands, and grazing lands can serve an important role as sinks for carbon. It is also clear that opportunities exist to increase carbon sequestration for each, through improvements in management and changes in land use.

For example, for grazing lands changes in management that improve carbon sequestration potential include improved productivity through the use of fertilizer or manure management, management to improve plant community stability, and noxious weed control. On croplands, conversion to conservation tillage and practices such as no-till leave the soil surface undisturbed, and thus increase soil organic carbon. Establishment of vegetated buffer strips along waterways and wind breaks can also enhance sequestration rates with the added benefit of reducing soil erosion, providing wildlife habitat, and improving water quality.

For forests, opportunities to enhance sequestration through forestry are also available. Richard Birdsey, Director of the USDA Forest Service's Global Change Research Program, recently briefed Senate staff on some of these opportunities. Included were:

1. afforestation of marginal cropland and pasture
2. reducing conversion of forestland to nonforest use
3. improving forest management
4. reducing harvests
5. increasing agroforestry
6. substituting renewable biomass for fossil fuel energy
7. more efficient use of raw materials
8. increasing paper and wood recycling
9. planting trees in urban and suburban areas, and
10. improving energy efficiency in wood production.

I would like to focus, briefly, on the opportunities to increase carbon sequestration on crop and forest lands, particularly as these opportunities are associated with changes in management practices and land use.

For crop and rangelands, improvements in the organic content of soils through changes in tillage practices and the establishment of permanent cover are key elements in efforts to increase carbon sequestration. USDA's Environmental Quality Improvement Program (EQIP) assists producers in applying improved conservation measures on working lands and is one tool that can help increase carbon sequestration potential. Agricultural programs like the conservation reserve program (CRP), the wetlands reserve program (WRP), and the conservation reserve enhancement program (CREP) all serve to increase sequestration potential by providing for the maintenance of permanent cover on lands which are "set aside" from normal agricultural production for extended periods of time. Where farmers elect to plant trees on these set-aside lands, sequestration is further increased.

Still other opportunities exist to enhance agriculture's capacity to assist in reducing the effects of global climate change. For example, an experimental program authorized last year has provided opportunities for producers to grow "energy crops" such as switchgrass which can be co-fired in coal fueled utility plants. This renewable source of energy is currently being used in a demonstration project in the Chariton Valley in Iowa. There, a coalition of twenty organizations is working with an investor owned utility and about 150 farmers to replace 5 percent of the coal currently burned in a 740mW coal fired power plant. Currently, 6000 acres are dedicated to energy crop production with plans to increase to 50,000 acres.

Other sources of biomass, in addition to switchgrass, are currently being evaluated to determine their potential to serve as a renewable source of energy. Probably best known is ethanol where seven percent of the corn crop is currently dedicated to fuel production. Estimates are that even at this level of production, ethanol increases net farm income by more than $4.5 billion, generates 192,000 jobs, and results in net federal budget savings of over $3.5 billion.

Biomass crops have the benefit of being carbon neutral, thus benefiting global warming from two perspectives. Their production, particularly in the case of switchgrass, which requires no soil tillage, maintains soil carbon over extended periods of time. And their use as an alternative for coal reduces greenhouse gas emissions as well as other harmful air pollutants.

Further opportunities exist to enhance the value of agriculture in addressing climate change. More efficient use of livestock manure and recapture of methane for energy production provides an important means of converting a "waste" problem into an energy-producing opportunity. Similarly, improvements in technology are providing important opportunities to use biomass to produce feed products, specialty products, and polymer products.

As noted in a March 14, 2001 issue of Chemical Week Magazine, Cargill Dow, a startup company created by Cargill Incorporated and the Dow Chemical Company, is building a world-scale facility in Blair, Nebraska which will produce a new family of polymers called polyactides (PLA). It will employ 33 people by 2005 and produce 300 million pounds per year of PLA which will be used to produce packaging and fiber products. PLA is the first family of polymers derived entirely from annually renewable resources. According to representatives of Cargill Dow, these products will be cost and performance competitive with traditional fibers and packaging materials.

For forests, opportunities for increasing carbon sequestration potential are greatest in a number of areas. These include the reforestation of marginal lands, agroforestry activities, and improvements in management of private industrial and non-industrial forests and public forests.

Nearly one-third of the U.S. land base is forested. Of this, nearly two-thirds is in private non-industrial ownership.

Afforestation of marginal crop and pasture pasturelands provides one important opportunity to expand this forest land base and increase sequestration. It is estimated that between 23 and 45 million acres of marginal lands may be available for conversion to forest. Most of this is in the east. The potential gains from this conversion according to USDA Forest Service estimates are approximately 50 MMTCE/year.

As evidence of the value of this practice, in 1995, 41 utilities established a non-profit corporation—the UtiliTree Carbon Company—which is engaged in a number of international and domestic forestry projects. The projects range from a mix of rural tree planting, forest preservation, and forest management activities. Examples include a series of bottomland hardwood projects in the Lower Mississippi River Valley in Louisiana, Arkansas and Mississippi on lands recently acquired by the U.S. Fish and Wildlife Service for addition to the National Wildlife Refuge System. The projects would reestablish the bottomland hardwood forests on approximately 2,400 acres. It is estimated that the projects will sequester an estimated 9 tons of CO_2 over the first five years and 600 tons per acre after 70 years. In Western Oregon, a project that will plant trees on 300 acres if unforested non-industrial timberland, will include a long-term sustainable forest management plan and sequester approximately 200,000 tons of CO_2 over the life of the project. A dozen or more electric utility companies are involved in urban forestry and energy conservation programs through American Forests' Global ReLeaf and Cool Communities programs.

Agroforestry opportunities to incorporate tree planting into agricultural landscapes also hold great potential to increase carbon sequestration. Windbreaks, shelterbelts, and riparian forest buffers can further efforts to reduce erosion, improve wildlife habitat, and minimize polluted runoff for agricultural lands. Recently, for example, the state of Maryland announced that it was approaching completion of its goal of planting 600 miles of riparian buffers to trees along the Chesapeake Bay and its tributaries.

Opportunities to increase sequestration rates for non-industrial private forests are also significant. While industrial forest lands are generally more productive, more intensive management of non-industrial forest lands through such activities as regeneration, thinning, improved stocking, fertilization, and low-impact harvesting can increase their productivity. Forest Service researchers estimate that the growth potential of many forest stands is well below their biological potential and that more intensive management can increase productivity and with it, rates of carbon sequestration. Impediments to achieving this potential include landowner knowledge of the opportunities, limited technical and financial assistance, and poor markets.

On public forests, particularly national forest system lands, additional opportunities exist to increase forest productivity and reduce the quantity of woody debris and fuels that heighten risk of wildfire. As reflected in the USDA Forest Service's wildfire strategy, treatment of fuel loads is a top priority for reducing future wildfire

risk. Millions of acres of national forest system lands proximate to urban landscapes and communities are in need of treatment. Through an aggressive program of thinning and fuel removal, these lands can provide biomass to generate power and the means to improve forest health and productivity, further contributing to their potential to sequester carbon. According to the USA Biomass Power Producers Alliance70 percent of the biomass fuel consumed in the U.S. is from forest-related activities. In fact, sixteen of California's 28 operating biomass power facilities are dependent, to some degree, on fuels derived from public lands.

KEY CONSIDERATIONS IN PROMOTING THE USE OF FARM AND FOREST LANDS FOR CARBON SEQUESTRATION

Finally, I would like to focus on some important considerations as you develop new policies that might seek to enhance the use of farm and forest lands to sequester carbon or produce biomass as a means of mitigating the impacts of global climate change.

Of paramount concern is the development of sound, scientifically-based, and viable standards for measuring carbon sequestration. Ideally, a single, internationally-accepted standard would be developed that provides the means to credit (or debit) carbon sequestered in accordance with a given management practice or land use change.

Extensive work has been done to attempt to develop such measurements for forestry. Winrock International has done extensive work in this arena, dating back to 1992. The system they devised is now being used to measure and monitor carbon in several private projects. Less progress has been made in developing similar measures for agricultural applications. The International Panel on Climate Change is currently studying this issue and has established a program to develop standards for methodologies to estimate anthropogenic emission of greenhouse gases by sources and removals by sinks.

If methodologies are successfully established, these measures of sequestration could serve as a valuable addition to current efforts to measure and certify sustainable forestry in the U.S. Thus, sustainable forestry might also be defined as forest management activities which, in sum, have no negative impacts in terms of climate change. A valuable lesson to be learned from the experiences of those involved in the development of methodologies for measuring sustainable forestry would be to assure third party verification and certification of the results.

To his credit, President Bush has called for improving cost-effective measurement of land-based emission reduction and carbon sequestration projects. In announcing this initiative, the Administration noted,

> A fundamental challenge in attracting private sector investment to land-based greenhouse gas emission reduction or carbon sequestration projects in the ability to accurately quantify the net changes. Private sector investors are reluctant to participate in projects without reliable and credible quantification of the uncertainties associated with different land management practices.

A second important consideration is the need to recognize that the value of carbon per acre for farm and forest land will be a function of policy and markets. Values must be viewed separately from the science of determining what impacts land use changes and management activities have in terms of their effects on carbon cycles.

One of the clear impediments to establishing values for carbon associated with changes in management practices and land use is the uncertainty associated with regulation of carbon emissions. If preliminary reports from Bonn, Germany are true regarding agreement on principles for implementation of the Kyoto protocol, then one part of this hurdle may be overcome—at least on an international scale. What the implications may be for carbon values and markets in the U.S. is unclear. What is clear, however, is that removal of this uncertainty through passage of legislation and the development of regulations to establish requirements for reductions in greenhouse gases domestically, would open a wide range of opportunities for investors, farmers and ranchers, forest landowners, utilities, and others to use private markets to address global climate concerns. In turn, this would likely spur significant investment in carbon sequestration activities, particularly if mechanisms existed to trade carbon sequestration credits for emission reduction targets. While private markets are currently developing, such as the Chicago Climate Exchange, they are largely speculative, based on the assumption that some emission reduction requirements will eventually be put in place. If we want to get there sooner, if we want to spur private investment in sustainable forestry and agricultural activities,

if we want to encourage investment in bioenergy and related technologies, then we need to cure the uncertainty that currently clouds this issue.

A third key consideration is that efforts to enhance carbon sequestration activities on farm and forest lands should not be viewed in isolation. Through certain management practices and land use changes, carbon sequestration values can increase and significant additional environmental benefits can accrue. The benefits to water quality, wildlife habitat, air quality and the environment, overall, can be substantial. And, if some value were established for carbon that might spur investment in these sequestration-enhancing activities, then private money might be invested where currently, landowners and the taxpayer, through financial assistance programs, now pay.

Of course, the reverse is also true. Efforts to enhance sequestration, through practices that improve forest productivity or promote the production of biomass, should not be permitted to do harm to water quality, wildlife habitat and the like. The full "environmental budget" for these activities needs to be taken into consideration. Efforts to promote carbon sequestration through investments in forests, crop and range lands need to be viewed in their larger environmental context. In establishing the "rules" for measuring carbon sequestration, perverse incentives that enhance carbon values but lead to the conversion of old-growth forests, the loss of biologically-important natural resources, or the conversion of entire ecosystems should be disallowed.

SOME COMMENTS ON S. 820

Before I close, Mr. Chairman, I would like to offer a few comments on S. 820, the "Forest Resources for the Environment and the Economy Act." I commend Mr. Wyden and Mr. Craig for taking the initiative to introduce this legislation and to encourage further thinking about the role that national forests can play in helping to address global climate change concerns.

First, I believe it is important that the carbon sequestration potential for all forest lands in the United States be accurately assessed and reported upon, not simply national forest system lands. It was not clear to me if the report required by this bill would include industrial and private, non-industrial forest lands as well as native American lands and other public lands. If not, I believe it should do so.

Second, in lieu of the carbon and forestry advisory council established by the bill, I would suggest that an independent scientific panel be established under the rules of the Federal Advisory Committee Act. I recommend this because I believe the functions required of the council are largely technical and scientific in nature and not fully consistent with the qualifications and expertise required in the make-up of the council.

Third, as I noted above, it is important that any methodologies devised in accordance with this legislation be consistent with other methodologies for measuring carbon emissions and sequestration rates developed for the United States and be applicable in an international context. This amplifies the need to provide strong scientific input and guidance in fulfilling the requirements of S. 820.

Fourth, consistent with the stated purpose of the bill, it is important that any recommendations stemming from the required study and actions of the advisory council give full consideration to the other environmental concerns associated with efforts to enhance carbon sequestration. Sequestration efforts should not be viewed in isolation. Trade-offs and co-benefits associated with identified management practices and land use changes should be clearly identified.

Finally, I commend the authors for recommending the establishment of cooperative agreements and a loan program for forest carbon activities on non-industrial private forest lands. I would suggest that the management activities provided for by these funds and the forest management plans that would be developed should be incorporated into ongoing forest stewardship program activities. In addition, I strongly support the notion of cancellation of these loans in return for donation of permanent easements that would protect the forest carbon reservoir, provided the affected lands continue to be managed under a plan that is consistent with all applicable environmental laws.

SUMMARY

Mr. Chairman, tremendous opportunities exist to expand the use of farm and forest lands to assist in U.S. efforts to address the effects of global climate change. These lands can serves as sinks for carbon, as the sources of biomass for renewable energy production, and, at the same time, provide opportunities to improve water quality and wildlife habitat.

Carbon sequestering and biomass production activities can provide new sources of income for landowners. In addition, should markets develop for carbon as a result of changes in domestic and/or international policy, new sources of capital are likely to provide the funds for improved management activities.

Effective means of measuring, monitoring, and verifying the carbon sequestration benefits of management practices and land use changes need to be developed. In addition, the uncertainty associated with making investments in carbon sequestration activities needs to be eliminated. This can best be done through the establishment of clear requirements for reductions in CO_2 emissions through the enactment of legislation currently pending before the Congress.

Finally, any strategies for enhancing carbon sequestration opportunities on farm and forest lands need to take into consideration both the potential environmental benefits and costs. Generally, management activities that improve carbon sequestration are likely to provide significant conservation benefits as well. This provides an exciting opportunity to promote mutually beneficial conservation and carbon sequestration activities as components of sustainable forestry and agricultural programs. However, a rush to promote land management practices that enhance carbon sequestration or other activities intended to address global climate change at the expense of other environmental values would be a poor investment.

Mr. Chairman, thank you again, for the opportunity to appear before you today.

The CHAIRMAN. Thank you very much.

Mr. Hill, let me ask you, on the emissions trading activity, I am unclear just in trying to understand what our exit from the negotiations in Bonn, what the effect of that is. Your company is an international company. You have undoubtedly been following the discussions in Bonn about establishing an emissions trading program. Do you know how this would affect a decision you might make on reducing emissions in the United States, versus reducing emissions from an operation you might have in Europe, or how does that work, as you understand it?

Mr. HILL. Mr. Chairman, that is certainly an issue I think we are going to have to understand very deeply. At this time it is too early for us to have really sat down and thought about that. That is something we will be looking at over the coming months.

One thing I will add, that our own internal program remains unaffected by that. Each year we have a target set within our business, and as I mentioned in my testimony, each business leader is then responsible for meeting that target.

What we will have to check is that we are operating within the legal framework that is set out in any particular country or any particular treaty that has been subsequently introduced, but as we understand it today, the program we have within the company will remain intact.

The CHAIRMAN. Let me ask Mr. Cassidy, and first let me congratulate you and this group that you are part of, the Clean Energy Group, for your legislative proposal. There is another group that I am also familiar with called the Clean Power Group. Are you familiar with them?

Mr. CASSIDY. Vaguely, Mr. Chairman.

The CHAIRMAN. Okay. That is another group of companies that have come together and have developed a proposal, but I gather from your comments you are not familiar with their proposal and would not be able to comment on it relative to your own.

Mr. CASSIDY. I am not, I am sorry, Mr. Chairman.

The CHAIRMAN. We might ask just for the record if I could try to get you a description of the outline of what they are talking about and get your reaction to it.

Mr. CASSIDY. We would be happy to provide that. I can also provide you, Mr. Chairman, with a comparison of our proposal to the Jeffords bill which has been referred to several times here today.

The CHAIRMAN. That would be very helpful if you could.

Mr. CASSIDY. Sure.

The CHAIRMAN. If we could understand more clearly why you think yours is the better proposal, that would be useful.

What do you see—Mr. Cassidy, let me ask another question of you. What do you see as the major impediments to developing new coal-fired generation capacity at this time in this country?

Mr. CASSIDY. If I look at the development of new generation over the last 10 years or so, it has been almost entirely natural gas-based, and that has largely been as a result of the cost differential between natural gas and coal, not being able to overcome the capital cost disadvantage of coal.

Today, with natural gas dependence being an issue for our energy security, as well as the price of natural gas, coal has started to become a lot more attractive, and in fact my company has been looking at developing new coal-fired plants.

Also, we were able today, with the technologies that have been developed, to be able to produce coal-fired plants that are extremely clean in terms of nitrogen oxides, sulfur dioxide, and mercury.

The big impediment, as we see it, is the uncertainty surrounding the future of carbon. It is very difficult for us to make a decision which has a 20- or 30- or 40-year life span with no real certainty about how carbon is going to be regulated going forward, and that is thus an inability for us to predict how that investment is going to turn out.

The CHAIRMAN. Thank you very much.

Mr. Lyons, let me ask you about this agreement that has been developed in Bonn, or is being developed, as you understand it. How does the agreement promote the use of sinks to meet these greenhouse gas emission targets? Are there ways in which the agreement they are coming to there is going to advantage or disadvantage us relative to these so-called carbon sinks?

Mr. LYONS. Well, Mr. Chairman, I have to qualify my comments by saying I only pulled down a copy of the text, or at least the draft text, off the web last night, so I have only had a brief opportunity to review it.

As I understand, there is some recognition for credits for agricultural sinks, opportunities for use of reforestation and afforestation in what is called the Clean Development Mechanism, and then there is limited credit provided for forest sinks, according to an appendix to the document.

The cap for U.S. forest sinks would be about 28 million metric tons per year. Unfortunately that is about where we were, at least with regard to forests, in our discussions in The Hague, and I know Senator Craig and I spent many a long night discussing the potential for incorporating sinks into the discussions we had while we were in The Hague.

What is unclear, and certainly I am not an expert in international treaty law, is what the ramifications are for the United

States should we not participate, and how this sink proposal would affect us.

I mean, to some degree I would characterize it as a lost opportunity. We were in The Hague arguing strongly for inclusion of additional credits for sinks, given the high potential for U.S. forests to serve as sinks for carbon. Unfortunately, the agreement seems to have ended up where we left off in The Hague, so the implications are not clear, although there is some recognition for sequestration as a part of the larger package.

The CHAIRMAN. Thank you very much.

Senator Craig.

Senator CRAIG. Mr. Chairman, let me take off from your last question to query Mr. Lyons on that issue. I, too, have got a copy now—I think it has been pulled off the net—that gives us an understanding of where the group may well be as it relates to sinks, and Jim, if we take your figures, 288 million metric tons in the forest, and if we include croplands at 16, and pasture at 8 then 312, somewhere in that range, and I understand, though, that the 28 figure, using the formula that apparently they are using, would give us less than 1/10th of the existing U.S. capacity, potentially, to absorb carbon.

Now, it is interesting that Canada, with their vast forests, got 11, Japan got 13. Japan probably got 13, and I am told by those who were there that Japan was able to bargain up, and there was willingness to allow them to bargain up. It was something about a vote they might get if they kind of included Japan a little more. I think it was true of the Russian Federation.

When you look at Russia, at 17 metric tons of carbon per year in the their vast steppe lands and their vast forests, this is not very reflective of a desire to use sinks and carbon sequestration as a right and proper tool based on current science, not based on the new science of measurement that is evolving as it relates to sinks.

So I think maybe I am as frustrated as you are by at least the current figures and how they get to the formula. My guess—as you know, we were about to bargain away at 35 percent of capability when we were at The Hague. My guess is this is less, or somewhere near that figure.

Anyway, I bring that up only to say that based on what I read now, and what we know now, it is interesting what they are doing, with or without us.

I also find out, just to add to the record, Mr. Chairman, under article 12, called Clean Development Mechanism—here is a real fascination, and this is subparagraph 2, to recognize that parties included in Annex I are to refrain from using certified emission reductions generated from nuclear facilities to meet their commitments under article 3.1.

That is the exclusion of new nuclear, probably the cleanest source of nonemitting energy sources there are today, and it is fascinating that they would exclude it as a measurement. To me, that is a statement of politics, not of good science, or the reality of a problem and how you meet that problem. I do not know how to meet it otherwise. I was not there, and should not react.

But let me come to you, Mr. Hill, because I think all of us recognize what BP is trying to do, and we applaud it. What you have

done voluntarily and collectively as a multinational company is to be applauded.

Given your estimate of the potential for carbon sequestration, I guess I would ask you what is your view of the decision taken in Bonn this past weekend that appears to limit the use of sinks under the Kyoto Protocol?

Now, do not take my interpretation. I trust that you have some working knowledge of where they were.

Mr. HILL. I only have a very basic working knowledge of that, and my area of expertise is indeed in the technology area of carbon capture, separation, and storage.

What I can talk about is the experience that BP has had. As you have said, we have taken a lot of preventative measures, and what we have established is that we need to have the flexibility to investigate and learn from all types of sequestration, and by limiting that, and limiting the amount of tons you can bring to the table, could have an impact on reducing the costs in line with the way you would like to reduce costs.

So I think I would have a concern that in any event, if we are limiting the flexibility we have in the area of sequestration, that could have an impact on how much we are able to just cause the flexibility we have to offset CO_2.

Senator CRAIG. Given your experience with internal trading programs, would BP support the development of a national registry for emissions reduction, and would you use such a registry?

Mr. HILL. I think our track record shows that we are extremely supportive of open and transparent data, so we would support mechanisms where we can actually report our emissions.

Senator CRAIG. BP has said we could store 30 years of emissions in geologic reservoirs, is that accurate?

Mr. HILL. Right. In fact, these are not BP numbers. these are numbers that have been determined independently by research, and the numbers indicate that there is the capacity in geological formations to store something in the order, at a minimum, of 30 years of emissions as they currently exist today.

Senator CRAIG. How does that relate to U.S. capacity?

Mr. HILL. How does that relate to U.S. capacity? I do not actually have the split-down. That was actually a global figure that was quoted, and I do not actually have the split-down into U.S. capacity versus the rest of the world, but that is something I can actually forward to you in a written statement.

Senator CRAIG. I would appreciate that.

Mr. Chairman, my light is on. I would like to ask a question of Mr. Cassidy, if I might.

Mr. Cassidy, how do you respond to the Energy Information Administration's study on multiple pollutant legislation? By that, I mean they say that the costs of approaching multiple pollutant legislation in relation to CO_2 means generally higher energy costs. Their figures are $80 billion electrical cost to the United States annually, a 50 percent reduction in coal generation.

Now, that is the price per kilowatt hour of electricity up from 6.2 to about 8.5 cents, about a 30 to 40 percent increase based on a multiple pollutant strategy, and you know, this committee, in a bipartisan way, looks at the Energy Information Administration as

a fairly neutral agent of measurement and information for us. How do you react to that?

Mr. CASSIDY. Senator, we have done quite a bit of analysis of the EIA's report, and first off I would say that the scenario that they analyzed was one where there was a very sudden carbon cap imposed with very little chance for a transition into it, limited flexibility mechanisms, and no trading involved, very different than the proposal which we are proposing both in terms of timing and the amount of flexibility.

I guess I would also comment that if you look back 20 years ago at some of the estimates of the effect on electricity cost that the Clean Air Act was going to have, we heard some of these same kinds of statements, and it has turned out that the actual cost to implement the Clean Air Act has been a small fraction of what was estimated at the time.

Senator CRAIG. Is it not true, though, that mandatory CO_2 reduction would help the Clean Energy Group companies from a competitive standpoint? Would it not just inflict higher cost on your competitors?

Mr. CASSIDY. I would say that that is absolutely true, that we believe that part of what we are trying to do with this proposal is to level the competitive playing field and to assure that all competitors are internalizing the costs of emissions control.

Senator CRAIG. Thank you.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Johnson.

Senator JOHNSON. Thank you, Mr. Chairman. Thanks to this panel. Mr. Campbell and Mr. Lyons demonstrate that there is life after public service, indeed. We are glad to have them here, and Mr. Campbell, again thank you for participating in this committee's first field hearing in Sioux Falls, South Dakota here this past month.

I have a particular interest in the biofuel side of things. It seems to me that both in the case of ethanol and in the case of biodiesel, an issue that Mr. Campbell and I discussed a bit at the previous hearing has to do with the classic chicken-and-egg issue here, and that is a reluctance on the part of the private sector to make significant investments in the production of either biodiesel or ethanol absent some at least minimal assurance of what the market is going to be over a longer period of time. It takes a significant amount of time to recover the investment for these plants.

There has been some going forward of production capability in this country, and I am grateful for that, but a high level of uncertainty about the ultimate market. Currently, only about 7/10ths of 1 percent of motor fuel contains a biofuel product. Senator Hagel and I are suggesting that we slowly ramp that up to about 5 percent by the year 2016.

That is a long window, and we do not suggest that this is going to displace all the petroleum in the world, but nonetheless we would create by a matter of national policy a volume of market that the private sector could respond to, and I wonder, if Mr. Campbell, would you care to comment about that chicken-and-egg problem that we currently have?

Mr. CAMPBELL. Certainly from an investment perspective it is very difficult to responsibly make 20- and 30-year investments without the investment climate being more certain.

In renewables, we are constantly at the mercy of whatever Congress decides to do, whether it be extending the excise tax exemption or other EPACT-type strategies. It is a highly unstable environment. However, I do see some change in at least the political support for renewables. I see that as a positive step.

I also see, at the ground level, at least a change in the attitude of the petroleum industry. Certainly we see statements from the top level that is supportive of renewables. We see hundreds of millions of dollars of investment going into renewables, but yet there is still the political fight. There is still the political fight going on, and it needs to stop. We need to come to closure on whether renewables are going to have a place in the energy spectrum or not, and if they are, what is it? We set up a framework, and we go forward, and I think that is what your bill does. Other pieces of legislation address that issues as well.

Senator JOHNSON. Mr. Gebolys, a lot of attention is given to ethanol around here, but biodiesel also holds great prospect I think for the country. We have some experience in that area in particular.

One of the problems we have had with biofuels has been the shortage of outlets, places where consumers can buy the fuel. Where are we in terms of the availability of biodiesel fuel in terms of stations around the country?

Mr. GEBOLYS. Biodiesel has come a long way in a short period of time, as you know, Senator, because you were very instrumental in leading the effort to make biodiesel an eligible fuel for compliance with the Energy Policy Act that was signed into law with the Energy Conservation Reauthorization Act in late 1998, so biodiesel as a viable alternative fuel in America has only been around for 2½ years.

Given that, we are now—we have distribution in most major cities in the United States. Diesel fuel is distributed very differently than gasoline. It does not get distributed at your corner filling station. It largely is filled through central fueling sites, and generally most diesel fuel is used by big fleets, and therefore the challenge to introduce biodiesel into the American mainstream petroleum supply is somewhat less challenging than is getting other alternative fuels into the mix.

Biodiesel, also by virtue of the fact that it goes into existing vehicles, can go into anything. It can go into stationary diesel generators, and it can go into virtually anything.

So the real challenge here, as John Campbell had said, is how do we create a movement in which the folks that will be buying this know that it is going to be available and know that there is a motivation to buy. Where there is an appetite for biodiesel, we can satisfy that appetite, literally within a week, and are doing that all over the country.

All major cities must have access to biodiesel now, and really it is just a matter of getting the word out, getting the product out, and putting in more stable sources of supply and demand.

Senator JOHNSON. Does using a biodiesel blend require any changes to the vehicle, or can any diesel use biodiesel?

Mr. GEBOLYS. Yes. That is really what sets biodiesel apart from anything else in this framework. Biodiesel can go into anything without any change at any blend level. There is no thing like it that we have encountered in the past.

There is a real temptation to lump biodiesel in with ethanol, but there is a pretty significant difference in the sense that ethanol at higher volume levels has to go into specifically designed vehicles, and therefore the—the challenge to get biodiesel into the mainstream in America is enormous. It is just smaller than anything else.

Senator JOHNSON. I think you raise a good point. Ethanol fuels up to about a 10-percent blend can go into any vehicle, and you can burn ethanol blend one day and not burn it the next day. The same with biodiesel.

Now, if you get to the E-85 ethanol blends, the very high ethanol, that does require a dual technology, and we have had some controversy about Federal policy in that regard, but at the lower percent blends, ethanol and biodiesel are the same in that way.

The red light is on, but let me just ask you, we have had some very great success in the State of South Dakota, where the Black Hills National Forest has had its Federal forest fleet use biodiesel in its diesel vehicles with great satisfaction. The only complication they had was that they were being requested to blend it themselves rather than buying preblended biodiesel. Is there any complication with the pre-blended biodiesel? Is this just part of the early stages of the industry, or is there a problem with transporting a preblended biodiesel fuel?

Mr. GEBOLYS. There is no problem at all. In fact, I am very happy to report to you that working with our friends at BP we are delivering preblended B-20, which is 20-percent biodiesel products, throughout the State of Ohio. The entire Ohio Department of Transportation is using biodiesel, and everybody that receives those shipments, whether it is small or large shipments, are getting preblended product, and unless someone told them they would not know any difference from getting their regular diesel fuel, so I guess in short, the answer is, we are getting there, and in South Dakota we will be getting there, too.

It is just a matter of, we have only been at this game for a couple of years, and in the event that we are able to get enough support that says this industry is going to continue to be supported, and there is going to be a continued interest in us continuing to make these kinds of investments, you will see the AGP's and the World Energies of the world being joined by the BP's and the Gulf Oil's of the world, and we will be moving further and further down the road.

Senator JOHNSON. Thank you.

The CHAIRMAN. Thank you very much. Due to the late hour, I think I will postpone additional questions and just do those for the record as a follow-up. Senator Craig said he had an additional question, so I will defer to him.

Senator CRAIG. Mr. Chairman, with your admonishment as it relates to time, I will follow suit, but I did want to thank Jim Lyons for his comments as it relates to the Craig-Wyden bill, and hope

that you will stay tuned, Jim, as we work to get that into public policy and continue to give us your thoughts and advice on it.

Let me ask the one question in closing. Do you believe that carbon sequestration necessarily—does it mean, as it relates to forests, a lock-up, or does it mean that we can include a sustainable use pattern on these forests?

Mr. LYONS. I think the answer to that, Senator Craig, is that it means a mix of practices to suit particular conditions and needs. In some places it means retaining the carbon that is already stored in trees vertically there. In other places it means a much more aggressive management strategy such as the Forest Service is attempting to do in dealing with the high levels of fuels, particularly near communities at risk. That, I think, affords tremendous potential to produce biomass as a renewable energy source, and also to accelerate sequestration opportunities through reforestation and improvement of forest health in those areas.

Senator CRAIG. Thank you. To all the panelists, thank you very much. Mr. Chairman.

The CHAIRMAN. Senator Johnson, did you have any other questions?

Senator JOHNSON. Just one last question. Just to expedite this, but I did want to ask either Mr. Campbell or Mr. Gebolys, there has been a lot of testimony, a lot of science on record about the environmental benefits of biodiesel.

There have been some individuals who have raised an issue about nitrogen oxide, and I wonder if either of you would care to comment about that particular issue.

Mr. GEBOLYS. Yes. Biodiesel has—it is amazing how many different areas it helps. One area that in and of itself it does not help is reductions of oxides of nitrogen. The broader issue there is, does biodiesel lead to increased or decreased smog. Smog results from the presence of hydrocarbons and oxides of nitrogen coming together in the presence of sunlight. Biodiesel does reduce hydrocarbons, and does, in fact, have overall smog reduction potential.

We are working very hard in the industry to come up with a liquid solution to the NO_X issue, so that we can unequivocally across the board address the issues relating to all pollutant categories, but at this point oxides of nitrogen is not one of them.

Senator JOHNSON. Is biodiesel an all-season fuel?

Mr. GEBOLYS. It is absolutely an all-season fuel. the Michigan Department of Transportation ran its snow plows on it all year last year, and I am happy to report that the folks in Michigan got up and down the highways there just fine.

Senator JOHNSON. Very good. Mr. Chairman.

The CHAIRMAN. Well, thank you all very much for your testimony. We appreciate it very much, and that will conclude the hearing.

[Whereupon, at 12:03 p.m., the hearing was recessed, to be reconvened on July 25, 2001.]

NATIONAL ENERGY ISSUES

JULY 25, 2001

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 9:35 a.m., in room SD–366, Dirksen Senate Office Building, Hon. Jeff Bingaman, chairman, presiding.

OPENING STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

The CHAIRMAN. Why don't we go ahead with the hearing. Senator Murkowski is on his way. If, at some point during the hearing this morning, we get twelve members, we're going to interrupt the testimony, or the questioning, to do a very short business meeting to try to take action on Dan Brouillette to be the Assistant Secretary of Energy for Congressional and Intergovernmental Affairs, but we will see whether the membership arrives that allows us to do that this morning.

We're here to begin to address what I believe is one of our most important issues coming before this committee this year. That is the restructuring of the Nation's electricity markets. Over the last few years, we have received several warnings that this issue does require attention. Three years ago, there were severe price spikes in wholesale electric markets—electricity markets in the Midwest and the West.

Last year, beginning in California and spreading to much of the rest of the West, prices began to spiral out of control. Prices have come to levels that are not as high as they were only a few weeks ago, but they still remain high.

We were warned that prices could rise again if weather turns hotter in the remainder of the summer and that prices may be high this winter in the Northwest, unless there is unusually high rainfall.

Supplies of electricity are so short and demand is so high that we have seen blackouts in California. We are further warned that this pattern could emerge in other parts of the country. New York and New England are mentioned. We are warned that reliability of delivery is threatened in the South and in the West.

During the 105th Congress and the 106th Congress, I introduced legislation intended to facilitate the development of competitive wholesale markets in electricity. Senator Murkowski also introduced legislation with that same purpose.

The Clinton administration introduced legislation that introduced wholesale and retail markets as well. The current administration came into office announcing its intent to deal with energy issues and mentioned electricity among those.

I believe that the warnings have been frequent and regular enough. I believe we need to act. This is an opportunity for us to do that; to set the stage for action. I circulated a White Paper that contains a legislative proposal. Leon Lowry, on our staff here, developed that. It's intended to address what I believe are the critical issues to ensure that the country continues to have the most reliable, affordable, clean electricity delivery system in the world, and I hope that that White Paper can represent a good starting point for the committee. I know that the administration is looking at a legislative proposal as well, and I look forward to working with Senator Murkowski and the other members of this committee to see if we can work with the administration to get something actually done in this area.

Why don't we go ahead with the testimony, and we have a great many witnesses this morning. So, if Secretary Blake will come forward. He starts all of our hearings. It seems that way, I'm sure, to him and to us as well, but we welcome him back; and why don't you go ahead and summarize your comments and then I'll have a few questions of you.

If you'd like to go ahead.

STATEMENT OF FRANCIS BLAKE, DEPUTY SECRETARY OF ENERGY

Mr. BLAKE. Thank you, Mr. Chairman, and members of the committee. I would like to submit my testimony for the record and just briefly summarize it.

First, you and this committee should be commended for taking up comprehensive electricity legislation. We need to learn from the lessons of the past year and revise our electricity laws that were written in the 1930's, and are no longer responsive to the needs of the 21st century.

Mr. Chairman, we agree with the statement in your White Paper, that to prevent the problems in California and the West from appearing elsewhere, it is essential that the structural defects in the market be cured. Electricity legislation is needed to make these markets more competitive to lower prices and to assure adequate and reliable supply.

The legislation should focus on core Federal issues that are beyond the State authority. Mr. Chairman, there's a great deal of agreement between the legislation that you're now considering and the administration's views of the critical areas requiring Federal legislation.

First, our transmission system. We're in the midst of a planned increase of probably about 25 percent in generating capacity, yet only 4 percent increase in planned transmission capacity additions. The current system has bottlenecks and reliability issues that need to be addressed and we support legislation that, among other things, would aid in the siting of transmission facilities.

Second, the reliability of the system is a matter of Federal concern and their need to be enforceable reliability standards.

Third, on consumer protection, we need to make sure that, as we move forward with the competitive industry, consumers are adequately protected and given the data they need for informed decision making.

Fourth, we need to reform and clarify some important roles and responsibilities in the current Federal-State structure. For instance, clarifying the authority of States to impose fees to fund public purpose programs. We also need to move forward with the repeal of the Public Utility Holding Company Act, PUHCA, a law that has largely outlived its usefulness, and is now preventing the flow of needed capital into the utility sector. And we need to reform PURPA, the Public Utility Regulatory Policies Act.

As these acronyms indicate, much of the needed legislation is very technical in nature, but it is still extremely important. The committee is doing a great service in addressing these issues and we look forward to working with you. I would be glad to answer any questions from you or other members of the committee. Thank you.

[The prepared statement of Secretary Blake follows:]

PREPARED STATEMENT OF FRANCIS BLAKE, DEPUTY SECRETARY OF ENERGY

Mr. Chairman and Members of the Committee, I welcome the opportunity to testify before you today on comprehensive electricity legislation.

I commend you for holding this hearing. Earlier in the year, many believed there was little likelihood the Congress would consider electricity legislation. The view was that the California electricity crisis would discourage both the Administration and the Congress from dealing with electricity legislation. Your hearing disproves this common wisdom.

NEED FOR FEDERAL ELECTRICITY LEGISLATION

The Administration recognizes the need for the Congress to pass comprehensive electricity legislation. The National Energy Policy included a recommendation that the "Secretary of Energy propose comprehensive electricity legislation that promotes competition, protects consumers, enhances reliability, promotes renewable energy, improves efficiency, repeals the Public Utility Holding Company Act of 1935, and reforms the Public Utility Regulatory Policies Act of 1978." We are working to that end.

Since 1995, the Congress has been grappling with electricity legislation. Initial efforts sought to require states to open their retail electricity market by a date certain. Subsequent legislation focused on promoting competition in electricity markets and complementing state retail competition programs.

We clearly need to revise Federal electricity laws to recognize changes in electricity markets. The principal Federal electricity law—the Federal Power Act—was written in 1935. At the time, there was virtually no interstate commerce in electricity, there was no interstate transmission grid, electricity markets were local, power plants were built right next to consumers, and electricity generation was perceived to be a natural monopoly.

Today, the transmission grid is both interstate and international, electricity markets encompass entire regions, almost all wholesale electricity sales are in interstate commerce, and the natural monopoly in generation has long since been disproved.

Mr. Chairman, your white paper describes the changes that have taken place in the electricity industry since 1935, and concludes: "The business of supplying electricity has changed. So must the regulatory and legal framework within which it operates now change." We could not agree more. The Administration believes the time has come to make changes to Federal electricity law to reflect changes that have occurred over the past 66 years, and the sweeping changes that are underway in the industry.

The California electricity crisis demonstrates that mistakes made by a single state can extend to an entire region. The impact of the California electricity crisis on the West has been significant. The Bonneville Power Administration recently announced a 46 percent increase in its wholesale rates. That increase was caused in large part

by the California electricity crisis, which drove up electricity prices throughout the West.

The Administration believes it is essential that Congress pass comprehensive electricity legislation. Electricity legislation can make electricity markets more competitive, lower prices, and assure ample and reliable electricity supplies.

The Administration believes that electricity legislation should focus on core Federal issues that are beyond State authority.

Before I review these core Federal issues, I want to make it very clear that the Administration respects the state role in electricity regulation. For example, the Administration does not support proposals to require that states open their retail electricity markets by a date certain.

Regulation of Interstate Commerce

Electricity markets are increasingly regional in nature. Under the Constitution, states have no authority to regulate interstate commerce and regulation of interstate commerce is a Federal responsibility. The California experience shows that actions taken by one state can have regional consequences.

Transmission

Assuring that our transmission system can deliver reliable electricity supplies is a core Federal issue. As the National Energy Policy noted, investment in new transmission capacity has failed to keep pace with growth in demand and with changes in the industry's structure. Since 1989, electricity sales have increased by 2.1 percent per year, yet transmission capacity has increased by only 0.8 percent per year. There is widespread recognition that there is a need to expand the transmission system, remove bottlenecks, and provide for open access. Since the transmission system is both interstate and international, regulation of the grid is a Federal responsibility.

There are various reasons why transmission constraints exist. In some cases, the problem is a lack of economic incentive. The national energy policy proposes a solution to that problem: encouraging the Federal Energy Regulatory Commission (FERC) to develop incentive rates to promote transmission expansion. FERC has great flexibility under current law to set transmission rates at a level to attract investment. Recently, FERC has shown flexibility in considering non-traditional transmission rates. For those reasons, it is not clear legislation is needed to address transmission pricing.

In other cases, the problem is the siting process itself. Under current law, transmission siting is an exclusively state function. That law was written 66 years ago, at a time when power plants were located right next to customers, and decades before transmission lines interconnected states and regions. Congress did not provide for transmission siting by the Federal government because it did not foresee the transmission system would develop into not only an interstate but also an international grid.

Much has changed since 1935. The transmission grid is the interstate highway system for electricity. It should not be a system of local toll roads.

Electricity legislation can remove transmission bottlenecks by providing for siting by the Federal government of transmission facilities used for interstate transmission. Legislation could provide for Federal siting of transmission facilities in certain limited circumstances.

Reliability

Ensuring the reliability of the interstate transmission system is also a Federal responsibility. Since the 1960s, the reliability of our transmission system has been based on voluntary compliance with unenforceable reliability standards. That is no longer tenable, and Federal legislation is needed to provide for enforceable standards developed by a self-regulating organization subject to FERC oversight.

Market Power

In our view, the debate about market power often starts with a misunderstanding about FERC authority under current law. Under the Federal Power Act, FERC is responsible for ensuring that rates charged by public utilities are just and reasonable. As a general matter, the ability to set rates is the ability to prevent the exercise of market power. An exercise of market power generally entails charging rates that are higher than those produced in a truly competitive market. For that reason, FERC can prevent the exercise of market power through its authority over wholesale rates and by ordering refunds of unjust and unreasonable rates.

A discussion of market power issues must start with a recognition of FERC's authority under existing law, and a determination of whether existing FERC authority to address market power is inadequate.

Legislation is needed to address some issues in this area. For example, the Administration agrees with the Chairman that legislation is needed to clarify FERC authority to approve holding company mergers as well as mergers and asset dispositions involving generation facilities.

Consumer Protection

Consumer protection is another core Federal issue. Electricity markets are regional in nature, and are no longer confined neatly within individual States. For that reason, there is a need for electricity legislation that: protects consumers against "slamming" and "cramming," strengthens the bargaining power of consumers through aggregation, protects consumer privacy, and ensures that consumers have the information to make informed decisions to meet their needs.

Federal Electric Utilities

Another core Federal issue is defining the role of Federal electric utilities such as the Tennessee Valley Authority (TVA) and Bonneville Power Administration in competitive electricity markets. Obviously, states have no authority over Federal electric utilities. Legislation is needed to provide open access to transmission systems operated by the Federal electric utilities and ensure that one set of rules governs the entire interstate transmission system.

Reform of Federal Electricity Laws

There is a need to reform Federal electricity laws, such as the Public Utility Holding Company Act of 1935 (PUHCA) and the Public Utility Regulatory Policies Act of 1978 (PURPA). With respect to PUHCA, each of the past four presidents have supported PUHCA repeal, and earlier this year the Senate Banking, Housing, and Urban Affairs Committee reported out legislation to repeal PUHCA by a vote of 19 to 1. PUHCA repeal is an idea whose time came a long time ago. There is also a need to repeal the PURPA mandatory purchase obligation prospectively.

Jurisdiction

The jurisdictional boundaries between the Federal and state regulatory roles have blurred as the electricity industry has changed. The Federal Power Act was enacted to fill a regulatory gap when the Supreme Court found that states lacked legal authority under the Constitution to regulate interstate commerce in electricity.

One jurisdictional issue is state authority to charge public purpose fees. The Administration believes that states are in the best position to develop public purpose programs to suit their needs. One state may prefer to develop strong low income assistance programs, while another may elect to encourage aggressive conservation. States have different needs, and need the flexibility to craft programs to suit those needs. These programs can be funded through the distribution charges—an area where states have exclusive jurisdiction—or charges on retail sales of electricity.

Electricity legislation can clarify the authority of states to impose fees to fund public purpose programs that meet their needs and avoid bypass of state fees. We believe this is a better approach than imposing a Federal tax to fund a Public Benefits Fund. One concern relating to a Public Benefits Fund that has not received much attention is that of equities in allocating funds. There is no assurance that tax revenues raised in one state to finance a Public Benefits Fund will not be spent in other states.

By no means is this intended to be an exclusive list and there are other issues that may be appropriate to address in Federal electricity legislation.

CONCLUSION

We have a rare opportunity to learn a lesson from the California experience and act to prevent a future electricity crisis. The Congress normally passes energy legislation in the wake of a crisis, and it is rare for it to act to prevent an energy crisis.

Mr. Chairman, the Congress has been slowly reforming Federal electricity laws for over twenty years. This process began with the Public Utility Regulatory Policies Act of 1978, which the encouraged the development of independent power producers. This process continued with enactment of the Energy Policy Act of 1992, which provided greater access to the transmission system and further encouraged the development of independent power producers. The time has come for Congress to take another step, a bigger step, one that can make electricity markets more competitive and result in lower electricity prices, and ample and reliable electricity suppliers.

The Administration looks forward to working closely with the Committee to develop comprehensive electricity legislation.

I appreciate the opportunity to testify before you today.

The CHAIRMAN. Well, thank you very much, and I am aware that you are, as you indicated, the committee—or the administration is working on legislation which addresses many of these same issues and we are anxious to work jointly with you to try to come up with something that we can all be behind.

Do you have a timetable for actually getting legislation to the committee that we would be able to consider?

Mr. BLAKE. We are working on that now, Mr. Chairman. I don't have a specific timetable for you. I hope that it will be in the near term. There's obviously a lot of coordination within the Federal branch that is still required.

The CHAIRMAN. Just as I'm sure you are aware, we are going to try to start a markup next week and do a section—not the section that relates to electricity restructuring, but a different part of the bill—of a comprehensive bill, and then come back in September; and probably the second week, we are back in September, go on with that markup. And so, if we had your bill in time to be considered before that, that would be very useful.

Do you think that Federal siting authority for transmission lines can be meaningful without clarifying the jurisdiction over those lines?

Mr. BLAKE. I think it is useful to clarify the jurisdiction as part of that. Yes, sir.

The CHAIRMAN. So, you think we need both? We need to clarify the jurisdiction of the lines, but we also need to vest some authority, at FERC, for the siting of those transmission lines?

Mr. BLAKE. I think your White Paper said it well on the issue of a Federal eminent domain and the siting issue, which is that, by itself, that doesn't solve the problem, but having some backstop authority in the Federal Government for eminent domain is, we believe, needed.

The CHAIRMAN. Do we need to be doing something to ensure adequate reserve margins in order to ensure reliability of supply? Is that something that should be addressed specifically in legislation?

Mr. BLAKE. Well, I think the reliability standards that we believe should be made enforceable, presumably, but also address reserve margins as well.

The CHAIRMAN. We have this proposal that some sort of regional authority, either a pooling of State authority, or dependence on regional transmission organizations be given siting authority with the Federal Government sort of providing a backstop to that. Is that the right formulation as you understand it, or as you would have us pursue it?

Mr. BLAKE. I think there are a number of issues associated with the siting question.

First, is a large number of States, I believe over 25, actually by State law, cannot consider the benefits that are external to the State in making siting decisions. I think there is also a role for regional planning, whether setting up a regional structure as part of the question of siting will be positive in that I think we are still reviewing.

The CHAIRMAN. Does FERC's authority to address market power need to be extended to public power entities?

Mr. BLAKE. If I understand the question, let me phrase it as I would understand it, which is the rate making authority that FERC would have over power generation supplied by public power.

The standards that FERC exercises for that are, for example, in what I'm familiar with, which is BPA, quite different and the standards that would apply to BPA, and I don't think you would want to disrupt that. I think you would want BPA's standard setting continue to be governed under the same—on the generation side—on the same approach that it is now governed.

The CHAIRMAN. Let me defer to Senator Murkowski for any opening statement he has, then any questions.

STATEMENT OF HON. FRANK H. MURKOWSKI, U.S. SENATOR FROM ALASKA

Senator MURKOWSKI. Thank you very much. I apologize, but I had an earlier meeting this morning. I want to thank our witness, who has become a regular.

I think the discussion today is certainly timely on PUHCA and PURPA and reliability, and as you know, in the last Congress, and from previous bills, we have pretty much covered the issues previously, but I think it is appropriate to have the new administration reflect their views, and as a consequence, I want to commend Senator Bingaman and his professional staff.

Now, I'm going to refer to the memorandum Senator Bingaman has circulated, to some extent, in my statement, because I think it represents, collectively, the corresponding views—my own, as well as his. There are some exceptions.

One of the concerns involves a major shift in jurisdiction from the States to FERC. Particularly, over retail transmission, giving new authorization to FERC as I believe is the intent of the chairman; and one facet focuses on the electric power system, which, in the White Paper, proposes to pay for social programs through a so-called public benefits fund. As I understand the fund's purpose, is that it should support such programs as low income assistance, research and development efficiency, conservation investment, renewable resource investment, universal services and other public good programs that are left behind by the transition to a competitive industry.

I'm going to keep an open mind on this, but I think it is a pretty tall order to try and encompass that kind of a responsibility on the electric power system, and I would look forward to hearing from those representing the utility companies and others relative to this, because, in fairness, without actual language, it is pretty difficult to gauge the extent of the proposal, so I just point that out, since it is extraordinarily broad and we will see the legislative language. But, I'm a little skeptical about increasing FERC's authority, particularly when it comes at the expense of the States. I've always felt that the State' politics is local, in a sense, motivating people and Senator Bingaman and I have had discussions on this before and we could never quite come to grips with it. But, we will try it again.

I think events in California demonstrate how important electricity is to our economy and our way of life. Certainly price reliability, security, we're all aboard on that. But, most importantly,

California demonstrates the following: I think the real folly of trying to bend the laws of supply and demand through the heavy hand of government regulation. California's problems are not the result of a failure to conserve. California is the second in the Nation in conservation. California's problems are directly traceable to government interference in the market, in my opinion, not by the failure of competition.

California did not deregulate. Instead, California mandated powerplant divestiture. California mandated 100 percent reliance on a spot market. California refused to allow cost pass-throughs. California failed to allow new potential powerplants and transmission launch to keep up with growing demand. The permitting time was just abominable, and so the experience in California makes me a bit weary of two things.

First, I do not support more government control over the marketplace, no matter how good or politically popular it sounds at the time. And second, I do not support a one size fits all program. Suppose FERC had approved the California model for the entire United States. There's a little food for thought there.

Having stated my philosophical view, let me also observe that, because my State is not connected to the interstate grid, it has very little effect on my State or my constituency, so perhaps I can claim to be somewhat, to a degree, objective on this point.

Accordingly, I'm very interested in the views of other members of the committee who live in States that would be directly affected and I will note that I will have a series of questions for the witnesses to respond to, regarding the issues raised in the memorandum of the chairman of July 20. But, I would simply ask the Honorable Francis Blake to comment very briefly on the idea of giving expanded authorities to FERC in the shifting jurisdiction from States to FERC and whether the administration has a position on that.

Mr. BLAKE. Well, I think as we understand the proposal, certainly as outlined in the White Paper, much of what's involved there is a clarification of the jurisdictional roles. For example, on bundled transmission rates and FERC's authority to look at the bundled rate and then separate out the part that is State versus the part that is interstate and Federal, I think, in principle, we certainly agree with the notion that States are better able to make a number of decisions, but we also have to recognize that it is an interstate transmission grid. There are critical concerns in terms of open access that have to be taken into account.

Senator MURKOWSKI. An eminent domain, I assume, is one?

Mr. BLAKE. We see the need for eminent domain as a backstop, again, relying principally on the local decision making and understanding that that is not the solution, but as a backstop it can be helpful.

Senator MURKOWSKI. As you know, when we introduced our comprehensive bill on our side sometime ago, we had a good deal of debate about eminent domain and, as ours differentiates from Senator Bingaman, who included eminent domain. I was of the opinion that this was an obligation of the States to step up to reality, but I reserve the right, that if the States didn't, we would have to go

to the other extreme, and that is to include eminent domain. So, I'm still open on that issue.

The CHAIRMAN. Thank you very much.

Senator Johnson, do you have questions of Secretary Blake?

Senator JOHNSON. No.

The CHAIRMAN. Senator Smith?

Senator SMITH. I have no questions.

The CHAIRMAN. Senator Craig?

STATEMENT OF HON. LARRY E. CRAIG, U.S. SENATOR FROM IDAHO

Senator CRAIG. Mr. Chairman, thank you. First, let me thank you for putting out some dates to schedule a markup on a comprehensive energy policy for our country and the work that this committee has been underway and that you picked up and are now carrying on. The House is doing their work, we must do our work, and I think probably one of the more valuable debates we'll have this year on the floor of the U.S. Senate, for the sake of our country and its future, is an energy policy that will finally begin to direct this country and our energy needs.

Francis, a couple of thoughts to add to the comments of the ranking member and the chairman. I was a bit of the dog in the manger when it came to eminent domain, recognizing that States should be a player here, and that private property is a bit sacred, and the Federal Government shouldn't be running roughshod.

There are a lot of good reasons, and I understand when we built the interstate highway system, we needed the right of eminent domain. Let's work to see if we can't create a balance of the State rule there. I think that's awfully important.

At the same time, we understand that the current electrical gridding system in our country is a bunch of country roads that kind of run together and we probably, in a truly deregulated system, if that's where we get, do need an interstate system to tie it all together so that marketers can, in fact, move their product without limitation or restriction.

Speaking of transmission, one of the things that we need to get right, and somehow we're not getting it quite right, yet, with the administration, with OMB, is borrowing authority for the Bonneville Power Administration. We're talking about Oregon, Washington, Idaho, western Montana, a tie to California; and clearly the need to modernize, as a part of a total energy package for our country.

The country believes that all you have to do is modernize and add new technology and we'll solve this problem. There is some truth to that. To take a 40-plus year old system and modernize it, as we need to do with Bonneville, and Bonneville represents about 75 percent of the Northwest's transmission capacity, we've got some new stuff wanting to come on line out there, but it can't get to the consumer, because Bonneville can't act quickly enough, or it doesn't have the resources to do so.

As you know, we need borrowing capacity and we need the administration to be with us on that as we move this issue, to be able to create that kind of flexibility to modernize this system. And that's just a piece of this greater puzzle we're all trying to put to-

gether here called a national energy policy, both for the publics and the privates and the national perspective when it comes to electrical generation.

One of my frustrations, departing from the issue of borrowing capacity now, Francis, a good example, Mr. Chairman, of what happens when you create total national authority or have national overriding power, insensitive, or less sensitive to State needs. When President Clinton, in his final days here, created a Federal order to sell power to California, what he did was he ordered the Pacific Northwest to open its penstocks and generate electricity out of its hydro system and, draining a reservoir in a drought cycle when the West, especially Oregon, Washington, and Idaho knew they were in trouble, is not such a good move.

President Bush, when he got to town, found the need to renew it because he really didn't quite grasp it yet, but finally did and said we'd not renew it again, and, as we know, the reservoir behind the great Grand Coulee Dam, Lake Roosevelt, is now probably at the lowest it's been since the dam started filling all these years ago.

That's what happens when there appears to be a national interest, but you don't incorporate regional and/or State interests in decision making processes. And while I respect the FERC, and see its role, I'm not sure that we give it the right of everything, or the power to bring about those kinds of decisions in many instances, and I think the publics are independent here and, as it relates to rate—and we need to see it kept that way.

But, that was a policy that, from this perspective in Washington, and inside the Beltway, sounded good, but out in Oregon, Washington, and Idaho it was hurting us. Not that we weren't going to get paid. We were willing to contribute to the disaster in California. At the same time, it was creating a future disaster for Idaho, Oregon, and Washington, and that's what we deal with, when we look at it from a national perspective only. States do play a role, should play a role. Let's work on the borrowing capacity for Bonneville and see if we can't incorporate that into the broader picture so that we can retain and—that expanded capacity out there in a very rapidly growing area of the county.

Francis, thank you.

Mr. BLAKE. Senator, thank you.

The CHAIRMAN. Senator Cantwell, did you have questions of Secretary Blake?

Senator CANTWELL. Thank you, Mr. Chairman, I would just like to add my concern and comments to the Senator from Idaho in regards to BPA borrowing authority and the critical nature of that, when there's so much transmission capacity that is currently available to us, but could be an integration of between 8,000 and 12,000 megawatts of new supply, and yet the administration has not been supportive of that. I don't know if you have any comments on that or——

Mr. BLAKE. Senator, in comment to that question, and also Senator Craig's comments, I have reviewed the BPA plans. This is critically important. It is in the President's energy policy.

As you say, there are 8 to 12 gigawatts of potential capacity that are going to need some new transmission lines. The view, at this

time, is that BPA is adequately—has adequate authorization, through at least '03, and that was the response that the administration gave. But it was not at all intended to suggest that the needed upgrades on the transmission lines, needed upgrades on the hydro facilities—that we don't agree with that.

Senator CANTWELL. Well, but it puts BPA at a position of not being able to plan for the future. I mean, this infrastructure can't come on line without a commitment of the resources, in this case, bonding and the Federal Government putting up a commitment to that, so I'm not sure I understand the administration's position, on one hand saying they support it, but not coming up with the resources to back it.

Mr. BLAKE. It may have been more the mechanism for the support rather than the support, because I believe the statement of the administration's position also said, yes we recognize that this is important, there is an analysis underway on the spending required. It appears to be that it's covered through 2003. To the extent more money is needed after that, we will address it.

Senator CANTWELL. I think that there's a disagreement on—I think that a commitment of resources through 2003 is committed, and to get new capacity on line, this new bonding authority must be in place. So, without it, it isn't that the project is continuing, there are other things where those resources are committed, so we're obviously, in the Northwest, very concerned, given the impacts that my colleague from Idaho——

Senator CRAIG. Will the Senator yield?

Senator CANTWELL. Yes.

Senator CRAIG. I think the concern we're talking about here, Francis, in the overall picture, if we're looking at 5-year construction projects, how do you commit to a long-term plan when you only have a couple of years worth of authority? And my guess is the perspective there is—yes, there is short term availability and short term needs and short term capability, but there's not long term capability for extended construction programs of the kind we're talking about.

Mr. BLAKE. I understand that concern.

Senator CANTWELL. And I would just add that I think your putting the rate payers in the Puget Sound area and other parts of Washington who've seen 50 percent rate increases—I mean, you're basically telling them that, within the Department of Energy, you don't agree on the budget assessments of one of the groups within that agency, and so what we'd like to see is OMB and the Department of Energy sit back down with Bonneville and come to conclusion on what the transmission needs are for the future, that we'll get this power on line and make the long term commitment, and Mr. Chairman, I hope that as we go through our process on the energy bill, that we take a very close look at this and what we need to do to make sure that this message is clear about getting more transmission capacity on line in the Northwest.

The CHAIRMAN. Thank you very much.

Senator Thomas.

Senator THOMAS. Thank you, Mr. Chairman.

Mr. Blake, it seems to me that we have all these issues and so on, but we don't seem to have yet developed an overall picture of

where we want to go. It would seem to me that it would seem like we need an interstate grid of some kind, probably with the RTOs attaching to that, but we don't seem to focus on that. We get all diverted into different kinds of things. But if that's where we're going, it seems to me that that's one of the things that we really need to look at. And your testimony here indicates you want incentives for building transmission. Now do you think that lends into an overall plan?

Mr. BLAKE. I think when you think about transmission issues you have basically three issues: access, siting, and pricing. The access issue is largely addressed by FERC. The siting issue we've been discussing in terms of the backup of Federal eminent domain. And then pricing, incentive based rates, as indicated in the President's policy, we think is very important to incentivize the——

Senator THOMAS. I'm sure it's very important. I don't agree with that. It seems to me like that's just working with what we have. That's just dealing with the current situation. And we've got to do better than that. We've got to look for some kind of a system, probably with a third party operator, with some kind of a national grid, which is a little different than we have not.

I mean we're wondering why people haven't invested. Well, they haven't invested because they don't know where we're going, they don't know where we're going to be. There's not investment in generation because we've talked about re-regulation and so on, but we have pretty much decided that wholesale power is going to be deregulated and we're going to be buying it all over. We've got more market generators now than we do for their own system, but we don't have a system to transmit it. And it seems to me we'd be thinking in just a little broader sense than what we're doing here.

And, in fact, you say here that the President's policy has said to the Department we want legislation from you, but I don't think we're going to get there by simply continuing to look at where we already are and making little bitsy things. Do you have a broad plan?

Mr. BLAKE. We are also, as directed by the President, doing an overall transmission study that I think is addressing exactly the point that you were raising, which is going to look at where the constraints are in the system now, what we need to do to address those constraints, and move towards a more effective national system. I would still say parts of the answers are in the legislation you're considering on access issues and siting issues and pricing issues.

Senator THOMAS. I think it's fairly clear we've made some changes in generation. If you're going to have that kind of generation and encourage people to build generation facilities to put it in the market, you got to have a way to get it there. You talk about California and Washington all the time. Well, you can make power, but there's no way to get it there. And I don't think we want to have a national system that does everything but we ought to have a national responsibility for an interstate system that ties into RTOs that are run locally. Isn't that the concept that we want to pursue?

Mr. BLAKE. Senator, I think we're going to take a national look and we're going to—but I don't think there's any intent at this

point to move more broadly than beyond the RTOs, the regional transmission organizations that the parties——

Senator THOMAS. How do you—I don't understand how you can defend that. If you're moving power, how can you just deal with RTOs and talk about a national grid?

Mr. BLAKE. I think RTOs themselves are going to be—moving to a regional organization will be a challenge in itself before taking the next step and moving to a national organization.

Senator THOMAS. I'm not sure I agree with you. I'm not sure that's the next step. If you're going to be talking about shortages of power in different parts, like the Northwest, then the RTO isn't the answer. You got to move stuff often within the RTOs. Well, I'd just urge you to take a broader look and just kind of—rather than stand where we are, which is where I sense you are.

The CHAIRMAN. Senator Bayh, did you have questions of Secretary Blake?

Senator BAYH. Thank you, Mr. Chairman. Just a few brief comments. Just a few brief comments, Mr. Secretary Blake, and then two brief questions, Mr. Chairman.

First, Mr. Chairman, I'd like to salute you for your leadership on this very, very important issue of electricity restructuring and the energy issue in general. It's one of the few issues that in Congress we'll address that affects every consumer and every home across our entire country.

It's also going to be vitally important to our economic competitiveness. As we look at those overseas with whom we compete and what they're doing in their energy markets, it's important that we stay up ahead of the curve with regard to our own electricity efficiency and production capabilities to insure affordable and reliable energy sources for our industries and producers across our country.

Finally, I'd just point to the savings. The estimates have varied anywhere from 20 billion to several tens of billions of dollars more than that for both residential customers and business customers, possibly achieved through electricity restructuring. That is of the same magnitude as the tax cut that was recently enacted and could do a lot to help spur our economy.

For all these reasons, Mr. Chairman, I salute you for your leadership. I am a strong proponent of electricity restructuring. I believe that in the long run markets are more likely to deliver the outcomes that we seek in a highly regulated structure, but of course we have to have safeguards, as the recent experience in California has demonstrated. We have to make sure that we not just do it, but do it correctly, learning from both our experience and our mistakes. But the recent experience in California, we might say the recent mistakes in California, should not dissuade us from going forward and getting it right for the entire country for the economic competitiveness benefits to be accrued, as well as the savings to consumers across the board.

Mr. Chairman, I look forward to working with you on this important issue. It's something that I think could benefit our country if done correctly for a long, long time to come. It's one of these few once in a generation opportunities we have, and I thank you for your leadership. I had a chance to briefly review the White Paper.

I think it's an excellent starting point and I commend you for your work in that regard.

Two very brief questions, Secretary Blake. I noticed in your testimony you say the administration believes it's essential that Congress pass comprehensive electricity legislation, and that the National Energy Plan in fact calls for this also. Will the administration be sending us a proposal?

Mr. BLAKE. We are working on legislative language now, as I mentioned, to the chairman. It is going through the process. We'll have an internal review process within the administration. And I hope that we will have something——

Senator BAYH. Do you have a time frame for us?

Mr. BLAKE. I don't, but I—the chairman just gave us a time frame.

Senator BAYH. Good. Well, it's—I endorse the chairman's time frame. How about that, Mr. Chairman?

Finally, my last question. It's a rather small item, but when Secretary Abraham was before us I asked and I followed up with a letter; this was back in June; asking if he could update us on the Department's review of energy efficiency programs. I know you all have a lot going on over there, but now that we've confirmed a legislative liaison I would respectfully ask that perhaps that letter could be responded to and we could get an update on the review of the efficiency programs. Many of us believe that that's an important component of comprehensive energy strategy. So if you could put that somewhere on the list for our new——

Mr. BLAKE. We will get an immediate response to you, and the review is underway.

Senator BAYH. I couldn't ask for more than immediate. So I appreciate that very much, Mr. Blake. Thank you for your presence today.

The CHAIRMAN. Senator Hagel.

Senator HAGEL. No questions.

Senator BURNS. If the Senator could hold, could I just ask to cast my vote in favor of the nominee.

The CHAIRMAN. We will have the record show that you favor the nominee.

Senator BURNS. And I have a statement for this hearing and I'm going to go back to another hearing. And I think that you——

The CHAIRMAN. We'll include your statement and we appreciate your attendance.

[The prepared statement of Senator Burns follows:]

PREPARED STATEMENT OF HON. CONRAD BURNS, U.S. SENATOR FROM MONTANA

Mr. Chairman, thank you for calling this hearing today. Since the Energy Policy Act of 1992, legislation dealing with the structure of our electric utility industry has barely seen the light of day. Even more significant is that legislation opening up some of our nation's most significant supply sources to production didn't see the ink of the President's pen in the eight previous years. I'm hopeful that today we can focus this debate on what needs to be done in this Committee to prepare for electric restructuring.

There are obviously issues that arise when we discuss the Public Utility Holding Companies Act (PUHCA) and Public Utility Regulatory Policies Act (PURPA), many of my-constituents and I have serious concerns with the proposal to place Rural Electric Cooperatives and public power providers under FERC jurisdiction.

The members of this Committee have heard me say this before, but I think it particularly applies to today's hearing on electricity restructuring. We cannot have a

significant federal deregulation or restructuring bill until we have the transmission grid available to support it. If we truly want to address the long term energy needs of this country, and truly want a more competitive market, transmission is the first issue for Congress to deal with.

Over the next ten years, demand for electric power is expected to increase by about 25 percent, and more than 200,000 megawatts of new capacity will be required. Under current plans, electric transmission capacity will only increase by four percent.

California may think they can escape the need for building new transmission lines, by instead building plants closer to the source. However, I've heard that in one year of the high fuel costs paid this past year, the fuel costs alone would have paid for the transmission lines.

Our large energy deposits are located great distances from urban centers where the electricity is needed. Urban areas are continuing to expand geographically thus making it difficult to build high capacity generation plants near the areas of high demand. Furthermore, the environment around and near populated areas cannot sustain even the cleanest of new high capacity power plants in their air emissions.

Strategically, our nation is the most dependent upon its electrical distribution system. Several nations and non-state actors are actively considering this dependency for possible targeting of asymmetrical warfare/terrorist tactics. The lack of diverse interstate transmission networks raise the likelihood that a natural or man-made event could deprive electricity to major sectors of our nation for days or even weeks.

These challenges and national security interest can all be satisfied by increasing our nation's high capacity interstate electric transmission network. We can bring life to the economies of rural western states by creating energy at the mine-mouth. In addition, we will provide energy for the economies of the larger cities without adding to the stresses of urban sprawl. The safety of each and every American will also be in mind when we make our electricity infrastructure less vulnerable to terrorist attack.

It's a very simple choice here folks. To my friends representing rural America—it means jobs and tax revenues for schools. To my friends representing inner cities—it means cleaner air and a reliable energy supply for business. To all of us, it means a stronger American economy and energy infrastructure safer from terrorist activities.

The CHAIRMAN. Senator Hagel had no questions.

Senator Dorgan.

Senator DORGAN. Mr. Chairman, I'm in the same situation as Senator Burns. I have a Commerce Committee hearing going on and I'm trying to get to several places, and I regret that I missed Secretary Blake's presentation.

This is, in my judgment, one of the most important elements of an energy policy. We have the capacity in our State, for example, to produce a substantial amount of additional energy using late night coal, especially wind energy potential as identified by the Department of Energy, but if we can't find ways to transmit that energy and move that energy, its production is irrelevant to the rest of the country. So transmission issues are critically important. And I appreciate this hearing and your leadership, Mr. Chairman.

Let me ask, Mr. Blake, you were discussing the RTOs earlier, I believe with Senator Thomas. What is the administration's position on the reliability language that a number of organizations have developed and has been kicking around legislation here? Do you have—are we pretty much agreed on reliability language, do you think?

Mr. BLAKE. We support enforceable reliability standards. I think we'd want to work with the committee on the particular language in the legislation.

Senator DORGAN. You will obviously provide us——

Mr. BLAKE. Yes, sir.

Senator DORGAN [continuing]. The discussion about the language that you want to work with us on?

Mr. BLAKE. Yes, sir.

Senator DORGAN. Let me ask you about the issue of technology and transmission. I mean there are a couple ways to enhance transmission capabilities. One is to build additional lines; the other is to upgrade lines; the other is to invest in new technology, composite conductors and so on. Tell me your evaluation of technology being able to substantially address some of our transmission issues.

Mr. BLAKE. There is some very interesting technology that's under development that will improve both the throughput of the lines, allow additional capacity on what we already have. That has a lot of advantages very obviously, and we're working to fund a number of those technologies.

Senator DORGAN. What is the most promising, do you think?

Mr. BLAKE. Well, there is—super conductivity is one area. I'm aware of another area that I think is being worked on in the Northeast that involves basically moving from analog switching to digital switching on the transmission lines, which will allow a dramatically increased throughput on the line. And that that's under—it's actually in testing now in New York State, I believe.

Senator DORGAN. I wonder if you—if I might, Mr. Chairman, ask Mr. Blake to have your technical people provide the committee with their assessment of the potential of these technologies, what you're looking at, how much money you're investing in them, and the work that's going on. I think that would be helpful to us.

Again, Mr. Chairman, I regret not being able to be at the entire hearing because of the Commerce Committee hearing, but I think this is a critically important issue and I look forward that we can work together on this committee to address it. Thank you.

The CHAIRMAN. Thank you very much.

Secretary Blake, thank you very much for testifying again today, and we will allow you to leave and call panel 2 forward please.

Let me introduce this panel. It's a very distinguished panel. We appreciate them being here.

Mr. Jeffery Ayers, who is senior vice president and general counsel for Aquila, Inc., which is located in Kansas City, Missouri.

Mr. John Rowe, who is a—not a frequent testifier here, but one that we always welcome. He is the co-CEO and president of Exelon Corporation in Chicago.

Mr. Roy Thilly, who is the chief executive officer, Wisconsin Public Power. Thank you for being here.

Mr. Glenn English, thank you very much for being here. He's the chief executive officer for the National Rural Electric Co-op Association.

Why don't we just go across the table in the order that I introduced you there and if you'll take 5 or 6 minutes and summarize your main points. We would include the full statements you have prepared in the record.

STATEMENT OF JEFFREY D. AYERS, SENIOR VICE PRESIDENT AND GENERAL COUNSEL, AQUILA, INC.

Mr. AYERS. Mr. Chairman, Senator Murkowski and members of the committee, my name is Jeff Ayers. I am the senior vice president and general counsel for Aquila, Inc. based in Kansas City, Missouri. Aquila is a provider of risk management, a developer of

powerplants, and a wholesale supplier of electricity, natural gas and coal in North America and Europe.

I'm here today representing Aquila and the member companies of the Electric Power Supply Association, or EPSA, the National Trade Association, representing competitive power suppliers, including independent power producers, merchant generators and power marketers.

Mr. Chairman, we commend you for your far-sighted White Paper. It provides a strong template for a national transmission policy.

While we addressed many issues in our written testimony which I would like to submit for the record, I would like to concentrate my comments on the following three key points that are critical for the development of a sound national transmission policy.

First, FERC oversight for the electric transmission grid must include all owners of interstate transmission assets.

Second, a clear deadline for all transmission owners, including non-FERC jurisdictional owners to join regional transmission organizations must be set.

Third, uniform interconnection rules for new sources of power supply must be adopted.

Unless a sound national transmission policy develops, Mr. Chairman, I can assure you that private capital will not provide the $56 billion that a recent EEI study estimated is necessary for transmission upgrades and investment in the current decade. The interstate transmission grid is the lynchpin of our national electricity infrastructure. In order to attract private capital to fix our national transmission system, the structural defects in the wholesale market must be cured. This magnitude of capital investment will require a consistent FERC-led approach throughout the Nation and innovative incentives.

Regarding my first point, FERC oversight must cover all owners of interstate transmission assets, regardless of whether private companies, public power, cooperatives, or the Federal Government hold these transmission assets. The industry needs clear and consistent rules that apply to all owners of transmission assets to insure a fair and even playing field.

Second, Congress must set a clear deadline for all transmission owners, including currently non-FERC jurisdictional owners, to join RTOs. We are supportive of the White Paper's call for legislation to support FERC's authority to order transmission owners to join RTOs. We also support FERC's recent effort to organize large, regional RTOs that reflect the way power flows. Pricing for transmission should prohibit multiple charges as power flows from one transmission system to the next, commonly known as pancaking. And each use of the transmission grid must be required to take service under a single open access transmission tariff.

Regarding my third point. The power industry must have clarification of interconnection rules for new sources of power generation. We cannot overemphasize how important this issue is for investment and construction of new generation. For companies interested in expanding electric generation capacity which is critical to expanded supply throughout the country, the physical interconnection of the generation plant to the power grid has become too often

a choke point for project development. Ad hoc interconnection standards create uncertainty, extensive delays, and unexpected or unreasonable costs for developers. We need to assure the right of new generation to interconnect on a nondiscriminatory basis to transmission facilities. We must provide a clear avenue for FERC review of interconnection policies.

Federal legislation should require FERC to promote competitive markets by providing clear, consistent rules applied evenly to all market participants. This committee began addressing open wholesale electric policy in 1978 with PURPA, and in 1992 with EPAct. It is now time to finish what was started a quarter century ago, creating a national grid under FERC oversight for the open, nondiscriminatory movement of wholesale power. The result will be a reliable, affordable supply of electricity that fosters the creation of new technologies and attracts the necessary private capital for infrastructure that insures a robust marketplace for the future.

Thank you. And I would be happy to answer any questions.

[The prepared statement of Mr. Ayers follows:]

PREPARED STATEMENT OF JEFFERY D. AYERS, SENIOR VICE PRESIDENT AND GENERAL COUNSEL, AQUILA, INC.

Mr. Chairman, Senator Murkowski and members of the Committee, my name is Jeffrey Ayers. I am the Senior Vice President and General Counsel for Aquila, Inc. (NYSE: ILA). Based in Kansas City, Missouri, Aquila is a provider of risk management services including weather and plant outage protection, and a wholesale supplier of electricity, natural gas and coal in North America as well as a developer of power plants. It also provides wholesale energy services in the United Kingdom and continental Europe. Aquila is an 80% owned subsidiary of UtiliCorp United (NYSE:UCU), an international energy company with more than 4 million customers across the U.S. and internationally.

I am here today representing Aquila and the member companies of the Electric Power Supply Association (EPSA). EPSA is the national trade association representing competitive power suppliers, including independent power producers, merchant generators and power marketers. EPSA members provide reliable, competitively priced electricity from environmentally responsible facilities in U.S. and global power markets. On behalf of the competitive power industry, I thank you for this opportunity to respond to legislative proposals to address electricity markets.

We believe that the keys to a secure energy future are well-functioning, competitive energy markets and a national infrastructure that is robust and efficient. While EPSA's vision of the future ultimately demands a national, competitive retail market for electricity, there is a broad consensus that additional federal action is needed today to promote truly competitive wholesale power markets, and your white paper provides an outstanding set of principles upon which to draft legislation for federal policy.

One of the crucial lessons from the electricity crisis in the Western states is that no market can function without adequate supply or without transmission policies—the "rules of the road"—that are fair and consistent to all market participants. Appropriate reform of the regulatory framework that governs the interstate transmission grid is essential to ending the crisis in the West and avoiding these same pitfalls elsewhere.

Competitive power suppliers stand ready to commit hundreds of billions of dollars of private sector investment to increase the supply of electricity. This new investment in efficient, cleaner technologies is desperately needed not only in the West, but nationwide. Since 1990, the competitive power supply industry has accounted for more than half of all the power generation capacity brought online in this country, and we expect this percentage to increase as competitive wholesale markets develop.

More and more, however, EPSA companies view their investment decisions as contingent upon the continued development and regulatory reform of the interstate transmission grid. I can also assure you, Mr. Chairman, that the financial community will not provide the $56 billion that EEI estimates is necessary for transmission upgrades and investment in the current decade, unless reform occurs. This magnitude of investment will require a consistent, FERC-led approach, throughout the

nation, and innovative financial incentives. In addition, even with new generation supply, there will be no long-term remedy to the situation in the West and elsewhere without critical changes to transmission regulatory policies and expansion of the interstate transmission grid.

Federal energy policy must recognize power flows from state-to-state and region-to-region on a regular basis. The interstate transmission grid is the linchpin of our electricity infrastructure and regulation of that grid needs to be uniform, predictable and capable of fostering regional and national wholesale power markets. Although I will comment on a wide range of policies outlined in the White Paper, we will focus much of our attention on proposals to reform and improve the regulation of the interstate transmission grid.

TRANSMISSION JURISDICTION

Clarification of Federal/State Authority over the Interstate Grid

We agree that the division of authority between state and federal regulatory organizations must be clear and consistent, and cannot be allowed to Balkanize the wholesale power market. Today, there is too often ambiguity as to whether a transmission asset lies within state or federal jurisdiction. While a state role in retail markets should be maintained, more uniform and efficient regulation of the interstate transmission grid—with consistent, predictable regulatory oversight at the federal level—is essential.

As the White Paper makes clear, these rules must cover all owners of interstate transmission assets, regardless of whether these assets are held by private companies, public power, co-operatives or the federal government.

Assurance of a Robust Interstate Transmission Grid

The White Paper affirms FERC's authority to order utilities to join Regional Transmission Organizations (RTOs). We are supportive of FERC's recent bold step to organize large, regional RTOs to reflect the way power flows. FERC's action was a very important step, but we urge you to go further. The transmission system is sporadically open to competition, and barriers to new plant development are slowing the infusion of critical investment for increased generation supply. Congress must set a clear deadline for all utilities to join Regional Transmission Organizations (RTOs). RTOs should be large and conducive to competition. Pricing for transmission should preclude "pancaking" (multiple charges as power flows from one transmission system to the next), and each use of the transmission grid must be required to take service under a single open access transmission tariff. Also, Congress should also explicitly require currently non-FERC-jurisdictional entities that own interstate transmission assets to join RTOs.

Standardized Interconnection to the Transmission Grid

The White Paper endorses a clarification of interconnection rules for new sources of power generation. We cannot overemphasize how important this issue is for investment and construction of new generation. For companies interested in expanding electric generation capacity (critical to affordable power rates throughout the country), the physical interconnection of the generation plant to the power grid has become too often the "choke point" for project development. Ad hoc interconnection standards create uncertainty, extensive delays and unexpected or unfair costs for developers. Legislation needs to affirm the right of new generation to interconnect on a non-discriminatory basis to transmission facilities, provide a clear avenue for the federal review of interconnection policies, and establish a timely remedy, if necessary, for any abuse.

We will comment briefly on the remaining policy proposals of the White Paper:

RELIABILITY

We support establishing a national framework for electric grid reliability that will assist, not impede, the growth of robust, competitive power markets. EPSA has been an active participant in the NERC "consensus" process. We are engaged today in an effort to update the legislative proposal from last Congress and hope that this effort will succeed. A national self-regulating reliability organization must have adequate representation from all segments of the industry, be consistent with existing and future market structures, and be subject to federal oversight.

RATES AND MARKET POWER

Federal legislation should require FERC to promote competitive markets by providing clear, consistent rules applied evenly to all market participants—and addressing any abuse of market power. EPSA believes strongly that the development

of a pro-competitive framework for transmission regulation and the adoption of reforms identified earlier in this statement will go far towards reducing the risks of abusive market practices and protecting electricity consumers. In addition, market participants should be encouraged to use risk management mechanisms, such as long-term contracting, to reduce their exposure to price volatility. The California experience has demonstrated the effects of a prohibition of basic risk management tools.

REGIONAL PLANNING AND SITING

Expansion of the interstate transmission grid must occur in a timely fashion and fully reflect the best interests of the whole region. Siting issues remain an enormous roadblock to critically needed facilities. Any transmission expansion provision should encourage the construction and siting of much-needed transmission lines and ensure that costs are fairly borne by all users of transmission. We reiterate, however, that additional transmission assets and an expanded transmission grid will do little to prevent future bottlenecks if there is no concomitant regulatory reform of this same grid.

OTHER PROVISIONS

- PURPA—If PURPA is amended as part of a comprehensive federal electricity bill, there must be explicit recognition and preservation of existing PURPA contracts. We also endorse your efforts to guarantee the recovery of PURPA contract costs as appropriate federal policy. However, such cost recovery must be explicitly related to the honoring of existing contracts. Moreover, EPSA urges the repeal of the ownership restrictions on PURPA Qualifying Facilities (QFs). In 1992, the Congress placed no such restrictions on Exempt Wholesale Generators (EWGs) and the time has come for similar treatment for QFs.
- PUHCA—EPSA supports the repeal of PUHCA as part of comprehensive federal legislation.
- Public Benefits Fund—If a Public Benefits Fund is included in federal legislation, its costs and benefits should be allocated so that no market participant is favored over any other. We would urge you to avoid a provision that places the costs of such a fund solely on generators. Given that some generators operate pursuant to long-term contracts, it is not clear that the costs of such a fund will have a balanced and fair impact on all sources of generation and operators. If the Committee endorses a Fund, its costs should be truly non-discriminatory.
- Renewable Energy—Renewable energy plays a vital role in energy markets today and this role will increase in the future. EPSA believes that federal legislation should recognize the value of fuel diversity and continued investment in a broad range of energy resources. The full range of renewable technologies, including solar energy, wind, landfill gas, biomass, geothermal and waste-to-energy should be supported in any renewable provisions. EPSA has also endorsed the extension and expansion of tax credits for renewable power resources.
- Tax Provisions—The White Paper identifies a number of changes in tax law that are important to the development of competitive markets. Federal legislation is also needed to resolve uncertainties associated with the tax treatment of assets associated with interconnection. Although tax issues are not under the direct purview of your Committee, one issue (referred to generally as "Contributions in Aid to Construction") should be addressed in federal electricity legislation. IRS policies since 1988 have generally held that interconnection costs should not be classified as income to a utility. However, the IRS is now studying this issue and has opened the door to possible revisions in this policy. This, in turn, has caused significant financial uncertainty for our members who make the investments in capital necessary to establish interconnections and to build power plants. The Energy Policy Tax Act of 2001 should be amended to clarify that the costs of interconnection, which are essential for power plant developers to supply power to the electric grid, should not be treated as taxable income to transmission owners. Treating the costs of interconnection as income to the transmission owning utility increases the cost of connecting to the transmission grid and impedes construction of new generation. As a consequence, electricity consumers face higher costs, whether due to shortages of available electricity or higher tax bills to new plant developers.

EPSA appreciates this opportunity to provide you with comments on the White Paper. We applaud your leadership on this matter, and appreciate all the time and energy that the Committee has dedicated to this matter over the past few years. We believe that appropriate federal legislation can finish the job that this Committee began in 1978 with PURPA and in 1992 with EPAct to create a national grid

under FERC oversight for open, non-discriminatory movement of wholesale power. This action is necessary to ensure a reliable, affordable supply of electricity, to foster the creation of new technologies, to attract the necessary capital for this infrastructure and to ensure a robust marketplace for the future.

The CHAIRMAN. Thank you very much for your testimony.

Mr. Rowe, why don't you go right ahead with your comments.

STATEMENT OF JOHN W. ROWE, PRESIDENT AND CO-CHIEF EXECUTIVE OFFICER, EXELON CORPORATION, ON BEHALF OF THE EDISON ELECTRIC INSTITUTE

Mr. ROWE. Thank you, Mr. Chairman.

I'm delighted to be here today and am pleased that you are continuing the tradition of this committee in active involvement in these very important issues. My company serves about 5 million retail customers, principally in Illinois and Pennsylvania, but we have generation investments in most parts of the country and are involved in issues of transmission access in both parts of the—in most parts of the country.

I am submitting prepared testimony today on behalf of the Edison Electric Institute, of which I am the past chairman. In that written testimony I comment on the White Paper which you released recently, which in my opinion is a very accurate summary of the issues we're dealing with on the proposed S. 388 and on the Cheney task force report.

In my opinion, you and your colleagues here have a set of issues which are of very great importance, a set of problems to solve which are sometimes painful to address, and a set of opportunities which are large indeed. For as I cautioned members of my industry, we are dealing with issues like energy supply and energy conservation and environmental effects which involve investments of tens or scores of years and which involve effects on reliability and the economy and the environment of tens or scores of years. And in that context, there is simply no alternative to seeking a broad, bipartisan energy policy.

We have been greatly fortunate in this country for most of the past two decades in having plentiful, cheap natural gas and improving technologies to burn it. They have allowed us to put off some of the difficult issues which face us all. We cannot continue to put off those issues, however. The supply issues, the jurisdictional issues, the environmental issues must be addressed to the best of this committee's capability, and of course to the best of folks like the rest of us capability in both contributing to your decisions and in acting upon them.

I believe we ought to start with supply, for we all fool ourselves if we think there are any substitutes for adequate supplies. No system of regulation, no system of jurisdiction will work if we don't have adequate supplies to start with. Natural gas has been, as I have said, the fuel of choice for new electric generation due to its favorable economics and environmental qualities. And I commend many of you for the work you've done on making natural gas more available, and particular Senator Murkowski on his constant work in this regard. But as we have seen from the vicissitudes of the marketplace in the past 6 months, we cannot rely on natural gas alone.

We must have stable policies for nuclear power and for coal. I strongly believe that this Nation must live up to its commitments to build a permanent waste repository for nuclear fuel; and I certainly hope Congress will choose to extend the Price Anderson Act, which are the two key activities in the nuclear area.

In the coal area, I submit respectfully that more work needs to be done with respect to environmental standards for existing coal fired powerplants. EEI is actively negotiating with members of the environmental community on proposals to present to all of you. I also believe that the combination of the President's action on the proposed Kyoto Accord (phonetic) and the recent concessions made in Europe with respect to the treatment of sinks for carbon dioxide create a climate in which this committee can begin to address the CO_2 issue on a long-term basis.

With respect to transmission, we believe that we must continue to encourage RTOs, that we must have reliability standards, and that we must have favorable tax treatment for the transmission of the—for the transition of transmission assets to such RTOs. Chairman Bingaman, your White Paper is very helpful in this respect.

We, of course, believe that PUHCA and PURPA must be repealed, but we also believe that in a time when energy remains intensely regulated we are not getting true free market decisions in the development of energy conservation. Thus, we at my company support a broad range of energy efficiency standards. The EEI and our company support the proposals which have recently passed the House Energy & Commerce Committee and the House Ways & Means Committee. We believe that requiring new buildings and new appliances to have state-of-the-art energy efficiency technology is important.

In sum, we respectfully ask this committee to grasp these hard issues and to formulate rules in which the marketplace can continue to evolve to provide both a more reliable supply and a cleaner supply of energy for your constituents and our consumers.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Rowe follows:]

PREPARED STATEMENT OF JOHN W. ROWE, PRESIDENT AND CO-CHIEF EXECUTIVE OFFICER, EXELON CORPORATION

Mr. Chairman and Members of the Committee:

My name is John W. Rowe. I am the President and Co-Chief Executive Officer of Exelon Corporation. Exelon, formed last year by the merger of Unicom Corporation and PECO Energy, is headquartered in Chicago, Illinois. We serve over five million customers principally in Illinois and Pennsylvania, which have both restructured their electricity markets.

I am testifying today on behalf of the Edison Electric Institute (EEI), which is the association of U.S. shareholder-owned electric utilities and industry affiliates and associates worldwide. We are pleased to have the opportunity to testify before the Committee on the development of a comprehensive national energy policy. My testimony today includes comments on Chairman Bingaman's recently released White Paper on Electricity Legislation which includes a comprehensive legislative proposal, as well as S. 388, the "National Energy Security Act of 2001," S. 597, the "Comprehensive and Balanced Energy Policy Act of 2001," and the Administration's National Energy Policy Development Group (NEPD Group) Report, released on May 17 (the "Cheney Task Force Report").

The electricity industry is in the middle of a sometimes painful transition from an industry composed of highly regulated integrated utilities with monopoly service territories and cost-based pricing, to an industry with competitive power generation markets, market-based pricing and a wide diversity of market participants. New in-

stitutions are emerging, such as regional transmission organizations. It remains our firm belief that market-oriented restructuring of the electric industry remains the best opportunity we have to provide consumer benefits and to develop reliable new sources of supply. We must work together to make competitive markets work.

To accomplish the goal of a competitive market-oriented electricity industry, EEI strongly supports passage of a comprehensive national energy policy that achieves the following objectives: (1) assures a stable and diverse supply of fuel sources, consistent with responsible environmental goals; (2) facilitates the ability of utilities and other generators to build adequate, competitive generation to meet consumer demand; (3) enables regional transmission organizations (RTOs) and other transmission-owning utilities to expand the Nation's transmission grid; (4) enhances energy efficiency and conservation initiatives; and (5) helps protect lower income consumers.

We are pleased, Mr. Chairman, that you have announced your intention to ask the Committee to consider comprehensive legislation designed to ensure the integrity of our Nation's electricity supply infrastructure. While EEI has not had an opportunity to develop a detailed position on the White Paper on Electricity Legislation which you released last week, Mr. Chairman, I feel safe in saying that most utility executives that I know would support your effort to enact a comprehensive proposal.

Let me highlight each of the objectives we believe should form the basis for comprehensive legislation.

(1) ASSURE A STABLE, DIVERSE SUPPLY OF FUELS

Maintaining a diversity of fuel supply options is essential for affordable and reliable electricity. No individual fuel is capable of providing the energy required to meet all of our Nation's electricity demands. Policy makers and regulators should work together to maximize the development and viability of all our fuel sources. And, they should reconcile conflicting energy, environmental and other public policy goals.

Right now natural gas is nearly always the fuel of choice for new generation. That is unlikely to change soon. But, gas prices rose to painfully high levels in recent months and may do so again. A sustained change could affect the economics of the fuel choice for new generation.

We must enable the continued operation of our nuclear fleet by completing a permanent spent fuel repository and by renewing the Price-Anderson Act.

Given President Bush's rejection of the Kyoto accord, it is appropriate for this Committee to reexamine what this Nation's policy should be on a going forward basis. Many of us—including myself and my company—believe it is time for the federal government to limit CO_2 in a "no regrets" way. I also believe that we need to revisit the standards for SO_2, NO_X, and mercury so that decisions on life extensions for existing coal-fired plants can be made on a sound economic basis.

(2) ASSURE ADEQUATE, COMPETITIVE ELECTRICITY GENERATION

Rapid economic growth, combined with the increasing electrification of our homes, businesses and industries, has strained our energy infrastructure. Between 1995 and 1999, U.S. electric demand increased by 9.5 percent, while total electricity generation additions rose by only 1.6 percent. This has resulted in a decline in utility reserve margins.

The dramatic increase in electricity prices we have seen in California is proof positive of what happens when capacity does not keep up with demand. Responsible public officials must support the siting and construction of generating facilities to ensure reliable and adequate electricity supplies; otherwise consumers will pay a very high price.

Congress can facilitate the availability of adequate generation by removing federal roadblocks that hinder development of sufficient and affordable generation capacity. These barriers include the Public Utility Holding Company Act (PUHCA) and the Public Utility Regulatory Policies Act (PURPA).

Public Utility Holding Company Act

Comprehensive national energy legislation should repeal PUHCA. PUHCA repeal is included in the Chairman's White Paper, in S. 388, and in the Cheney Task Force Report. The Securities and Exchange Commission (SEC), which administers PUHCA, also calls for PUHCA repeal. Clearly there is a consensus in favor of PUHCA repeal.

PUHCA is an outmoded 1935 statute that acts as a barrier to competition. PUHCA restricts the flow of capital into new generation and limits the number of

new suppliers in electricity markets by prohibiting exempt wholesale generators from selling directly to retail consumers. PUHCA also acts as an impediment to the formation of RTOs—a problem I will discuss in greater detail later.

Public Utility Regulatory Policies Act

Comprehensive national energy legislation also should repeal PURPA's mandatory purchase obligation, protect existing contracts and provide for the recovery of federally mandated ("FERC") jurisdictional PURPA costs. Again, repeal of PURPA's mandatory purchase obligation is included in the Chairman's White Paper, in S. 388, and in the Cheney Task Force Report. Clearly there is a consensus in favor of repealing PURPA's mandatory purchase requirements.

PURPA has failed to achieve one of its primary goals, to encourage the development of renewable energy resources. Even though PURPA was enacted 23 years ago, only 2 percent of the electricity generated in this country is from non-hydroelectric renewable energy resources.

PURPA is also anti-competitive and anti-consumer. PURPA's mandatory purchase obligation forces utilities to purchase power they may not need at above-market prices even when more efficient and less expensive generating resources are available. As a result, utility consumers pay more than $8 billion a year in above-market electricity prices.

Distributed Generation/Net Metering

Distributed generation involves the use of small generation facilities built at customer locations to serve some or all of a consumer's energy needs, which also can deliver surplus power to the distribution network. Distributed generation is becoming a viable option to meet consumers' electricity needs. This is especially true for consumers who can use distributed generation to hedge against price volatility, those who place a premium on reliability and power quality and for consumers who are in isolated, hard-to-serve areas.

Recognizing the growing utilization of distributed generation facilities, EEI's member companies have been working with proponents of distributed generation to reach a compromise on legislation that will facilitate the interconnection of distributed generation to the grid while addressing issues relating to jurisdiction, backup power requirements and cost recovery. Again, the Chairman's White Paper recognizes the need to develop interconnection standards for distributed generation. We support doing so.

Market Power

California's electricity crisis has increased the focus on FERC's market power authority. I personally believe that FERC already has adequate authority to address the market power issues posed by public utilities that are already subject to its jurisdiction under the Federal Power Act. Under Sections 205 and 206 of the Federal Power Act, FERC has the authority to regulate prices for wholesale power and transmission services charged by investor-owned utilities, and to order refunds when it finds those prices unjust and unreasonable.

FERC has utilized its existing authority in a series of orders that impose just and reasonable standards appropriate to different kinds of markets. FERC is actively discussing revisions to its market power analysis for its market-based rate standards with regard to jurisdictional utilities. However, FERC lacks comparable authority over federal, state and municipal utilities, as well as electric cooperatives, which are engaged in interstate commerce.

Government-owned utilities and electric cooperatives argue that the rates they charge for wholesale power sales and transmission services should not be subject to FERC's "just and reasonable" standard because they are not-for-profit entities. However, we believe their not-for-profit status is irrelevant when they engage in wholesale sales and provide interstate transmission for others.

No solution to any regional price issues can occur as long as a significant number of energy suppliers in those markets are outside of FERC's jurisdiction. Thus, a comprehensive energy bill should extend FERC's "just and reasonable" rate standard to all electricity suppliers by making all utilities subject to Sections 205 and 206 of the Federal Power Act. The Chairman's White Paper includes such a proposal.

(3) EXPAND THE ELECTRICITY TRANSMISSION SYSTEM

Like the Nation's generation capacity, our transmission capacity has not expanded to keep pace with demand. The current situation is comparable to a country road trying to carry the traffic of an interstate highway. All segments of the electricity industry are imposing tremendous demands on the transmission system to carry more and more transactions across even greater distances. As a result, the trans-

mission system is facing significant increases in congestion. Between 1999 and 2000, transmission congestion grew by more than 200 percent. In the first quarter of 2001, transmission congestion was already three times the level experienced during the same period in 2000.

Annual investment in transmission has been declining by almost $120 million a year for the past 25 years. Transmission investment in 1999 was less than half of what it had been 20 years earlier. Maintaining transmission adequacy at current levels would require about $56 billion in investment during the present decade. The Electric Power Research Institute ("EPRI") estimates it will cost up to $30 billion to bring the western regional transmission system back to a stable condition and $1 billion to $3 billion a year after that to maintain this condition in the face of continued growth.

How do we ensure sufficient transmission capacity to help assure the success of competitive electricity markets? We believe the following proposals should be included in a comprehensive national energy policy.

Transmission Siting Authority

EEI supports granting FERC a backstop role to help site new transmission lines when states are unable or unwilling to act on new transmission line applications. The Cheney Task Force Report recommends developing legislation to grant FERC siting authority for new transmission. S. 2098, introduced by Senator Murkowski and Senator Landrieu in the 106th Congress, included FERC transmission siting authority if a state failed to act on an application within a year. Such an approach would give states the first opportunity to act on transmission siting applications. EEI would not favor the portion of the transmission siting proposal contained in the Chairman's White Paper that provides for regional compacts because it could create yet another bureaucracy governing our industry. RTOs are emerging as regional planning entities. Establishing yet another regional bureaucracy would be counterproductive.

It made sense in 1935 when the Federal Power Act was adopted to leave transmission siting authority with the states, since transmission lines were generally local in nature. Now, however, our transmission system is being asked move large amounts of energy across long distances and across state lines. Under these circumstances, it could be increasingly difficult to obtain the necessary siting permits from affected states, which may receive few direct benefits and thus have little incentive to approve construction.

Under this proposal, FERC would be given the authority to issue a certificate of public convenience and necessity for a transmission line. Eminent domain authority will rest with the holder of the certificate. Electric utilities that are issued such certificates by the states also may exercise the power of eminent domain if they are unable to acquire the rights-of-way through other means.

Federal electric utilities that own transmission, including the Tennessee Valley Authority, Bonneville Power Administration and the other power marketing administrations, already have such authority. In addition, FERC has this authority for transmission for hydroelectric facilities.

Innovative Pricing

Current returns on transmission are too low to attract the huge amounts of capital needed to fund investments in transmission expansion. A comprehensive national energy policy should include direction to FERC to utilize innovative transmission pricing incentives, including rates of return more appropriate with the higher levels of investor risk in a restructured electricity industry. These incentives must be available to all transmission owners; not just to owners who have made transmission improvements and not just to RTO operators—which is the current FERC policy. The Cheney Task Force Report called for DOE to work with FERC to encourage the use of incentive ratemaking proposals.

Reliability

As NERC testified recently before this Committee, it is seeing increasing violations of its reliability rules. A voluntary reliability regime lacks the enforcement authority needed in a competitive electricity market. A comprehensive national energy policy should include provisions to establish a self-regulating reliability organization, with FERC oversight, to develop and enforce reliability rules and standards that are binding on all market participants. We are extremely pleased that the Chairman's White Paper, S. 388, and S. 597 include these provisions and that the Cheney Task Force Report calls for such legislation. This Committee approved and the Senate passed a similar bill last year.

PUHCA

As I mentioned earlier, PUHCA also acts as a barrier to the formation of interstate independent transmission companies. Shareholder-owned utilities and FERC are working quickly to meet FERC's goal, established in Order No. 2000, of having RTOs operational by the end of 2001.

PUHCA is an impediment to this effort. An RTO could be required to become a registered holding company and subject to PUHCA restrictions and additional regulation. As our companies attempt to raise financing for these newly formed RTOs, they are discovering that PUHCA's restrictions are a significant concern to Wall Street firms and a barrier to investment.

Federal Lands Issues

A comprehensive national energy policy should provide for the coordination of transmission siting activities among multiple federal land management agencies. FERC should be designated as the lead agency for any environmental analysis necessary to site transmission lines. A FERC decision to grant a transmission line a certificate of public convenience and necessity should be conclusive as to the need for the facility for the purposes of any other permits that might be necessary to build the line. A comprehensive national energy policy also should include provisions to help reduce delays associated with transmission permit processing and approval by requiring federal land management agencies to develop and implement uniform regulations and practices to utilize qualified third-party contractors to assist in these responsibilities.

Transmission Tax Issues

A number of tax law changes are critical to expanding our transmission infrastructure. Chairman Bingaman's White Paper correctly highlights the need for changes to the tax code to expand our transmission infrastructure. Also, we commend Senator Murkowski for including in S. 389 the tax compromise agreement reached between EEI, LPPC and APPA last year. This agreement would (1) grant "private use" relief for government-owned utilities that provide open access to their transmission systems, (2) grant tax relief for the sale or spin-off of transmission facilities to form FERC-approved RTOs or independent transmission companies that are part of a FERC-approved RTO, (3) allow continued contributions to nuclear decommissioning trust funds in a restructured electricity market and (4) remove the tax on contributions in aid of construction.

We also support the provisions included in both S. 389 and S. 596 that would shorten the depreciable life for transmission facilities. Chairman Bingaman's White Paper addresses these issues as well, though the tax relief is limited to spinoffs of transmission systems; it should cover sales as well.

(4) ENHANCE ENERGY EFFICIENCY AND CONSERVATION

Wise energy use and improved energy efficiency and conservation can reduce demand for energy and can help lower consumers' energy bills. Today, the U.S. economy uses 42 percent less energy to produce one dollar of gross domestic product when compared to 1970 energy intensity levels. However, there still is obvious room for improvement, beginning with public sector facilities.

I would like to call the Committee's attention to the conservation and efficiency provisions in legislation passed in the last two weeks by the House Energy and Commerce and Ways and Means Committees. They have broad support in both the utility and conservation/efficiency communities.

New metering technologies that enable consumers to respond to variable energy prices can help reduce energy costs and consumption. Utilities are working closely with their customers, particularly larger energy users, to install real-time meters so consumers will know when to reduce or modify their energy usage to help reduce peak demands for electricity. We also support tax incentives for real-time metering, as contained in H.R. 2511, the Energy Tax Policy Act of 2001.

The federal government is the largest single user of electricity in the world. Utilities work closely with their federal customers to improve their energy efficiency. S. 388 includes provisions specifically intended to help achieve this goal. The Cheney Task Force Report also calls for reducing energy use in federal facilities. EEI believes that any legislation to promote greater energy efficiency in federal facilities should ensure the continued viability of utility incentive programs as well as Energy Savings Performance Contracts (ESPCs). Section 605 of S. 388 would continue this policy as well as enhance it.

We support including provisions in a comprehensive energy bill to establish a federal grants program to local school districts to improve energy efficiency of school buildings. Both S. 388 and S. 597 contain such provisions.

We support the inclusion of provisions to expand and extend the authorization for state energy conservation programs, as called for in S. 388. In addition, we support federal funding for enhanced research and development programs, as outlined in S. 597. And, while tax issues fall outside of this Committee's jurisdiction, we also support tax incentives to purchase energy efficient homes, appliances and vehicles.

The Cheney Task Force Report calls for increasing public awareness of Energy Star-labeled products and for expanding the scope of appliance standards programs, where appropriate. We support both of these initiatives.

Many of these issues are included in the Chairman's White Paper; we would be pleased to work with the Committee staff to help develop specific proposals for the Committee's consideration.

(5) PROTECT LOWER INCOME CONSUMERS

We believe comprehensive energy legislation should expand and increase funding for the Low Income Home Energy Assistance Program (LIHEAP). We are pleased that S. 388 and S. 352, introduced by Chairman Bingaman, call for increased funding for the LIHEAP program. In addition, the Chairman's White Paper and the Cheney Task Force Report both call for a higher funding level for LIHEAP.

Similarly, funding for the low-income weatherization assistance program should be increased to assist low-income families with lowering their energy bills through increased energy efficiency and conservation. Again, S. 388, S. 352, the Chairman's White Paper, and the Cheney Task Force Report support additional financial support for this program.

CONCLUSION

Our country needs a comprehensive national energy policy. The bedrock principle upon which the policy should be based is the encouragement of competitive electricity markets. Action is needed to ensure our country has affordable and reliable electricity for years to come. Congress has been debating electricity issues for six years. In the meantime our Nation's electricity infrastructure has not kept pace with the growing demands of our new economy. California's woes have clearly sounded an alarm bell that must be heeded by the Congress. The time to act is now. We look forward to working with this Committee to achieve these objectives.

I would be pleased to answer any questions the Committee may have.

The CHAIRMAN. Thank you very much for that statement.

Mr. Thilly, why don't you go ahead.

STATEMENT OF ROY THILLY, CHIEF EXECUTIVE OFFICER, WISCONSIN PUBLIC POWER, INC., ON BEHALF OF THE AMERICAN PUBLIC POWER ASSOCIATION

Mr. THILLY. Mr. Chairman, Senator Murkowski, members of the committee, I'd like to thank you for the opportunity to testify today.

I'm here on behalf of the America Public Power Association, which represents the interest of the Nation's 2,000 public power utilities. We have submitted formal testimony that addresses the issues point by point.

In summary, we believe the White Paper is excellent. And Public Power would like very much to work with the committee and its staff to turn the ideas in the White Paper into legislation. We are very pleased that the White Paper recognizes that public power systems are different than many other players in the industry, and seeks to achieve the paper's objectives without unnecessarily or unduly interfering with the local control of community owned systems. Any extension of Federal jurisdiction to local public power systems is a very sensitive matter.

In terms of differences, I note that the White Paper states that the regulatory compact; that is, the obligation to serve; has been severed in States that have adopted retail competition programs, and also that utilities are no longer building generation as utilities. And I agree with that in general, but it's important to recognize

that Public Power's compact with its communities and with its customers is and will remain very much intact. Public power systems, regardless of State deregulation programs, will continue to provide highly reliable electric service on a cost basis, not whatever the market will bear, to the residents and the businesses of their communities over the long term. That's why we're here.

Also, public power systems, a number have commenced construction or announced construction of new generation dedicated to their customers. We strongly support the development of a vigorously competitive wholesale market because we believe it will benefit all customers, and that vigorous competition at wholesale is obviously essential for retail competition programs to work. But I would caution the committee to recognize that the competitive model will not work today in some places, and clearly will not result in just and reasonable prices because we lack the transmission infrastructure that's necessary for the market to work. Deregulation in a highly constrained market would be a disaster.

In my State, we are highly constrained and we have a highly concentrated market. Our transmission import capability is down to about 15 percent. California, I think, has 30 percent import capability. One entity controls 54 percent of our generation. I think in California the largest generator controls about 11 percent of the generation, and yet there are market power problems. The consensus within Wisconsin, I think across the board, is that deregulation in this circumstance today would result in higher prices, significantly higher prices. And this is not a unique situation.

Unfortunately, transmission is becoming more and more constrained across the country. This week there were firm transmission curtailments in Iowa. I don't think there have ever been firm curtailments in Iowa in the past. And we have seen more and more curtailments in our State. The weakness of the transmission system is a significant threat to the objective to achieve robust, competitive markets.

And the White Paper correctly focuses on transmission as the key. We need strong, independent regional transmission organizations, and Congress needs to affirm FERC's authority in this regard or we'll be in litigation indefinitely in trying to create those organizations. But we also need to build, and we need to build a significant amount of new transmission.

The APPA supports Federal eminent domain authority, but we also recognize the real interest, important interest of States in siting. So I think the idea of enabling the States to come together in regional compacts to jointly approve projects that are in RTO plans, regional plans, based upon regional need and reliability, is very important and very—an excellent idea. There needs to be a Federal backstop, however, that if the States don't pick up the ball in this regard regionally that the FERC will have siting authority.

I was—we were very pleased to see that the White Paper does not advocate incentive transmission rates, as were mentioned earlier today. There is, of course, a chorus from transmission owners on the need for incentives, and I've never met a utility that thought its return was adequate. But the problem is not really—the problem is the disincentive for a vertically integrated system to build transmission.

A weak transmission system protects generation. In most vertically integrated systems, major investment is in generation. Building new transmission opens that generation up to competition. And transmission's got to compete in that environment with other investments that don't have that down side, and I think it's lost consistently in the last 10 years. Trying to force construction through incentives in this circumstance is a no win proposition for consumers.

In Wisconsin, companies have now divested their transmission into a for profit transco that is a single purpose company. It has an obligation to build for a robust market. There is no internal competition for capital, and the only way for this company to grow is to build additional facilities. I think these incentives will provide much better planning and a much more robust construction program. And I would urge you to look at RTOs in terms of the authority to build and to bid out construction to passive investors so we put competitive pressure on the cost of new transmission.

Finally, the other key issue is the Public Utility Holding Company Act repeal. I would simply caution the committee there that any repeal will clearly lead to much more consolidation in the industry and of complex affiliate transactions, and consolidation will threaten the objective to achieve competitive markets. So we need to be very, very careful there. We need to extend the authority to include acquisitions of generation as well as mergers of holding companies.

In closing, I'd like to thank Senator Murkowski personally for his very important leadership in helping public power and private power forge a historic compromise on tax issues. Thank you.

[The prepared statement of Mr. Thilly follows:]

PREPARED STATEMENT OF ROY THILLY, CHIEF EXECUTIVE OFFICER, WISCONSIN PUBLIC POWER, INC.

Thank you, Chairman Bingaman and Ranking Member Murkowski. On behalf of the American Public Power Association, I am pleased to appear today to discuss electricity restructuring.

I am the Chief Executive Officer of Wisconsin Public Power, Inc., and past Chair of the APPA Board of Directors from June 1999 through June 2000. APPA represents the interests of more than 2000 publicly owned electric utility systems across the country, serving about 40 million customers. APPA member utilities include state public power agencies and municipal electric utilities that serve some of the nation's largest cities. However, the vast majority of these publicly owned electric utilities serve small and medium-sized communities in 49 states, all but Hawaii. In fact, 75 percent of our members are located in cities with populations of 10,000 people or less.

Public power systems' first and only purpose is to provide reliable, efficient service to their local customers at the lowest possible cost. Public power exists for a purpose, not a profit. Like hospitals, public schools, police and fire departments, and publicly owned water and waste water utilities, public power systems are locally created governmental institutions that address a basic community need: they operate to provide an essential public service, reliably and efficiently at a reasonable, not-for-profit price. Publicly owned utilities also have an obligation to serve the electricity needs of their customers. And, because they are governed democratically through their state and local government structures, public power systems operate in the sunshine, subject to open meeting laws, public record laws and conflict of interest rules. Most, especially the smaller systems, are governed by an elected city council, while an elected or appointed board independently governs others. Democratically governed, not-for-profit, obligation to serve—the importance of these unique characteristics has been highlighted by the recent events in the West. Under California's restructuring law, public power was able to retain its obligation to plan for and serve the electricity needs of our consumer-owners. As a consequence, mu-

nicipal utilities retained their power plants dedicated to serve native load customers, and they engaged in long-range planning to satisfy demands that exceeded their own generation resources. This gave public power utilities the ability to mitigate market risk for their customer-owners.

Understanding the underlying structure and mission of public power is essential in crafting balanced electricity legislation that will maintain industry diversity. This diversity has helped many public power communities in the West endure the electricity crisis with bumps and bruises rather than broken bones. We believe the entire nation has been well served by this diverse mix of publicly, privately and cooperatively owned utilities combined with federal institutions including the Tennessee Valley Authority and the federal power marketing administrations. In restructuring our industry, every effort should be made to ensure the preservation of this diversity.

WHOLESALE COMPETITION FIRST—THE ROLE OF THE FEDERAL GOVERNMENT

The rush to restructure the electric utility industry in several states has truly put the cart before the horse. Retail choice programs adopted by states and localities cannot succeed without truly competitive wholesale markets. (This is certainly one of many lessons learned from what has happened in California.) The fundamental characteristics of a competitive market include, among other things: access of buyers to numerous sellers; mitigation of market power; ease of entry into the market for new participants; a sufficient number of participants to impose discipline on all; and transparency of information.

APPA has supported legislative efforts to make the wholesale electric market more competitive for decades. APPA was one of the major supporters of the transmission access provisions of the Energy Policy Act of 1992. On numerous occasions over the past few years, we have testified in support of additional legislation to ensure that the promises of wholesale competition become reality. In our view, comprehensive federal restructuring legislation must, at a minimum, achieve the following objectives:

- Promote more effective wholesale competition by providing sufficient federal authority to ensure non-discriminatory access to regional transmission facilities at fair and comparable rates.
- Promote the maintenance and expansion of the nation's transmission facilities including, where necessary and subject to appropriate limitations, the exercise of federal eminent domain authority.
- Establish policies to maintain the reliability of the nation's electricity industry through competitively neutral means.
- Eliminate market power in generation and transmission by: 1) Providing for truly neutral management of the nation's transmission system—allowing for federal oversight to ensure RTO development, independence and effectiveness, 2) Clearly articulating FERC's role in monitoring the wholesale market, directing FERC to investigate and mitigate market power, and enhancing its power to accomplish this difficult task, and; 3) Strengthening FERC's merger review process to allow for consideration of a proposed merger's impact on the development of competition.
- Eliminate the tax-related impediments to competition for municipal utilities imposed by the private use restrictions on tax-exempt bonds while retaining local control over municipal decisions.
- Consider changes to PUHCA only in the context of providing reasonable substitutes to protect consumers and promote competition.

APPA COMMENTS ON CHAIRMAN BINGAMAN'S "WHITE PAPER ON ELECTRICITY LEGISLATION"

APPA believes that Chairman Bingaman's White Paper memorandum of July 20, 2001, represents an excellent starting point for industry restructuring legislation. Many of the principles are absolutely essential to the creation of truly competitive wholesale markets. The remainder of my testimony will focus on these topics following, for the most part, in the order in which they are delineated in the white paper. I will reference existing legislation as appropriate.

TRANSMISSION JURISDICTION

Local control is one of the most fundamental aspects of public power. However, it is difficult to envision effective wholesale markets, which, as noted, APPA strongly supports, without some degree of federal involvement in public power transmission that is part of the regional grid. APPA members have struggled with the

problem of balancing the retention of local control with the recognition that transmission is a matter of interstate commerce.

The White Paper recommends that "FERC [transmission] jurisdiction should be extended to public, cooperative and federal utilities. Such jurisdiction should not extend to setting transmission rates for these entities, but should require that rates set by these transmitting utilities should be comparable to those that the public power utilities charge to themselves." While publicly owned utilities with transmission facilities are not anxious to be subjected to FERC jurisdiction, the limited jurisdiction contemplated in this portion of the White Paper is an acceptable compromise and is consistent with a resolution adopted by APPA in 1998.

The White Paper states that "[l]egislation should affirm FERC's authority to order utilities to join regional transmission organizations." Presumably, this authority would extend to all "transmitting" utilities regardless of ownership. For the most part, publicly owned utilities have been anxious to participate in RTOs that are consistent with the specific criteria set forth by FERC in Order No. 888. In fact, FERC commissioners and various FERC orders have specifically addressed public power participation, not to encourage public power systems to join but rather to encourage private utilities to let them join on fair and reasonable terms.

FERC has indicated that it believes it currently has the authority to order jurisdictional utilities to participate in RTOs, and we agree that Congress should affirm this authority. FERC should be required to condition market-based pricing for jurisdictional utilities on becoming part of a large, regional RTO.

It is not clear from the White Paper whether FERC authority to order RTO participation would apply only to jurisdictional utilities, or whether this would extend to publicly owned utilities as well. If the latter, then deference should be provided to publicly owned utilities, similar to the restraints on FERC jurisdiction over transmission noted above. Specifically, APPA recommends that FERC authority to order publicly owned utilities to join a regional transmission organization should be limited to situations in which FERC finds that (1) the publicly owned transmission owner has (a) engaged in undue discrimination in the provision of transmission services, or (b) abused its control over transmission so as to disadvantage competitors; and (2) that the FERC open access transmission tariff has not and is not likely to remedy the problem. In such cases, APPA agrees FERC should be authorized to require the publicly owned utility at issue to surrender control of its transmission to an independent regional transmission organization that meets FERC RTO criteria. We also believe Congress, in clarifying FERC's authority to order utilities to join RTOs, should take into consideration the cost consequences of such action. Clearly, RTOs should decrease, not increase, total transmission costs. Cost shifts and increases have been a very significant problem for public power systems in California. Obviously, it would be imprudent for a public power system, which has financed transmission with public funds, to join an RTO that will significantly increase the cost of power to its customers. Some cost shifting may be inevitable, but any FERC action in this area should be premised on the principle that adverse cost consequences for utilities ordered to join RTOs should be held to the minimum possible, and this is particularly important with respect to public power systems that have constructed their facilities with public funds.

The White Paper also recommends clarification of the Federal Power Act to ensure that "FERC has jurisdiction over all transmission, whether bundled or unbundled. Once jurisdiction has been clarified, the Commission can use its existing legal authority [to] determine which facilities are transmission in interstate commerce and which are distribution facilities and thus state jurisdictional." (We assume that "state jurisdictional" includes "local jurisdictional" in the case of publicly owned utilities.) In some respects, this statement is similar to H.R. 2944, legislation reported from the House Subcommittee on Energy and Power in the last Congress. That measure authorized FERC to determine whether particular facilities were transmission or distribution based on function. We supported that aspect of H.R. 2944. We disagreed with another aspect of the same section of H.R. 2944 because, while it attempted to establish a bright line between federal and state regulatory jurisdiction, it compromised FERC jurisdiction by failing to allow sufficient FERC regulation over the transmission component of bundled retail sales. We support the clarification of interconnection rules suggested in the White Paper including a sufficient reservation of local authority to address system-specific issues. Not addressed here, however, is the issue of who bears the cost of interconnection. We are concerned over a possible trend to shift onto the bulk power grid costs that should be borne by generation owners. We do not believe it is appropriate to force all users of the interstate grid to assume interconnection costs driven by the decisions of individual generators.

It is not clear whether the provisions in the White Paper would apply to utilities within Electric Reliability Council of Texas (ERCOT). FERC does have limited jurisdiction over utilities in ERCOT under section 211. The need for further expansion of FERC jurisdiction over ERCOT utilities is not readily apparent, at least until ERCOT is interconnected through AC facilities with other regions. APPA's policies with respect to FERC jurisdiction have generally been adopted with the understanding that they would not apply to ERCOT unless or until public utilities in that region become jurisdictional through interconnections.

RELIABILITY

APPA urges the Committee to require mandatory involvement by all industry participants in a national compliance program to ensure continued reliability of the high voltage electric transmission grid. The Administration's National Energy Policy report also calls for enactment of mandatory reliability standards by an independent body and overseen by FERC to "address the problems created by increased demands on the transmission system that have resulted from changes within the industry brought on by wholesale competition." In their respective energy policy bills, Chairman Bingaman and Ranking Member Murkowski have included reliability language supported by APPA and other industry stakeholders.

Even though the United States has the most reliable electric system in the world, the crisis in the West has demonstrated the delicate balance between reliability and the markets within which the electric grid must operate. Consequently, great care needs to be taken to ensure that the current level of reliability is not sacrificed in any restructuring of the industry. As the industry has become more competitive, more participants have been executing an increasingly larger number of transactions every day. The focus of most of these transactions is on short-term costs rather than system stability. While the current voluntary system of compliance with reliability standards worked reasonably well in the regulated environment in which the industry previously operated, it will not continue to provide the necessary safeguards in a competitive market.

Currently, reliability standards are established and monitored by the North American Electric Reliability Council (NERC), which is a non-profit organization that monitors the electric utility industry's voluntary compliance with policies, standards, principles, and guides, and assesses the future reliability of the bulk electric systems. The NERC Board of Trustees has approved and begun the transformation of NERC to the North American Electric Reliability Organization (NAERO), in which participation and adherence to standards and practices would be mandatory. Federal legislation is required to give NAERO the enforcement tools necessary to ensure compliance and achieve a system that properly balances reliability with market pressures and decisions. An industry-wide effort to forge a compromise on such legislation resulted in the language being advanced by the Chairman and Ranking Member and by Members in the House.

APPA has worked actively on the NERC consensus proposal, and we continue to support it. However, we could also support simplifying that proposal so long as the basic tenets are adhered to. We do have concerns about reliability being delegated exclusively to RTOs, some of which may be for-profit entities, that would not only set the rules, but must comply with them.

An item of particular importance to APPA in the consensus reliability legislation is a sentence developed during negotiations in late 2000. The sentence would clarify that FERC is granted oversight authority over public power systems in the regulatory title only for the purposes of enforcement of reliability standards. Public power systems support oversight with regard to reliability standards but this provision should not be used by FERC to impose additional regulation at a later date. Through an oversight, this sentence was not included in reliability legislation pending in Congress. We would appreciate it if the sentence were added to your draft bill.

RATES AND MARKET POWER, MARKET TRANSPARENCY RULES AND PUHCA

We have combined three different areas of the White Paper to address in this portion of our testimony because, from our perspective, they are interrelated and all must be addressed to achieve the goal of workably competitive wholesale markets. Here again, we believe there are some extremely important lessons to be learned from California. These include:

- Market structure is critical to market performance.
- Market power is a very real problem that must be addressed.
- Markets need rules and market monitors to enforce them.
- Market monitors need data.

There are many aspects of the White Paper that we endorse. We agree that, where feasible, "legislation should require the FERC to promote competitive markets." From our perspective, however, the paramount role of a regulatory agency must be to protect the public interest and the interests of consumers. Competition is a means to this end, not the end itself. In California and throughout the West over the last year, we believe FERC was so focused on promoting competition that it completely lost sight of its obligation to permit only just and reasonable wholesale rates, and its responsibility to ensure consumers were protected from abuses of market power. We hope that, in clarifying FERC's mission, Congress will provide that, first and foremost, FERC must protect the public interest and the interests of consumers.

We support the proposition in the White Paper that, if markets are allowed to set rates, FERC must ensure that such markets are workably competitive. This begs the question, however, with respect to the methodology used to make such a determination, and also doesn't specify how rates should be established in markets that are not competitive. APPA believes market based rates for jurisdictional utilities should only be approved on a finding that the applicant will not possess market power and that effective and sustainable competition will exist in that market. The analysis must include an examination not only of the resources available to individual applicants and whether such assets could be used to set the market clearing price, but also of the effect of transmission constraints and how those assets fit into the broader market structure. Location-specific constraints must be taken into account, as should requirements for grid reliability. Further, and frequently ignored in traditional market analysis, is the time-sensitive nature of electricity. In some markets, an entity controlling a very small amount of generation can exercise market power.

FERC should be given other "tools" in addition to those it already has to address market power problems. It should, for example, require jurisdictional utilities to submit market power mitigation plans for approval or modification. Its merger review process should be revised to require that merger approval be granted on an affirmative finding that the proposed merger is in the public interest as opposed to the current standard which only requires that the merger be consistent with the public interest. In reviewing mergers, FERC should be required to consider whether they will promote effective wholesale competition, or undermine it. FERC should also have the authority to require shared access to essential assets, including reserve/risk sharing mechanisms, on a non-discriminatory basis and with just and reasonable rates. Further, FERC should be able to preserve the integrity of the market through preliminary relief in order to prevent irreparable harm pending issuance of a final order.

The White Paper states that "all sellers (which we assume includes public power sellers) into such [competitive] markets should be clearly subject to market rules and market mitigation measures ordered by the Commission. It should be made clear that normal transactions, not into market-based rate setting institutions, by public power entities should continue to be non-jurisdictional." As consumer-owned utilities, APPA's members certainly believe that no market participant should be able to abuse market power to the detriment of end users. Until the debacle in the West, application of this principle to public power systems in wholesale markets has not been an issue, and therefore this specific issue has not been addressed by APPA. However, publicly owned utilities in California and elsewhere in the West have stated that they would voluntarily abide by market rules applicable to jurisdictional utilities. The exclusion for "normal" transactions is clearly appropriate, but the extent to which sales by public power systems into market institutions would be subject to FERC oversight is unclear and could be problematic. APPA is confident that, if FERC clearly defines in advance the rules applicable to jurisdictional utilities who are responsible for the vast majority of all such transactions, public power systems will live within that framework without the need for any expansion of FERC jurisdiction.

As this particular element of the White Paper is given additional consideration, it is important for members of the Committee to keep in mind that publicly owned utilities are units of local government. They have their own unique set of legal requirements imposed by state and local laws as well as under contracts or, more specifically, bond covenants. Accounting principles, that apply to governmental entities are not the same as those that apply to private, for-profit corporations. Power sold, whether through bi-lateral contracts or into the spot market, is publicly owned property. Public power systems have a fiduciary responsibility to ensure that they and their customer-owners receive reasonable compensation.

The White Paper notes that "legislation must ensure transparent information on market transactions and should grant clear authority to the Energy Information Ad-

ministration and the FERC to collect and publish appropriate data, while protecting proprietary information." APPA agrees and strongly supports this proposition with the important clarification that "proprietary information" warranting protection must be narrowly circumscribed. APPA would, in fact, encourage that congressional direction be absolutely clear that data must be collected and made public. Claims of confidentiality of data based on commercial sensitivity are already being made to limit data collection or dissemination. There is a danger that commercial sensitivity arguments will completely undermine the legitimate right of the public to this data. Transparency of market information is a fundamental prerequisite of competitive markets and necessary to protect consumers. (We would note that disclosure is required under the security laws, and such disclosure has had a salutary effect on the markets. If the SEC's rules did not exist today, almost every company that is subject to SEC regulation would claim that much of the information they are required to disclose today is in fact proprietary.) Congress should be very clear in telling EIA and FERC that close calls should be resolved in favor of transparency, not secrecy.

We believe consideration of PUHCA repeal should logically be undertaken within the context of the discussion of market power. This is recognized within the White Paper, which states that PUHCA should be repealed "only if FERC is given enhanced authority to address market power problems, and both FERC and the states are given greater access to the books and records of holding companies to prevent affiliate abuses."

While these are appropriate pre-conditions to PUHCA repeal, APPA does not believe they are sufficient.

In addition to the recommendations regarding authority for FERC to address market power issues, APPA would recommend specific authority for FERC to review mergers of utility holding companies as well as the disposition of generation assets by jurisdictional utilities and acquisition of natural gas companies. The FERC lacks the clear authority to review the former. While we believe it has the authority and responsibility to review the latter, it has recently declined to do so. This action has come at precisely the same time that utilities and utility holding companies are swapping assets like trading cards. A utility with a significant presence in generation in one region sells those assets, then buys similar assets in another region. Such transactions can clearly lead to the concentration of significant amounts of generation in specific geographic markets, yet no one is examining what consequences these asset trades will have on competition.

FERC and state commission access to books and records of holding companies to prevent affiliate abuses is an inadequate substitute for the protections provided consumers, state commissions and others under PUHCA. As a practical matter, many state commissions don't have the resources to examine the books and records of today's extremely complex utility holding companies and all of their subsidiary companies. And even if they do, it isn't clear what remedies they can impose when the keeper of the funds—the parent holding company—may exist outside of the jurisdiction of specific state utility commission.

Advocates of PUHCA repeal have argued that the statute is no longer necessary, that it is redundant with other statutes, and, incredibly, that it is an impediment to competition. S. 206, the Public Utility Holding Company Act of 2001, reported out of the Senate Banking Committee earlier this year, provides, in the statement of findings and purposes, the following:

- Developments since 1935, including changes in other regulation and in the electric and gas industries, have called into question the continued relevance of the model of regulation established by that Act.
- Limited Federal regulation is necessary to supplement the work of State commissions for the continued rate protection of electric and gas utility customers.

The Attorney General of California strongly disagrees with these two statements. Earlier this month, he filed a petition with the Securities and Exchange Commission (the agency with responsibility to enforce PUHCA) for review and revocation of PG&E Corporation's exemption from PUHCA. As stated in the petition "PG&E Co. [the electric operating utility] has now filed for bankruptcy after upstreaming billions of dollars from the utility to the utility holding company—the precise type of behavior identified in PUHCA as a primary basis for the law." He concludes his petition as follows: "All of the primary evils addressed by PUHCA are relevant to PG&E Corp. [the utility holding company], including movement of capital and assets from its utilities to the holding company and affiliated, wholly-owned subsidiaries as well as massive investments in out-of-state non-utility activities and properties. The Commission has the chance, indeed the obligation, to address potential holding company abuses by PG&E Corp. before additional damage is done. The current cri-

sis in California has been a catalyst for closer scrutiny of federal and state regulation of the utility industry. This crisis highlights the fact that Commission enforcement of PUHCA is still needed."

Clearly, times have changed since PUHCA was enacted in 1935. Utilities have changed. Human nature hasn't. The abusive practices that gave rise to PUHCA 65 years ago have been more difficult to accomplish, because of the existence of PUHCA's restraint on corporate structure and behavior, but have not disappeared entirely. It may be that some elements of PUHCA need to be revised. But the opportunity for the California Attorney General, and perhaps others similarly situated in the future, to have a forum at FERC or the SEC in which they can examine the financial transactions within a monstrously complex interstate holding company structure to determine whether electric consumers have been abused, must not be eliminated.

REGIONAL PLANNING AND SITING

APPA supports federal eminent domain authority to form a more cohesive and functional national approach to the expansion of the transmission grid. The more certainty that exists in transmission, the better our members are able to serve their customers. However, permitting private parties to use this extraordinary tool of government should be undertaken very carefully, permitting the maximum possible involvement of state and local governments. It could, for example, be a last resort remedy. It should also be exercised in a manner that ensures the optimal expansion of the grid, which will require regional transmission planning. Finally, facilities constructed when this authority is exercised must be dedicated to serve the general public interest, including the lowest reasonable rates for transmission service. We believe that the White Paper's suggestion that regional siting compacts be authorized and encouraged is definitely worth pursuing. These compacts should recognize RTO orders and regional needs. FERC should be available as a backstop if states do not deal with siting issues jointly on a regional-needs basis.

OTHER PROVISIONS

APPA offers the following comments with respect to the "other provisions" in the White Paper.

1) Repeal PURPA's mandatory purchase requirements with certain replacements—interconnection standards for distributed generation. APPA does not oppose the repeal of PURPA's purchase requirements, so long as stranded cost recovery is addressed using FERC's current process. APPA strongly supports increased use of distributed resources and efforts at the federal level to promote such use. We therefore encourage the committee to pursue legislative language on transmission and distribution interconnection policies that provide FERC the authority to order the use of standardized technical interconnections while at the same time preserving local authority to require any additional measures necessary for system reliability, safety, or other factors deemed to be in the public interest. A positive step has been taken with the introduction of S. 933 by Senator Jeffords, which for the first time addresses the concern of local utilities.

2) Incentives for renewable resources. In preparing its recently-published report on public power's renewable profile, entitled "Shades of Green," (copies of which were previously sent to all members of this Committee) , APPA discovered that public power systems have a higher proportion of renewable, non-hydropower generation than other segments of the industry—but we still have more work to do. APPA therefore applauds the idea of creating market-based incentives for all segments of the industry. I'll discuss comparable incentives for public power systems in the section on tax provisions below.

3) Public Benefits Fund. APPA believes such programs are better suited to state and local initiatives as opposed to federal legislation.

4) Tax Provisions. An area of great importance to public power systems is their treatment in the tax code. Tax exempt bonds issued to finance generation, transmission and distribution facilities owned by public power systems carry with them restrictions on the amount of private use allowed for those facilities. While sound tax policies warrant certain restrictions on private use of public facilities, such policies must change with changing times. These private use restrictions, which were manageable several years ago, are now unreasonable in the new competitive environment and need to be modified to conform to the goal of enhancing greater competition. The restrictions are contrary to the goals of the Energy Policy Act of 1992. The public power community and the Investor Owned Utilities have worked together to come up with language to remedy this situation and certain tax code problems that they are encountering as a result of industry changes. Ranking Member

Murkowski has taken the lead to address this problem with his bill, the Electric Power Industry Tax Modernization Act, S. 972, which provides greater flexibility to publicly owned utilities to accommodate industry changes. APPA sincerely appreciates Senator Murkowski's leadership on this issue. We hope that the Finance Committee will act soon to address this vital issue.

Finally, I would like to mention one other tax related issue. It is clear that additional generation is needed in this country. It is also clear that such generation should come from non-traditional renewable energy sources as well as from better and cleaner utilization of our nation's most abundant resource, coal. Traditionally, Congress has turned to tax credits to provide incentives to industry to achieve socially desirable goals. If the goal is to promote renewable energy and clean coal technology development and utilization by the electric utility industry, then incentives must be provided that work for all elements of the industry. Tax credits can be utilized by IOUs, which serve about 75 percent of the nation's electric consumers, but cannot be used by not-for-profit publicly and cooperatively owned utilities that serve the balance. As a policy matter, it seems to make little sense to refuse to provide comparable incentives to ensure that 100 percent of the nation's utilities are encouraged to develop these resources. We have recommended "tradable tax credits" for publicly and cooperatively owned utilities. These tradable credits could be sold to tax paying entities at a discount to help them reduce their own tax liability. This concept has been developed by municipal public power systems and the rural electric cooperatives and is supported by the entire electric utility industry. APPA commends Chairman Bingaman for including tradable tax credits language in his comprehensive bill S. 597. We hope this proposal receives favorable action in the Senate Finance Committee.

Thank you again for inviting me to testify and I will be happy to answer any questions you may have.

The CHAIRMAN. Thank you very much.

Mr. English, why don't you go right ahead.

STATEMENT OF GLENN ENGLISH, CHIEF EXECUTVE OFFICER, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION, ARLINGTON, VA

Mr. ENGLISH. Thank you very much, Mr. Chairman. I appreciate that.

My name is Glenn English. I'm the chief executive officer of the National Rural Electric Cooperative Association, which is a service organization for some 34 million consumers who own their own electric utility as cooperatives. We're situated in some 46 States all across this country.

Very quickly, Mr. Chairman, I want to hit some high points and then focus on one particular area of my testimony. Electric cooperatives strongly support the efforts of Congress to replace the North American Electric Reliability Council with a new entity that has the authority under the Federal Energy Regulatory Commission for oversight to develop and enforce mandatory reliability standards. Electric cooperatives applaud the chairman and the ranking member in the administration for recognizing the importance of fuel diversity.

Electric cooperatives, however, oppose the expansion of Federal energy regulatory jurisdiction over rural electric cooperatives, the reason being that many small electric cooperatives, this is additional Federal regulation in addition to rural utility service which would duplicate and become extremely burdensome and expensive for them. And electric cooperatives applaud the chairman for recognizing the need for additional market power oversight.

But, Mr. Chairman, the one thing that we feel is the most critical element as far as any kind of coming to grips with the energy difficulties that this country is facing is in the area of transmission.

When you really look at transmission, unless the transmission system works, unless it has the ability to move power around this country under the 1992 Energy Act, then much of the rest of the debate and discussion that we're having really doesn't mean a great deal, because the system just won't work. So for that reason, we would strongly urge that this committee focus its attention on the development of an interstate highway system approach to remove the transmission restraints that exist today.

Now up until this point, Mr. Chairman, what I think this committee has heard so much about, as has the Congress, has been the focus on the risk of building transmission. And as a result of that, the risk needs to be offset with incentives or with other means in which to compensate those who would build transmission for that risk. Mr. Chairman, it's my understanding that the Federal Energy Regulatory Commission has such authority now. And we don't see a great deal of transmission being built in this country and I think there are a host of different reasons as to why that is taking place.

In addition to looking at compensating for the risk, I would suggest that this committee focus its attention on how they might reduce the risk of building transmission in this country; how in fact we can make it easier, how in fact we can focus our attention on certain areas of development, so that we in fact can develop a true interstate type of system for the electric utility industry to transmit its power.

I think that without question, Mr. Chairman, that we have to understand that any competition that exists will likely take place on the generation side. And in those States that in fact pass it, on the retail side. When you look in the area of transmission, this may be the one impediment for competition working either on the wholesale or the retail side. And we've seen examples of that. You mentioned in your testimony earlier, or in your statement earlier this morning about price spikes and the difficulties in California. And I think virtually everyone understands that those problems are transmission related. And certainly if we continue to focus our attention elsewhere, this congestion and these difficulties will continue.

We've got to understand, however, there are those who benefit by congestion and by the impasses that exist in the existing system, people who in fact make a great deal of money out of the difficulties that exist in the system and will resist the changes. That's the reason that we strongly believe that local entities, whether it's through some kind of joint planning group or whether it's through RTOs, should in fact take the lead in determining and identifying what portions of the existing transmission system should be part of an interstate system. And they should have the opportunity to focus their attention on what is the best way to link up the various regional systems that exist, link up the various elements that would be included in any kind of interstate transmission system.

We also think this makes great sense from a regulatory point of view. The Federal Energy Regulatory Commission does not have unlimited resources, either in manpower or in funds. And it should be understood that those resources should be focused on where they'll do the greatest amount of good. By obviously identifying certain segments of the existing transmission system and also focus-

ing on how to connect up those systems with other systems that are identified in other regions, that we in fact can make a great deal of sense from making sure that the limited resources of FERC are focused where they'll do the most good.

But we think that what can be done, Mr. Chairman, is to focus on reducing risk, focus on in fact giving the people of this country the opportunity to keep their transmission costs as low as they possibly can, to do so by building transmission systems at cost with a modest return for the investment. This is a system that has served this country well in the past. It's one that we think will serve us well as we develop a truly interstate transmission system in this Nation today.

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. English follows:]

PREPARED STATEMENT OF GLENN ENGLISH, CHIEF EXECUTIVE OFFICER, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION, ARLINGTON, VA

EXECUTIVE SUMMARY

- NRECA supports the development of an Interstate Highway system approach to relieve transmission constraints; the current transmission system cannot reliably handle the dramatic increase in transactions since enactment of the Energy Policy Act and FERC order 888, four years ago.
- NRECA supports the efforts of Congress to replace the North American Electric Reliability Council (NERC) with a new entity that has the authority under the Federal Energy Regulatory Commission (FERC) oversight, to develop and enforce mandatory reliability standards. This much-needed legislation should be passed immediately.
- NRECA applauds the Chairman, Ranking Member, and the Administration for recognizing the importance of fuel diversity.
- NRECA opposes the expansion of FERC jurisdiction over rural electric cooperatives. For many small electric cooperatives this additional federal regulation would be duplicative and overly burdensome.
- NRECA commends the Chairman for recognizing the need for additional market power oversight.

The National Rural Electric Cooperative Association (NRECA) is the national service organization that represents 930 rural electric systems providing central station service to approximately 34 million consumers in 46 states. Of these rural systems, 60 are generation and transmission cooperatives, which are owned by and serve approximately 695 of 870 distribution cooperatives. Kilowatt-hour sales by rural systems amount to 9% of total electricity sales in the United States, approximately 45% of the electricity sold by cooperatives is purchased from others.

TRANSMISSION RELIABILITY

North America needs the new electric transmission equivalent of the interstate highway system. The current transmission system cannot reliably handle the dramatic increase in transactions since the 1992 Energy Policy Act. Transmission deficiencies are contributing to wholesale and retail electric market failures that are harming consumers.

NRECA strongly opposes the argument that the transmission problem can be fixed only if utilities are offered enough money through incentive transmission rates or other financial incentives. NRECA believes that high rates of return are not an acceptable means of attracting investment in transmission. The incentive approach only increases costs for consumers, the people who were supposed to have seen lower prices from competition, without guaranteeing that transmission will be built.

Moreover, high transmission costs do not strengthen wholesale electric markets, they severely curtail them. The high rates act as "toll gates," narrowing generation markets and protecting the monopoly power of local generators.

NRECA believes the best approach is to lower the risk of building transmission instead of raising rates of return and increasing costs to consumers. Congress should direct FERC to ensure that any entity that builds a qualifying transmission project recovers its costs. To qualify for guaranteed cost recovery, NRECA believes that transmission projects must:

- be identified through a regional joint-planning process that coordinates and has oversight for the reliable operation of the regional transmission system
- be constructed according to best engineering practices
- be operated by the relevant Regional Transmission Organization (RTO)
- offer service pursuant to traditional cost-of-service principles, with the cost-of-service analysis taking into account the low risk provided by FERC's obligation to assure cost recovery.

By mitigating risk, spreading the cost of new facilities broadly, and enabling new competitors to build transmission, NRECA's approach to new transmission helps to ensure that the interstate highway system can be built at the lowest possible cost to consumers.

ELECTRIC RELIABILITY

Since 1968, the electric utilities of the United States, Canada, and part of Mexico have worked together through NERC to develop voluntary standards that have provided North Americans with the most reliable energy in the world.

The introduction of restructuring, however, is putting pressure on the voluntary system. Under regulation, regulators have placed a premium on reliability and utilities were guaranteed to recover reasonable reliability-related expenses. In a competitive environment, however, investor-owned utilities are rewarded for cutting costs and no one has the authority to ensure that those cost-cutting measures do not degrade the reliability of the bulk transmission system.

It is necessary for Congress to replace NERC with a new entity that has the authority, under FERC oversight, to develop and enforce mandatory reliability standards.

For that reason, NRECA supported S. 2071 in the 106th Congress. That language would require FERC to approve a new North American Electric Reliability Organization that would have the power to ensure the reliable operation of the interstate bulk transmission grid. NRECA believes that similar legislation needs to be enacted as soon as possible.

ENERGY SUPPLY

NRECA strongly supports a national energy policy that recognizes the importance of fuel diversity. The recent increase in natural gas and petroleum prices clearly demonstrates the important role that coal, nuclear energy, and other fuels continue to play in North America's energy portfolio. NRECA supports the full development of all needed U.S. energy and power resources including hydro, nuclear and fossil in a manner that strengthens fuel diversity while balancing appropriate environmental considerations. That national energy policy should also provide financing for research and development and incentives to fully utilize domestic resources. These programs should be made available to all segments of the industry on an equitable basis.

NRECA supports the development and implementation of clean coal technologies and renewable resources. We advocate continued funding for research, development and demonstration to continue to reduce the cost of power from these clean sources of energy. Clean coal and renewable resources should be an integral part of a total energy package.

NRECA also believes in the future of nuclear power and is a strong supporter of this "emission-free" source of energy. Nuclear power is a safe, efficient source of electricity, with an adequate supply of fuel. Nuclear power currently provides 20 percent of the nation's electricity at affordable and stable prices. With spiking prices in natural gas and oil, nuclear power plants offer a stable, levelized source of electricity. NRECA supports the relicensing of existing operating reactors, and encourages the Department of Energy to begin accepting the spent nuclear fuel, as DOE promised and contracted for under the Nuclear Waste Fuel Act. NRECA supports the development of the Yucca Mountain Repository. NRECA also supports continued development of future safer and cheaper nuclear reactor technologies as well as the improved Nuclear Regulatory Commission (NRC) licensing programs to support future development. NRECA believes that the Price Anderson Act, due to expire in 2002, should be extended.

FERC JURISDICTION

NRECA opposes efforts to subject electric cooperatives to the jurisdiction of FERC (under Federal Power Act (FPA) Sections 205 and 206, 16 U.S.C. 791a, et seq. by including them within the definition of "public utility" in Section 201(e) of the FPA). Electric cooperatives are owned and controlled by their consumers so there is no

conflict between shareholders and customers requiring governmental economic regulation.

Similarly, the federal agencies that provide reliable, low-cost electrical power are already regulated by Congressional oversight and are under the authority of the Secretary of Energy. Moreover, electric cooperatives were formed in response to the national need to extend electric service at the lowest possible cost to primarily rural areas under a program providing that federal governmental oversight would only be through the Rural Utilities Service (RUS). NRECA's position was confirmed in the *Dairyland* case, decided by the Federal Power Commission (FERC's predecessor) more than 30 years ago, which held that electric cooperative borrowers from the RUS are not "public utilities" as defined in Section 201(e) of the Federal Power Act. NRECA opposes efforts to subject the RUS-borrower electric cooperatives, involuntarily, to FERC jurisdiction under FPA Sections 205 and 206, which continues to be good public policy. NRECA also recognizes the important regional federal power issues that are part of this restructuring debate in the Pacific Northwest and have supported previous efforts to establish a "Northwest Title" in restructuring legislation. NRECA supports legislative efforts to exclude from FERC jurisdiction:

- RUS borrower electric cooperatives,
- not-for-profit, consumer-owned utilities, and
- federal power marketing agencies.

MARKET POWER

Market power is a problem that must be confronted in the move toward a more competitive marketplace. Insufficient federal oversight and authority exists for distinguishing between pro-competitive and anti-competitive mergers and acquisitions. Under the Public Utility Holding Company Act (PUHCA), only one regulatory entity—the Securities and Exchange Commission (SEC)—has comprehensive authority to protect consumers against registered holding company abuses. The elimination of PUHCA or substantial changes to the Act without offsetting consumer protections will result in greater monopoly power for these holding companies and their utility subsidiaries, and higher electricity costs for consumers.

Congress should adopt rigorous merger and acquisition guidelines at the federal level that will prevent the accumulation of market power by one or a few dominant firms. These changes would include:

- Placing the burden of proof on entities seeking to transfer generation or seeking "mega-mergers" of existing monopolies to demonstrate that the acquisitions will enhance competition and benefit consumers through lower rates, increased reliability and expanded services, while reducing regulatory burdens on pro-competitive mergers and ventures.
- Providing regulators (FERC) with tools to protect consumers and enhance competition, including the authority to impose structural solutions that remedy or prevent public utilities from accumulating or exercising undue market power.
- Strengthen the antitrust provisions in the Federal Trade Commission Act and Federal Power Act to prevent market power abuses, and deny approvals for mergers and acquisitions that lessen competition.
- Authorizing FERC to impose civil penalties for market power abuses.

In closing, I appreciate the opportunity to testify before the Committee and look forward to working with you to address these important issues.

The CHAIRMAN. Thank you very much. I think all the testimony has been very useful. Let me ask just a few questions.

Mr. Rowe, let me ask you first. In your written statement that you gave us I understand you oppose a new layer of regulation at the regional level in these decisions on siting of transmission lines. Is there some other way that we can have those decisions made at the regional level that would make more sense from your point of view; more dependence on RTOs, for example? What is—could you maybe elaborate on your views as to how siting decisions ought to be made and where that authority ought to be?

Mr. ROWE. Surely, Mr. Chairman.

It is obvious to us, as your White Paper makes clear it is to you, that the transmission system is the regional superhighway for the competitive marketplace we're all trying to work on. And in that

sense, we believe that FERC has the essence of it in its emphasis on strong, large, regional transmission organizations. We think it will help to have those be quite large. We think strengthening FERC's authority in that respect is positive. We believe that making the RTOs for profit businesses is positive. We believe that the reference in your White Paper to making it easier from a tax point of view to create transcos and RTOs is positive. And we believe as these regional entities are created they will allow for some of the goals that your White Paper seeks in terms of input from the different States without creating, you know, one more layer of process.

The CHAIRMAN. All right. Thank you very much.

Mr. Thilly, let me ask you about the issue of obviously one of the things we promote in this White Paper is that sales by public power entities into the market rate generating institutions should be subject to the same rules as other sales. Can you help us figure out where the line needs to be drawn between sales that should be subject to market rules established by FERC, how we separate those sales from other sales that should not be subject to these rules set by FERC?

Mr. THILLY. I hope so. I think that we generally agree with the characterizations in the White Paper. As I understand it, what that means is where there is a RTO developed market or a power exchange market that has been approved by FERC, that all participants will have to adhere to the rules of that market, including any circuit breakers or price caps that exist. And we certainly, I think, agree with that. We believe that will happen with or without legislation.

We would certainly also oppose the notion of full cost of service regulation for public power systems. There has been no call for the need for that that I know of in the last 50 years. And the—those—so we see no need there. But we do believe that in the formal institutions that are established for a competitive market, that the rules would apply to all participants in those markets.

The CHAIRMAN. Okay. Mr. English, you state in your testimony that you oppose extending FERC jurisdiction over cooperatives. FERC has already declared that it has some jurisdiction over your members in the West by subjecting them to the market mitigation plan that they issued on the 18th of June. Have your members given you reason to believe that that order goes too far in including what would otherwise be normal transactions between co-ops?

Mr. ENGLISH. I think, Mr. Chairman, that many of our members would challenge whether or not FERC does have that authority. And that may be an issue that the court would have to decide. That seems to be an open question.

The point is though that we recognize there's a problem in the West. And electric cooperatives fully understand that they have a moral obligation and responsibility to help out. And so they are in fact cooperating and working with that order as if it was in fact a point of law. But, you know, we're not conceding the fact that there is an open question as to whether they do have that jurisdiction and certainly—but we right now feel that the bigger question is responding to the problem in the West.

The CHAIRMAN. Okay. One of the points we make in the White Paper is our belief that it's necessary to include all transmission under the same rules. Do you believe there are some ways that we could work to build in protections for the smaller co-ops that you represent, members that do not have transmission systems, so that they can—they would be agreeable to that kind of a explicit grant of authority to FERC?

Mr. ENGLISH. Well, as I stated in my testimony, we're very concerned about particularly some of our smaller cooperatives. But not just exclusively smaller cooperatives, but the distribution cooperatives that under the interpretation, more lenient interpretation of some of the regulations, would encompass some 400 distribution cooperatives, which I don't think either FERC or certainly the Congress intended to be included. There's also this question of the relationship between the cooperative, the management and employees of the cooperative and those consumers, and it is that self-governance regulation.

The real issue here, I think before us, is the question of what portion of the transmission system that electric cooperatives owns truly plays in any kind of interstate commerce. And as we begin to define and to narrow that in, you know, that's probably where the open issue is.

But with this particular point, that's the reason we think an interstate designation or an interstate type system that is focused on moving power across this country is where FERC should be focusing its attention. And certainly if that is the case, obviously any transmission that doesn't fall under that category would either be left up to the States, or in the case of electric cooperatives, our own self-governance.

The CHAIRMAN. We'd be anxious to work with you as we try to refine some language that'll keep the protections that you think are essential, but also provide that we do have one set of rules for transmission around the country.

Mr. ENGLISH. Thank you.

The CHAIRMAN. Senator Murkowski.

Senator MURKOWSKI. Thank you very much, Mr. Chairman.

Mr. Thilly, relative to your statement, you indicated there isn't enough transmission. We certainly agree with that. But you also said that you are opposed to incentive pricing, as I recall, for transmission. How do you get there from here?

Mr. THILLY. I believe that there is adequate capital in the market that—to finance the new construction that's needed at a reasonable rate of return, 12 percent by FERC, with a reasonable depreciation schedule. That that capital is there, that there are investors that are looking for that solid and very safe return.

Senator MURKOWSKI. Why hasn't it been done?

Mr. THILLY. Because we've been relying on vertically integrated utilities to build the transmission. And when they make that transmission investment they may realize the return, but they also expose their generation to competition and loss. And it's that offsetting, or that down side of construction that is the problem.

Senator MURKOWSKI. Mr. Rowe, would you agree with that?

Mr. ROWE. I'm afraid I totally disagree with it. I have been unable to discern why there is so much opposition to incentive regula-

tions with transmission, when the total cost of transmission is a relatively small portion of the end price of electricity and when proper incentives for greater throughput on transmission lines and greater access to transmission lines can help so much in making the competitive generation market we all want effective.

I mean I believe that building transmission in today's economic and political world is a difficult and risky business. And it just isn't as easy to do as 12 percent sounds. In my company, we are putting our transmission where our mouth is, not only by joining the Alliance RTO, but yesterday our board voted to authorize us to be the first company in that RTO to announce its intention to sell its assets to the RTO if an independent operator can be found.

Senator MURKOWSKI. Well, it appears then that the need's been there. You've not chosen to do so because the incentive hasn't been adequate. And, you know, we have two views on what's adequate, but clearly the marketplace is going to determine where they're going to direct their capital.

And it seems to me that it's pretty obvious here. We've got a problem, we need to increase capacity. In order to get it we can jawbone about whether 12 percent return on equity is adequate and therefore they ought to do it, but, you know, you can't force them to do it if they can deploy their capital at a better return. And so am I missing something here, Mr. English?

Mr. ENGLISH. I think you are, Senator.

Senator MURKOWSKI. My time's short, so I want to——

Senator MURKOWSKI. I'll make it very, very quick then. As I said, I think you put your finger on it, it is the question of risk. And the question is how you're going to deal with this risk. Are in fact we going to provide additional rewards for taking the risks, or do we reduce the risk? What we have not explored is reducing the risk.

Senator MURKOWSKI. What we need to do is increase the transmission.

Mr. ENGLISH. And that's exactly getting to the point. The issue is how do we take hold of this. And I think that we do have to make it a national priority to designate existing transmission systems and making the connections within the regions as interstate systems. That's where we put our energy and that's what we're really focused on.

Senator MURKOWSKI. Is that going to be sufficient for Mr. Rowe to invest his capital?

Mr. ENGLISH. At this particular point, already as I mentioned in my testimony, that the Federal Energy Regulatory Commission has the opportunity to provide for that kind of incentives, if you wish. What I'm suggesting is that you also give them the opportunity to reduce the risk, to provide for a guarantee return if they build that transmission. In other words, let's have competing options to them.

Senator MURKOWSKI. Well, this is a little different than Mr. Thilly's statement.

Mr. ENGLISH. Exactly, it is.

Senator MURKOWSKI. Mr. Rowe, do you want to jump in here?

Mr. ROWE. Well, I think our decision to propose the sale of our transmission reflects two judgments. One is that it is not a strategically opportune asset for us under the present rules. And two, in independent hands, it has more chance of getting favorable eco-

nomic rules. So again, I would respectfully submit that we're putting our capital behind our words.

Senator MURKOWSKI. Mr. Ayers, do you want to jump in to this?

Mr. AYERS. Yeah. I would add that in this case, if you look at transmission, it's very much up front costs for 50 years of transmission being there with not a lot of operating costs. So from a business proposition of wanting to finance this, you have to look at what the return and the value of that transmission over 50 years. And that has changed over the last few years. You've got to be able to determine whether you will still need the transmission over that time frame. And the risk profile of someone investing and wanting to line up financing has changed. And in order, I think in today's market, it's necessary to look at incentive in order to have that transmission built.

Senator MURKOWSKI. Well, it seems that we have reached a significant point relative to just how we're going to increase transmission and whether we can do it without incentives, pricing incentives. The market is going to have to make that determination.

My final question is to Mr. Thilly and Mr. English relative to your support for giving FERC authority to order the IOUs to join a transmission organization. And I think you support giving FERC additional market power authority and so the question comes to mind, shouldn't public power and cooperatives be subject to basically the same rules?

Mr. ENGLISH. I'll take a crack at that first, Senator.

Senator MURKOWSKI. Very short.

Mr. ENGLISH. First of all, we support the voluntary approach with regard to RTOs. The second thing is that we think there ought to be incentives for people to participate in RTOs, since we're talking about incentives and that makes sense. And the third thing is that RTOs have to be independent and open, and everyone has to have the opportunity to participate in it. We don't think that's been the case to this point.

Mr. THILLY. We strongly support RTOs. And it's important that public power participate. Public power is at the table. A number are. The difficulty has been it is not prudent for a public power system to join if it's going to dramatically increase its costs, which is what the situation in California has been.

Senator MURKOWSKI. All right. Well, I thank you. And hope that we can understand here the implications in the White Paper suggest that public power would remain more flexible in setting its own rate structure, but by the same token, be nondiscriminatory. But by setting its own rate structure, there are—there has to be a safeguard and a balance for efficiencies. And that gets a little out of our area of responsibility, but is certainly in the public interest.

The CHAIRMAN. Senator Carper.

Senator CARPER. Thank you, Mr. Chairman. Mr. Chairman, a number of years ago Mr. Craig and Mr. Thomas and Mr. English and I worked together in the House of Representatives. We all served together for a number of years. And I just want to say welcome. It is great to see you, Glenn. And you had a reputation then for being clear thinking, plain spoken, get right to the point. And I'm pleased to say that he hasn't changed in that respect.

I'm a new member of this committee. I've been on it for all of about 14 days. And some of the people that have already served here have forgotten more than I'm likely to ever know. So I'm just struggling to come up to speed. I feel like somebody who's walked into a party about 11 o'clock at night and everybody else is three sheets to the wind and I'm trying to figure out where the bar is.

[Laughter.]

Senator CARPER. It would be helpful for me—and just keep in mind I'm still trying to understand all of the acronyms that we're talking about here. But what would be helpful for me is for each of you to take a minute or so and with respect to interconnection standards, with respect to transmission capability and capacity, where do you agree. What we've got to figure out is how to develop some consensus here. And in those two areas especially, if you could just tell me where do you all agree in a way that would be helpful for us in formulating some bipartisan approach here.

Glenn.

Mr. ENGLISH. If I could take a very quick crack at that, Senator. And let me just say I've always been struck by your wisdom and your candor, and I see that that hasn't changed and delighted that you're here. I think you've got an excellent view of what's taken place in the energy industry, let me also say, with the 14 days you've been here.

Very quickly this. I don't think that you have to choose. I don't think that you have to choose. Let's have a little competition. Isn't this what this is all about? We talk about competition in the electric utility industry. We've got incentive pricing that's already available to the Federal Energy Regulatory Commission. Let's give them the other option of reducing risk, then let's let them make the choice.

Let's go even beyond that. We're talking about joint planning groups, we're talking about RTOs. Let's let them get into this act and decide what's best in their region. You know, we wholeheartedly agree that we need to bring all the interested parties together in an RTO or whatever else you want to call it for that region, and let them make the decision.

Let them play the role and identify what portion of the transmission system within that region that truly should be a part of an interstate system. And then let's let them say here's the best way to link it up with neighboring systems as a part of the grid. And then let's give the Federal Energy Regulatory Commission the authority then to say yes, that makes sense. We agree with that, and give their blessings. And we move on and we go to a competitive process, and let's see which way this thing goes out.

What we're suggesting to you is if you can reduce the risk, if you can do that by in fact guaranteeing the return and by the very nature that any of this new construction that's taking place or any upgrades that are taking place in the transmission system. In fact, if that's a part of an interstate system, you're going to have the traffic to get the return. And that's what you're really telling the investors, you're going to be guaranteed that return. And then let's stretch it over an extended period of time, and say 30, 35 years.

We've been in the construction and transmission business for some time. That's normally what our—we've got a record on that

kind of stuff. We're not interested in getting in and building transmission, by the way, if you're looking at this as the electric co-op way of approaching it. What we're really interested in is making sure that we have low cost transmissions, you're able to move power. So if you're going to have competition and make some sense in this country, the transmission system in itself is a conveyance, just like the interstate highway system. And we're not interested in adding more toll booths, we're not interested in adding a lot of unnecessary cost. Let's make this as least costly as we can for the American people.

But we're not saying hey, let's exclude the whole opportunity to have incentive pricing. If FERC comes to the conclusion that's what they need, give them that chance. But let's give them both opportunities. That's all we're asking.

Mr. ROWE. Senator, I believe that——

Senator CARPER. Let me just say something. I've heard a lot of people testify over the years. I really like the way that you speak slowly. No kidding, it's just——

Mr. ROWE. My wife says I follow my mother in that respect and it has little to do with learning.

Senator CARPER. Give your mom our best if she's still around.

[Laughter.]

Mr. ROWE. I think there are three large issues on which those at this table and those who govern us fundamentally agree. We need more supplies of energy, we need them to be cleaner and consistently so, and we need the energy to be used efficiently. I believe that around those principles detailed legislation can be hammered.

I think those at this table agree on the importance of reliability standards for the regional transmission organizations and for people who are participating in the supply marketplace. I believe we agree on the importance of regional transmission organizations. I believe we agree on the fundamental principles of open access. Those are the—about the furtherest (sic) list we all probably agree on, but with a little work you can get some more out of us.

Senator CARPER. Good. Okay. Thank you, Mr. Rowe.

Please.

Mr. THILLY. I agree with what Mr. Rowe just said. I think that's very accurate. There are differences obviously, the one that has been identified this morning on incentive rates. And, you know, maybe if we step back from that one, I agree with Mr. English.

The FERC has authority to set transmission rates and can do a number of things, but it has to be just and reasonable within the Federal Power Act. If we're talking and if an incentive is just and reasonable, then we already have the authority to do it. It's going beyond that to authorize incentives that would not pass the just and reasonable test that we have very significant problems with.

Mr. AYERS. I would also agree with Mr. Rowe's comments. I think that's a good, accurate summary.

I would like to add with respect to you mentioned interconnection requirements; that I would hope that everyone would agree here that the current process for interconnection and the ability for new powerplants to connect to the grid is a time frame that does not work. Just to give you an example of a recent experience we've had, in a process that should take 120 to 180 days, this process

took over 600 days to negotiate and place the necessary requirements to interconnect to the grid. And clearly I think that is not a process that is going to allow new generation to be built and come on line in this country.

And so with respect to that, I think that is clearly an area I would hope most people would agree we need some different standards. Maybe there may be open issues on what those are, but the current process doesn't work.

On transmission, I think I would support all of Mr. Rowe's comments.

Senator CARPER. All right, good. Well, thank you. Thank you all very much.

The CHAIRMAN. Thank you very much.

Senator Craig.

Senator CRAIG. Then we all agree that transmission is the number one problem in today's current electric markets of this country?

Mr. AYERS. Yes.

Senator CRAIG. Is that correct, Mr. Rowe?

Mr. ROWE. It is. I would say transmission and diversity of generation supply are about equal, but they're together the number one problem.

Senator CRAIG. Mr. Rowe, in reading your testimony, while you touched on it in passing, as it related to sequestration in your testimony you say something a bit more bold. Let me read it. "Given President Bush's rejection of the Kyoto Accord, it is appropriate for this committee to re-examine what this nation's policy should be on a going forward basis. Many of us, including myself and my company, believe it is time for the Federal Government to limit CO_2 in a no regrets way. I also believe that we need to revisit the standards of SO_X and NO_X and mercury so that decisions on life extension for existing coal-fired plants can be made on a sound economic basis."

With that statement, my question—one of my questions would be what is an appropriate CO_2 limit that the Federal Government could mandate that wouldn't be arbitrary?

Mr. ROWE. I think there are so many uncertainties in this area that almost anything is arbitrary, and yet something probably should be done. It is my personal opinion that the Kyoto Accord went too far and involved promises by some governments that they had no intention of meeting. At the same time, I think the gathering weight of evidence on the long run carbon issue is more impressive all the time.

There is an engineer at Illinois Institute of Technology named Henry Linden who's been on the board of BAS Corporation; I think he's retired now; but he's done several papers on preliminary steps that can be taken. And if you would permit me, sir, I would like to offer one of those papers for the committee, because I think there are ways, particularly as we increase efficiency and increase the use of natural gas, that we can take steps to reduce carbon and do them without some of the economic consequences that the Kyoto Accord would have had, at least before the recent steps in Europe this week.

Senator CRAIG. Well, I agree with you that technology is leading us toward reduction. But is it not true that if we were to set a cap,

and that were arbitrary, we would be picking winners and losers? And that means a heck of a lot of lawsuits around the country.

Mr. ROWE. I smile just a little, because——

Senator CRAIG. And I guess my follow-up question would be as the CEO of a company, are you a winner or you a loser?

Mr. ROWE. We are the largest nuclear generator in this country.

Senator CRAIG. Ah, the winner.

Mr. ROWE. And therefore——

Senator CRAIG. Maybe that's why you were bold.

Mr. ROWE. Well, that may be why my suggestion wasn't bold at all, Senator. But we believe that as this country evolves, coal must have a continued role. I think that's essential. But I think most new coal will replace existing coal in a cleaner fashion, and we believe that gas and nuclear and efficiency have to have increasing roles if we take the global warming issue seriously.

Senator CRAIG. Well, you had mentioned, I believe in your comments, that you sensed what they did in relation to sequestration to be a positive.

Mr. ROWE. Yes, I do. It's my understanding that this government argued in the original Kyoto negotiations to allow more credit toward the carbon goals if you promoted sequestration programs. In my own previous company, we had some experience investing in tropical forests as carbon sequestration tools. And it's very clear that today, carbon sequestration in forests of the like can be a cheaper way of limiting carbon in some circumstances than some attempt to remove it from the initial process.

I still don't believe there are a lot of ways to burn carbon without creating carbon dioxide. So to me, adding more credit for sequestration, as happened last week, was a partial response to the U.S. position. I'm not saying whether it was an adequate one. And one that we should take seriously, because it also tends to reduce some of the international wealth transfer issues that I think haunted the original Kyoto Accord.

Senator CRAIG. I was curious about that, because it limits us by their formula to about 28 mmpces, or whatever that term is. And we have a capability based upon reasonable estimates, both forest, farmlands, pasture lands, upwards of 300 million metric tons of carbon sequestration on an annualized basis.

It also, I noticed, was interesting that they were trying to buy a Japanese vote, so they gave them a good deal more than they otherwise had the capability of sequestering. It appeared to me that their charts were a good deal more political than they were real.

Mr. ROWE. I have always felt that, Senator. I'm quite certain that you're right on that. And I commend you and Chairman Bingaman and others on this committee for brokering with this issue with the interest of this Nation so deeply at heart.

Senator CRAIG. Well, I thank you for those observations. I'm just not sure that we have yet determined what levels of CO_2 are harmful and/or beneficial. I think you and I would collectively agree that more is not good.

And in the long term, our technology is clearly leading us toward reductions. And if we benefitted in that direction or incentivized it in that direction, a good deal more will come. I'm not quite sure

that we need to play the politics of capping. My guess is there's a greater risk there than there is a reality.

Mr. ROWE. As somebody who's in business, as my colleagues at this table have suggested, I always like incentives better than caps, Senator.

Senator CRAIG. Oh, by the way, the red light's on, but did you check—you need to check the paragraph that Bond did on nuclear. They did you in.

Mr. ROWE. It's always been a hard slog, sir, but we're a lot better off in this country because we have what we have.

Senator CRAIG. Well, we will try to deal you back in. Thank you.

The CHAIRMAN. Senator Thomas.

Senator THOMAS. Thank you. You know, as I sit and listen, it sounds like maybe sometimes we don't recognize some of the fairly significant changes that have taken place in generation, where almost in the past always the generation and the transmission was designed to fit your service area. And so but that's changing. Now we got people selling generation, getting into the marketer. And so you have to have a different kind of, seems to me, a different kind of a transmission system.

Mr. Rowe, you sort of indicate let's keep on doing what we're doing. Give us a little tax break. It doesn't seem to me that that's enough difference. What's wrong with the idea of having an interstate highway system that connects RTOs, do something about having a third party operator. You pay for it when you use the system. Over some bonding and over some time you do that. So you're not expecting a generator or a distribution system to do the transmission.

Mr. ROWE. I think that works. Forgive me if I were inarticulate, because I think you have it exactly right. You described correctly, as does the chairman's White Paper, the history of generation and transmission being tied together. To make what we're talking about work it does need to be a competitive interstate highway system. That's why we support strong, large, regional transmission organizations. And that's why our board voted yesterday to express its intention to sell our transmission assets to the RTO if it has an adequate transmission operator that would meet your standards. We agree exactly.

Senator THOMAS. But an RTO is not an interstate national system.

Mr. ROWE. But if there are, as FERC contemplates, four or five big ones, then it becomes simpler and simpler to regulate the connections between them. I mean the issue is whether we get there in one step, or two or three. But it has to be a broad interstate system, and the question is only how big are the regions such that you get operating efficiency. I suspect you wouldn't want the whole U.S. transmission system——

Senator THOMAS. Well, we already have regions pretty much established. That's not a new idea. But we need to move, be able to move it.

Mr. English, would you support a system that's a third party operator with the funding coming back from bonding or whatever by people who pay to get on, and everyone pays the same rate and so on?

Mr. ENGLISH. I think there's merit in that, in the concept. As having—as Senator Craig and you and Senator Carper and I have worked in the other body for many years, I'm also very sensitive and aware of the politics. That obviously becomes a great deal more difficult politically.

What I'm focusing on now and suggesting is we need something in the short-term. We need something that can be done right now. We need some kind of focus in this country on the transmission system so that you got the physical infrastructure to do these other things that we talk about. And until that infrastructure's in place, quite frankly, there's no way the rest of this works.

And so what I'm suggesting is this: I think you're on the right track with regard to the interstate system. I think you're absolutely correct with regard to obviously what an RTO needs to do as far as the operation of that system, is where I understand you're coming from. But at this point, I would suggest that we need immediate action on the whole concept of designating we're going to build an interstate highway transmission system in this country, the equivalent of that, and we're going to start upgrading existing systems that are part of that, just as we did the interstate highway system, and to move forward on it.

Senator THOMAS. That's fine. Except I sense that we don't have a vision of where we want to be. If you're going to do something that is going to be as complicated as this, you had better get a pretty good vision of where you want to be when it's over, so that what you do in the interim leads to that. And we've talked about interstate movement and this and that, but we haven't had a notion of how those things fit into an ultimate vision of where we are.

Now, Mr. Ayers, you're primarily generators; right? You're not distributors?

Mr. AYERS. No. We do wholesale marketing.

Senator THOMAS. So your whole life depends upon your ability to move your product?

Mr. AYERS. That's correct.

Senator THOMAS. And you would support, I would suppose, wouldn't you, an intestate system that would move among the RTOs and be a third party operator, and you would pay to get on there just like everybody else?

Mr. AYERS. Absolutely. And I think the recent FERC activity of four large RTO systems is a step in that direction. There are some natural marketplaces in the United States currently, and to design the RTOs around where those natural marketplaces exist as a starting point is a good step that could lead then eventually to combining even those RTOs.

Senator THOMAS. Well, again, I hope that we can kind of devise in our mind where we want to be in 15 years, or whatever, so that as we move, why what we do will accomplish that. I sense that—and FERC, frankly, doesn't impress me as being a group that looks out in the future very much. They're pretty much—and I'm not critical of it. Their designed to deal with today's problems. And someone has to take a little more vision and then let them implement, it seems to me. Thank you all for being here.

The CHAIRMAN. Well, let me thank the whole panel for your excellent testimony. We appreciate it very much.

We will take a 5-minute break. And during that time, if the people who are on panels 3 and 4 could all come forward or be available when we start up again, we will combine those two panels and go ahead with the balance of the hearing.

[Recess.]

The CHAIRMAN. Why don't we get going again. We have got six additional witnesses we want to hear from each of them. Let me just start over here at the left-hand side of the table.

We have Mr. William Nugent, who is the president of the National Association of Regulatory and Utility Commissioners, NARUC. We're very pleased to have Commissioner Nugent here.

Mr. James Dushaw, who is the director of utility department for the International Brotherhood of Electrical Workers, IBEW. Thank you very much for being here.

David Hamilton, who is the policy director for the Alliance to Save Energy. In the spirit of full disclosure, I'm associated with that organization, which I have been for many years.

Mr. James Rouse, who is the chairman of ELCON in Danbury, Connecticut. We very much appreciate you being here.

Mr. Stephen Ward is the president of the National Association of State Utility Consumer Advocates. Thank you very much for being here.

And Mr. David Cook, who is general counsel for the North American Electrical Reliability Council, NAERC, in Princeton, New Jersey.

So thank you all for being here. If you'd each take 5 or 6 minutes and give us your perspective on the proposals that we're considering here on the committee. Let me state at the outset that your full statements will be included in the record. And if you could just summarize the main points that you think we need to be aware of, I'd appreciate it. Commissioner Nugent, why don't you start out.

STATEMENT OF WILLIAM M. NUGENT, COMMISSIONER, MAINE PUBLIC UTILITIES COMMISSION, AND PRESIDENT, NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS

Commissioner NUGENT. Thank you, Mr. Chairman. And thank you for the courtesy that you've shown to me on this and my previous opportunities to appear here. I appreciate your including the comments in the record, the written comments.

Let me talk about briefly some—an overview on this. And that is let me offer you some caution. This is an extraordinarily complex subject. I'm sure you're aware of that. But we have been wrestling with this for some time trying to figure out the proper way to do this, and I would look forward to working with you and members, other members of the committee and staff to work our way through this.

Electricity is not gas——

The CHAIRMAN. Let me just say by way of response, I agree with you. We have got to approach it with caution, but that is about all we've approached it with so far for the last two or three Congresses. I think we also need to try to act. And so we're anxious to get your input as to how to do that responsibly.

Commissioner NUGENT. I will not dispute the utility of acting on this.

First of all, gas is not electricity. On previous appearances here I have been complimentary of the FERC and the manner in which it has sited transmission. It has done so expeditiously and enabled us to get important new infrastructure into Maine. But gas and electricity differ in important respects.

In gas, you pick up a commodity from wherever it happens to be coming out of the ground, you transport it to end users who decide the manner in which they're going to do it. In electricity, you do have alternatives to that. You can generate at some distant place and then deliver it, but there are important tradeoffs with the siting of generation and the manner in which this articulates with the retail markets.

I think those differences make it important that State regulators work closely with the FERC, and that entire authority for transmission siting, generation and generation siting, if that enters your plan, not be reposed solely at the Federal level. There are a whole lot of fine points here that will tend to get missed in that particular approach.

I believe in addition, that the proposals that are under discussion here load an awful lot on FERC. And I have questions about the capacity of that staff. It's not that they're not bright people and that they're not working hard, but there is an enormous additional volume of work. First of all, these are very difficult matters of first impression for them to think their way through and come to reasonable solutions. I think what you do have in State regulators is a body of people who are already committed to the public interest, who are there and available and knowledgeable about the local situations who can work with the FERC to offer a decent solution to these things.

Now going down in the specifics, let me add a third one, because it occurs late in the White Paper, and that is the question that the White Paper raises about transmission, transferring assets into either an affiliated interest or freeing them entirely. There is a very, very big question there of at what value. These are assets that have been constructed over time with important support from rate payers.

And I don't say this should be the solution, but it may be instructive. Maine, in going to retail competition in electricity, mandated a separation that the vertically integrated utilities sell their generation assets and continue to operate as wires company. It was our concern that we provide a level playing field for all sellers of generation within Maine; that the wires company not favor any particular provider of generation. That has worked well. We have attracted more competition in Maine than any other State. We have about 40 percent of our load that has gone to competitive suppliers. So the proof is in the pudding in that regard.

But the point for this White Paper is that in directing the vertically integrated utility to divest itself of its generation assets, we—they were fully compensated for the book value of those assets. The value of those assets in excess of book went to rate payers, in return for which rate payers assumed the responsibility of 100 per-

cent of stranded costs. There was a tradeoff, but I think it was an equitable solution to that.

One of the concerns that I have is that if the assets go to—transmission assets go into the—a separate, unregulated or less tightly regulated entity, the question is what are the rates of return, where is the equity for an investment over time that rate payers have made? I'm not going to—I can't, in the few minutes we have here, fully discuss at great length this kind of an issue. I want to flag it for you and suggest that it's worthy of very careful investigation in the future, which we will do with staff or any of the members who wants to do it.

But I've done my—gone through my 5 minutes and I've probably got 18 more pages, and I'm going to rely on the written testimony to do that. And I'll be happy to answer any questions, either now, in writing, or at any time you wish. Thank you for the courtesy.

[The prepared statement of Commissioner Nugent follows:]

PREPARED STATEMENT OF WILLIAM M. NUGENT, COMMISSIONER, MAINE PUBLIC UTILITIES COMMISSION, AND PRESIDENT, NATIONAL ASSOCIATION OF REGULATORY AND UTILITY COMMISSIONERS

Mr. Chairman and Members of the Committee:

Good morning. My name is William M. Nugent. I am a Commissioner on the Maine Public Utilities Commission and President of the National Association of Regulatory Utility Commissioners, commonly known as NARUC. I respectfully request that NARUC's written statement be included in today's hearing record as if fully read.

NARUC is a quasi-governmental nonprofit organization founded in 1889. Its membership includes the state public utility commissions for all states and territories. NARUC's mission is to serve the public interest by improving the quality and effectiveness of public utility regulation. NARUC's members regulate the retail rates and services of electric, gas, water and telephone utilities. We have the obligation under State law to assure the establishment and maintenance of such energy utility services as may be required by the public convenience and necessity, and to ensure that such services are provided at rates and conditions that are just, reasonable and nondiscriminatory for all consumers.

I greatly appreciate the opportunity to appear again, on behalf of NARUC, before the Senate Energy and Natural Resources Committee.

Today, I have been asked to comment on S. 388 and S. 597 from the 107th Congress and S. 1273 and S. 2098 from the 106th Congress. Additionally, I have been asked to comment on a White Paper containing a legislative proposal for the Committee. I believe NARUC witnesses have testified a number of times, during the last Congress, and are on record with regard to S. 1273 and S. 2098, therefore I will limit my remarks to S. 388, S. 597, and the White Paper.

TRANSMISSION JURISDICTION

NARUC supports legislation affirming State authority to regulate retail power delivery regardless of the facilities used (transmission or distribution). We oppose the expansion of FERC jurisdiction to include unbundled retail transmission service. It is our position that States should retain authority to establish retail transmission rates unless the State tariffs violate Federally determined open-access, non-discriminatory, competitive transmission policies. FERC should continue to have ratemaking authority for interstate wholesale transactions and should have jurisdiction over transactions between suppliers and retail customers located in different States. However, States should be authorized to form voluntary regional bodies to address regional transmission system issues and FERC should be required to defer to States acting on a regional basis.

States have an important stake in how retail services over transmission facilities are provided. Transmission facilities were approved by state governmental entities, and importantly have been paid for by retail customers. However, we are keenly aware of the interstate commerce implications of transmission service and we believe that the issue of transmission jurisdiction is correctly being adjudicated before the Supreme Court. Therefore, NARUC would respectfully recommend that Con-

gress follow precedent and allow the Court to rule on this issue prior to taking legislative action.

States should be primarily responsible for expeditiously handling retail complaints alleging undue discrimination in the market place. Appeals by market participants could then be made to FERC.

NARUC supports legislation leading to voluntary formation of Regional Transmission Organizations (RTOs), with deference given to States in RTO development and to States acting collectively on a regional basis. Congress should develop a mechanism for States to address ongoing concerns in RTO functions after the initial RTO development period. State interests include reliability, market monitoring, pricing, congestion management, planning and interregional coordination. Additionally, Congress should provide for a State commission advisory role in RTO governance that allows for deference to State commissions that reach consensus concerning governance issues within a region.

NARUC supports legislation establishing national interconnection and power quality standards, developed and adopted by appropriate technical standards organizations, such as the Institute of Electrical and Electronics Engineers, Inc., for generating facilities by a date certain. However, the States should have the ability to adopt these rules or more tailored rules that a State chooses.

NARUC further supports legislation removing federal barriers to State implementation of net metering. The most critical barrier involves the current lack of jurisdictional clarity over net metering. The Federal Power Act has been alleged to preempt State net metering programs, slowing development of this promising new approach to promoting competition and resource divesting.

For the reasons I just iterated, NARUC has serious concerns with the White Paper section on transmission jurisdiction and must respectfully oppose legislation based upon the language included in this section of the White Paper.

RELIABILITY

NARUC continues to support the NERC process and legislation that establishes mandatory compliance with industry-developed reliability standards and provides explicit authority to FERC and the States to cooperate to enforce those standards. NARUC also supports legislation that includes workable mechanisms to support energy efficiency programs that enhance reliability.

The reliability of the nation's electric system is one of the most important issues in this debate, and NARUC believes that Federal legislation must indeed address reliability. Enforcement of operational standards and criteria should be supervised by the FERC in cooperation with the States through existing state authority, joint boards, or other mechanisms. Enforcement of compliance with planning and system adequacy standards should rest first with the States and regional bodies. Congress should explicitly affirm the public interest in transmission grid reliability and the need for mandatory compliance with reliability standards.

Federal legislation should also facilitate effective decision-making by the States and recognize the authority of the States to create regional mechanisms including but not limited to inter-state compacts, or regional reliability boards, for the purpose of addressing transmission reliability issues. NARUC cannot support reliability language that fails to provide a continuing role for States in ensuring reliability of all aspects of electrical service, including generation, transmission, and power delivery services or results in FERC preemption of State authority to ensure safe and reliable service to retail consumers. State officials will be held accountable by the public when the lights fail to come on. Additionally, because of this responsibility, State officials and State regulators are particularly concerned with the ability to promote actions that ensure uninterrupted electricity service.

NARUC believes that Congress should expressly include in legislation: (1) A savings clause to protect existing State authority to ensure reliable transmission service, and (2) a regional advisory role for the States. Therefore, NARUC supports the reliability provisions on these points found in S. 388 and S. 597 and commends both you, Mr. Chairman, and Senator Murkowski for including these two provisions in your respective bills.

RATES AND MARKET POWER

Congress should not preempt jurisdiction in the States to address market power concerns, including the authority to require behavioral and structural remedies to address excessive market power. NARUC advocates a continuum of options, such as accounting conventions and codes of conduct, for the mitigation of market power, and urges Congress to preserve State flexibility to use these options as needed.

Legislation should clarify: 1) the authority of the States to require and police the separation of utility and non-utility, and monopoly and competitive businesses, and to impose affiliate transaction and other rules to assure that electric customers do not subsidize non-utility ventures; 2) that States have authority to require the formation of appropriate State, territory, and regional institutions where necessary to ensure a competitive electricity market; 3) as market power abuse may require the application of well-tailored structural solutions, legislation should clarify the States are authorized to require divestiture where appropriate and necessary; and 4) that State regulators have authority to ensure effective retail markets and should eliminate any barriers to the exercise of that authority by the States.

We believe these legislative suggestions should be included in both S. 388 and S. 597. Additionally, NARUC is concerned that the White Paper implies preemption of State market power jurisdiction by remaining silent on any role for the States.

REGIONAL PLANNING AND SITING

The main impediment to siting energy infrastructure is the great difficulty in getting public acceptance for needed facilities. Quite frankly, this tells us that no matter where siting responsibility falls, with State government or the Federal government, siting energy infrastructure will not be easy and there will be no "quick fix" to this situation.

NARUC believes that the States should do more to improve upon the tremendous success story of the nation's electricity infrastructure. States exercising jurisdiction over the siting and certification of transmission facilities should not discriminate against interstate facilities, meaning that in general, interstate facilities should be sited, certificated, and otherwise regulated under the same standards and procedures as intrastate facilities.

NARUC is strongly opposed to Federal eminent domain and siting authority. However, NARUC supports voluntary regional bodies that permit the States in which an interstate transmission facility is proposed to be sited, to issue certificates authorizing the construction of the proposed facility through collective decision-making. If States choose to retain certification authority for themselves, there should be agreed upon mechanisms to resolve disputes where individual States involved have come to conflicting and/or inconsistent determinations in their respective deliberations. These voluntary regional bodies could: address siting of transmission; identify regional bulk power market needs for State siting agencies to consider in their respective deliberations; and, plan for the construction of new interstate transmission facilities.

Congress should affirm that States have the primary authority to establish, operate and govern these voluntary regional siting bodies, and the Federal Energy Regulatory Commission (FERC) could act as an appropriate "backstop" authority where States or regions fail to act. Additionally, Congress should provide an explicit grant of authority to the States and FERC to act in cooperation.

Because the White Paper develops a necessity for FERC siting authority we must strongly oppose the provisions of this section that contemplate such authority going to FERC. While NARUC is supportive of the concept of a voluntary regional approach, NARUC is equally in opposition to the proposal found in the White Paper that contemplates FERC preemption of the regional bodies and the non-voluntary nature of the White Paper proposal. Additionally, as a matter of public safety, the States should continue oversight of maintenance requirements.

MARKET TRANSPARENCY RULES

Many regional electric markets throughout the country have experienced price spikes of unusual and unexpected proportions. These price spikes have led to curtailment or shutdown of operations of some large industrial customers and to increased prices for smaller commercial and residential customers.

The high market price volatility has raised concerns about the integrity of the markets, leading to calls from numerous participants, consumers and policy makers for heightened monitoring of these markets by regulatory bodies. In order to identify corrective policy options to assure the public of the competitiveness and efficiency of the developing wholesale electricity market and its prices, regulatory bodies need access to data such as production for generating plants, transmission path schedules and actual flows.

The electric industry restructuring efforts of the Federal government and the various States are based upon an assumption that wholesale markets are workably competitive. To that end, policy makers must have the ability to provide confidence to an already skeptical and uneasy public that the market is not being "gamed." This confidence can only be provided if regulators are able to access the data nec-

essary to ensure that the market is functioning in a truly competitive fashion. To the extent data is currently shared among market participants for purposes of reliability, it should also be available to regulators and the public.

NARUC supports legislation recently introduced by Senator Wyden and co-sponsored by Senator Burns as an effective way to ensure both Federal and State regulators have the information necessary to adequately monitor wholesale electricity markets and to assure proper access to such information. NARUC believes this legislation would provide great benefits to the market and its customers and should be included in any comprehensive energy bill.

PUHCA AND PURPA

NARUC has adopted resolutions that support Congressional action to address the Public Utility Holding Company Act (PUHCA) and the Public Utility Regulatory Policies Act (PURPA) provided certain conditions are met. In the case of PUHCA, we believe that Congress could substantially streamline the statute (while providing State commissions and FERC enforceable access to holding company books and records, such as in sections 814 and 815 of S. 389) only as part of a broader legislative effort to restructure the utility industry. With respect to PURPA, we would support prospectively repealing the utility mandatory purchase requirements, conditioned upon the development of competitive electric markets and as part of broader restructuring legislation, not as a stand alone initiative.

As a general matter, it is NARUC policy that neither PUHCA nor PURPA should be repealed on a stand-alone basis or in a vacuum. NARUC believes that relief from these statutes should be contingent upon the development of competitive markets as determined through a State commission supervised restructuring program.

I wish to address a specific concern with S. 388. Section 803 is intended to protect prior PURPA contracts by preempting State ratemaking authority. Specifically, it restricts the ability of State commissions to require utilities to take steps to mitigate stranded costs that may result from above-market contracts. Section 803 of S. 388 would leave little incentive for utility companies to minimize costs passed through to customers, holding harmless utilities and qualifying facilities.

CONSUMER INFORMATION AND PROTECTION

As we have seen in restructured telecommunications markets, the movement to competition in retail energy markets will require State regulators to be especially vigilant on such consumer protection issues as slamming (unauthorized switching of consumers to alternative service providers) and cramming (charging consumers for services they did not request).

Complaints to State commissions about utility service quality and about specific practice have burgeoned in recent years. Most States have expanded their customer service programs. Many State legislatures have adopted tough new laws to protect customers from practices such as slamming and cramming. Through NARUC and the National Regulatory Research Institute, State commissions have worked together to develop creative and effective new customer education and protection programs. NARUC has strongly supported policies to provide consumers with price and environmental impact information concerning their electricity consumption. These efforts strengthen competition, especially for small business and residential customers by giving customers the confidence they need to participate in energy markets and by keeping the bad apples out of the energy market barrel.

Federal restructuring legislation must not interfere with State efforts to protect consumers, either by preempting State authority or precluding States from adopting more protective standards in areas where Federal standards apply.

PUBLIC BENEFITS

NARUC continues its insistence that public benefits programs must be included in any federal legislation, however we believe that further study of societal costs and benefits is warranted prior to NARUC supporting any particular implementation or funding mechanism for the continued support of public benefits programs.

TAX PROVISIONS

NARUC has taken no position on the tax provisions described in the White Paper or in S. 388 and S. 597.

In conclusion, I would like to thank the Chairman, the Ranking Member and the Committee for giving me an opportunity to appear on behalf of NARUC. On the jurisdictional issues where consensus is difficult to reach, such as siting RTO membership and retail transmission, we would urge the Committee to defer to the courts

and FERC to wrestle with these issues. In other critical areas such as enforceable reliability standards, uniform interconnection rules and development of market monitoring tools, we urge the Committee to move forward with legislation to serve the goal of establishing workably competitive and transparent wholesale power markets.

Thank you for your attention, and I look forward to any questions the Committee may have.

The CHAIRMAN. Thank you very much for your testimony.

Mr. Dushaw.

STATEMENT OF JAMES L. DUSHAW, DIRECTOR, UTILITY DEPARTMENT, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS

Mr. DUSHAW. Thank you, Mr. Chairman. I guess it's enough to say the IBEW, the International Brotherhood of Electrical Workers, is the union that represents the majority of the unionized electric utility employees in the Nation, some 220,000 more in Canada, and working in all aspects of the industry and in all types of ownership, Federal, municipal, investor owned, coop.

It should be clearly understood, Mr. Chairman, that the IBEW doesn't believe that average Americans, workers and families are calling for commoditization and restructuring of the industry. They are becoming aggravated with the risks and they're becoming more apparent. Not to mention what has been a huge transfer of wealth taking place. Those real energy costs take a bigger bite out of workers' household budgets.

This morning, I want to briefly address the relationship between the American electric utility worker and the reliability of the utility system, I think a faction that has been overlooked up to this point. Some energy marketers would have us believe it's been said their reliability or it should be just a function of the marketplace. Some have urged that the Nation should not afford "a gold plated system" as they believed the earlier compact had delivered.

Obviously, we would have to accept less reliability as a quid pro quo for competition. IBEW workers take serious issue with all these philosophies. They see that for the overwhelming majority of Americans, reliable electric power is an essential service, not just to market commodity.

Beginning in 1990, in the advent of competition, electric utilities, mostly the large IOUs, began to downsize their companies to look good in the *Wall Street Journal* and to gain more efficiencies. The Energy Information Administration documents the cascade of the utility downsizing over a 10-year period that has resulted in more than a 27 percent smaller electric utility operations workforce. These are not administrative personnel. These are hands on work force people. That trend continues to this day and I think is a cause for serious concern.

Now what do these numbers actually mean in terms of real world reliability experiences? Well, the report of the U.S. Department of Energy Power Outage Study Team uncovered several factors common to the eight major outages of the summer of 1999 which were the object of this study. The IBEW measured several of the findings as attributable to cutbacks in the work force and lack of maintenance as budgets were compressed in order to meet the challenges of competition. The Keystone Study released just

last month found that from 1994 to 1999 Pennsylvania utilities decreased their work force by about 6,500 people. Perhaps coincidentally at this same time period, customer complaints more than doubled.

Electric utility outages not including major storms lasted on average, in Pennsylvania, 30 minutes longer in 1999 than they did in 1994. During the 6 years examined by the study, Pennsylvania's utilities reinvested just 5 percent of their profits in Pennsylvania's utility systems. The rest amounting to more than $15 billion was spent elsewhere off in another State or even in other countries. Consumers and workers do not appear to have gained ground and investment trends raised questions about the long term adequacy and safety of Pennsylvania's utility infrastructure.

With competition, the economic players pushing electric restructuring have no allegiance to the broader public interest. Evidence, how all the deal makers ducked responsibility when California went sour. Nobody seemed to be a part of that deal in the end now. The market is not designed nor equipped to address reliability issues for the average consumer. We believe it will take a proactive public sector working with the appropriate government entities to safeguard reliability.

Common sense tells you that if the customer base for electricity is growing, and it is, and the work force that supplies that electricity is shrinking, cut to the bone and then some, we've got problems and things are going to get worse before they get better because there are other negative factors that impact the worker reliability equation.

I've shown you a work force dramatically diminished in numbers. Add that to the fact that the average utility worker is in their 1940's, mid-1940's, and top that with the fact that almost all utilities stopped funding apprentice and training programs about 8 to 10 years ago. In other words, we're facing a generation gap. There are few trained workers anywhere in the United States to step up and fill the jobs that even now are going begging. Some utilities are hiring directly now from Canada now. These are trained workers.

Utility employers have cannibalized each other's work forces until there's nobody left to hire. So where will this new skilled work force come from? Obviously, the training of this new utility work force will continue to be a key reliability issue. At the end of the policy chain, there is somebody with hands on responsibilities to make the system work. These people have huge responsibilities for reliability and require training typically 5 years for a trained worker as a lineman at this hands on stuff.

Well, the IBEW and the EEI in accordance with the National Skills Standards Act of 1994 have been working with each other and with the National Electric Cooperative Association and the American Public Power Association that's trying to come to some sort of an approach to this. So the IBEW here urges Congress to assist this process by endorsing guidelines for model codes and standards for training and reliability.

Basically, the idea is is that Congress would in some way urge the Secretary of Energy to facilitate development of codes and standards for worker training and also for reliability. There are innumerous standards that the industry has invested a lot of time

and money and effort in developing but it is not homogenized or coordinated in any way.

So we would urge that Congress take a hard look at urging the Secretary of Energy to develop guidelines in both of these areas, worker training and reliability, to put forth for adoption voluntarily by the States. In other words, we bring the best in the industry together to develop the best possible approach to this. Thank you.

[The prepared statement of Mr. Dushaw follows.]

PREPARED STATEMENT OF JAMES DUSHAW, DIRECTOR, UTILITY DEPARTMENT, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS

Good morning Mr. Chairman, and Members of the Committee:

My name is Jim Dushaw and I am the Director of the International Brotherhood of Electrical Workers Utility Department. Thank you for inviting the IBEW to comment this morning.

Of the 95% of investor-owned electric utilities that employ union members, the International Brotherhood of Electrical Workers represents 98% of those workers. We also represent the largest number of unionized employees working for municipal and rural cooperative employers, and the IBEW represents workers at federal electricity facilities, such as TVA and Bonneville Power. Of the three-quarter million membership of IBEW, more than two-hundred-fifty thousand of them are utility workers, who are covered by some 1400 collective bargaining agreements in the U.S. and Canada.

It should be clearly understood from the outset that the IBEW does not believe that average Americans, workers and families, are calling for the commoditization and restructuring of electricity and, indeed, are becoming aggravated with the risks that are becoming more apparent; not to mention the huge transfer of wealth taking place, as real energy costs take a bigger bite out of household budgeting.

This morning I will briefly address the relationship between the American electric utility worker and the reliability of the electric utility system. Some energy marketers would have us believe that reliability is, or should be, just a function of the market. Some have urged that the nation should not afford a "gold-plated system" as before the drive to restructuring. Others would have us accept less reliability as the quid pro quo for achieving competition. The IBEW utility workers take serious issue with all of these philosophies. For the overwhelming majority of Americans, reliable electric power is an essential service—not a market commodity.

Beginning in 1990, in anticipation of the coming competitive marketplace, electric utilities, mostly the large IOU's, began downsizing workforces in order to cut costs and gain the edge they believed would secure success, or at least survival, in the marketplace. The Energy Information Administration documents the cascade of utility downsizing over a 10-year period that has resulted in a 27% smaller workforce overall—and that trend continues to this day.

What do those numbers actually mean in terms of real-world reliability experiences?

The report of the U.S. Department of Energy Power Outage Study Team uncovered several factors common to the eight major outages of summer 1999, which were the object of their study. The IBEW measured several of the findings as attributable to cutbacks in the workforce and maintenance.

The Keystone Study, released last month, found that from 1994 to 1999, Pennsylvania utilities decreased their workforce by about 6,500 people. Perhaps coincidentally during this same time period, customer complaints more than doubled to over 10,000. Electric utility outages (not including major storms) lasted, on average, 30 minutes longer in 1999 than they did in 1994.

During the six years examined by the study, Pennsylvania's utilities reinvested just 5% of their profits in Pennsylvania's utility systems. The rest, amounting to more than $15 billion, was spent elsewhere (often in other states or even in other countries). The study concluded that utility CEOs (with 76% pay hikes in that time frame), and the electric utilities themselves have prospered most as deregulation has moved forward. Consumers and workers "do not appear to have gained." And investment trends raise questions about the long-run adequacy and safety of Pennsylvania's utility infrastructure.

Pennsylvania has been touted as the poster child of electricity deregulation. Residential customers have indeed enjoyed lower electricity rates—mandated by a legislated price cap (recently extended for up to five years). No one in Pennsylvania has had to suffer free-market electricity prices.

With competition, the economic players pushing electric restructuring have no allegiance to the broader public interest. Evidence: how all the dealmakers ducked responsibility when California went sour. The market is not designed nor equipped to address reliability issues for the average consumer. We believe it will take a proactive public sector working with the appropriate government entities to safeguard reliability.

Common sense tells you that if the customer base for electricity is growing, and it is, and the workforce that supplies that electricity is shrinking, cut to the bone and then some, we've got problems. And things are going to get worse before they get better, because there are other negative factors that impact the worker/reliability equation.

I've shown you a workforce dramatically diminished in numbers; add to that the Edison Electric Institute statistic that the average utility worker is in their forties, and top that with the fact that almost all utilities stopped funding apprentice training programs about 8-10 years ago. In other words, we're facing a generation gap—there are few trained workers anywhere in the U.S. to step up and fill the jobs that even now are going begging. Utility employers have cannibalized each other's workforces until there's nobody left to hire.

So where will this new, skilled workforce come from? Obviously, the training of this new utility workforce will continue to be a key reliability issue. Sooner or later it may, of necessity, become an important regulatory issue.

The IBEW and Edison Electric Institute, in accordance with the National Skills Standard Act of 1994, have been working with other industry stakeholders to develop skills standards for electric utility workers.

The IBEW urges Congress to assist this process by endorsing guidelines for model codes and standards for training and reliability.

A national training standard would require every employer in the electricity industry to employ only workers certified to that standard, and to train them to that standard if they were not. This would increase system reliability because industry across the board would be required to employ workers who are trained to established minimum levels, know their jobs, and be able to do the work efficiently and safely.

Congress envisioned that the 1992 Energy Policy Act would create a vibrant robust wholesale electricity market, which would lower bulk power prices and benefit all consumers.

The ensuing years have brought forth everything but. The electric power industry has become destabilized to the degree that industrial customers feel they must buy their own electricity generators to insure supply! Reliability has become a function of the market all right—go to the market and buy your own generator!

To summarize, system reliability depends in great measure upon a trained, experienced and adequate workforce. Presently, the aging workforce has been diminished by layoffs, working longer hours on systems poorly maintained, with no relief in sight. Training programs, buttressed with national skills standards, and having mechanisms to attract and retain qualified workers, are critical to the maintenance and expansion of the national electrical systems.

Additionally, Mr. Chairman, the IBEW recognizes your remarkable effort to distill the vital issues needed to be addressed in order to begin to calm the industry. Among these, we would rank accelerated development and investment in the combined U.S. transmission grid system as most important.

The CHAIRMAN. Thank you very much for your testimony.

Mr. Hamilton.

STATEMENT OF DAVID HAMILTON, POLICY DIRECTOR, ALLIANCE TO SAVE ENERGY

Mr. HAMILTON. Mr. Chairman, my name is David Hamilton. I'm policy director of the Alliance to Save Energy, a bipartisan nonprofit coalition of business, government, environmental and consumer leaders dedicated to improving the efficiency with which our economy uses energy. And considering your familiarity with the organization, I'll leave that at that.

But I appreciate the opportunity today to testify in support of the creation of a public benefits fund, a mechanism designed to help attack energy waste in our Nation's electric systems, save taxpayers money, increase the availability and the reliability of the nation's

electricity supply, improve services for low income Americans, reduce environmental pollution, and help meet our future electricity needs more cheaply, quickly, and cleanly.

One might say, Mr. Chairman, that 2001, considering the huge amount of coverage and the swirling debates over energy issues could be described as 2001, an energy odyssey. We have heard in different places that we have an energy crisis. We've heard that we don't have an energy crisis. We've heard that California's problems have been the result of the lack of Arctic oil and that actually California's attempts to save energy have been the cause of their problems.

It's been very difficult to sort out exactly what the truth is in the swirling issues of energy but what we do know is that we're at a point at which we need to make decisions and move forward. And the one thing that most parties seem to agree with is that energy efficiency needs to be an elemental component in a balanced energy program.

The Vice President, the President, leaders of Congress and both parties have expressed that, but coming up with policies that are agreeable, that actually aggressively dip into energy waste, have been more elusive to come by and there's been a general resistance to the policies that either take a lot of resources or that require producers of products to make their products much more efficient.

I'm here to testify in support of your proposal to create a public benefits fund, Mr. Chairman. There are a number of conditions in the system and in the economy right now which make this a wise and sound thing to do, including rampant energy waste in the system, lack of guidance for consumers as to how to save energy while their bills are rising, large decreases over the past decade in public benefit spending, we've got reliability problems that have affected most regions of the country over the last several years, and a dearth of substantive measures to achieve greater energy efficiency.

The bottom line, Mr. Chairman, is that the Alliance to Save Energy estimates that the public benefits fund that you recommend can displace up to a 130,000 megawatts over the next—by 2020. That's more than 400 300-megawatt powerplants and nearly one-third of the needed capacity increases estimated by the Energy Information Administration in 1999. We believe it could cut America's energy bills by $135 billion.

Public benefits programs have a long and fruitful history of success. I'll point up a couple of examples. The Vermont legislature could not agree on utility restructuring. What they could agree on was that they needed to do spending on energy efficiency and over the last 10 months of the year 2000, they spent a little over $5 million on energy efficiency programs and were able to displace six megawatts of winter peak and over two megawatts of summer peak at a cost of 2.6 cents per kilowatt hour at a time when the wholesale price in Vermont was over 5 cents a kilowatt hour. When we make the claim that energy efficiency can deliver electricity resources, you know, quickly, cheaply and cleanly, this is the kind of thing we mean.

Savings in Vermont over 10 months amounted to $17 million on a $5 million investment and a 220 percent return on investment

in a very short period of time. These investments are out there and waiting to be capitalized on and reaped.

The Rand Corp. did a study on California energy efficiency programs from 1977 to 1995 and came up with again startling conclusions that they—the commercial and industrial programs returned over approximately $1,000 per capita over that time period for $125 per capita expenditure. At the same time, it prevented a 40 percent increase in stationary source air pollution by not having to go to powerplants and perhaps most indicative of the ancillary economic benefits of increased energy efficiency of taking capital away from unproductive uses like keeping the lights on and putting them into productive uses like innovation and investment, the 3 percent of the California gross State product in 1995 was the result of lowered energy intensity that the multiplier effect for taking money out of unproductive and putting it into productive uses is greater than in most cases.

And in a year of hand wringing over what we can do in the short term, these programs remain out there. Now public benefits programs have been decreased by 43 percent since the early 90's. Part of that is the restructuring in States where separating generation, distribution and transmission where you don't have a single interest in building less generation that you used to.

You've got States that have promoted deregulation and feel that they have less authority to require utilities to do spending than in the past. But in any case, we have less than half the resources to do this kind of spending at a time when we need a great deal more of those kind of resources.

Finally, there—all we've heard about, the difficulties of the transmission system and how to insure reliability, there is another way to look at it. And if you can—rather than thinking about what is the next weakest link in the chain, think about lightening the load at the end of the chain so that, you know, ultimately the system is more secure because you're less likely to reach that critical point because you've saved energy.

The red light's on and those are my basic points. Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Hamilton follows.]

PREPARED STATEMENT OF DAVID HAMILTON, POLICY DIRECTOR, ALLIANCE TO SAVE ENERGY

Mr. Chairman and Members of the Committee, thank you for the opportunity to testify before you today in support of the creation of a Public Benefits Fund, a mechanism designed to help attack energy waste in our nation's electric system, save taxpayers money, increase the availability and reliability of the nation's electricity supply, improve services for low-income Americans, reduce environmental pollution, and help to meet our future electricity needs more cheaply, quickly, and cleanly.

My name is David Hamilton. I am Policy Director of the Alliance to Save Energy, a bi-partisan, non-profit coalition of business, government, environmental, and consumer leaders dedicated to improving the efficiency with which our economy uses energy. Senators Charles Percy and Hubert Humphrey founded the Alliance in 1977; we are grateful to have you as our Chairman, Sen. Bingaman, and, as you know, the current Vice Chairs are Sen. James Jeffords and Rep. Ed Markey.

Over sixty companies and organizations currently support the Alliance to Save Energy under our well-known Alliance Associates Program. If it pleases the Chairman I would like to include for the record a complete list of the Alliance's Board of Directors and Associates, which includes many of the nation's leading energy efficiency manufacturers and end users, electric and gas utilities, research organiza-

tions, state energy programs, and others providing cost savings and pollution reduction to the marketplace.

The Alliance has a long history of researching and evaluating federal energy efficiency efforts. We also have a well-established history of supporting and participating in efforts to promote energy efficiency that rely not on mandatory federal regulations, but on partnerships between government and business and between the federal and State governments. Federal energy efficiency programs at the Department of Energy (DOE), the Environmental Protection Agency (EPA), and other agencies are largely voluntary programs that further the national goals of environmental protection, as well as broad-based economic growth, national security and economic competitiveness.

SUMMARY: ENERGY EFFICIENCY IN AN ENERGY CRISIS

Mr. Chairman, the economic and political developments surrounding energy issues that have occurred this year could—in cinematic form—be titled "2001: An Energy Odyssey." The vast media coverage of energy issues and the resultant spin have some pundits predicting a full blown energy crisis requiring the dismantling of our infrastructure of environmental regulations, while others denounce a crisis mentality as an opportunistic spin on a few price and supply blips. California's unusual situation has had people blaming the rolling blackouts and financial woes that have occurred on everything from the lack of oil from the Arctic National Wildlife Refuge, to California's aggressive efforts to save energy in the 1980s and early 1990s,

Whatever the final resolution of these questions, we are at a political point at which we need to make decisions about how we proceed in the future to provide clean, cheap, reliable energy supplies to our nation. Mr. Chairman, nearly everyone in this debate—either sooner or later—has advocated the nation's need to pursue aggressive energy-efficiency measures as part of a balanced energy bill. The President and Vice-President have, after initial equivocation, now include energy efficiency and conservation in their discussions on energy policy options. House and Senate leaders on both sides of the aisle have done the same. Public opinion polls have demonstrated overwhelming support for making energy-efficiency a key, active component of any energy plan.

Mr. Chairman, developing sound policies to accomplish this goal has proven somewhat more elusive. While the President's energy plan contained excellent arguments for improving energy-efficiency, the actual details of the plan failed to provide methods to substantially reduce America's energy use in transportation, electricity, or home heating fuels. Similarly, the bill expected to reach the House floor next week—with the exception of the tax title—fails to produce meaningful energy-efficiency improvements. Although we anticipate that the provisions of the tax title will help to reduce energy use in the residential sector, the Alliance feels that much more can and should be done by Congress to take advantage of this golden opportunity to promote energy efficiency. Member's have focused their concerns on possible costs to consumers and industries—however we have strong analytical evidence that demonstrates the overall savings with the implementation of aggressive energy efficiency measures and policies.

If we are to actually improve energy-efficiency and achieve the "balanced" energy policy that nearly all interests claim to seek, Mr. Chairman, we need to have the will to commit resources to where they are needed and to carry out these improvements. The Alliance to Save Energy regards the creation of a public benefits fund as a critical element in any energy plan that hopes to bridge the electric system of today with a deregulated market of tomorrow. Mr. Chairman, we cannot just do what is easy in a national energy plan. We have to have the commitment to take ambitious steps to capture the benefits of energy-efficiency for the budgets of Americans, our environment, our national security, and our economy.

WHY A PUBLIC BENEFITS FUND?

Mr. Chairman, the concept of a public benefits fund is designed to solve a number of the problems with the way we generate, transport, and sell electricity in the United States that are not currently being effectively addressed. A public benefits fund will pull together resources through which states can—in a targeted, flexible fashion—attack pockets of energy waste, seize opportunities to employ renewable energy, improve electric services for low-income Americans, and develop targeted mechanisms for providing electricity cleanly and cheaply.

We praise your introduction of this provision in your own legislation and see it as a logical and critical compliment to other measures in your bill to further the deregulation of the electricity industry.

The current conditions that warrant the creation of a federal public benefits fund are:

1. Rampant energy waste in the electricity system;
2. Lack of guidance for consumers in identifying ways to save energy;
3. Large decreases over the past decade, in spending on public benefits programs;
4. Problems with the reliability of the electric system in the Western, Mid-Western, and Eastern United States over the past three years; and
5. A dearth of substantive measures to achieve greater energy-efficiency in the electric system.

WHAT IS A PUBLIC BENEFITS FUND?

As created in S. 597 and in other legislation introduced in the last Congress, a public benefits fund would be created through the imposition of a non-bypassable charge on electricity entering the transmission grid. The fund would be collected and administered by an independent fiscal agent. The monies collected in the fund would then be redistributed to the state and tribal governments for specific uses to promote public benefits that are not addressed through the interests of power generators, or transmission and distribution utilities.

Proposals to date have varied as to the level of the charge, how the money is administered, and the specific public purposes qualifying for funding under the proposal. Some are set up as matching funds for public purpose expenditures, others leave the distribution scheme to the Secretary. Some contain caps on the amount of money that can be collected, while others set out a procedure by which states apply for funding according to their previous year's expenditures.

Twenty-three states now have public benefits programs—ways of conglomerating resources to be targeted toward saving energy and other public purposes. These states are: Arizona, California, Connecticut, Delaware, District of Columbia, Illinois, Maine, Maryland, Massachusetts, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Vermont, West Virginia, and Wisconsin. Some of these programs are funded by wires charges, some are funded by direct state appropriations or other methods.

A federal public benefits fund is needed to augment state resources devoted to these public purposes, and to spur the creation of public benefits programs in the more than one-half of the states that do not undertake them now.

THE BINGAMAN PROPOSAL (S. 597)

S. 597 would levy a one mill per kilowatt-hour charge on generators of electricity. This charge would be collected as the electricity enters the transmission system. Such a minor charge would raise a significant amount of money for the fund—estimates run as high as $3.4 billion each year given current levels of usage. The Alliance to Save Energy estimates the residential share of the cost to be approximately $1.00 per month. An independent fiscal agent appointed by the Secretary of Energy on a monthly basis would collect the monies monthly from transmission utilities and disbursed in block grants to states and tribes. Imported electricity will also be assessed the one mill charge.

The specific public purpose programs delineated in the Bingaman proposal include:

- low-income assistance;
- improvement of electric facilities for rural or remote communities;
- electricity demand reduction;
- greenhouse gas mitigation projects (must be 50 percent cost-shared);
- new renewable energy capacity or efficiency improvements to existing renewable energy capacity;
- increased efficiency of hydroelectric dams or providing additional capacity at existing dams.

The Secretary of Energy would be charged with developing a formula to allocate public benefit funds among the states and tribes based on the number of low-income households and the average annual cost of electricity to households in those jurisdictions. In addition, the Secretary would be responsible for developing criteria that delineate what are and what are not public purpose programs as guided by the legislation. The states and tribes may either receive and administer the monies themselves, or they may designate a separate entity to perform that function. If enacted, the fund in S. 597 will remain in existence until December 31, 2015.

The bottom line, Mr. Chairman, is that the Alliance to Save Energy estimates that the public benefits fund in your legislation can displace up to 130,000 MW of electric capacity by the year 2020! That is equivalent to more than 400 300-MW

power plants, and nearly one-third of needed capacity increases by 2020 estimated by the Energy Information Administration in 1999. We believe it could cut America's energy bills by $135 billion, and bring with it significant reductions in both criteria air pollutants and greenhouse gases.

COMMENTS ON THE BINGAMAN PROPOSAL

1. Greenhouse gas mitigation needs further definition. In addition, we don't believe it is appropriate for a state to spend its entire share of the fund in this area only, so we would favor a cap on the amount of the fund available for this purpose.

2. As opposed to other proposals, this public benefits fund does not include a state match. A match or partial match provides significant incentive for a state to maximize its efforts on public purpose programs, and thus stands to save more energy than the program outlined here. While we acknowledge political constraints in this area, we support continued consideration of measures to maximize state participation.

3. The legislation leaves the determination of what is an eligible public purpose program up to the Secretary. This provides less public accountability than other mechanisms. We urge that the proposal include opportunity for public input and comment to the criteria developed by the Secretary.

CAPTURING ENERGY WASTE IN THE ELECTRIC SYSTEM CLEANLY, CHEAPLY, AND QUICKLY

Public benefits programs have been startlingly successful at attacking energy waste on a local and regional basis. During the decade leading up to 1994, demand side programs in the nation were able to displace 30,000 MW of electric capacity—or the equivalent of 100 300-MW power plants. This substantial savings was achieved for a utility cost of less than $0.03 per kilowatt hour, considerably less than many wholesale rates for electricity then and now.

Take the Vermont experience in 2000. Several years ago, the Vermont Legislature took up utility restructuring legislation. Like the state of Wisconsin, after a tough political fight over deregulation ground to stalemate, what they decided they could agree on was to initiate investments in energy-efficiency. To do this, the state set up an "energy-efficiency utility," run by a private contractor and accountable to the Vermont Public Service Board. During the final 10 months of 2000—while undergoing all the additional burdens of setting up a major project—Efficiency Vermont was able to displace 2.1 MW of summer peak power and 6.3 MW of winter peak. All for a cost of $0.026 per kilowatt hour. This rate was achieved at a time when wholesale rates in Vermont are more than $0.052 per kWh. In 10 months, the Vermont effort netted $17.7 million in saved electricity against expenditures of $5.4 million—a 227 percent return on investment in the first year of operation.

In this year of hand-wringing over what we can do in the short term to relieve the burden of high energy prices and supply constraints, Vermont provides an example of high returns in a very short period of time.

In March 1999, the Rand Corporation published a study of the results California utility energy-efficiency investments between 1977 and 1995. The Rand study came to some remarkable conclusions, Mr. Chairman. Rand concluded that energy-efficiency efforts paid back into the state's economy at roughly $1000 per capita on investments of $125 per capita over that period. In addition, the energy saved prevented a 40 percent increase in stationary source air pollution by avoiding the construction of many new power plants. Most startling of all, Mr. Chairman, might be that Rand estimates that 3 percent of the California gross state product in 1995 was produced due to lowered energy intensity in the state over the preceding period. An entire year's worth of healthy economic growth, derived from taking money out of relatively unproductive uses like keeping the lights on, and made available for productive uses like investment and innovation.

I could spend the entire hearing recounting success stories achieved by demand-side energy-efficiency investments, Mr. Chairman. The message is, however, that these programs work, and we need more of them in more places.

CONSUMERS NEED ADDITIONAL GUIDANCE AND HELP TO LOWER THEIR ENERGY BILLS

Inherent in a wide variety of public benefits programs, Mr. Chairman, is consumer education and in many cases, actual subsidies for the purchase of energy-efficient equipment for home owners. While residential consumers will pay as much as an extra dollar per month for electricity under the public benefits fund contained in S. 579, public benefits programs give them the tools to save a much greater amount than that on their electricity bills. For example, rebates offered for compact flourescent light bulbs can create substantial savings for consumers, while public education programs like the aggressive marketing of the Energy Star label in New

York is giving consumers direction in targeting the purchases of appliances, refrigerators, and other energy-gulping devices toward the most energy-efficient options.

In many cases, the public information extends well beyond electricity into other areas of home energy use. The spike in natural gas prices last winter resulted in millions of Americans scrambling to pay substantially higher home energy bills. The double duty now expected of natural gas supply to meet the home heating needs of over 50 percent of American families and to power the lion's share of new electric generation will likely continue to be an issue in coming years. Public benefits programs can step in to substantially meet this need for information and even provide discounts to induce consumers to buy more efficient equipment.

Along with making it easier to build more plants and transmission facilities, we must make it easier for consumers to trim their own energy use. The public benefits fund contained in the legislation is an excellent mechanism to achieve this.

RESOURCES FOR PUBLIC BENEFITS: SHRINKING OVER TIME

In the 1980s and early 1990s, Mr. Chairman, States justified their public benefits programs on the basis that saving energy to augment electricity supply was largely cheaper for utilities and ratepayers than building new generation. In addition, saving energy avoided the environmental downside of burning fossil fuels, could be deployed in a relatively short period of time, and reduced—rather than increased—strain on transmission and distribution infrastructure.

In addition, in many states a process known as Integrated Resource Planning (IRP) was employed to determine the best way to meet demand growth for the state or region. That involved actually considering alternatives like cost, environmental values, time of deployment, and overall load considerations before deciding on a course to expand capacity. In this context, many States required utilities to expend resources on public purpose programs and made those expenditures recoverable in rates. National expenditures for public benefits reached an estimated high of $3 billion in the early 1990s. Unfortunately, these impressive numbers have been steadily declining due to changes in the utility industry and lack of attention by States and spending on public benefit funds has fallen to an estimated $1.7 billion this year.

Fast forward, Mr. Chairman, to the mid-to-late 1990s when States were involved in a frenzied effort to go in the other direction, away from considering options for the development of the electric system and toward market competition for electricity. In addition to the loss of rational comparison of alternatives, many States also no longer felt they could compel utilities to undertake public benefits programs when the overall direction of the market was toward deregulation. Finally, the widespread separation of generation, transmission, and distribution resources away from the traditional vertically integrated utility erased the inherent interest of utilities in meeting demand in the cheapest way. Distribution utilities no longer cared where the power came from, as long as they could get it cheaply, and generators had no desire to be constrained from building plants. In addition, almost all players braced for fierce competition in the industry and believed that payouts for public purpose programs would constitute both a hindrance to their competitive position and investments that might pay off for others, but not for them.

All this brings us to today, where we are in a suspended transition to competition—some states have struck restructuring agreements, some have not begun the process, and still others have begun the process only to stop dead in their tracks. Major jurisdictional, environmental, physical, economic, and other questions need yet to be answered before the seamless national highway for electricity purchases—envisioned by those who originally espoused the brave new world of competitive electricity markets—can be realized. Sorting out all of these concerns is likely to take many years.

In the meantime, Mr. Chairman, the need for the achievement of energy efficiency is greater than ever to help stabilize supply and price, reduce air pollution and greenhouse gases, and ease the need for massive infrastructure replacement. Public benefits programs are high-yield, short term investments that provide nearly as much in ancillary benefits as in their considerable economic returns. The 43 percent reduction in public benefits spending since the peak in the early 1990s represents a critical missed-opportunity for the American consumer, environment, and economy.

CHEAPER, QUICKER, CLEANER RELIABILITY

Rising consumption of electricity in the United States has created a situation where peak demand for power is straining generation, transmission, and distribution capacity in many regions of the country. We have a variety of tools to address this problem. The one most pursued by regional power pools and organizations to

date has been to focus on the weakest link in the chain that fails and to replace it, whether it is the transformer, transmission line, or the substation. Building new generation won't cure a transmission bottleneck or make a piece of equipment withstand the greater strain of a demand spike. Mr. Chairman, unless we are to replace our entire electricity infrastructure, this way of managing reliability will always sink to the next weakest link. The weakest link has to be addressed, of course. When a link breaks we have to fix it.

But a better way to proceed, Mr. Chairman, is to reduce the strain on every link by lightening the load at the end of the chain. In many of the reliability incidents and price spikes we have observed over the past several years, the difference between a small increase in price and a major spiral has been a small amount of electricity in real terms. Energy-efficiency should play a major role in ensuring that the supply of electricity meets the demand. It is in policy-makers' interest and the interest of consumers to avoid being faced with rolling blackouts, severe price increases, and other disasters. The public benefits fund can contribute to the reliability of the system in a cheaper, quicker, cleaner, more targeted way than a wholesale drive to build more generation.

Earlier, I outlined how pursuing greater energy-efficiency is no longer in the interest of generators or distribution utilities. That does not apply in cases where the reliability of the system is in question. We can look to California to supply the lesson that when power is scarce, or the ability to get it to the right place at the right time is impaired, the distribution utility faces significant exposure to price gouging by generators. Energy saved through a public benefits fund increases the stability of the system, thus lessening the risk to all parties in the regulatory and distribution process for electricity.

A BALANCED ENERGY POLICY: WE MUST ADDRESS WASTE IN THE ELECTRICITY SYSTEM

A federal public benefits fund is an aggressive, credible method by which to capture energy savings in the electric system. This is the kind of ambitious program that can deliver the kind of energy-efficiency resources that will create a legitimately "balanced" national energy policy.

Mr. Chairman, if we pass by this huge potential for energy savings, we will be denying electricity consumers the assistance they need to control their own energy use, the savings to the economy and their individual bills that is ripe for the taking, and the opportunity to have their electricity needs met without the environmental damage caused by the construction of more power plants than we really need.

Thank you for this opportunity to testify in support of the public benefits fund proposal in S. 597. I'd be happy to take any questions you might have.

The CHAIRMAN. Thank you very much for that testimony.

Mr. Rouse, why don't you go ahead.

STATEMENT OF JAMES B. ROUSE, ASSOCIATE DIRECTOR OF ENERGY POLICY, PRAXAIR, INC., AND CHAIRMAN, THE ELECTRICITY CONSUMERS RESOURCE COUNCIL

Mr. ROUSE. Thank you, Mr. Chairman. I am the Associate Director of Energy Policy for Praxair, a large energy intensive producer of industrial gases which is in Danbury, Connecticut, and I appear before you today as chairman of ELCON, the National Association of Large Industrial Consumers of Electricity which is based here in Washington.

Let me say with some pride, Mr. Chairman, that the major concerns of ELCON members are nearly identical to those set forth in your White Paper issued July 20. That is market power, repeal the PUHCA reliability, transmission grid governance, and the two additional categories, regional planning and siting and market transparency rules.

ELCON strongly supports FERC authority to promulgate rules for the independent operation of the grid and to compel utilities to turn over control of the transmission facilities to large regional independent organizations or regional transmission organizations or RTOs. FERC's recent July 12 order anticipates what the White

Paper propounds and what you included in the last Congress and S. 1273, Mr. Chairman. Reliability will always be of paramount importance. ELCON was an active participant in the NERC process and supported the consensus language on reliability contained in S. 2071 last year. In addition to the creation of new statutorily authorized self-regulating organizations, any legislation must guarantee non-discriminatory access to the grid and clarify the current uncertainty about Federal and State jurisdiction over transmission.

Market power will continue to be of intense interest as you've heard earlier today. Where buyers and sellers are able to engage in commercial transactions for supply sourcing, the FERC will encourage the development of a workably competitive market through setting of rates, terms and conditions for the transmission of that power through—and through the oversight of RTOs.

In turn, RTOs will have an independent market surveillance function to monitor such markets for potential design flaws, gaming behavior and the exercise of market power. That function currently exists in the RTOs that have already been approved.

ELCON is also pleased to note the reference to "demand response mechanisms" in the White Paper. ELCON has proposed that FERC add a "ninth function" to the list of the eight functions in Order 2000. This would require that markets for customer load response be integrated with other FERC real time markets.

Regional planning and siting of new transmission capacity poses a challenge for you as legislators and policy makers alike. ELCON believes that Congress should delegate to the FERC the same authorities under the Federal Power Act with respect to the siting of interstate transmission as FERC is currently authorized under the Natural Gas Act with respect to interstate natural gas pipelines.

As for transmission planning, expansion, and siting, ELCON believes that any FERC siting authority could be seated to the regional transmission organizations rather than creating a duplicative entity such as a regional compact.

The RTOs can or can also oversee regional reserve requirements, maintenance obligations and market monitoring functions as I mentioned earlier. As with all other RTO functions, FERC maintains its oversight role in this area.

Market transparency will clearly be a requirement for the new regime and market participants will need real time information on the regulated services including transmission capacity, ancillary services, and line loading. The Energy Information Administration and numerous commercial entities should guarantee an abundance of non-proprietary market information to encourage the efficient operation of the system and also vigorous commercial activity among the participants.

Mr. Chairman, I would like to briefly address two of the other provisions in the White Paper. Regarding the repeal of PUHCA, in such eventuality, we need clear authority vested in the FERC to prohibit anti-competitive practices involving regulated utilities and their unregulated affiliates. And we argue that optimally PUHCA repeal should not be effective until competition on a nationwide basis is achieved.

And finally while on the subject of repeal of laws beginning with the words public utility, any repeal of the mandatory purchase pro-

visions of section 210 of PURPA must preserve the Federal guarantee of backup power at just and reasonable rates and those States without reasonable real customer choice. And there must remain the requirements for interconnect to the grid for all co-generators just as there would be for other suppliers of electricity.

Mr. Chairman, for the reasons set forth at greater length in my written testimony, we believe this committee and this Congress must enact strong comprehensive Federal legislation to achieve workably competitive electricity markets and ELCON stands ready as it has for a quarter century to represent its members, to engage in the debate as we have and to propose policy alternatives and to participate in this momentous shift in the provision of an essential service which is electricity.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Rouse follows.]

PREPARED STATEMENT OF JAMES B. ROUSE, ASSOCIATE DIRECTOR OF ENERGY POLICY, PRAXAIR, INC., AND CHAIRMAN, THE ELECTRICITY CONSUMERS RESOURCE COUNCIL

Good morning, my name is James B. Rouse, associate director, energy policy for Praxair, Inc. Praxair is a large industrial gases company, producing atmospheric gases: oxygen, nitrogen, argon and rare gases; our process gases include hydrogen, helium and carbon dioxide. For us, electricity is a raw material, constituting up to 70% of our operating costs. We operate in some 44 countries and are the largest industrial gases producer in North and South America. I am here today as chairman of the Electricity Consumers Resource Council, or ELCON. ELCON, established in 1976, is the national association representing large industrial users of electricity. ELCON's member companies come from virtually every segment of the manufacturing community.

ELCON's members operate in a competitive, international environment and require an adequate and reliable supply of electricity at competitive prices in a vibrant interstate marketplace. Large users of electricity know very well that the decisions made in this Committee and by Congress will have a direct impact on their businesses' well being as well as business decisions. ELCON greatly appreciates the opportunity to testify. ELCON and its member companies favor competition over regulation and have long advocated truly open and fully competitive electricity markets, including retail access guaranteeing that all consumers have the right to choose their supplier of electricity and electricity services. We also believe that, just as is true for other energy products, a large national or even international market with consistent rules and standards is optimal for the sale and purchase of electricity. When it comes to electricity, we are dealing with a commodity sold in interstate commerce. Our existing electricity system clearly transcends state lines. We need a national framework and a strong federal bill. Consumers should benefit from a large, seamless interstate electricity market.

ELCON members continue to support competition. However, we would assert that we do not have true competition anywhere. Several states, in attempting to restructure, has simply deregulated, or in some cases reregulated, existing monopolies. The failures to date, and California is perhaps the most egregious but there are others, represent failures of reregulation and failures of state legislative plans that included too many political compromises. The experiences in California and elsewhere cannot and should not be described as failures of competition.

The major concerns of ELCON members are nearly identical to those set forth in the chairman's "White Paper on Electricity Legislation" issued July 20, 2001. As we identified those issues in testimony before this committee on April 20, 2000, they are the linked issues of Market Power, Repeal of the Public Utility Holding Company Act (PUHCA), Reliability, and Transmission and Grid Governance. The White Paper adds two other categories: (1) Regional Planning and Siting; and (2) Market Transparency Rules. Customer choice and retail access are wonderful goals, but they are worthless if the transmission system, which will remain monopolistic for many years, does not allow for the free and non-discriminatory movement of electricity from seller to buyer. Given that owners of monopoly transmission facilities will still exercise market power—that is monopoly power—I cannot emphasize too

strongly that regulation is needed to ensure that the owners of the transmission system do not use their position to the detriment of real competition.

We concur with the White Paper that FERC must have the authority and be required both to (1) promulgate rules for the independent operation of the grid and (2) compel utilities to turn over control of their transmission facilities to independent Regional Transmission Organizations, or RTOs. Such rules should preserve the reliability of the grid and encourage the sale and transportation of electricity from any seller to any buyer in an open, competitively neutral, and nondiscriminatory manner.

FERC's recent order of July 12 on the RTO issue is a major FERC initiative. FERC, for the first time, has clearly set forth its policy that there should be large, regional RTOs: One to comprise what is now the Western Interconnect; and three that comprise the Eastern Interconnect. FERC has established mediation dockets to bring the utilities together to establish RTOs for the Northeast and Southeast. But we believe that utility membership in an appropriate RTO should not be voluntary as provided for in Order 2000, but mandatory, and that legislation should affirm FERC's authority to order utilities to join regional transmission organizations. As an aside, in the last Congress, the provisions of S. 1273, offered by Chairman Bingaman, best addressed the question of RTOs. It granted FERC the authority to oversee the creation of an RTO and compel utilities to turn over control of their transmission facilities. Senator Bingaman deserves special praise for being the first to introduce this concept in his earlier legislation, and we are pleased he has reintroduced that same idea in this Congress.

ELCON has been an active participant in the NERC process and supported the consensus language on reliability contained in S. 2071 last year on the condition that it be considered as part of a comprehensive bill and not on a stand-alone basis. This position is based on sound policy. While we recognize the need to establish a new, statutorily authorized self-regulating reliability organization, such action will barely begin to address reliability. Legislation to reduce the potential for reliability problems must do more than simply provide accreditation to a new oversight body. It must establish a framework for appropriately-sized regional transmission organizations, it must guarantee non-discriminatory access to the grid, and it must clarify the current uncertainty about federal and state jurisdiction over transmission. Moreover, it cannot give new market regulating authority to those who now have, directly or indirectly, substantial market power. We concur that legislation should require sanctions and penalties for failure to comply with rules developed by a new electric reliability organization and that the entire framework is subject to federal oversight. ELCON is continuing to work with various stakeholders in an effort to develop new language. It is becoming increasingly clear that the "consensus" language approved in February 1999 is too complicated, too prescriptive, and too long. There have been several new proposals put forth even in the last few weeks that offer improved ways to establish a new electric reliability organization.

Market power is a subject of intense recent interest, growing out of the wildly fluctuating rates and volatile supply situation in the West. Market power arises from several sources. Where there is an imbalance in supply and demand, market power is often held by a few producers who can demand higher rates during periods of shortage. Where there is transmission congestion, the owner and operator of the grid can favor his own generation affiliate in denying access to competitive sources. Where the integrated system favors the native load utility over competing generators, new entrants are discouraged. Where an artificial power exchange is created for non-market purposes, true competition is thwarted.

Markets will eventually be workably competitive when there is an adequate generation supply in all sections of the country and where that supply can move freely over a transmission system under control and supervision of large RTOs. Transmission rates, terms and conditions will be set by the RTOs and administered by the RTOs, subject to FERC oversight. Any market operated by an RTO or on behalf of an RTO should be subject to an independent market surveillance function to monitor such markets for potential design flaws, gaming behavior and the exercise of vertical, horizontal or localized market power. This includes markets for transmission services, ancillary services and power exchanges.

The White Paper posits that legislation should require the Commission to take into account the impact of "demand response mechanisms" on rates. ELCON has proposed that FERC add a Ninth Function for Customer Load Response (CLR) curtailment service (in addition to the Eight Functions set forth in Order 2000). This would require that markets for CLR be integrated with other FERC real-time markets. This would also ensure that such markets are reasonably standardized in each RTO. Participation in the CLR market should be voluntary and open to any customer.

Regional Planning and Siting for new transmission capacity poses a challenge for policymakers. ELCON believes that Congress should delegate to FERC the same authorities under the Federal Power Act with respect to the siting of interstate transmission facilities as FERC is currently authorized under the Natural Gas Act with respect to interstate natural gas pipelines. ELCON agrees that a regionally based approach to transmission planning, planning and siting is desirable. However, the RTOs, rather than some new regional regulatory compact, should be delegated with that responsibility, or as the White Paper states, FERC should "cede such authority to appropriately constituted regional entities," which should be RTOs. They would also establish and monitor regional reserve requirements, maintenance and market monitoring functions noted above.

Besides the ongoing operation of the grid, RTOs should play a major role in the planning of new and upgraded transmission facilities, as required under Order 2000, but which authority would need be augmented and reaffirmed in legislation. Regulated transmission providers are entitled to a reasonable opportunity to recover all costs associated with their prudently incurred investments, plus a return on those investments that are deemed used and useful. Working through RTO processes, transmission providers will be assured that all needed expansions and upgrades will be fully compensated according to FERC rules.

Market Transparency Rules are integral to the successful operation of a workably competitive market. While proprietary information on commodity pricing will continue to receive the protection it deserves, market participants need real-time information on the regulated services, including transmission capacity, ancillary services and line loading. This will be necessary for buyers, sellers, grid operators and regulators to assure that markets are indeed workably competitive on a continuing basis. Short-term operational planning and long-term capacity planning are both well-served by adequate information, furnished by both the Energy Information Administration and also by an expected plethora of commercial entities who are already vying for customers in anticipating of the opening of markets.

The White Paper also addresses other "Other Provisions." Regarding the repeal of PUHCA, we first emphasize that PUHCA is the only federal consumer protection statute for electric utility customers. We believe that, if PUHCA is repealed, we need clear authority vested in FERC to prohibit any potential anti-competitive practices involving regulated utilities and unregulated affiliates. Rules are needed to address the operational unbundling of generation, transmission, system control, marketing and local distribution functions. State and Federal regulators must have complete access to all books and records of all regulated entities and entities owned or controlled by regulated entities. In addition, we argue that, optimally, PUHCA repeal not be effective until all states have retail access or until competition on a nation-wide basis is otherwise achieved.

The White Paper calls for repeal of the mandatory purchase requirements of the Public Utility Regulatory Policies Act (or PURPA) of 1978. Many ELCON members cogenerate and sell electricity to utilities as Qualifying Facilities (or QFs) pursuant to PURPA. Despite its bad press, as long as consumers are held captive to monopoly utilities, PURPA is an essential law. It has produced a broader, more efficient base of electricity generation. Due to PURPA, electricity capacity was added in smaller increments, thus not burdening users with paying for generators that proved to be much larger than necessary. And entrepreneurs with private non-regulated capital funded generation.

That having been said, the "mandatory purchase" provisions of PURPA are an anachronism in a truly competitive market and should be recognized as such. With regard to existing PURPA contracts, be they at market or above today's market, no one is suggesting that such contracts be rescinded. Existing PURPA contracts are and should be a non-issue. The impact of repealing the mandatory purchase provisions of PURPA on a prospective basis is virtually non-existent. The number of new, uneconomic PURPA-based contracts being signed today based on the often above market "avoided cost" formula is close to nil. In addition, the much-maligned avoided cost principle is not to blame. If properly implemented, it harms no one. Some states, for their own reasons, set avoided cost at artificially high levels. Again, this is no longer the case.

I hasten to add, however, that even without the use of these mandatory purchase requirements, the majority of new capacity being brought on line is from non-utility generation and that has been the case over several years. PURPA has succeeded in demonstrating that electricity can be generated by non-utility sources in an efficient, reliable, and environmentally favorable manner. Some 25 years ago utilities vehemently disputed what is now fact.

While the mandatory purchase provisions are no longer necessary in a truly competitive electricity market, it is important to note that PURPA and Section 210 are

much more than simply mandatory purchase requirements, including its requirements that utilities interconnect with cogenerators. However, I cannot overemphasize the importance of a federal guarantee for back-up power at just and reasonable rates in states that remain non-competitive. Without such a guarantee, cogenerators would be captive to unregulated monopolies that could charge what they wish, and the cogenerators would have no alternative. In states without real customer choice, retaining the federal guarantee for back-up power now in PURPA is essential if there is to be any investment in cogeneration capacity.

Over the past three decades, the growth of electricity-dependent businesses and industry has been remarkable. In just the past five years, we have seen demand far outstrip supply in many regions. While the economy has become ever more electricity dependent, our infrastructure, market mechanisms and regulations have not kept pace. We need strong, but not excessive, federal regulatory authority to guarantee that electricity is available throughout the nation on a non-discriminatory basis. It is up to this Committee and other oversight bodies to ensure that such regulation is not over-reaching, that it is encouraging and not hindering true competition.

In conclusion, ELCON and its member companies favor a strong federal bill so that all electricity consumers can enjoy the benefits of competition. California notwithstanding, competition is coming. But the reality is that we face a long transition period before we get there. Truly comprehensive Federal legislation is needed to achieve workably competitive electricity markets. States will continue to have an important role, but that role does not extend to the regulation of interstate commerce. And electricity is clearly interstate commerce. That is why this Committee and this Congress must enact strong, comprehensive federal legislation. ELCON stands ready as it has for a quarter century to represent its members, to engage the debate, to propose policy alternatives and to participate in a momentous shift in the provision of an essential service, electricity.

The CHAIRMAN. Thank you very much for that testimony.

Mr. Ward.

STATEMENT OF STEPHEN WARD, PUBLIC ADVOCATE, STATE OF MAINE, AND PRESIDENT, THE NATIONAL ASSOCIATION OF STATE UTILITY CONSUMER ADVOCATES

Mr. WARD. Chairman Bingaman, it's an honor, it's a privilege to appear on this panel today on behalf of NASUCA, the National Association of State Utility Consumer Advocates for whom I serve as president. I've also served as Public Advocate in the State of Maine since 1986.

Just since April of last year when I testified before this committee on behalf of NASUCA, NASUCA's representatives have testified on four occasions before committees of the House and the Senate of this Congress pertaining to electric restructuring and we are very happy to be invited here today.

In April 2000, the testimony I presented to this committee included a consumer checklist of 12 items which we regarded as the litmus test for desirable outcomes from a consumer's perspective and I have attached that consumer checklist to the written testimony which I furnished the committee.

Since 1996, NASUCA has adopted 16 resolutions that concern restructuring of the electric industry and the creation of competitive retail markets. Of these 16 resolutions, 10 directly address the topics that are in the White Paper which has been circulated by the committee.

I am pleased to state that NASUCA's resolutions provide strong support for most of the proposals in the White Paper. For example, NASUCA's membership in 40 States across the country strongly endorses the grant of FERC authority to NERC or to North American Electric Reliability Organization, the successor, to insure reli-

ability in the Nation's electric grid and to impose penalties when they are appropriate. NASUCA has been a supporter of the NERC legislation that is before this Congress.

Similarly, NASUCA has adopted resolutions in 1998 and 1999 that echo the White Paper's endorsement of functional independence for independent system operators, for RTOs, and for NERC from the preferences of any market participants. It is a critical principle in our view to assure that consumers, marketers, sellers and electricity markets all have confidence that the grid is being operated without bias or without preference.

Linked to this principle is the White Paper's proposal that PUHCA not be repealed unless FERC receives enhanced authority to address market power problems with particular authority to examine the books and records of affiliates within a holding company structure. We strongly support those suggestions.

It's been NASUCA's long term position on PUHCA repeal that the removal of PUHCA protection should not occur without development of adequate FERC oversight in competitive markets.

The principle underlying all of these resolutions is this. The elimination of regulatory controls is not the same thing as creating competitive markets. Until markets are workably competitive, regulatory oversight is critical throughout any transition period. Likewise, NASUCA has supported PURPA repeal but only when markets are workably competitive.

In a resolution adopted last month at its midyear meeting in Santa Fe, NASUCA took a further step and urged FERC not simply to approve market-based rates whenever they are filed with the commission in the case of any market that's dysfunctional such as those in California. But instead to require once more a cost basis for just and reasonable rates. Until markets in States like California are workably competitive, FERC should rely on the tried and true standard of just and reasonable rates and not leave customers at the mercy of a market-based rate.

That same resolution also called for FERC to address the problem of market power and to force generators who exercise market power to disgorge the profits associated with its use.

NASUCA strongly supports the grant of additional authority to FERC to pursue market mitigation and other market power remedies. Without those remedies, in the long run, consumers can only lose in wholesale markets that are dysfunctional in markets that are subject to gaming.

NASUCA has also adopted resolutions that are fully consistent with the White Paper proposal on a public benefits fund. We strongly support the implementation of a Federal fund for vulnerable populations, low income in particular, and in support of renewable generation and in support where necessary of energy efficiency. In fact, NASUCA's members have been for years strong supporters of energy efficiency efforts as an alternative to new generation siting and to some extent transmission siting.

With respect to the FERC, the proposal for FERC jurisdiction over bundled transmission prices, and the proposal for a Federal power of eminent domain for transmission line siting, I have to report that NASUCA has no resolutions on either of those points so I cannot present any consensus NASUCA position today.

Finally, with reference to the White Paper's concluding discussion about tax benefits and tax code changes, NASUCA has adopted a resolution urging Congress to mandate the flow through to retail customers in rates of any tax benefits associated with generating units when they are sold. In a State like Maine which divested its generating units, it turned out that the tax benefits, the excess deferred income taxes, the investment tax credits were captured by shareholders in a one time windfall rather than being flowed through to rate payers.

This really is a billion dollar loophole and it is incumbent I think on Congress to make some firm action in amendments to the tax code.

In conclusion, the White Paper advances a series of propositions which NASUCA supports. We urge your serious consideration of the White Paper and are grateful for the chance to contribute to this discussion. Thank you very much.

[The prepared statement of Mr. Ward follows.]

PREPARED STATEMENT OF STEPHEN WARD, PUBLIC ADVOCATE, STATE OF MAINE, AND PRESIDENT, NATIONAL ASSOCIATION OF STATE UTILITY CONSUMER ADVOCATES

Chairman Bingaman, distinguished members of the Committee on Energy and Natural Resources: I am Stephen Ward and have served since 1986 as Maine's Public Advocate representing utility consumers before Maine's Public Utilities Commission, before FERC, the FCC and the courts. I also have served since March of 2000 as President of NASUCA, the National Association of State Utility Consumer Advocates. NASUCA consists of organizations charged by statute with the representation of utility consumers and currently has members in 40 states. I also serve as an appointed member of NERC's Market Interface Committee.

It is an honor and a privilege to appear on this distinguished panel and I thank you for the extending this invitation to NASUCA and its 43 member offices for whom I am testifying today. Just since April of last year when I testified on behalf of NASUCA before this Committee, NASUCA's representatives have testified on four occasions before committees of the House or Senate on matters pertaining to electricity restructuring. We are very happy to be invited once more to provide the consumer's perspective at these hearings, as I will attempt to do again today. In April of 2000 in my testimony before this Committee, I presented NASUCA's "Consumer Checklist" of necessary safeguards in any federal restructuring legislation. Because of turnover on this Committee I thought it might be useful to provide a copy of the "Consumer Checklist," which is attached to this testimony.

The Chairman's White Paper on Electricity Legislation seems to me to an auspicious start in the process of marking up comprehensive energy legislation. That is because the White Paper takes a broad overview of the history and current functioning of utility electricity markets, focusing as much on the forest as the trees. This is appropriate in the case of a commodity like electricity that has so many unique characteristics. Unlike virtually any other commodity, it cannot be stored and therefore must have production match usage in every moment of the day. Electricity is a commodity that, over the years, has been heavily freighted with the public interest, benefiting from the exercise of eminent domain in the construction of its transmission lines and being subject to multiple expectations for affordability, for low-income support and for protections against disconnection. But most importantly, electricity is a commodity which virtually every citizen, every family, every business depends on as a necessity of life. For all of these reasons, it makes great sense to proceed cautiously and with great care in undertaking fundamental changes in this industry, by means of federal legislation. I urge you not to hurry as you take up this task.

The White Paper also provides a very convenient framework for discussion and analysis of key issues, laying out the issues in several general areas (including "Other Provisions" and "Tax Provisions"). Since many of these issues correspond to proposals that have been debated by NASUCA's membership in 40 states around the country, I can provide commentary on some of the White Paper's proposals from NASUCA's perspective. In other cases, NASUCA has adopted no resolution that is directly germane to a proposal in the White Paper. In such cases, I will note the absence of a NASUCA Position.

Since 1986, NASUCA has adopted 16 resolutions that directly address the restructuring of the electricity industry and the creation of competitive choices for consumers—large and small. Of these sixteen resolutions, ten directly address desirable or necessary features of federal law or regulation, as opposed to policy proposals that are entirely within the scope of state jurisdiction. Probably the most vexing aspect of any effort to transform a system of vertically integrated utilities into a system relying in part on competitive markets, it seems to me, is the inter-mixture of state and federal responsibilities. As the Committee is fully aware, aspects of the electric industry (such as retail pricing) have been entirely under state jurisdiction since the first decades of the last century. It is equally so that, since enactment of the Federal Power Act in 1935, other aspects (such as interstate transmission pricing) have been completely under federal jurisdiction. Any comprehensive effort to restructure this industry must tread lightly on these jurisdictional dividing line.

The White Paper proposes to reconfigure jurisdiction over all transmission-related questions so as to make FERC's jurisdiction pre-eminent. For a near-majority of states today where transmission rates are bundled together with distribution and generation rates, however, this proposal does represent a departure from the status quo. NASUCA has no formal resolution addressing the question of whether bundled transmission prices should be set by FERC in a way that pre-empts state action. Due to the multiplicity of views within NASUCA, on the part of states like Maine that have undertaken comprehensive restructuring and as well for states in low-cost regions that have no incentive to restructure, it is doubtful that NASUCA will ever adopt a final view as to whether FERC authority over transmission should properly supersede state authority. In any event, I won't offer one today.

Similarly, NASUCA has no formal position as to whether public, cooperative and federal entities like TVA, REA cooperatives and marketing authorities should be subject to FERC oversight under the Federal Power Act. Speaking just for myself, however, it appears to me to be difficult to establish workable protections against market power and against malfunctions that jeopardize the reliability of the grid without establishing broad and consistent authority within FERC across all types of utilities public and private. NASUCA has taken a strong stance in favor of granting FERC authority to require electric utilities to join Regional Transmission Organizations and, to the extent possible, enabling public entities like TVA likewise to participate in the operation of regional RTO's. A NASUCA resolution, adopted two years ago, recognizes the primacy of FERC jurisdiction over RTO development but urges collaboration with state PUC's in formulating common agendas for managing transmission congestion and developing new transmission facilities.

With respect to the reliability proposals in the White Paper, NASUCA has strongly supported the creation of an independent NERC (North American Electric Reliability Council) that is not dependent on the short-term preferences of any user of the transmission system. With NARUC and other parties, NASUCA has endorsed the stand-alone NERC legislation that is pending before Congress. In a 1998 Resolution, NASUCA unanimously supported enactment of "federal legislation that would clarify FERC authority to review the reliability requirements imposed by NERC (or any successor national organization) and to ensure that such requirements are adopted and implemented in a manner that benefits all consumers." Key among the interests that NASUCA has advanced in three of its resolutions is the principle that for RTO's, for ISO's and for NERC, Congress or FERC should assure the operational independence of grid managers from players in national and regional electric markets. One good reason for guaranteeing this independence is to enable grid managers to act impartially with sanctions and penalties, as an enforcement entity in the event of malfeasance or grid disruption rather than merely as a scheduler of transaction in a regional market. For this reason I applaud the White Paper's suggestions on this point.

The White Paper's third major area addresses "Rates and Market Power" and does so in a manner that, to me, may be too optimistic in endorsing market-based outcomes. This section of the White Paper doesn't appear to focus on what is unfortunate reality today: competitive markets are not generating just and reasonable prices in many hours of the year in Western markets, and in some hours of the year in New York and New England markets. In view of the price spikes and blackouts that have plagued California, I think it is premature to base a discussion of rates and market power entirely on the hope that markets can be made workably competitive. NASUCA addressed these issues in a resolution adopted at its mid-year meeting last month. That resolution urges FERC not to rely on market-based rates in situations where markets are not functioning adequately but, instead, to use its powers under the Federal Power Act to set just and reasonable rates based on a cost analysis or other appropriate means of mitigation. In essence, the resolution urges FERC not to accept the prices produced by any market as necessarily just and

reasonable but to investigate for evidence of market power and marketing anomalies. Possibly the difference between NASUCA's position and the White Paper is a question of degree, or merely a matter of emphasis but, to my mind, this nuance is an important one.

The final portion of the "Rates and Market Power" section concerns market mitigation measures as ordered by FERC. We agree that market mitigation (i.e. following up on evidence of market power or of marketing anomalies with a formal investigation and, where warranted, an enforcement action) is a critical aspect of discipline that keeps bidders honest and helps markets function. To my mind, this mitigation function is a key aspect of ISO operations, and shouldn't necessarily reside at FERC rather than in the regions. At present, both ISO-New England and the New York ISO have authority to reset any price that is excessive or that results from market power. I don't think it makes sense to take away such authority as already exists.

With respect to regional planning and siting, NASUCA has no specific resolution that addresses the exercise of eminent domain for a project under federal jurisdiction. As a general matter, it makes great good sense to promote the coordination of state and federal siting authority, wherever possible. But I doubt that NASUCA's members would endorse the proposal that FERC receive eminent domain authority for electricity comparable to what already exists for gas pipelines—and certainly not unanimously. As a matter of practice, all of NASUCA's resolutions are adopted by consensus, so I would be very surprised to see a unified NASUCA position on a matter as controversial as a federal transmission line siting.

The White Paper discusses the potential repeal of PUHCA and PURPA on terms that are very close to NASUCA resolutions adopted in 1996 and 1997. NASUCA has explicitly endorsed adoption of a renewable portfolio standard as a device for creating diversity in the nation's supply mix and supporting new, non-polluting sources of generation. Historically, NASUCA's members have been defenders of PURPA as a technique for injecting competition into the closed operations of electric utilities. NASUCA also has repeatedly testified in opposition to PUHCA repeal—at least until new systematic protections against affiliate abuse and cost shifting within holding companies are in place. Competition in wholesale markets is too powerful a force to operate without the structural restraints that PUHCA has imposed since 1935, in my opinion. The last thing that we should be doing today is to assume that the absence of regulation is the same as vigorous competition. As the nation learned from Sam Insull 80 years ago, the absence of regulation leads directly to unregulated monopoly power.

The White Paper also endorses the creation of a Public Benefits Fund from which financial support can be drawn for a variety of purposes including low-income assistance, conservation programming, and R&D activities. States like Maine, since 2000, have had in place a state-mandate for ratepayer-supported public benefits programs. They should not see federal legislation disturbing or replacing these mechanisms. Having said this, however, I am confident that NASUCA's membership today would endorse the same approach as was adopted in a 1998 resolution: any comprehensive federal electricity legislation should beef up support for ratepayer-funded weatherization, and for targeted low-income support assistance in addition to the support already provided through the LIHEAP and DOE Weatherization programs. It is critical that, as markets evolve, the ability to afford electricity not separate "the haves" from "the have-nots." We cannot tolerate having the nation's most vulnerable populations become the casualties of competition.

Finally, and before closing, I should turn to the last substantive set of issues raised in the White Paper, concerning changes in the tax code. While it is true that the federal tax law is beyond the purview of this Committee, it also is the case that tax policy establishes long-lived incentives that directly affect investment decisions and, in the case of utility plant, can affect the bottom-line earnings of investors. Missing from the list of ideas that appear in the White Paper's final paragraph is a proposal that NASUCA endorsed by resolution last year and that also has received support from NARUC and the American Public Power Association. The proposal is to require that any tax benefits (so-called Excess Deferred Income Taxes and unamortized Investment Tax Credits) that are on the books of an electric utility for generating units that are divested by operation of state law or sold voluntarily should be flowed-through to ratepayers in lowered distribution rates and not be captured by the utility's shareholders. Such a one-time windfall for shareholders was never envisioned when the tax rate was lowered in 1986, was not sought by the utilities and EEI at that time, and cannot be justified today. We urge the Committee to recommend action to close this billion dollar loophole.

In sum, it should be clear that NASUCA has formally endorsed many of the specific proposals that appear in the White Paper. Dating back to 1996, NASUCA's res-

olutions have anticipated key impacts on consumers that may result from industry restructuring if regulators and legislators are not vigilant. You are to be congratulated for the breadth and depth of the White Paper's proposals. NASUCA as an organization will make every effort to assist you in your deliberations as you refine these proposals.

Thank you again for the opportunity of testifying today on behalf of the nation's electricity consumers.

(ATTACHMENT)

NASUCA CONSUMER CHECKLIST FOR FEDERAL ELECTRIC RESTRUCTURING LEGISLATION

✔ No Federal Preemption: Permit, but don't require, retail competition.
✔ Stranded costs: Stranded cost issues should be left to the states.
✔ Market power: Allow FERC to remedy abuses of market power.
✔ Transmission and ISOs: Allow FERC to require ISOs and remedy transmission problems.
✔ Reliability Standards: Allow FERC to review reliability.
✔ Consumer Protection: Establish minimum federal standards for consumer protection.
✔ Universal Service: Adapt universal service standards and principles, buy requirement.
✔ Aggregation: Aggregation of customers should be encouraged.
✔ Renewable Energy: Remove any barriers to net energy metering.
✔ Mergers: Expand FERC merger authority and require a net be benefit to consumers.
✔ PUHCA: Competition first, then remove regulatory impediments.
✔ PURPA: Competition first, then waiver of Section 210 must-buy requirement.

The CHAIRMAN. Thank you very much.

Mr. Cook.

STATEMENT OF DAVID N. COOK, GENERAL COUNSEL, NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Mr. COOK. Thank you, Mr. Chairman. I am general counsel for the North American Electric Reliability Counsel. NERC commends your leadership and this committee's attention to the critically important issue of the reliability of the bulk electric system.

NERC urges the Congress to enact reliability legislation in this session of Congress. NERC in a broad coalition of State, consumer and industry representatives are supporting legislation that would transform the current system of voluntary operating guidelines into a set of mandatory transmission system reliability rules promulgated and enforced by an industry based self-regulatory reliability organization with FERC oversight in the United States.

The NERC legislative proposal has been included in both S. 388 and S. 597. It has also been introduced in the House. I'm pleased to note that within the past 2 weeks, the Western Governor's Association sent a letter to this committee in support of the pending NERC legislative proposal.

For more than 30 years, this country has depended upon voluntary compliance with reliability rules. The system has worked very well and we have had an extremely reliable electric system but the reliability rules have no enforcement mechanism. Peer pressure has been the only means available to achieving compliance.

As good as that system has been, the voluntary system will not serve as well for the future. Here's why. The grid is now being used in ways for which it was not designed. There has been a quantum

leap in the number of hourly transactions and in the complexity of those transactions.

Transmission providers and other industry participants that formerly cooperated willingly are now competitors. The rate mechanisms that in the past permitted utilities to recover the costs of operating systems reliably are no longer in place or are inadequate given increased risks and uncertainties.

The single vertically integrated utility that formerly performed all reliability functions for a particular area is being disaggregated. Meaning that reliability responsibilities are being divided among many participants. Some entities appear to be deriving economic benefit from bending or violating the reliability rules. Construction of additional transmission capacity has not kept pace with either the growth and demand or the construction of new generating capacity meaning the existing grid is being used much more aggressively.

The result of all of this is that the transmission grid is being increasingly stressed. NERC is seeing more congestion on the grid for more hours of the day. NERC is also seeing increased violations of its reliability rules.

Here are the goals for the NERC reliability legislation. Mandatory and enforceable rules that apply to all operators and users of the bulk power system in North America. The rules would be fairly developed and fairly applied by an independent industry self-regulatory organization with oversight by FERC in the United States.

The proposal must respect the international character of the interconnected North American Electrical Transmission System. Regional entities will have a significant role in implementing and enforcing compliance with those reliability standards with delegated authority to develop appropriate regional standards.

The White Paper distributed in advance of this hearing proposes the following criteria for the reliability provision. Legislation should authorize a system for assuring reliability of the grid that is mandatory, that requires sanctions and penalties for failure to comply with the rules that institutions for that purpose develop, and that is subject to Federal oversight.

The NERC legislative proposal included in both S. 597 and S. 388 satisfies those criteria and NERC agrees with those criteria but they are not the only relevant criteria. Two others are necessary.

First, the bulk power system is a single very large machine that spans the international border. The reliability legislation must provide a mechanism for setting a single set of reliability rules that are acceptable to regulators on both sides of the border. Without having one set of regulators impose its decisions on how the grid will be operated across the border, the NERC legislative proposal satisfies this criteria and by having a standard set in a single forum with active participation by all interested parties on both sides of the border, subject to appropriate oversight by the respective regulators on each side of the border.

Second, the bulk power system is technically very complex and demands a high degree of coordinated activity in order to assure reliable operations. The reliability legislation must provide a means for harnessing the collective engineering expertise and collective

market expertise of the industry in fashioning a set of reliability rules that are compatible with well-functioning competitive markets and also assure the reliable operation of the transmission grid to support those markets.

An industry self-regulatory organization provides an effective and efficient mechanism for bringing that industry expertise to bear on the task of setting the standards necessary to assure the reliable operation of the bulk system. FERC oversight in the United States assures that the self-regulatory organizations' processes are fair and that the reliability rules work in harmony with FERC's evolving competitive market and RTO policies.

Although a broad coalition of State, consumer and industry representatives are supporting passage of the NERC legislative proposal, that support is not universal. NERC and its supporting coalition are continuing discussions with those who are not now supporting the legislation to determine whether changes to the proposal could broaden the base of support even further.

One of the criticisms in the legislative language in the proposal now is that it is longer and more detailed than may be appropriate for a legislative enactment. NERC is exploring whether a shorter less detailed bill that nonetheless retains the essentials needed for creation of an independent industry self-regulatory organization will command at least the same level of support as exists for the current version. Any shorter version of reliability legislation must still satisfy the legislative goals that I mentioned above.

Those discussions are continuing and we will keep the committee informed as to their outcome. NERC commends the committee for attending to the critical issue of assuring the reliability of the interconnected bulk system as the electric industry undergoes restructuring. NERC urges prompt action on pending legislation that would allow for the timely creation and FERC oversight of a viable self-regulatory reliability organization.

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Cook follows.]

PREPARED STATEMENT OF DAVID N. COOK, GENERAL COUNSEL, NORTH AMERICAN ELECTRICAL RELIABILITY COUNCIL

SUMMARY

The North American Electric Reliability Council (NERC) urges Congress to enact reliability legislation in this session of Congress. NERC and a broad coalition of state, consumer, and industry representatives are supporting legislation that would transform the current system of voluntary operating guidelines into a set of mandatory transmission system reliability rules, promulgated and enforced by an industry-led reliability organization, with FERC oversight in the U.S. NERC firmly believes steps must be taken now to ensure the continued reliability of the electricity transmission system if the Nation is to reap the benefits of competitive electricity markets. The changes taking place as the electric industry undergoes restructuring are recasting the long-established relationships that reliably provided electricity to the Nation's homes and businesses. Those changes will not jeopardize the reliability of our electric transmission system IF we adapt how we deal with reliability of the bulk power system to keep pace with the rest of the changes that the electric industry is now experiencing.

NERC is a not-for-profit organization formed after the Northeast blackout in 1965 to promote the reliability of the bulk electric systems that serve North America. It works with all segments of the electric industry as well as consumers and regulators to "keep the lights on" by developing and encouraging compliance with rules for the reliable operation of these systems. NERC comprises ten Regional Reliability Coun-

cils that account for virtually all the electricity supplied in the United States, Canada, and a portion of Baja California Norte, Mexico.

RELIABILITY

Reliability means different things to different people. For the consumer it could mean, "Does the light come on when I flip the switch?" Or, "Does a momentary surge or blip re-boot my computer or cause me to lose a whole production run of computer chips I was manufacturing?"

To NERC, reliability means making sure that all the elements of the bulk power system are operated within equipment and electric system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of that system will not occur as a result of sudden disturbances such as electric short circuits or unanticipated failure of system elements. It also means planning, designing, and operating each portion of the bulk power system in a manner that will promote security in interconnected operations and not burden other interconnected systems.

HOW THE SYSTEM WORKS

California's experience with electricity has focused peoples' attention on electricity issues in ways they never have in the past. Because of that increased awareness, we can draw on the California experience to understand more about how the bulk electric system really works. California is not an island; it is part of a much larger grouping of electric systems that we refer to as an Interconnection. The North American grid is divided into three Interconnections that are connected to each other by way of direct current ties. The Western Interconnection includes not only California, but also the rest of the United States from the Rocky Mountains to the Pacific coast, as well as the Canadian provinces of British Columbia and Alberta, and a portion of Baja California Norte, Mexico. The Eastern Interconnection includes not only most of the United States east of the Rocky Mountains, but also Canadian provinces from Saskatchewan through the Maritimes. The third Interconnection comprises the Electric Reliability Council of Texas. Attached to my testimony is a map depicting the three Interconnections. The map also shows the ten NERC Regional Reliability Councils.

Each Interconnection is a single very large machine. Power flows freely throughout the grid in each of these Interconnections—there are no valves or switches. With very limited exceptions, there is no ability to direct, or route, power flows over a particular line; instead, power flows over all lines in the system, according to the laws of physics. All generators within an interconnection are magnetically linked, in effect as though all the generators are on a single shaft—all rotating at the same speed (think of a tandem bicycle—the front and back pedals are linked together by a chain, and rotate at the same speed; if one rider takes his feet off the pedals, the other rider has to work harder to maintain the same speed). What happens on one part of an interconnection affects the entire rest of the interconnection. The frequency of the system in British Columbia is the same as the frequency in Arizona, and also at all points in between. When the frequency declines, because a large generating unit trips off, the rest of the generators automatically and instantaneously work harder to serve the customer demands.

The interconnected nature of electric system operations makes possible the transfer of power from one area to another for economic reasons as well as sharing resources in emergencies. California is a summer-peaking area, and it normally imports surplus power from the Pacific Northwest in the summertime to augment its own generating resources. By contrast, the Pacific Northwest is a winter-peaking area, and it normally imports surplus power from California in the wintertime. Over the past year, this pattern of mutually beneficial exchange has been disrupted. Load has grown throughout the West, and other areas in the West have less power to export to California. In addition, the Pacific Northwest and California both depend substantially on hydroelectric power. Severe drought conditions this year have seriously depleted the ability of the hydroelectric plants to produce energy. Power exchanges can also take place between Interconnections, but the capability to do so is limited by the capability of the direct current ties that exist. For example, the Western and Eastern Interconnections can exchange up to about 1,850 MW in either direction, and the Texas and Eastern Interconnections can exchange about 850 MW.

California has also demonstrated the limits on the transmission system. Path 15 is a major transmission link between Southern and Northern California. Earlier this year, on some days the California Independent System Operator had to curtail firm load in Northern California, even though additional generation was available in Southern California to meet the load. Path 15 was loaded to its maximum safe reli-

ability limit and there simply was no way to move additional energy into Northern California without risking the reliability of the entire Western Interconnection.

Interconnected operations also mean that a disturbance occurring in one part of an Interconnection can have adverse effects throughout the Interconnection. The 1996 Western outage that affected San Francisco, Los Angeles, and the desert Southwest and shut down the Diablo Canyon nuclear power plant started with a tree contacting a power line in Idaho. And whether an individual state chooses to open up to retail competition or not, the electric systems in those states are still connected together, and dependent on one another, as part of one Interconnection.

The grid is generally operated in a first contingency mode, that is, so that the grid can withstand the loss of any single transmission line, generator, or transformer and remain stable and secure. That means that all the remaining transmission lines will still be operating within their own limits and that the failure of a particular element won't cause a cascading, uncontrolled failure of the entire grid. When a large transformer or generator fails or lightning strikes a power line, as happens as a matter of course, the grid must be able to absorb that loss without causing other elements to fail. Operating in this manner preserves the stability of the grid, but it does sometimes place necessary limits on the amount of power that can be moved from one part of the grid to another.

This is the area where NERC's rules operate, setting the standards by which the grid is operated from moment to moment, as well as the standards for what needs to be taken into account when one plans, designs, and constructs an integrated system that is capable of being operated securely. The NERC standards do not specify how many generators or transmission lines to build, or where to build them. They do indicate what tests the future system must be able to meet to ensure that it is capable of secure operation. Up to now, NERC's rules have generally been followed, but they have not been enforceable. As more entities become involved in the operation and use of the bulk electric systems, and use these systems to full competitive advantage, NERC is seeing an increase in the number and severity of rules violations. Hence the voluntary approach is no longer adequate for maintaining the reliability of the bulk power system. Just as the rest of the electric industry is changing, the reliability infrastructure must change, too.

VOLUNTARY RELIABILITY RULES WILL NOT WORK IN A MORE COMPETITIVE ELECTRIC INDUSTRY

NERC's formation was the electric industry's response to legislation that had been introduced in the Congress following the 1965 blackout in the Northeast that would have given the then Federal Power Commission a central role in the reliability of the bulk electric system. Instead of adopting that legislation, the country opted for a voluntary industry-led effort. For more than thirty years, this voluntary system has worked very well, and we have had an extremely reliable electric system. But the reliability rules or standards have no enforcement mechanism. Peer pressure has been the only means available to achieving compliance.

As good as that system has been, the voluntary system will not serve us well for the future. Here's why:

- The grid is now being used in ways for which it was not designed.
- There has been a quantum leap in the number of hourly transactions, and in the complexity of those transactions.
- Transmission providers and other industry participants that formerly cooperated willingly are now competitors.
- Rate mechanisms that in the past permitted utilities to recover the costs of operating systems reliably are no longer in place, or are inadequate given increased risks and uncertainties.
- The single, vertically integrated utility that formerly performed all reliability functions for an area is being disaggregated, meaning that reliability responsibilities are being divided among many participants.
- Some entities appear to be deriving economic benefit from bending or violating the reliability rules.
- Construction of additional transmission capacity has not kept pace with either the growth in demand or the construction of new generating capacity, meaning the existing grid is being used much more aggressively.

Not dealing with the reliability side of the business as the industry restructures would be like the airlines switching to jet airplanes without increasing the length of the runways.

WHAT'S HAPPENING NOW: DEMAND AND GENERATION

A number of factors have contributed to our present circumstance. First, demand has been steadily increasing. The consensus projection for the average annual growth in both peak demand and energy use over the next ten years is a relatively modest 1.9%. (Figure 1.)* "Demand" is a measure of the highest aggregate load that all customers place on a system at a particular point in time. "Energy use" is a measure of the total amount of electricity that all customers use over a certain period of time (e.g., one year). The projected growth in demand is similar to the projections of the last several years. High and low bands around the base forecast show a range of the forecast uncertainty to account for weather, economic growth, industry deregulation, and other factors. Both peak demand and energy projections are substantially below the actual growth rates experienced over the last ten years as demand has been driven by extreme weather at peak times and a strong economy. Actual demand and energy growth rates experienced in the United States over the last ten years have been closer to the projected high band rate of about 3% for both demand and energy.

Second, in many parts of the country merchant generators are now building new plants to meet that increased demand, in response to the increased prices that we have been seeing in the wholesale electricity markets. During the past ten years, generating capacity increased at the rate of less than 1% per year, even while demand was growing at the rate of 2.7% per year. That picture is changing, although in some parts of the country supplies will be tight for the next few years. Over 20,000 MW of new merchant capacity came on line to serve demand in the United States for the summer 2000. This year, New England has added another 2,300 MW. The Electric Reliability Council of Texas has added more than 6,000 MW. The East Central Area Coordination Agreement has added more than 4,000 MW since last summer. A crucial 600 MW is being added within New York City and Long Island. While that story is not being repeated everywhere, even California is expected to have significantly increased reserve margins within a few years.

WHAT'S HAPPENING NOW: TRANSMISSION

The same is not true for transmission. Over the last ten years, circuit-miles of high voltage transmission lines (230 kV and above) increased at only 0.75% per year. Over the next ten years we are projecting that circuit-miles of high voltage transmission will increase a total of just 4.2%, or a rate of less than 0.5% per year. Stated another way, in North America ten years ago we had a little less than 200,000 circuit-miles of high voltage transmission lines. Right now we have about 200,000 circuit-miles of those lines. And ten years from now we are projecting that we will have just a little over 200,000 circuit-miles of high voltage transmission lines. For the most part, the transmission dollars that are being spent today are to connect new generation to the grid—they are not going to build major new lines to strengthen the grid's ability to move large blocks of power from one part of the country to another. That lack of additional transmission capacity means that we will increasingly experience limits on our ability to move power around the country and that commercial transactions that could displace higher priced generation won't occur. And, it will mean that areas experiencing supply shortages, like California has, won't be able to count on other areas with ample generating resources to help.

Moreover, the existing grid is being pushed harder and is being used in ways for which it was not designed. Historically, each utility built its system starting in the city-centers, because the early generating stations were located close to load centers. As the cities grew, the electric systems grew with them, spreading outward from the center. The weakest part of the electric grid is generally at the places where one system abuts another. Initially utilities installed connections between two systems for emergency purposes and to share generating reserves to keep costs down. Gradually those interconnections were strengthened so that adjoining utilities could buy and sell electricity when one had lower cost generation available than did the other. But the systems were not generally designed to move large blocks of power from one part of the country to another, across multiple systems. Yet that is the way business is being conducted today. The volume and complexity of transactions on the grid have grown enormously since the advent of open access transmission.

Electric industry restructuring adds to the challenge. In the past, a vertically integrated utility had complete responsibility for all aspects of its electric system, from planning and building the transmission system, through assuring that sufficient generation was constructed, to operating and maintaining the transmission and dis-

* Retained in committee files.

tribution systems, all to serve consumers in a designated area. With restructuring, there may no longer be a designated group of consumers for which to plan service. Instead, responsibilities to construct and maintain generation, transmission, and distribution are being divided among multiple entities and, in some cases, those responsibilities may be falling between the cracks. Regional Transmission Organizations may provide a means to reintegrate some of these functions. But the RTO proposals that have been filed to date vary considerably in the extent to which the RTO has the authority to plan and expand the transmission system, not only to connect new generation, but to meet broader needs of regional reliability.

The result of all this is that the transmission grid is being increasingly stressed. That stress shows up in two ways. First, NERC is seeing more congestion on the grid, for more hours of the day. Last summer in the Eastern Interconnection there were substantial transfers of power from north to south. Cooler temperatures in the north meant that surplus generation could be sent to the south where the temperatures were hot and natural gas prices were high. On many days security coordinators had to invoke NERC transmission loading relief procedures to curtail transactions that were overloading transmission facilities between north and south. For generation sellers, these curtailed transactions resulted in lost business. Buyers were forced to replace these transactions with higher priced power, or in some cases, to cut off power to certain "interruptible" customers. In addition, what do not show up are the transactions that merchants or marketers decided not to engage in because of the likelihood they would be interrupted. Today, we know that those same transmission facilities are fully subscribed for the coming summer, meaning we could see a repeat of last year's pattern if we experience similar weather conditions and fuel prices.

Second, NERC is seeing increasing violations of its reliability rules. As I mentioned earlier, the grid is generally operated in a first contingency mode, that is, so that the grid can withstand the loss of its largest element and remain stable and secure. Last summer there were a number of instances where operators allowed facilities to remain loaded above their known security limits for extended periods of time, placing the grid at prolonged risk of major failure. Some entities have made the economic judgment that it is less costly to them to violate the rules than to follow them. We have seen entities improperly "leaning on," or taking power from, the Interconnection, causing unscheduled and unmanageable flows and potential voltage problems. As the limits of the system are reached and transactions must be curtailed, we are beginning to hear suggestions to relax the reliability rules to allow higher flows to occur. In an interconnected system, however, taking increased risks to allow some entities to realize short-term economic gain affects not only the system where the limit occurs, but also all the systems in the same Interconnection. For example, in the 1996 outages in the Western Interconnection, customers far away from the initiating problems were interrupted for significant periods of time.

WHAT'S NEEDED TO ASSURE BULK POWER SYSTEM RELIABILITY IN A MORE COMPETITIVE ELECTRICITY MARKET

We need legislation to change from a system of voluntary transmission system reliability rules to one that has an industry-led organization promulgating and enforcing mandatory rules, backed by FERC in the U.S. In August 1997, NERC convened a panel of outside experts to recommend the best way to ensure the continued reliability of North America's interconnected bulk electric systems in a competitive and restructured electric industry. On a parallel track, in the aftermath of two major system outages that blacked out significant portions of the West in July and August 1996, the Secretary of Energy convened a task force on reliability, chaired by former Congressman Phil Sharp. Both groups came to the same conclusion: The current system of voluntary guidelines should be transformed into a system of mandatory, enforceable reliability rules, AND the best way to accomplish that was to create an independent industry self-regulatory organization, patterned after the self-regulatory organizations in the securities industry, with oversight in the United States by the Federal Energy Regulatory Commission.

NERC and a broad coalition of state, consumer, and industry representatives have been pursuing legislation to implement those recommendations. That coalition includes the American Public Power Association, the Canadian Electricity Association, the Edison Electric Institute, Institute for Electrical and Electronics Engineers—USA, the Large Public Power Council, the National Association of Regulatory Utility Commissioners, the National Association of State Energy Officials, the National Association of State Utility Consumer Advocates, the National Electrical Manufacturers' Association, the National Rural Electric Cooperative Association, the Northwest

Regional Transmission Association, the Transmission Access Policy Study Group, and the Western Interconnection Coordination Forum.

On June 18, 2001, that coalition sent a letter to this Committee, the House Energy and Commerce Committee, and the Administration in support of the NERC legislative proposal embodied in both S. 388 and S. 597. On July 13, 2001, the Western Governors Association also sent a letter to this Committee, the House Committee, and the Administration in support of the pending NERC legislative proposal.

GOALS OF RELIABILITY LEGISLATION

- Mandatory and enforceable reliability rules
- Apply to all operators and users of the bulk power system in North America
- Rules fairly developed and fairly applied
- Independent, industry self-regulatory organization
- Oversight within U.S. by FERC
- Must respect the international character of the interconnected North American electric transmission system
- Regional entities will have a significant role in implementing and enforcing compliance with these reliability standards, with delegated authority to develop appropriate Regional reliability standards.

THE COMMITTEE'S WHITE PAPER

The Committee has invited comment on whether the criteria set out in the white paper that the Committee distributed are the appropriate criteria for a reliability measure. The white paper states the following criteria for the reliability provisions:

> Legislation should authorize a system for assuring the reliability of the grid that is mandatory, that requires sanctions and penalties for failure to comply with the rules that institutions for that purpose develop, and that is subject to federal oversight.

The reliability title that is included in both S. 597 and S. 389 satisfies those criteria. But those are not the only relevant criteria. The reliability provisions must also take account of two other factors. First, the bulk power system is a single, very large machine that spans the international border. Because it is a single machine, it must be operated under a common set of rules on both sides of the border. The reliability legislation must provide a mechanism for setting a single set of reliability rules that are acceptable to regulators on both sides of the border, without having one set of regulators impose its decisions on how the grid will be operated across the border. The NERC legislative proposal satisfies this criterion by having the standards set in a single forum with active participation by all interested parties on both sides of the border, subject to appropriate oversight by the respective regulators on each side of the border.

Second, the bulk power system is technically complex and demands a high degree of coordinated activity in order to assure reliable operations. The reliability legislation must provide a means of harnessing the collective engineering expertise and collective market expertise of the industry in fashioning a set of reliability rules that are compatible with well-functioning competitive markets and also assure the reliable operation of the transmission grid to support those markets. NERC's standing committees, subcommittees, and working groups involve literally hundreds of experts in ongoing activity to develop standards and monitor activity to assure the reliable operation of the grid. An industry self-regulatory organization provides an effective and efficient mechanism for bringing that industry expertise to bear on the task of setting the standards necessary to assure the reliable operation of the bulk power system. FERC does not now possess and is never likely to achieve anything approaching that level of technical sophistication. Having FERC itself set the reliability standards through its rulemaking proceedings, even if based on advice from outside organizations, converts matters that ought to be resolved by those with technical engineering expertise and commercial expertise into matters that are the province of the lawyers. These complex rules need to be worked out together by all segments of the industry. FERC was created for the purpose of economic regulation. It also has strong competence in assuring fairness and openness of process and regularity of proceedings. The combination of industry technical expertise to work on substantive reliability rules and FERC oversight to assure due process is an effective and efficient way to address the issues.

FERC SHOULD NOT BE GIVEN THE JOB OF PROMULGATING AND ENFORCING RELIABILITY STANDARDS

Because of FERC's limited jurisdiction and authority, because of the international character of the North American grid, and because of the technical expertise required to develop and oversee compliance with bulk power system reliability standards, this is not a job that can simply be given to FERC. FERC does not have clear authority over reliability matters. Legislation that would have given FERC's predecessor, the Federal Power Commission, plenary authority over reliability matters was introduced in Congress following the Northeast blackout in 1965, but that legislation was not passed. Instead, the electric industry took on responsibility for assuring the reliability of the interconnected bulk power system. NERC was formed in 1968 to lead that industry effort.

The most direct statement in the Federal statutes on this subject is found in section 209(c) of the Public Utility Regulatory Policies Act, and it provides only for the making of recommendations with respect to industry reliability standards:

> The Secretary, in consultation with the [Federal Energy Regulatory] Commission, and after opportunity for public comment, may recommend industry standards for reliability, to the electric industry, including standards with respect to equipment, operating procedures and training of personnel, and standards related to the level or levels of reliability appropriate to adequately and reliably serve the needs of electric consumers. The Secretary shall include in his annual report—
>
> (1) any recommendations made under this subsection or any recommendation respecting electric utility reliability problems under any other provision of law, and
>
> (2) a description of actions taken by electric utilities with respect to such recommendations. (16 U.S.C. § 824a-2, emphasis added)

FERC also lacks jurisdiction over approximately one-third of the transmission facilities in the United States. It lacks jurisdiction over facilities owned by municipalities and state agencies, rural electric cooperatives that have Rural Utility Service financing, the Federal power marketing administrations (such as the Bonneville Power Administration and the Western Area Power Administration), the Tennessee Valley Authority, and utilities within the Electric Reliability Council of Texas.

As discussed above, a further impediment to FERC's acting directly on reliability matters is that the grid is international in nature. There is strong Canadian participation within NERC now, and that is expected to continue with the new organization. Having reliability rules developed and enforced by a private organization in which varied interests from both countries participate, with oversight in the United States by FERC and with oversight by Canadian regulators in Canada, is a practical way to address the international character of the grid. Otherwise, U.S. regulators would be dictating the rules that Canadian interests must follow—a prospect that would be unacceptable to them. There are also efforts under way to interconnect more fully the electric systems in Mexico with those in the U.S., primarily to expand electricity trade between the two countries. This is one element of the President's National Energy Policy. With that increased trade, the international nature of the self-regulatory organization will take on even more importance, further underscoring the necessity of having such an organization, rather than FERC, set and enforce compliance with overall grid reliability standards.

Having an industry self-regulatory organization develop and enforce reliability rules under government oversight also takes advantage of the huge pool of technical expertise that the industry currently brings to bear on this subject. FERC does not now have the technical expertise and resources to take on that effort, and it would not be cost-effective for it to do so. FERC's strong competence lies in assuring fairness and openness of process and regularity of proceedings. The combination of industry technical expertise to work on substantive reliability rules and FERC oversight to assure due process is an effective and efficient way to address the issues.

STATUS OF RELIABILITY LEGISLATION AND RTOS/ISOS

Last year, the Senate adopted the NERC legislation as S. 2071, but the bill died in the House. Senator Smith reintroduced that legislation this year (S. 172). In addition, the NERC legislation (including provisions addressing coordination with regional transmission organizations (RTOs)) has been included as part of both Senator Bingaman's bill (S. 597) and Senator Murkowski's bill (S. 389). Similar language has been introduced in the House of Representatives by Mr. Wynn (H.R. 312).

The pending legislation addresses the role of both independent system operators (ISOs) and RTOs, as well as the role of state commissions. Independent system op-

erators and regional transmission organizations fall within the defined term "system operator" in the pending legislation. As system operators, both ISOs and RTOs would be obligated to comply with established reliability rules, just as other kinds of system operators and other users of the bulk power system would be obligated to comply with those rules. In Order No. 2000, FERC stated that RTOs must perform their short-term reliability functions. An RTO is directed to notify the Commission immediately if implementation of those or any other externally established reliability standards would prevent it from meeting its obligation to provide reliable, non-discriminatory transmission service.

The issue of coordinating the reliability-related activities of the new electric reliability organization envisioned by this legislation and RTOs arose during last year's legislative efforts. NERC worked with FERC, PJM, the California Independent System Operator and several others to address that issue. We agreed to specific language to address that issue, and that language has been incorporated in both Senator Bingaman's bill (S. 597) and Senator Murkowski's bill (S. 389). It is also included in the bill pending in the House of Representatives (H.R. 312).

The NERC reliability legislation also addresses the role of state commissions. The legislation gives the new electric reliability organization authority to set and enforce rules for only the bulk power system. Eighty percent of power outages take place on local distribution systems, and those remain wholly under state jurisdiction. Language has been included to make clear that issues concerning the adequacy and safety of electric facilities and services, matters traditionally within the purview of state commissions, remain with the state commissions. The new reliability legislation specifically would not preempt actions by a state commission with respect to the safety, adequacy, and reliability of electric service within that state, unless the state's actions were inconsistent with reliability rules adopted by the new reliability organization. Those provisions were worked out with representatives of the states. Both Senator Bingaman's and Senator Murkowski's bills contain that language.

NERC strongly urges you to adopt legislation containing these reliability provisions in this session of Congress. That will enable the industry and the regulators to develop an independent self-regulatory organization and infrastructure to enforce the reliability rules and keep the grid secure.

CURRENT INDUSTRY DISCUSSIONS OF LEGISLATION

Although a broad coalition of state, consumer, and industry representatives are supporting passage of the NERC legislative proposal, that support is not unanimous. Just as NERC and its coalition worked with state regulators in 1999 and with the RTO representatives last year, NERC and its supporting coalition are continuing discussions with those who are not now supporting the legislation to determine whether changes to the proposal could broaden the base of support even further. One of the criticisms of the legislative language is that the proposal is longer and more detailed than may be appropriate for a legislative enactment. NERC is exploring whether a shorter, less detailed bill that nonetheless retains the essentials needed for creation of an independent industry self-regulatory organization will command at least the same level of support as exists for the current version. Any shorter version of reliability legislation must still satisfy the legislative goals that I mentioned above. Those discussions are continuing.

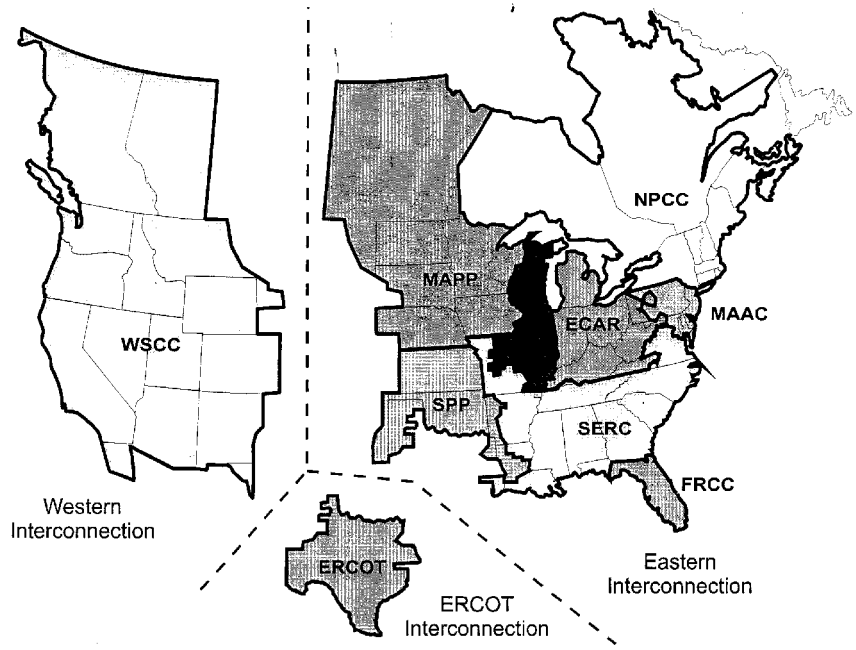
FERC's recent RTO orders do not change the need for Congress to enact reliability legislation. Those orders, even assuming their goal of fewer, larger RTOs is ultimately realized, do not address any of the reasons why we are seeking that legislation. Those orders cannot confer jurisdiction that FERC does not now have, either over reliability matters or over non-jurisdictional entities. Those orders do not address in any way the international nature of the interconnected grid. Furthermore, they do not provide FERC with the resources or technical competence to undertake the task of setting and enforcing reliability rules itself. Even if FERC's vision were someday completely realized, there would be six (not four) RTOs in the United States. Northeast, Southeast, Midwest, Florida, ERCOT, and West. The Canadian provinces and Mexican states are not accounted for. It is also questionable whether all non-jurisdictional transmission-owning entities will join an RTO. Finally, there is the question of the time it will take for the RTOs that FERC envisions will actually come into being. With the additional uncertainty generated by those orders as to who will ultimately operate and plan transmission, it is more important than ever that an industry-led self-regulatory organization be created to establish and enforce reliability standards applicable to the entire North American grid, regardless of who owns or manages it. Because FERC will provide oversight of the self-regulatory organization in the U.S., FERC can ensure that the self-regulatory organization's actions and FERC's evolving RTO policies are closely coordinated.

CONCLUSION

NERC commends the Committee for attending to the critical issue of assuring the reliability of the interconnected bulk power system as the electric industry undergoes restructuring.

A new electric reliability oversight system is needed now. The continued reliability of North America's high-voltage electricity grids, and the security of the customers whose electricity supplies depend on them, are at stake. An industry self-regulatory system is superior to a system of direct government regulation for setting and enforcing compliance with grid reliability rules. Pending legislation would allow for the timely creation and FERC oversight of a viable self-regulatory reliability organization. The reliability of North America's interconnected transmission grid need not be compromised by changes taking place in the industry, provided reliability legislation is enacted now.

Interconnections and NERC Regions



The CHAIRMAN. Thank you all very much for that excellent testimony. Let me just follow up, Mr. Cook. You pointed out a concern which I have had with the legislation that was consensus legislation from your group in that it was not simple. It's a lot of detail in there and more detail than is common for legislative provisions. I'm encouraged to hear that you're working to see if something a little more streamlined could be adequate to the purpose and agreeable to your members.

Since this committee is going to be trying to mark up legislation when we come back in September, will you have anything by the time we come back in September that we could work with.

Mr. COOK. I certainly hope we can, Mr. Chairman. I think your indication of the timetable will provide a spur to the efforts of that group to come together. It is certainly my intention to be able to come back to you with something. I believe it is possible to streamline that language and still retain the essence of the proposal we are supporting.

The CHAIRMAN. Thank you. Commissioner Nugent, let me ask on this issue of regional authorities, you suggest that regional authorities over planning and siting of transmission should be voluntary and that FERC should have this backup role. Are there going to be areas where there is no regional entity that develops and if so, what do we do about that?

Commissioner NUGENT. The very fairly widely across the country but across the country it is apparent that there is cooperation among the State commissions. I think you are likely to have a strong response. If you feel the response from State commissions is inadequate, I would consider if I were you where you are in perhaps making that a stronger requirement. I don't think we ought to be establishing parallel organizations. Let me suggest how this might work.

A witness, Mr. Rouse, suggested that responsibility for developing some transmission planning and so on be delegated by the FERC to the RTOs. Frankly I would think RTOs if they come into full play are the place we ought to do that planning and develop the details on that and they would suggest it for subsequent review by a regional organization. That regional organization ought to operate within the framework of advising the FERC on the outcome of it. I would think that the FERC would be wise to give great deference to the detailed solutions developed by those regional organizations and ultimately implement them as long as they're consistent with the policies that you set here and are further elaborated by the FERC. Is that your response?

The CHAIRMAN. Yes, that's helpful. Mr. Ward, in your testimony, you suggested additional protections for consumers are necessary before we repeal PUHCA as I understand it. Particularly protections against costs subsidy and cost shifting. Do you think that FERC would need additional authority above what we talk about in this White Paper? Have you had a chance to really look at the White Paper from that perspective as to whether we are contemplating enough authority for FERC at the present time?

Mr. WARD. I haven't made a study of the Federal Power Act from that perspective in terms of analyzing whether PUHCA's repeal would necessitate amendments to the Federal Power Acts to pro-

vide that kind of protection for consumers from cross subsidies. So I can't give you a legal opinion.

I certainly think the White Paper is moving in the right direction in saying that any PUHCA repeal should be conditional. It should not be flash, cut, shift into unregulated holding company arrangements.

The CHAIRMAN. All right. Mr. Dushaw, would eligibility for training programs and retraining programs for displaced workers be something that should be considered under this public benefits fund in your view? Does that solve some of the problems that you alluded to in your testimony about some of the downsizing and displacement of workers in this industry?

Mr. DUSHAW. It would be extremely helpful. I don't know—I can't say, Mr. Chairman, whether the downsizing has hit bottom or not. I rather doubt it. I think the industry is going to take on a different character with a lot of outsourcing of work but retraining for those who are displaced under a definitive program would be most helpful. But really what's needed in terms of reliability is training of tomorrow's work force and putting some characteristics on that training.

The CHAIRMAN. Okay. Well, thank you, I understand, Commissioner Nugent, you have a plane you have to catch and we would excuse you at this point. Thank you very much for coming.

Commissioner NUGENT. Thank you.

Senator WYDEN. Mr. Chairman.

The CHAIRMAN. Senator Wyden, did you have a question of Commissioner Nugent before he left?

Senator WYDEN. I did and just very briefly, Commissioner, as you know Senator Burns and I have been very involved in the effort to try to get more information to the public at a time when clearly energy is being commoditized and we've got trading floors in this country, the ENRON trading floor, the Reliant Energy, Dynergy, and Duke Energy and these huge trading floors and yet it's not really possible for people to get good information. Not proprietary confidential issues but basic information in order to make these markets work better. I just would like to know whether you think that that is generally important for State regulators whether regulators now have access to all of the data that they need to assure that electric power systems are functioning properly and whether you think on balance, this is a constructive effort that Senator Burns and I are making?

Commissioner NUGENT. It is clearly a constructive effort that you and Senator Burns are making here, Senator. Let me—there's really two pieces to that. There are data out there that we do get but we're facing delays of 90 days to 6 months which are intended to protect market so the timely delivery of the data that has been typically available is of great concern to State regulators.

The second question is we're learning on this, too, and doing investigation to find out just what it is that we have to learn to be able to give the public the judgment that the markets are operating fairly. So we're not even fully sure yet what the data are that we will ultimately need to be able to track it. It is absolutely critical I think to the extent that at least at the State level, that the schemes to go forward with retail power markets are based on

wholesale markets, that the public have the assurance that the watchdogs that they employ on their behalf to scrutinize the operation of the market which of necessity requires access to the data have access to those data and be able to scrutinize them and respond to them.

Senator WYDEN. Are there any concerns—as you know my staff has been working very closely with your organization. Are there any concerns that you all have at this time about the direction Senator Burns and I have been going?

Commissioner NUGENT. I would probably take it yet a step further and that is I would also make some sensitive information, one that might be used on the part of someone if it was available in the full public domain to be able to gain the system. I would make that available to State commissions under protective order. I mean you gentlemen are lawyers. You know what restrictions there are on that. We have a long history of accepting sensitive information, protecting that information and utilizing it in the public interest. I think an appropriate addition to make those—that access available would be useful.

Senator WYDEN. Well, you've got to get a plane and Mr. Ward has been very helpful. I just think that this is exactly what is needed right now, given the direction that we're going in terms of the energy field. Energy is being commoditized. It is clearly being subject to a whole host of markets and if people really believe in fair competition, they've got to want to get this information out.

And what we do in our legislation, Mr. Nugent, Senator Burns and I give FERC the authority to delay or withhold information release when immediate release could result in market manipulation but have taken the position that you reflected, that as a general rule there is no good reason to delay or withhold access to this information from regulators to the public as long as everybody gets access to it and that to me is what you need to make markets work.

So I'll let you run to the plane and thank you very much for the cooperation you've shown us and Mr. Ward as well. Your organization has been very helpful and I thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much. Did you have other questions of any of the other witnesses?

Senator WYDEN. No, Mr. Chairman.

The CHAIRMAN. Let me thank Commissioner Nugent but also all of the rest of you. I think the hearing's been good. The testimony is very useful to us and we will take it into account as we try to move forward with legislation.

The hearing is adjourned.

[Whereupon, at 12:15 p.m. the hearing was recessed, to be reconvened on July 26, 2001.]

NATIONAL ENERGY ISSUES

THURSDAY, JULY 26, 2001

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 9:48 a.m. in room SH–216, Hart Senate Office Building, Hon. Jeff Bingaman, chairman, presiding.

OPENING STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

The CHAIRMAN. Why don't we go ahead and start the hearing. This is the second day of hearing intended to prepare the committee to address the pressing needs we have seen clear evidence of in our electricity markets.

If there's one thing we should learn from what happened in California and the west coast is—this past year—is that a functional wholesale market in electricity is important and necessary. Another thing we probably learned is that we do not have one, at least in the West. So as I indicated yesterday at our hearing, I believe the time for studying these issues is drawing to a close. It's time for the committee and the Congress to act to ensure that electricity markets work to provide dependable, affordable clean energy essential to the Nation and to our economy.

We're happy that today we have two panels. The first is our Secretary of Energy, Minerals and Natural Resources from the State of New Mexico representing the Western Governors Association. Jennifer Salisbury made an effort to be here for the hearing yesterday and was not able to get here due to the plane difficulties. I wish the FERC would solve that problem for us as well.

And then our second panel is made up of the FERC Commissioners. I look forward to hearing from all of them as to their views as to the legislative proposal that we have put forward in the form of a White Paper, whether that provides the necessary tools that they would need to adequately do their job. I've been encouraged by the direction of some of the recent orders that have come out of FERC, and we'll have a chance to ask about those orders as well.

Let me ask Secretary Salisbury to come forward if she would right now and summarize your main points, we will include your full statement in the record, but if you could give us a short version of what you think it's essential that we know, particularly from the perspective of the Western Governors Association, that would be very useful. Thank you.

Senator CRAIG. Mr. Chairman?

The CHAIRMAN. Yes. Oh, excuse me, I forgot to have an opening statement. Go ahead.

Senator CRAIG. That's all right. I have a brief one.

The CHAIRMAN. Go right ahead.

STATEMENT OF HON. LARRY E. CRAIG, U.S. SENATOR FROM IDAHO

Senator CRAIG. I'm going to have to leave here at 10 o'clock, and I apologize, because this is a most important hearing, and I'm glad to see a full force FERC here and in attendance.

Let me say, Mr. Chairman, that on April 10 at the height of the problems in California and the Western Pacific Northwest region of our country, Senator Feinstein was working hard to find a solution. A Senator from Oregon was working hard—many of us were—to get ourselves through the summer and at the same time deal with what was a most dysfunctional market.

On April 10, at that time, the FERC came to Boise and listened to the 11 Western States. New Mexico was there. And it was obvious to all of us who were in attendance and who stayed throughout that hearing that we did, in fact, have a broken market in the West at that point in time.

California had failed to act in ways that they now have acted. FERC had not yet acted but was finding bases from which to act under the law to begin to help shape. And you've mentioned in your opening statements that, in fact, they have acted, and I agree with you. I think some of those decisions and orders that are out and effective or before us for comment have also helped shaped the market in a substantially improved way. What is a broken market is a market that is now appearing to function. Although certainly damaged, it is beginning to work in a much better basis.

During that whole period, of course, what I was concerned about—I think what the Western States and Oregon and Washington and Idaho were concerned about—and Montana—was how we cope in this situation with a hydro-based system in a drought environment. Well, it looks like we may work our way through that this summer now thanks to everyone working together and thanks to the FERC looking at it, sensitizing themselves and moving in decisive ways.

That doesn't mean that we have now solved the problems. It certainly doesn't, because there clearly is a supply situation out there and a transmission system that needs rapid improvement. All of those things are a part of what we will look at. I am pleased that you are holding this hearing today, and I think it's very important that we stay fully engaged with the FERC. They have substantial authority in these most important areas, and they are using it in many ways that I think are positive. In some ways I don't agree with, but at the same time, they're doing what we expected them to do and what the law requires them to do. Thank you.

The CHAIRMAN. Thank you very much. I think rather than have opening statements by the other members, let me just—we'll add a couple of minutes onto each member's questioning time so that they can make any additional statements that they would like.

Secretary Salisbury, why don't you go right ahead with your testimony.

STATEMENT OF JENNIFER SALISBURY, SECRETARY OF ENERGY, MINERALS AND NATURAL RESOURCES, STATE OF NEW MEXICO, ON BEHALF OF THE WESTERN GOVERNORS' ASSOCIATION

Ms. SALISBURY. Thank you very much, Mr. Chairman. As the chairman mentioned, I'm here on behalf of the Western Governors' Association. The Western Governors' Association is composed of the 18 Western States, including all the States represented here this morning, as well as the territories of Guam, the Commonwealth of the Mariannas, and American Samoa.

The WGA, if you didn't already know, operates by consensus and through policy resolutions adopted at its meetings. So what I testify about today is directly related to a policy that has been formally adopted by the member governors.

Before I address the three items discussed in the chairman's White Paper, I would like to reemphasize the uniqueness and separateness of the power grids serving North America. The one serving the West—the Western interconnection—fully integrates the Western States, Western Canada and Northwest Mexico.

There are few ties currently between the Western interconnection and the other two interconnections. This means that what happens in the West—a power outage in New Mexico, for example—will not impact Connecticut.

The grids have evolved differently as well. The Western grid is defined by long distances between load centers, whereas the Eastern grid more resembles a tight-knit network.

Other differences are apparent. Unlike the East, as you all well know, in the West, vast tracts of land are owned by the Federal Government. This obviously creates different transmission siting issues. The point I'm trying to make is that we hope the legislation that this committee crafts will recognize these differences that already exist, because we don't believe one-size-fits-all legislation will work.

Now let me turn to three specific issues raised in the White Paper and on which the Western governors have taken a specific position.

First, the White Paper states that the FERC should have jurisdiction over all transmission, whether bundled or unbundled. To the extent this means the FERC would now have jurisdiction over all retail access questions, Western Governors would oppose.

Western Governors have taken the position that such issues as to whether a State should go forward with retail access, not go forward, and the timing when certain classes of consumers are offered retail access, are best left to the States. In other words, these are State prerogatives.

Second, Western Governors support a new approach to setting and enforcing reliability standards. This approach is embodied in the consensus legislation advanced by the North American Reliability Council or NERC. Governors recognize that voluntary compliance, which has worked so well in the past, will not continue to work well in the new environment we've entered.

Yes, FERC must be given enforcement oversight, but that does not mean that it should have absolute authority in setting the

standards. Instead, Western Governors have enunciated three principles that should guide reliability legislation.

One, deference must be given to standards adopted within and for the Western interconnection. Two, implementation and enforcement of standards must be delegated to the West. Three, States must have a role. The NERC consensus legislation contains all three of these principles. Our bottom line, retain the central provisions of last year's bill that provides for deference, delegation and a State's role.

Stated another way, we oppose proposals to centralize decisions at FERC. The agency lacks the time, the resources, expertise and first-hand knowledge of the conditions in the West to manage reliability of the Western power grid. Besides, the process that we're advocating we think will work with our international partners.

As a footnote, Western Governors support efforts to ensure the availability of information on loads, facilities and generation. Better data should mean better reliability of the grid.

The third issue that I'd like to discuss, Western Governors have been proactive in addressing transmission needs of the Western interconnection. They understand adequate transmission is critical to maintaining the reliability of the grid as well as enabling competitive wholesale electricity markets.

The White Paper discusses the need for Federal eminent domain in order to build new transmission. Western Governors oppose giving FERC this authority. Siting has already been a State issue. In addition, we don't believe there's sufficient evidence to even support the need for centralization of land use type decisions. No Western State in our knowledge has ever denied a permit for interstate transmission lines.

It's also important to note that the major challenge facing siting issues in the West rests with Federal land managing agencies. The Federal Government, as you all know, owns significant portions of land in Western States—45 percent in California, 83 percent in Nevada, and 34 percent in my own State of New Mexico.

The President has issued an executive order directing Federal agencies to expedite energy related projects. We believe this could go a long way towards solving any problems that currently exist to site transmission on Federal lands.

While Governors don't believe the case has been made for Federal jurisdiction, Western Governors still recognize there is a need for States to examine their own siting and permitting processes. Doing so should result in higher quality and more timely decisions on transmission line proposals.

To reiterate, Governors firmly believe that granting FERC siting authority—even as a backstop—is not needed in the West and should not be part of the committee's legislation.

In summary, we applaud the White Paper for highlighting the challenges of today's electricity markets. And to reiterate, first, Western Governors oppose giving FERC jurisdiction over bundled transmission. Second, support reliability legislation similar to that which passed the Senate last year. And third, Western Governors oppose granting FERC eminent domain authority for transmission lines.

That concludes my testimony, Mr. Chairman. I would be happy to answer any questions.

[The prepared statement of Ms. Salisbury follows:]

PREPARED STATEMENT OF JENNIFER SALISBURY, SECRETARY OF ENERGY, MINERALS AND NATURAL RESOURCES, STATE OF NEW MEXICO, ON BEHALF OF THE WESTERN GOVERNORS' ASSOCIATION

Thank you Mr. Chairman. I am the Secretary of Energy, Minerals and Natural Resources of the State of New Mexico. I am representing the Western Governors' Association. I also sit on the Board of Directors of the Western Interstate Energy Board, the energy arm of the Western Governors' Association, and am a member of the Committee on Regional Electric Power Cooperation (CREPC) CREPC is unique in North American in that it includes all of the state and provincial agencies with electric power responsibilities within an entire interconnection.

In crafting legislation, the Committee should keep in mind that North America is served by three essentially electrically-separate power grids. Within the Western Interconnection, the western states, western Canadian provinces and northwest Mexico are fully integrated. However, there are few ties between the Western Interconnection and the other interconnections. Generators are synchronized within interconnections but not between interconnections.

The geography of the system is important, because it defines the practical maximum extent of the power markets and the impacts of power outages. An event in British Columbia cause blackouts in Arizona, but an outage in Arizona cannot impact states in the Eastern Interconnection.

The Eastern and Western grids have developed different features. The western grid is defined by long distances between load centers and often between generation and load centers. The Eastern grid more resembles a tight-knit network of transmission. As a result, the maintenance of stable voltage in the system is often the constraining factor in the operation of the Western grid, while the thermal limits of lines is the typical constraining factor in the Eastern grid.

As a result of these differences, institutions and practices[1] to address electric power issues have evolved differently in the West than to the East.

Another reality differentiating the East and the West is the vast ownership of land in the West by federal agencies. This land ownership pattern creates different transmission facility siting challenges than in the East.

We recommend that federal legislation recognize these electrical, geographic and institutional differences and resist the temptation to adopt federal government-centric, one-size-fits-all "solutions." I think the experience in western power markets over the past year has illustrated the limits of policy made in Washington, D.C. for the West.

Mr. Chairman, your "White Paper on Electricity Legislation" provides a good overview of current public issues resulting from the new electricity markets. I will address two items in your white paper—reliability and regional planning and siting—and will cite the position of Western governors on other issues raised in the white paper. My comments are based on existing policy of the Western Governors' Association in Resolution 00.009 "A Competitive and Reliable Western Electric Power System" (see http://www.westgov.org/wga/policy/00/00009. htm) and the recommendations that emerged from an Energy Policy Roundtable the governors held in February (see http://www.westgov.org/wga/press/energy agree.htm0 and a Transmission Roundtable held in May (see http://www.westgo.org /wga/initiatives/energy/review draft transmission.htm).

RELIABILITY

The electric reliability system in the West has worked remarkably well over 30 years. The system of voluntary standards set by the Western Stations Coordinating Council, the only regional reliability council in the Western Interconnection, has been effective in keeping the lights on. This system has included investor-owned utilities, municipal utilities, rural cooperatives, public utility districts, federal power marketing administrations, as well as Canadian and Mexican utilities. State public utilities commissions have relied on these regional standards in their decisions.

[1] For example, the Western industry has relied on rating the capacity of transmission paths under different system conditions and limiting the use of paths to their rated capacities. Because paths are not similarly rated in the Eastern Interconnection, the industry relies on Transmission Loading Relief (TRLs) in the East to force users to cut back power transfers when reliability is threatened.

However, with the emergence of competitive electricity markets it is well recognized that we cannot rely on voluntary compliance with standards into the future. Since 1997, western governors have urged the enactment of federal reliability legislation to provide a legal underpinning for enforcing reliability standards. As a stop-gap measure, the West hat implemented a system of contracts to make standards enforceable. Most control areas in the West have executed the contracts, a few have not. However, such a contract enforcement system is not a long-term substitute for federal legislation.

In 1997 and again last year, Western governors called for a new approach to setting and enforcing reliability standards that includes a public process for setting standards, review of standards by states, application of standards to all users of the grid, enforceable sanctions for non-compliance with the standards, mandatory membership by operators of the gild in regional reliability councils, and joint state/federal government oversight of the processes used to establish and enforce reliability standards. In 2000, the governors urged the "organization of regional advisory bodies of affected states and Canadian provinces to advise regional and North American organizations and the Federal Energy Regulatory Commission (FERC) and appropriate Canadian and Mexican regulatory authorities . . . FERC should defer to the advice of such regional advisory bodies when advisory bodies cover an entire interconnection."

Through extensive on-going collaborative efforts between the Western states/provinces and the Western electric power industry, three principles have been developed that guide our views of federal reliability legislation.

(1) Deference must be given to standards adopted within and for the Western Interconnection.

(2) The implementation and enforcement of standards must be delegated to the West.

(3) States must have a role in the process.

On July 11, 2001, WGA Chairman Governor Kempthorne conveyed to the Committee the governors' views on federal reliability legislation. (See attached letter.)[2]

The Western states, provinces and industry have worked over the past three years to streamline and consolidate existing industry grid management institutions into one new entity, the Western Electricity Coordinating Council. The governors have called for the expeditious establishment of the new institution. FERC is scheduled to act on the proposed WECC this week and, assigning FERC approval, WECC will be operational later this year. The new institution is designed to rapidly implement the provisions of federal reliability legislation.

Through extensive work with the North American Electric Reliability Council (NERC), the central elements of what the West needs are included in the NERC consensus legislation that the Senate passed last year. The NERC language provides for deference to standards that cover an entire interconnection. It provides for delegation of implementation and enforcement functions to a regional entity, such as the WECC, that is much closer to the issues then a North American body or FERC. It provides for a state advisory role and enables FERC to defer to such advice when given on an interconnection-wide basis. This approach builds on substantial existing technical expertise in the industry and states and does not require the establishment of a large new federal bureaucracy.

In WGA Resolution 00-009, the governors said: "Federal agencies and federal legislation should facilitate effective decision-making by the states and empower the states, with the cooperation of other regional stakeholders, to create regional mechanisms, where appropriate. to address transmission, reliability, market power and other regional concerns. FFRC should be required to defer to the decisions of such bodies." The regional advisory body concept is a stop in this direction.

We strongly urge this Committee to retain the central provisions of last year's bill that provide for deference, delegation and a state role.

We oppose proposals to centralize decisions on reliability at FERC. The agency has neither the time, resources, expertise nor first-hand knowledge of conditions to the West to efficiently manage the reliability of the western power system.

REGIONAL PLANNING AND SITING

Western governors have been proactive in addressing the transmission needs of the Western Interconnection. They recognize that an adequate transmission system is necessary to maintain the reliability of the gird and enable competitive wholesale electricity markets. At their February 2, 2001 Energy Policy Roundtable, the gov-

[2] The letter can be found in the appendix.

ernors highlighted the need for an adequate energy delivery infrastructure. On May 9, 2001 the governors held a transmission roundtable and focused on three questions:

1. What transmission enhancements are needed in the West?
2. How can needed transmission enhancements be financed?
3. How can needed transmission enhancements be expeditiously permitted?

The governors recognize that we cannot wait until Regional Transmission Organizations are in place and functioning before beginning to answer these questions. The uncertainty created by federal policies has led to a near-moratorium on transmission investment.

As a step toward addressing the question of what transmission enhancements are needed, western governors established a work group headed by Jack Davis, CEO of Pinnacle West, and Commissioner Marsha Smith of the Idaho PUC, who also chairs the Committee on Regional Electric Power Cooperation, to develop a "conceptual" transmission plan. This plan is designed to begin to scope out the transmission needs of the region. It is the beginning, not the end of needed analysis. Such a global view is needed, given that most transmission work now being done is driven by narrow transmission requests made of utilities under Section 211 of the Federal Power Act. The conceptual plan should be completed in the next week and presented to Western governors at their meeting in August.

There is much discussion in the Committee's white paper and elsewhere of the need for federal eminent domain in order to enable new transmission to be constructed. The record in the West provides no evidence supporting the need for new centralization of land use decisions that are more properly made in the West based on intelligent tradeoffs of needs and values. To our knowledge, no western state his ever denied a permit for an interstate transmission line. In the West at least, the idea of federal domain is a solution looking for a problem. As this Committee knows, federal primacy in natural gas pipeline siting and safety has not been a panacea for ensuring a well-functioning energy infrastructure.

The major challenge of siting of transmission in the West rests with federal land management agencies. The federal government owns vast tracts of land to the West (e.g., the federal government owns 83% of the land in Nevada, 65% of Utah, 63% of Idaho, 53% of Oregon, 50% of Wyoming, 46% of Arizona, 45% or California, 36% of Colorado, 34% of New Mexico, 29% of Washington, and 28% of Montana.) Federal land management agencies operate under a myriad of laws.

Because few new transmission lines have been proposed in the West over the past decade, siting add permit review processes have become rusty. The President's Executive Order 13212 directing federal agencies to expedite energy-related projects provides needed direction. However, the agencies also need adequate resources to execute their responsibilities.

States also need to reexamine their siting and permitting processes to enable higher quality and more timely decisions on transmission line proposals. Such timely action is essential in the faster-moving competitive electricity market.

The draft Conceptual Transmission Plan that the governors ere reviewing recommends that all siting review processes be streamlined and coordinated to enable timely construction of transmission. State review processes should address both local and Western Interconnection needs, and federal agency review processes should be coordinated internally as well as with State and Tribal authorities.

To advance these goals, the Committee may want to:

(1) Authorize the establishment of joint siting processes among states and federal land management agencies;

(2) Direct federal agencies to participate in joint review process and ensure that states can, at their request, be cooperating agencies in all transmission project EISs; and

(3) Fund these cooperative siting processes.

Granting FERC siting authority, even as a backstop, is needed in the West and should not be part of the Committee's legislation.

OTHER ISSUES IN THE WHITE PAPER

The existing policies of the Western Governors' Association do not address all of the issues in the white paper. Following are the policies of Western governors that bear on the other issues raised in the white paper.

Transmission Jurisdiction: The governors believe that all segments of the Western industry, including investor-owned utilities, public power, federal power marketing administrations, power marketers and brokers, and independent power producers, should participate in the competitive wholesale market (Resolution 00-009).

Western Governors have urged the Western electric power industry, in cooperation with Western states and the federal government, to: support the formation of cost-effective Regional Transmission Organizations to maintain and enhance system reliability; examine and mitigate market power; and facilitate efficient power transactions in a restructured industry. (Resolution 00-009) Western states have made it a priority to work with the industry to resolve issues that arise at the boundaries of RTOs. However, as FERC was told at a meeting in March 2001, western states do not believe that a FERC-mandated west-wide RTO is the most efficient means of achieving a seamless transmission system throughout the Western Interconnection.

The governors have supported the elimination of release to distributed generation, including barriers to interconnection to the grid (February 2 recommendations from the Energy Policy Roundtable).

Rates and Market Power

Western governors have urged the federal government to work with states to develop effective approaches to mitigate market power.(Resolution 00-009). Western governors have called for sending consumers more accurate and timely price signals. Such price signals are an effective means of mitigating market power. (Recommendations from February 2 Energy Policy Roundtable). Closer collaboration between FERC and the western states in decisions on whether to authorize market-based rates and the degree to which western markets were competitive may have helped to mitigate the crisis over the past year.

Member Transparency Rules

Three of the recommendations from the governors' Energy Policy Roundtable addressed the urgent need to improve the quality of information for policy makers and market participants. The governors are encouraging the creation of a centralized Western interconnection-wide database that tracks prospective demand, and tracks generation and transmission facilities under construction, that are permitted, in the permitting process, or under consideration. They support efforts to ensure the availability on loads, transmission, and generation where necessary for ensuring the adequacy, efficiency and reliability of the grid. They have identified an immediate need to assess natural gas supplies and deliverability in the West.

A federal government-only information system may not provide states or market participants sufficiently detailed or timely information to ensure efficient electricity markets.

Additional Issues

Consumer protection: Western governors have urged Western public utility commissions and Attorneys Generals to examine whether new measures are needed to protect electric consumers in a more competitive market and educate consumers on their rights and risks under a competitive electric system.

Tax provisions: Western governors have written the Treasury Department urging that the tax-exempt status of public power entities not be jeopardized if such entities provide their existing transmission assets to an independent system operator.

CONCLUSION

The Committee's white paper correctly highlights the challenges of the new realities of electricity markets. Congress needs to address these challenges. However, Congress needs to avoid imposing a federal-government-only approach to these challenges.

Federal legislation must recognize the fundamental electrical realities of separate and international power grids. This is particularly critical in the West where the transmission system in western states, western Canada and northwest Mexico is highly integrated.

Federal legislation must also recognize that the Federal Energy Regulatory Commission does not have the time, resources, expertise or local knowledge to single-handedly manage the western electric power system. The legislatively simple solution of "give FERC more authority" will not result in an electric power system that meets the needs of the West at lowest cost.

We urge the Committee to:

- Approve federal reliability legislation similar to that which passed the Senate last year that provides for deference to decisions made in the Western Interconnection, delegation of implementation responsibilities to a Western reliability organization, and a role for states through the establishment of State Advisory Bodies.
- Not grant FERC eminent domain for transmission lines.

The CHAIRMAN. Thank you very much for your testimony. Before I begin any questions, let me just see if Senator Murkowski had any opening statement he wished to make.

Senator MURKOWSKI. No, Mr. Chairman, I really don't. I believe this is pretty much a continuation of what we began yesterday, and I think it's very important. As I indicated previously, I believe pretty much in market competition, not more regulation and not shifting jurisdiction from the States to the FERC.

I can't help but make another attempt to alert my colleagues and the general public. This is a clipping, Iraq missile nearly hits U.S. spy plane yesterday. U.S. U2 spy plane was attacked by the Iraqis, and the missile almost hit the aircraft—said that it exploded behind the pilot and was done without the sophistication of an on-target radar with this aircraft at 70,000 feet.

My point is, Mr. Chairman, it's just a matter of time before Saddam Hussein is going to take down one of our aircraft. We've had over 230,000 sorties over Iraq supporting a no-fly zone. The irony of that is that we're now importing not 750,000 barrels a day but a million barrels a day from Iraq. I find that unconscionable in relationship to what it's costing American taxpayers and the lives that we're putting at risk when we clearly have an opportunity next week in the House and later on in the committee to address the merits of reducing our dependence on imported oil by stimulating domestic production here in the United States and particularly in my State of Alaska. And there's absolutely no question—no question at all—that we don't have the scientific technical capability to do it safely. Thank you.

The CHAIRMAN. Thank you. Let me ask a few questions on the basis of the testimony you've given us. On this issue of eminent domain, your position—the position of the Western Governors—is that there should be no eminent domain authority at FERC and also that there should be no eminent domain authority at any regional—in any regional organization. What is your thought as to whether or not States should be encouraged or directed in some way to abide by decisions of regional organizations as to transmission?

Ms. SALISBURY. Mr. Chairman, this is a little bit difficult for me this morning. I apologize, but I'm only reflecting what we've taken a stated positive position on. It's my understanding that the issue that you just raised will be addressed at the August meeting. We—it's an interesting idea. We just have not formally talked about it.

I think, at least at this time, we don't believe there's been a case stated for giving—for jurisdiction—for changing the system so much. It would really be a huge change in the policies that we've all operated under for a long time.

The CHAIRMAN. Let me ask about these bottlenecks that we here in the committee have been hearing about—bottlenecks in the Western transmission system. This notorious path 15 line, for example, some witnesses have mentioned as many as 43 constraining points in the Northwest that constrain the ability to move power around adequately.

If there's no need for any additional authority at either the Federal or regional level, what is preventing the resolution of these problems? I saw something in the news this morning about Sec-

retary Abraham had come out and said that the Department of Energy was going to take the—had taken the initiative to try to get this line 15—path 15 line—fixed.

You say there's no evidence that there is a need for putting additional authority at FERC or anywhere but at the State level, how do you explain these constraint points?

Ms. SALISBURY. Well, I think there are constraints, and I would say that the Western Governors would argue that we need to reexamine all of our process that we've developed to try to get at more coordination, better coordination, and work—and this may be what the chairman was talking about a little bit earlier, some sort of regional groups to get at this in a better way.

What I was referring to, though, is that, at least at this point, the States have never denied a permit for an interstate transmission line—at least in the West they have not. And so to argue that the FERC now needs to be given jurisdiction over this issue doesn't seem to be appropriate.

The CHAIRMAN. Do you think the fact that the States have not denied permit applications is clear evidence that there's no need for any more general planning or siting authority?

Ms. SALISBURY. Mr. Chairman, I think the Western Governors would say yes, there is no need for existing authority for eminent domain. Planning, I don't believe we've taken a position on that.

The CHAIRMAN. Okay. Senator Murkowski.

Senator MURKOWSKI. I'd like to expand on that, because I want to make sure that we understand this for the record. In your statement, you state—and I quote—"The White Paper states"—and you're referring to the White Paper that majority has proposed—"The White Paper states that FERC should have jurisdiction over all transmission whether bundled or unbundled." And then you say, "To the extent this means that FERC would now have jurisdiction over all retail access issues, Western Governors would oppose." And you expanded in your oral statements, and again, you address your justification that the systems work, and you've been able to accommodate the request. Is that the only reason or are there others that you would deem to oppose any effort to have FERC have jurisdiction over all transmission?

Ms. SALISBURY. Mr. Chairman, Senator Murkowski, the transmission—the bundled and unbundled—Western Governors have always taken the position that retail access issues, whether to grant retail access, the timing of retail access, is a decision that's better left to the States.

So to the extent that turning over jurisdiction for transmission—this is different from the siting issue, the bundled and the unbundled—and it would back door retail access questions to FERC, Western Governors have taken a position opposing this.

Some States in the West do not want retail access. Just as an example, my own State of New Mexico had passed a bill a year or so ago, and this past year, because of the situation in California and elsewhere in the West, delayed implementation of retail access for 5 years.

Senator MURKOWSKI. I want to point out simply that this, I think, is one of the fundamental differences that exist in the two bills that have been submitted as comprehensive bills by Senator

Bingaman and myself, and we do appreciate the fact that I happen to agree with you starts the morning off all right for me. But nevertheless, we should point out our differences, because those are the areas that we're going to have to work towards compromise and a resolve.

The CHAIRMAN. Thank you very much.

Senator Wyden.

Senator WYDEN. Thank you, Mr. Chairman. Yesterday, Miss Salisbury, the president of the National Association of Regulatory Commissioners endorsed legislation that Senator Burns and I have introduced that would make it easier for the States to get key information about electric power production, transmission past schedules and flows that are so essential to making markets work.

I think this legislation very much tracks the kind of comments that you've made, and it would just be helpful if we could get your thoughts on the idea on the need for more market transparency and more information on these issues.

Ms. SALISBURY. Mr. Chairman, Senator, the Western Governors, at a meeting that it had—a roundtable meeting that it had in February—as one of its—I guess the—what it released as far as additional steps that needed to be taken, did state affirmatively, and I will quote, "that Western Governors support efforts to ensure the availability of information on loads, transmission and generation when necessary for ensuring the adequacy, efficiency and reliability of the grid."

We recognize, and I think the Senator's already stated he recognized that there is definitely a need for more, better, quicker data to make decisions. And I think the Western Governors would work with that and probably support legislation.

Senator WYDEN. We'll work closely with you. Mr. Chairman, I too have to go on to a hearing. I just wanted to make a brief statement about a matter that involves FERC. As our colleagues know, I put up on my web site various oil industry documents that describe some very troubling refinery practices that deal with this price manipulation issue.

Today with FERC, we're going to be looking at whether electricity or natural gas supply was manipulated to inflate the price. FERC has asserted that there is no evidence now of price gouging.

Given that, I'm troubled by the fact that the network news the other night reported on a secret FERC investigation that found that two companies were keeping powerplants out of service to raise electricity prices.

It was also reported that FERC sealed the records and that the documents would not be released, and in fact, Commissioner Massey, who is here today, opposed sealing the documents. So I hope to get back, Mr. Chairman, but if I don't, I just want to be on record as saying that I hope that FERC will work with this committee to provide these documents that the network news is now saying provide tangible evidence of manipulation of supply and electricity prices. I think it's important for the committee to decide these matters themselves after we make arrangements to look at it in a way so that if there are propriety issues that those matters can be protected. And I can't stay this morning, but the reason Senator Burns and I have introduced this legislation is that we've

got to prevent gaming, and getting more information out will help prevent gaming. But until that time, when you've got FERC sealing records and you've got people with credibility like Commissioner Massey saying that they're opposed to sealing the records, I think this committee's got an obligation to dig further. And I thank you, Mr. Chairman, for the extra time to make the point that normally I wouldn't have done on Miss Salisbury's watch.

The CHAIRMAN. Thank you very much.

Senator Thomas.

Senator THOMAS. Thank you, Mr. Chairman. Thank you, Miss Salisbury. I agree with you, certainly, on the bundled transmission oversight and those kinds of things. Is California part of this governors group?

Ms. SALISBURY. It certainly is, Mr. Chairman, Senator, and California's actively participated on these electricity issues.

Senator THOMAS. Was there an appeal to FERC and to the Federal Government to do things a little bit contradictory to what Governors have agreed to?

Ms. SALISBURY. Well, Mr. Chairman, Senator, I think we've tried really hard in the policy resolutions to reflect the positions on these issues that I've raised. There has—there is no policy resolution on the price cap issue, and I think that's where maybe the Senator's going is that there is a divergence of opinion on whether price caps are appropriate, and some Western Governors have said they are, and some have said they are not.

Senator THOMAS. Right, I understand. Well, the point, though, is if you know—if you want to keep the jurisdiction and the decision making locally, which I agree to, then you can't turn to somebody else when you have a problem to come in and resolve it. So I believe—what does the—do the Governors—have they talked some about strengthening the transmission within the RTO, within the Western area? Obviously transmission is one of the difficulties. We would like to ship more power from Wyoming outside of the State—transmission there. The Governors have any idea where they want to go? Do they have a plan? Do they have any vision of the future?

Ms. SALISBURY. Mr. Chairman, about, oh, I don't know, 2 or 3 weeks ago—maybe it's been a little bit longer than that—Western Governors did meet on the transmission issue specifically. They're just about ready to release a report. It's not available yet, and that's why I don't feel free to discuss, because—and I apologize again that I'm constrained by what I testified to——

Senator THOMAS. I understand.

Ms. SALISBURY [continuing]. Yes, very concerned. It will be an issue that's addressed at the meeting—the annual meeting—that the Governors hold in August.

Senator THOMAS. Well, I'm just hopeful that not only do you have a report on what the situation, but more importantly, do we begin to have some vision as to what we think needs to be done and to begin to make recommendations as to how we do it.

Would you think that generally a interstate national grid that would bring together the RTOs of the various regions and allow for the movement of merchant power to move nationwide? Would that be something the Western Governors would agree to?

Ms. SALISBURY. Mr. Chairman, Senator, I don't know at this time. I understand that it is enormously expensive to do that, because there are not many ties now between and among the three grids. And so I think what the Governors are trying to do, and it's reflected in the policies, is to deal with the reality as it exists today in our new markets.

Senator THOMAS. I'm sure that's true, and I'm getting to almost have a thing about this. But that's what we're doing is reflecting now on where we are. The reason for reflecting where we are is to try and determine where we need to go to solve the problem. And I guess that's what I'm really interested in us doing. And I'm going to have to go to another hearing too, so I hope the FERC folks will also, instead of just talking about where we are and what we do next week, what is it that we need to do over time to be able to deal with our obvious problem? And that is, we're changing the way we do electricity. We're changing from the idea that you used to generate almost entirely for your own service area. Now you're generating independently, and if that's going to work—and we think it is—they you have to be able to move the product and get it into the places where it goes. But I don't hear people talking about what's the resolution to that. And I wish—and I hope you'll take that back to the Governors and say look guys, we need—or ladies or whoever they are—we need a little bit of vision of where we're going. And thank you so much for being here. I appreciate it.

The CHAIRMAN. Senator Feinstein.

Senator FEINSTEIN. Thanks very much, Mr. Chairman. If I may, I'd like to welcome you very much. Miss Salisbury, may I reserve my time for the FERC Commission?

The CHAIRMAN. Sure.

Senator FEINSTEIN. Thank you very much.

The CHAIRMAN. Senator Cantwell, did you have questions?

Senator CANTWELL. Likewise, Mr. Chairman.

The CHAIRMAN. Senator Landrieu.

Senator LANDRIEU. Likewise, Mr. Chairman.

Senator MURKOWSKI. You're getting off easy.

The CHAIRMAN. Senator Murkowski.

Senator MURKOWSKI. I won't take much time.

Unfortunately, Senator Wyden isn't here, and I didn't want to interrupt him, and then he had to go to a hearing. But I think it's important to keep these things in perspective. The allegations associated with consciously taking down plants and profiteering and so forth, we can be critical of one phase, but somebody's got to stand up for the other points that are relevant. And I'm looking at an article here that was forwarded to me, breaking news, and it says—reports—'State grid operator behind plant's output swings.'

I don't know the facts here—maybe we can get into them when FERC comes in—but, you know, there's a general assumption, I think, that's left an impression that somehow the utilities are responsible for taking a plant down, profiteering—whatever the allegation might be. We don't get a chance to go in, and I don't think it's our job to point fingers.

But nevertheless, I think it's important to point out that in this particular article, the operator of the State's power grid has ac-

knowledged that it was responsible for swings in production at a powerplant that Governor Gray Davis held as an example of price gouging by out of State energy companies.

Let's be fair, and let's make sure that the media—which has an obligation as an investigative agency—does balance on these things. Just to point out one way—and I'm a little frustrated here—we can spend a lot of time witch hunting around here, but we have a shortage of supply in this country, and doing this kind of witch hunting, I think is necessary for FERC and the appropriate agencies, but it's up to us to increase the supply of energy, and I think we should spend a little more energy doing that.

I'm sorry that you had to hear my tirade. It has nothing to do with you, but I agree with your testimony and the Governors and certainly wish you a good day and thank you.

Ms. SALISBURY. Thank you.

The CHAIRMAN. Well, thank you very much for testifying. We appreciate it.

Ms. SALISBURY. Thanks, Mr. Chairman and members of the committee. I'm happy that they were interested in hearing from the Western Governors.

The CHAIRMAN. Thank you. Do the Eastern Governors have the same opinion, do we know?

Ms. SALISBURY. They could?

The CHAIRMAN. Could you arrange it?

Ms. SALISBURY. I won't even attempt that one.

The CHAIRMAN. Why don't we ask the second panel—the FERC Commissioners—to please come forward, and we will hear their testimony. If each of you could come up, we'd appreciate it.

Senator MURKOWSKI. Mr. Chairman, I'm going to have to excuse myself. I have to introduce a couple of nominees at the agriculture hearing this morning at 10:30, so I wanted to wish my friends from FERC hello. Although we're not real close friends, I want to make sure the records notes that. Got to be careful around here. And furthermore, I would hope that they would respond to the question by the Senator from Oregon, since I probably won't be here to ask it.

The CHAIRMAN. All right, we will ask them to do that. Why don't we start out—I think probably the way to proceed is to start with Commissioner Hébert as the Chairman and hear his views. And if he could just—I think as always here in the committee, we will take all written statements you have and include them in the record, so if you could just summarize the main points you'd like to make. And then maybe after Commissioner Hébert, Commissioner Breathitt, Commissioner Massey, Commissioner Wood, Commissioner Brownell—why don't we do that? Go right ahead. Mr. Chairman, thank you for being here.

STATEMENT OF CURT HÉBERT, JR., CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION

Mr. HÉBERT. Thank you, Senator Bingaman, Mr. Chairman. I appreciate that. Members of the committee, Mr. Chairman, good morning and thank you for the opportunity to speak today on legislative proposals relating to restructuring of the electric utility industry.

The guiding principle for restructuring legislation should be to provide a foundation for the development of robust wholesale competition in the electric industry. This would provide electric customers with supply sufficient to meet their energy needs at the lowest reasonable cost.

The Commission remains committed to developing market-oriented policies that promote the addition of necessary transmission and generation and that allow for the detention and remedying of any anti-competitive behavior.

Legislation should help ensure that transmission owners and operators have economic incentives to operate and expand the transmission grid to meet the needs of all consumers and other market participants.

Order 2000 encourages the formation of regional transmission organizations—as we call them, RTOs. The industry has responded positively with innovative efforts to develop efficient and non-discriminatory RTOs, because they make economic sense, not because of a legal mandate.

We need to rely on competition instead of traditional regulation wherever possible. Existing laws that hinder competition, such as PUHCA and PURPA, need to be modified or repealed. And I noticed that was mentioned in the White Paper, and I think that is absolutely on target.

The Commission has no direct statutory authority to promulgate and enforce a set of mandatory reliability standards. Possible approaches to reliability include enforcing standards through identified performance-based measures or through voluntary contracts. Congress should understand, however, that mandatory reliability rules alone are not enough to ensure reliability of the grid.

Finally, the problems experienced in California and the West were not caused by any inadequacies in the Federal Power Act regarding rates and power. Preventing such problems in the future is not dependent on adding to the Commission's authority or obligations.

Consistent with existing statutory authority, the Commission has issued dozens of orders in recent months that have acted to transform the market institutions and rules that help produce higher prices and create reliability uncertainty.

The Commission has made it clear that it will actively monitor the competitive operation of wholesale markets and that it will remedy any form of anti-competitive conduct that it detects. And the Commission has acted decisively to lower and stabilize electricity prices.

Indeed, just yesterday the Commission sought to bring regulatory and investment certainty to Western markets by issuing an order on refunds for prior months. Specifically, the Commission adopted a price methodology for determining refunds or offsets based on its earlier price mitigation orders and a report from its Chief Administrative Law Judge and established separate evidentiary proceedings for spot market purchases in California and in the Pacific Northwest.

Market participants need to understand that the cloud of refund uncertainty which has inhibited the type of investment in supply and deliver infrastructure that is essential to keeping rates low

and ensuring competitive options in the long term, will lift at some point.

It is important to recognize the primary source of recent problems in Western energy markets. Demand kept growing, but supply did not, Mr. Chairman. The long-term solution to these problems is to have the balancing of supply and demand done by the marketplace—not by the Federal Government.

I am happy to support legislative initiatives that serve to develop truly competitive markets that will serve the interests of all market participants. Thank you for your time, and I look forward to your questions.

[The prepared statement of Mr. Hébert follows:]

PREPARED STATEMENT OF CURT HÉBERT, JR., CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION

I. OVERVIEW

Mr. Chairman and Members of the Committee, good morning. Thank you for the opportunity to speak today on legislative proposals relating to restructuring of the electric utility industry.

Our fundamental electric utility laws were enacted during the Great Depression. These laws made sense in their time, when competition in the industry was more a theory than a reality. These laws were meant to provide a regulatory substitute for competition. Today, however, these laws often have the ironic effect of preventing the development of competition, harming the very consumers they were supposed to protect.

I believe the guiding principle for restructuring legislation should be to provide a foundation for the development of a robust wholesale competition in the industry, thereby providing electric customers with supply sufficient to meet their energy needs at the lowest reasonable cost. This principle requires different approaches in the transmission and generation parts of the industry.

Transmission will have to remain regulated for the foreseeable future. However, transmission must become a stand-alone business and respond to the market. Legislation should help ensure that transmission owners and operators have economic incentives to design, build, operate, and expand the transmission grid to meet the needs of all consumers and other market participants.

In contrast, in the wholesale power sector, we need to rely on competition instead of traditional regulation wherever possible. Existing laws that hinder competition need to be modified or repealed. While the Commission stands ready to intervene in power markets when market rules or other factors lead to unjust and unreasonable prices, legislation reducing the existing barriers to entry will minimize the need for such efforts in the future.

II. TRANSMISSION JURISDICTION

In 1996, the Commission adopted Order No. 888, requiring all public utilities to offer nondiscriminatory, open access transmission service over facilities they own, control or operate. This service has been a major factor in the growth of wholesale competition in the past few years. Most wholesale buyers and sellers now have many more trading options than they had in the past.

In late 1999, the Commission adopted Order No. 2000, encouraging the formation of regional transmission organizations (RTOs). The industry generally responded positively, with innovative efforts to develop large, efficient and nondiscriminatory RTOs. The Commission, too, has worked hard to give the industry timely and constructive guidance on the development of RTOs. If properly constituted and truly independent, RTOs can help address and eliminate remaining obstacles to competition and make the markets more efficient, for the benefit of electricity consumers in all states. Indeed, RTOs support wholesale competition and, where states choose to pursue it, retail competition. But even in the absence of retail competition, consumers will benefit from increased competition in wholesale markets. For example, RTOs can be structured to eliminate "pancaking" of transmission rates, better manage transmission congestion, and facilitate transmission planning across a multistate region. There is still a lot of work to do, but I remain confident that we will reach our RTO goals.

I see no need for enactment of legislation allowing FERC to mandate the formation of RTOs. The industry is already forming RTOs because they make economic sense, not because of a legal mandate. If RTOs did not make economic sense, then nothing would be gained by requiring their formation. I am particularly pleased to see that transmission owners, with the urging of (rather than a directive from) the Commission, increasingly are reaching the conclusion that a particular type of RTO a stand-alone, truly independent transmission company will best serve the interests of consumers and the market as a whole.

Some argue that the Commission's jurisdiction should be expanded to include all transmission by non-public utilities. However, proposed RTOs in various parts of the country are making efforts to include the facilities of non-public utilities. If the industry succeeds in including the facilities of non-public utilities in RTOs, there may be no need for legislation broadening Commission jurisdiction over non-public utilities. The priority for Congress now should be to reduce or remove any legislative barriers to RTO participation by non-public utilities.

I also do not see a need for legislation requiring FERC to adopt uniform rules on interconnections. The development and implementation of broad RTOs will, in turn, promote the development of standardized and non-discriminatory interconnection procedures. A truly independent RTO has every incentive to maximize throughput and no incentive to hinder the interconnection of new generation.

III. RELIABILITY

The recent changes in the electric power industry have increased the incentive for, and frequency of, violations of reliability rules adopted by the North American Electric Reliability Council (NERC). Unfortunately, NERC lacks authority to enforce its rules. As a result, the issue confronting the industry is whether federal action on reliability is necessary.

The Commission has no direct statutory authority to promulgate and enforce a set of mandatory reliability standards. While reliability issues sometimes fall within the Commission's ratemaking jurisdiction, the Commission in those cases does not decide whether the reliability of service is acceptable per se. Rather the Commission decides whether the rates, terms and conditions of service are just, reasonable and not unduly discriminatory or preferential from a commercial perspective.

The lack of federal authority to address reliability issues, and increasing concern about the shortcomings of the traditional voluntary approach to reliability issues, have led some in the industry to seek other approaches. One approach to enhance reliability and promoting customer accountability is to give energy providers an incentive to provide reliable, efficient service. Conventional pricing methods do not provide adequate incentives. It is my preference to afford utilities some type of performance-based measure of accountability to their customers and their regulators. Consistent with its existing authority, the Commission could tie earnings and profits to reliability-based and performance-based criteria.

Another approach that has been pursued is enforcing reliability standards through contracts. Public utilities may voluntarily include reliability-related provisions in contracts or tariffs filed with the Commission because they affect or relate to the rates, terms and conditions of jurisdictional service. If reliability provisions in Commission-jurisdictional contracts are accepted and on file with the Commission, the Commission can enforce the reliability-related provisions against public utility parties to the contracts.

A system of such contractual arrangements has been established by utilities in the Western Systems Coordinating Council (WSCC), the regional reliability council for the Western United States. The effectiveness of the WSCC arrangement and the Commission's ability to enforce it have not been fully tested. But, a voluntary contractual regime is not the simplest or most effective means of establishing and adequately enforcing reliability standards. It depends solely on the willingness of public utilities to make voluntary filings and, even then, it may not capture the electric facilities of non-public utilities. Reliability is at risk to the extent that not all market participants are covered by the same requirements.

Another approach to ensuring reliability is enacting federal legislation. This year, on May 17, the Administration released its National Energy Policy Report. The Report recommends that the President direct the Secretary of Energy to work with the Commission to improve the reliability of the interstate transmission system and to develop legislation providing for enforcement by a self-regulatory organization subject to the Commission's oversight.

I believe a legislative approach may be preferable to the contractual approach discussed above. I take no position, however, on whether the legislation should be

based on the proposal supported by NERC or any other version of reliability legislation.

Congress should understand, however, that mandatory reliability rules alone are not enough to ensure the reliability of the grid. In its Order No. 2000 on RTOs, the Commission set out at length the need for an RTO to ensure reliability in each region. In particular, RTOs must have the authority to ensure the short-term reliability of the regional grid and must be responsible for planning, and for directing or arranging, necessary transmission expansion and upgrades that will enable it to provide efficient and reliable transmission service.

As discussed below, we also need to find ways to encourage and facilitate the construction of new transmission facilities. And, of course, we must have adequate generating resources. The Commission is continually reassessing its existing regulations and policies to promote market entry and the removal of regulatory barriers to enhanced competition in the wholesale supply and interstate delivery of energy products and services. For example, on March 14, 2001 and May 16, 2001, the Commission issued orders removing regulatory obstacles and providing incentives to increased energy supply and reduced demand in California and the rest of the West.

IV. POWER SALES RATES AND MARKET POWER

While not the focal point of today's hearing, the problems recently in the electricity markets in California and the Western United States are an inescapable background to some of the legislative proposals now being considered. Those problems have led many to argue that the Commission needs additional statutory authority or obligations to ensure that wholesale prices remain just and reasonable.

I disagree. Since I became Chairman in January of this year, the Commission has used its existing authority firmly and effectively to mitigate prices in Western markets. The Commission has issued dozens of orders this year involving wholesale markets in California and the West. As a result of those orders and other factors, prices in those markets are continuing to decline substantially.

The problems in California were not caused by any inadequacies in the Federal Power Act regarding rates and market power, and preventing such problems in the future is not dependent on adding to the Commission's authority or obligations. Instead, such arguments merely distract us from the primary source of the problems: demand kept growing, but supply did not.

The long-term solution to these problems is to have the balancing of supply and demand done by the marketplace, not the government. While the Commission has acknowledged and addressed the need for short-term, market-oriented price mitigation in California and the West, these measures must not become permanent crutches. We must find market-driven ways to promote new sources of supply and transmission, and encourage appropriate conservation by consumers. Price mitigation should continue no longer than absolutely necessary, and should be replaced as soon as possible by full reliance on market-based outcomes.

V. REGIONAL TRANSMISSION PLANNING AND SITING

Since the Commission adopted its open access requirements in 1996, the use of the interstate transmission grid has grown dramatically. Also, wholesale markets have become much more regional than local, encompassing large multi-state areas. Unfortunately, however, the grid has not been expanded commensurately. Thus, the grid increasingly is pushed to its operational limits, and transmission constraints frequently prevent the most efficient use of generation facilities. The institutional structures for planning and expanding the grid are not meeting our needs.

In planning grid expansions, we need to move toward a more regional approach. I believe RTOs can fulfill this role. By definition, RTOs will encompass large trading areas. An RTO-based planning process will allow all market participants within these areas to express their needs and concerns. Since RTOs must be independent of market participants, all participants will be assured of a nondiscriminatory planning process. RTOs that are based on the model of a stand-alone, for-profit transmission company will be particularly motivated to expand the grid when appropriate to maximize transmission throughput, and thus, transmission revenue.

The authorization and siting of grid expansions has generally been performed under state law. While some argue that state authorities are too parochial to perform this responsibility well in today's regional, multi-state markets, I am not so persuaded. However, a federal backstop role may be appropriate in certain circumstances. For example, Congress could reasonably decide to establish a federal siting process, subject to certain limitations, if an RTO is unable to obtain siting authorization from a State within a specified time.

VI. MARKET TRANSPARENCY RULES

In the past, utilities had little or no reason to keep their costs and transactions confidential. Utility prices were fully regulated on a cost-plus model, and competition was generally insubstantial. In today's competitive markets, however, confidentiality of price and customer information can be critical to a utility's success.

The Commission has seen increasing struggles among industry participants on how to reconcile the need for confidential information in competitive markets with a statutory and regulatory framework premised on full disclosure of cost and price information. It is not yet clear to me how best to reconcile these tensions. One approach the Commission has used is to require disclosure of bids in centralized trading markets, but only after a lag of several months. Other approaches may be feasible, too, so long as they reasonably balance the needs of competitors to preserve commercially-sensitive information with the needs of regulators and the public for information to ensure that jurisdictional rates remain just, reasonable and not unduly discriminatory or preferential.

VII. OTHER PROVISIONS

A. PUHCA

The Public Utility Holding Company Act (PUHCA) requires registered holding companies to submit to extensive regulation by the Securities and Exchange Commission. PUHCA also generally requires holding companies to operate an "integrated" and contiguous system. As a result, PUHCA encourages concentrations of generation ownership and control in local markets that are inconsistent with competition and discourages asset combinations that could be pro-competitive. PUHCA may also provide a significant disincentive for investment in independent transmission companies that would qualify as RTOs. Under PUHCA, any entity that owns or controls facilities used for the transmission of electric energy—such as an RTO—falls within the definition of a public utility company, and any owner of ten percent or more of such a company would be a holding company and potentially could be required to become a registered holding company. This could serve as a significant disincentive for investments in independent transmission companies that qualify as RTOs.

PUHCA was enacted primarily to undo harms caused by byzantine holding company structures that no longer exist. In the decades since PUHCA was enacted, utility regulation has increased substantially, under the Federal Power Act, federal securities laws and state laws. PUHCA has outlived its usefulness, and now does more harm than good. PUHCA should be repealed.

B. PURPA

The Public Utility Regulatory Policies Act (PURPA) was enacted in the late-1970s, in the aftermath of that decade's energy crises. The legislation's goal was to remove impediments to the use of cogeneration and renewable-based generation, and promote their use by allowing such generators to require utilities to buy their power at the utilities' avoided costs.

Today, the impediments addressed in PURPA are gone (although other impediments may exist, such as the need for grid expansion). Also, PURPA's "forced sale" requirements are no longer necessary, in light of the availability of open access transmission, to promote the development of competition, and more often serve to distort competitive outcomes. Congress should repeal PURPA, while "grandfathering" existing PURPA contracts.

VIII. CONCLUSION

We need less, not more, regulation in the generation business. However, we will continue to regulate transmission for the foreseeable future, while encouraging transmission to become a stand-alone business and respond to the market. Congress must focus on removing impediments to the competitive restructuring that is taking place. Outdated laws, such as PUHCA and PURPA, are hindering effective restructuring. The best way for Congress to help electricity consumers is to promote wholesale competition through the legislative changes described above.

The CHAIRMAN. Thank you very much for your testimony.

Commissioner Breathitt, why don't you go ahead.

STATEMENT OF LINDA BREATHITT, COMMISSIONER, FEDERAL ENERGY REGULATORY COMMISSION

Ms. BREATHITT. Mr. Chairman and members of the committee, thank you for inviting me to appear before you this morning to discuss the need for Federal electricity restructuring legislation, and in particular, the committee's White Paper on electricity legislation.

The committee is to be commended for advancing the discussions on how best to achieve the restructuring that is needed in the U.S. electric industry in order to arrive at competitive and efficient wholesale and retail electricity markets.

I believe that Federal electricity restructuring legislation is needed to address important and unresolved issues in the electric industry and to enable the FERC to advance its goals of achieving fair, open and competitive bulk power markets.

In order to achieve these overarching goals, Federal legislation must address several specific policy areas. The White Paper correctly identifies many of these key elements.

Regarding transmission jurisdiction, I agree with the conclusion in the White Paper that the Commission's jurisdiction to require open access should be extended to public, cooperative and Federal utilities. I have said that before in this committee in April, 2000.

I also agree with the White Paper's premise that legislation would be needed to affirm the Commission's authority to order utilities to join RTOs. If the Commission determines that it must resort to mandatory RTO participation, such legislation would allow the Commission and the industry to avoid costly and time-consuming litigation of our authority in this area.

Regarding reliability, I believe that legislation is needed to replace the current voluntary system with one in which a self-regulated independent reliability organization with oversight by the Commission establishes and enforces mandatory reliability rules.

Such a change is necessary to ensure a reliable and competitive bulk power market in the evolving electric power grid and the ever-increasing transactions going over it.

On the issue of transmission siting, I would go further than the white paper goes. I agree with the basic premise that the goal of a national transmission grid may be unattainable absent a new approach. I believe legislation is needed to grant the Commission eminent domain authority over the siting of electric transmission facilities similar to the authority the Commission exercises with respect to the siting of interstate gas pipelines.

I'm not advocating that we have siting authority for electric distribution lines or powerplants. The States are best suited to that. My written testimony goes further into my rationale for not exactly agreeing with the regulatory compact approach.

Finally, I agree with the White Paper's conclusion that current tax code restrictions will prevent public power entities from engaging in certain restructuring efforts, and I believe the tax code's private use restrictions on the transmission facilities of public power entities financed by tax-exempt bonds may prevent the transfer of operational control over these facilities to a for-profit transmission company.

So I believe it's crucial that public power entities participate fully in RTOs, and new legislation should help eliminate these tax restrictions.

In conclusion, Mr. Chairman and members, I urge Congress to focus its attention over the coming months on these and related policy areas in order to achieve competitive and properly functioning electric markets that will ultimately provide real benefits to American consumers. Thank you for inviting me this morning.

[The prepared statement of Ms. Breathitt follows:]

PREPARED STATEMENT OF LINDA BREATHITT, COMMISSIONER, FEDERAL ENERGY REGULATORY COMMISSION

Mr. Chairman and Members of the Committee, I appreciate this opportunity to appear before you today to discuss proposals relating to comprehensive electricity legislation. Today's hearing is timely because there is a real need for Federal legislation to address important and unresolved issues in the electric industry, such as reliability, jurisdiction, transmission siting, and tax restrictions. In addition, legislation is needed to ensure that the Federal Energy Regulatory Commission has sufficient authority to continue its efforts to establish fair, open and competitive bulk power markets.

The "White Paper on Electricity Legislation" prepared by Chairman Bingaman provides a good starting point for a discussion of these legislative needs and objectives. I believe the White Paper correctly identifies many of the key elements that federal legislation should address, including: (1) transmission jurisdiction; (2) reliability; (3) transmission siting; (4) market rules; (5) PUHCA and PURPA issues; and (6) tax code restrictions. Congress must focus its attention on these and related policy areas in order to achieve competitive and properly functioning electric markets that will ultimately provide real benefits to American consumers.

TRANSMISSION JURISDICTION

The White Paper suggests that the Commission should have jurisdiction over all transmission, whether bundled or unbundled, and that the Commission's jurisdiction should be extended to public, cooperative and federal utilities. This is an essential element for any proposed energy legislation.

Full, non-discriminatory open access to transmission services is a necessary condition for the development of competitive wholesale bulk power markets. However, certain impediments to full open access remain. One such impediment is that a significant portion of the nation's transmission grid is owned and operated by utilities not subject to FERC's open access requirements. I would support legislation that extends the Commission's open access regulatory authority to non-public utilities that own, operate, or control transmission facilities, including Federal Power Marketing Administrations, the Tennessee Valley Authority, municipal utilities, and cooperatively-owned utilities. I note that S. 1273, introduced in the 106th Congress by Senator Bingaman, would extend Commission authority in this manner. I have previously stated this sentiment in testimony before this Committee on April 27, 2000.

The Committee's White Paper also calls for legislation affirming the Commission's authority to order utilities to join regional transmission organizations (RTOs). In the Commission's Order No. 2000, issued on December 20, 1999, we concluded that the Commission has sufficient authority, pursuant to the Federal Power Act, to order a public utility, on a case-by-case basis, to participate in an RTO upon finding, and where supported by the record, that the public utility is engaging in unjust, unreasonable, unduly discriminatory or anticompetitive practices, and that participation in an RTO is a reasonable remedy for such behavior. However, the FPA is not express with regard to the Commission's authority to order utilities to participate in RTOs. Therefore, I agree with the premise in the White Paper that legislation is needed to affirm the Commission's authority. If the Commission determines that it must resort to mandatory RTO participation, such legislation would allow the Commission and the industry to avoid costly and time-consuming litigation of the Commission's authority.

Finally, the White Paper states that interconnection rules should be clarified in order to ensure that new sources of generation are able to interconnect to the transmission system. I agree with the contention that interconnection-related issues need to be addressed. In recent orders we have stated our intent to evaluate in the near future the importance of standardizing interconnection policies and procedures.

RELIABILITY

The White Paper contends that legislation should authorize a system for assuring the reliability of the grid that: (1) is mandatory, (2) requires sanctions and penalties for failure to comply with reliability rules, and (3) is subject to federal oversight. I believe that the voluntary reliability system, which has been in place for over three decades, should be replaced with one in which a self-regulated independent reliability organization, with oversight by the Commission, establishes and enforces mandatory reliability standards. I believe such a change in the manner in which the reliability of the interconnected grid is overseen and managed is required in order to ensure a competitive bulk power market. S. 2071, a stand-alone measure to promote the reliability of the nation's transmission system which was approved by the Senate during the 106th Congress, established such a self-regulated independent reliability organization, with oversight by the Commission. S. 388 and S. 597, introduced in the current Congress, include similar provisions. I wholeheartedly support these provisions.

TRANSMISSION SITING

I agree with the basic premise articulated in the White Paper that the goal of a national grid may be unattainable absent a new approach to transmission planning, expansion, and siting. Currently, under the Federal Power Act, the Commission has no role in the permitting and siting of new transmission facilities. I believe that shortages of transmission are no longer just single state issues; instead, these shortages have become interstate commerce issues that must be addressed by the federal government.

The White Paper proposes to use federal eminent domain as a backstop to a cooperative, regionally-based approach to transmission and siting issues. In essence, the proposed legislation would grant FERC eminent domain authority, which we, in turn, would be allowed to cede to regional regulatory compacts. My primary concern with this approach is that it could result in costly and inefficient duplication of processes, records, and efforts by the various decisional authorities involved in transmission siting. As we have seen with the Commission's hydro power licensing program, for example, it is very difficult to build speed into a process over which several entities exercise jurisdiction. While the Commission has made great progress in streamlining cumbersome processes in this regard, I would caution the Committee about initiating a new regime for transmission siting that could easily be mired in bureaucratic wrangling.

My recommendation would be for FERC to be granted Federal eminent domain authority similar to the authority the Commission exercises with respect to the siting of interstate natural gas pipelines under the Natural Gas Act. The Commission could build into its implementation of such legislation procedures to ensure cooperation and regional input. I believe this more centralized approach is necessary from an efficiency standpoint, and will result in less bureaucracy, more timely decisions, and lower costs for transmission providers and consumers. Furthermore, I am not advocating that the Commission should have siting authority for electric distribution lines or power plants. I believe the states are best suited to make those determinations.

MARKET TRANSPARENCY RULES

The White Paper asserts that FERC and the Energy Information Administration should be granted clear authority to collect and publish appropriate transactional data, while protecting proprietary information. I strongly believe that transparency acts as an effective deterrent to market power by allowing regulators and the public to monitor the marketplace for abuses. The lack of accurate, timely, and easily accessed pricing information can impede competition and liquidity; and for that reason, I have supported many FERC initiatives aimed at expanding the range of publicly available transactional information. I am pleased that the Committee recognizes the relationship between strong market transparency rules and effective regulation.

PUHCA AND PURPA ISSUES

The White Paper proposes the conditional repeal of both the Public Utility Holding Company Act (PUHCA) and the mandatory purchase requirements of the Public Utilities Regulatory Policy Act (PURPA). The repeal of PUHCA would be subject to the Commission being given enhanced authority to address market power problems, and both the Commission and the states being given greater access to the books and records of holding companies. The repeal of PURPA's mandatory purchase require-

ment would be subject to new provisions that would remove disincentives for renewable generation sources. I support the prospective repeal of PUHCA on the condition that the Commission and state authorities have sufficient access to books and records of all companies in a holding company system. I also support an unconditional prospective repeal of the mandatory purchase requirement in Section 210 of PURPA.

TAX CODE RESTRICTIONS

Current tax laws impede certain public power and cooperatively-owned utilities from fully participating in the development of regional transmission organizations. One such example is the Internal Revenue Service Code's "private use" restrictions on the transmission facilities of public power entities financed by tax-exempt bonds. Such restrictions may prevent the transfer of operational control of existing transmission facilities financed by tax-exempt bonds to a for-profit transmission company. I believe it is crucial that public power and cooperative entities, which constitute such an important part of the nation's electric system, participate fully in RTOs. In fact, in Order No. 2000, the Commission stated explicitly that a properly formed RTO should include all transmission owners in a specific region, including municipals, cooperatives, Federal Power Marketing Agencies, Tennessee Valley Authority and other state and local entities. Participation by these entities will enhance the reliability and economic benefits of RTOs.

The Committee's White Paper notes that tax code restrictions will prevent public power entities from engaging in certain structural changes and states that these provisions should be repealed. I agree with this finding and urge Congress to take the necessary steps to eliminate these and other impediments to the formation of fully functioning RTOs and electric markets.

CONCLUSION

Comprehensive federal electric legislation is needed to address important and unresolved issues in the restructuring of the electric industry. The Commission must have sufficient authority to advance its goals of achieving fair, open and competitive bulk power markets. Current impediments to the development of such markets must be removed as quickly as possible so that the intended benefits of restructuring for the American consumer ultimately may be realized.

The CHAIRMAN. Thank you very much.

Commissioner Massey, why don't you go ahead?

STATEMENT OF WILLIAM L. MASSEY, COMMISSIONER, FEDERAL ENERGY REGULATORY COMMISSION

Mr. MASSEY. Thank you, Mr. Chairman and members of the committee. It's my pleasure to appear before you this morning. Thank you for the invitation.

I found the White Paper to be exceptionally well done, Mr. Chairman. I thought it provided a very persuasive rationale for a number of legislative changes. I'm tempted to say I endorse it word for word and just shut up, with one exception. I would grant siting authority to FERC similar to what we have with respect to natural gas pipelines.

Over the past 5 years, we've sited about 12,000 miles of new interstate pipelines that will serve the market well. No similar expansion of the transmission grid on the electric side has occurred, and it's in many States extraordinarily difficult to site transmission.

Until this problem is solved, we're simply not going to have well-functioning markets that benefit consumers. But let me mention a few issues that are highlighted by the White Paper that I strongly agree with.

We need one set of rules for all interstate transmission. Thirty percent of the facilities are exempt under existing law because

they're TVA facilities, muni facilities and so forth. That creates a patchwork that does not support a competitive market.

No. 2, all transmission, whether bundled or unbundled, should be subject to FERC jurisdiction. That does not mean that we have to have the decision-making authority over retail access. Simply giving us jurisdiction over all transmission does not mean that a State has to move to retail choice, nor does it mean that FERC can order a retail choice.

We need clear authority to form and shape RTOs. We're making a lot of progress in this area. I think if the industry got a strong, clear message from Congress that the formation of large RTOs is in the public interest, it would be extraordinarily helpful in getting this done quickly.

Likewise, I believe Congress should send a clear message that we need nationwide standardized generation interconnection policies and practices. Interconnection legerdemain is anti-competitive and makes it difficult for generators to get sited. I think this is a difficulty for generation in many areas of the country. It's a particularly difficult problem for distributed generation as well. So I support the White Paper in this respect.

I agree with my colleagues that Congress should create a framework for mandatory reliability standards in the industry. I makes no sense in this competitive era to have an industry that is governed by voluntary standards for reliability. I think that is a big problem.

In the area of rates and market power, I would amend section 206 to give the Commission clear authority to order refunds whenever it finds that rates charged were unjust and unreasonable. As you could see in yesterday's order, section 206 means that we cannot go back to June, July, August, or September of 2000 and order refunds even though it was very clear that prices during those months were unjust and unreasonable. The restrictions of section 206 prohibit us from doing so.

The Commission needs civil penalty authority if we're going to be the tough cop on the beat. We have some civil penalty authority with respect to the natural gas industry. We need it for the electric power industry. In the merger area, we need authority over generation mergers, over holding company mergers, and over all vertical mergers regardless of how they are structured.

I would give the Commission direct authority to mitigate market power. Right now our authority is generally a conditioning authority, and it's a substantial authority. Part of the problem is political will. It's not legal constraints. But it would be helpful if the Commission had direct authority to mitigate market power.

It would be helpful if the Congress expressed its interest promoting in markets that have a high degree of demand responsiveness. I do not believe that we're ever going to deal with the issue of market power effectively or high prices effectively until there is a robust demand response when prices get high. Congress should recognize this fact and direct FERC and the States to work together to solve this problem.

I've given you my thoughts on transmission siting. I know that's a very contentious issue, and it is the one issue on which I have some disagreement with the White Paper. Otherwise, I agree with

what the White Paper says about PUHCA and PURPA repeal, its comments on renewable resources, providing information to consumers, and the repeal of tax provisions that inhibit structural changes in the market. Thank you, Mr. Chairman.

[The prepared statement of Mr. Massey follows:]

PREPARED STATEMENT OF WILLIAM L. MASSEY, COMMISSIONER, FEDERAL ENERGY REGULATORY COMMISSION

Mr. Chairman and Members of the Committee on Energy and Natural Resources, thank you for the opportunity to testify on comprehensive electricity restructuring legislation. Let me state at the outset that I have reviewed Chairman Bingaman's excellent White Paper and agree with all of its recommendations, save one: I would recommend that Congress transfer jurisdiction over the siting of interstate transmission to the Commission, an agency with explicit interstate responsibilities.

With notable exceptions such as PURPA and EPACT, the legal framework that governs the electricity industry is now more than sixty five years old and assumed an old fashioned cost of service regime. Simply stated, the Commission does not have all of the tools it needs both to promote large regional markets and to protect the public interest. I would like to underscore a number of legislative changes that are critical to achieving the goal of well functioning competitive markets that yield substantial consumer benefits.

TRANSMISSION JURISDICTION

A. One Set of Rules

Congress should place all interstate transmission under one set of open access rules. That means subjecting the transmission facilities of municipal electric agencies, rural cooperatives, the Tennessee Valley Authority, and the Power Marketing Administrations to the Commission's open access rules. These entities control 30% of the nation's electricity transmission grid. Their current non-jurisdictional status has resulted in a patchwork of rules that hinder seamless electricity markets. Markets require an open non-discriminatory transmission network in order to flourish.

In addition, all transmission, whether it underlies an unbundled wholesale, unbundled retail, or bundled retail transaction, should be subject to one set of fair and non-discriminatory interstate rules administered by the Commission. This will give market participants confidence in the integrity and fairness of the delivery system, and will facilitate robust trade by eliminating the current balkanized state-by-state rules on essential interstate facilities.

B. Regional Transmission Organizations

While the Commission has made substantial progress in forming the Regional Transmission Organizations that are critical to the competitive market place, our hand would be strengthened by a clear declaration by the Congress that these institutions are in the public interest and should be formed. One appropriate action would be to give the Commission clear authority to order the formation of such institutions in compliance with Commission standards. I firmly believe that large RTOs consistent with FERC's vision in Order No. 2000 are absolutely essential for the smooth functioning of electricity markets. RTOs will eliminate the conflicting incentives vertically integrated firms still have in providing access. RTOs will streamline interconnection standards and help get new generation into the market. RTOs will improve transmission pricing, regional planning, congestion management, and produce consistent market rules. We know for a fact that resources will trade into the market that is most favorable to them. Trade should be based on true economics, not the idiosyncracies of differing market rules across the region. A clear message from Congress would certainly speed the formation of these critical institutions.

C. Generation Interconnection

I would recommend that Congress direct the Commission to adopt uniform nationwide standards that streamline the process of interconnecting generators to the grid. The Commission has taken some steps in this direction by encouraging utilities to file their interconnection rules, but more must be done. Generation siting decisions should not depend on how easy it is to hook up in a particular region or with a certain transmission provider. Standardized and uniform rules promulgated by the Commission are necessary.

RELIABILITY

We need mandatory reliability standards. Vibrant markets must be based upon a reliable trading platform. Yet, under existing law there are no legally enforceable reliability standards. The North American Electric Reliability Council (NERC) does an excellent job preserving reliability, but compliance with its rules is voluntary. A voluntary system is likely to break down in a competitive electricity industry.

I strongly recommend federal legislation that would lead to the promulgation of mandatory reliability standards. A private standards organization (perhaps a restructured NERC) with an independent board of directors could promulgate mandatory reliability standards applicable to all market participants. These rules would be reviewed by the Commission to ensure that they are fair and not unduly discriminatory. The mandatory rules would then be applied by RTOs, the entities that will be responsible for maintaining short-term reliability in the marketplace. Mandatory reliability rules are critical to evolving competitive markets, and I urge Congress to enact legislation to accomplish this objective.

RATES AND MARKET POWER

A. Refunds

I believe the Commission needs additional authority to properly address the issue of refunds for unjust and unreasonable wholesale electricity prices. Section 206 of the Federal Power Act limits a refund effective date to not earlier than 60 days after a complaint is filed or an investigation is started. Whether the Commission can order refunds retroactively from the refund effective date is an issue that is still before the Commission. I note, however, that in an order issued November 1, 2000, the Commission observed that the Federal Power Act and the weight of court precedent strongly suggest that retroactive refunds are impermissible. I recommend clear statutory language that would allow the Commission to order refunds for past periods if the rates charged are determined to be unjust and unreasonable. Limitations on how far back in time the Commission can order refunds may be appropriate.

B. Civil Penalties

I recommend that the Commission be given authority to assess civil penalties against participants that engage in prohibited behavior in electricity markets, such as anticompetitive acts and violations of tariff terms and conditions. If the Commission is to be the "cop on the beat" of competitive markets, we must have the tools needed to ensure good behavior. Refunds alone are not a sufficient deterrent against bad behavior. Simply giving the money back if you are caught is not enough. The consequences of engaging in prohibited behavior must be severe enough to act as a deterrent.

C. Mergers and Consolidations

To ensure that mergers do not undercut our competitive goals, the Commission's authority over mergers involving participants in electricity markets must be strengthened in a number of ways. Consolidations of market participants can have adverse consequences to the functioning of electricity markets. The Commission's detailed experience with electricity markets and its unique technical expertise can provide critical insights into a merger's competitive effects. The Commission's authority to review mergers should be strengthened to ensure that all significant mergers involving electricity market participants are reviewed.

I recommend that the Commission be given direct authority to review mergers that involve generation facilities. The Commission has interpreted the FPA as excluding generation facilities per se from our direct authority, although that interpretation is currently before the courts. It is important that all significant consolidations in electricity markets be subject to Commission review. For the same reason, the Commission should be given direct authority to review consolidations involving holding companies.

I am also concerned that significant vertical mergers can be outside of our merger review authority. Under the current section 203 of the FPA, our merger jurisdiction is triggered if there is a change in control of jurisdictional assets, such as transmission facilities. Consequently, consolidations can lie outside of the Commission's jurisdiction depending on the way they are structured. For example, a merger of a large fuel supplier and a public utility would not be subject to Commission review if the utility acquires the fuel supplier because there would be no change in control of the jurisdictional assets of the utility. If the merger transaction were structured the other way, i.e., the fuel supplier acquiring the utility, it would be subject to Commission review. Such vertical consolidations can have significant anticompetitive effects on electricity markets. Those potential adverse effects do not depend on

how merger transactions are structured, and thus our jurisdiction over those transactions should not depend on how they are structured. Therefore, I recommend that the Commission be given authority to review all consolidations involving electricity market participants.

D. Market Power Mitigation

Market power still exists in the electricity industry. The FERC, with its broad interstate view, must have adequate authority to ensure that market power does not squelch the very competition we are attempting to facilitate. However, the Commission now has only indirect conditioning authority to remedy market power. This is clearly inadequate. Therefore, I recommend legislation that would give the Commission the direct authority to remedy market power in wholesale markets, and also in retail markets if asked by a state commission that lacks adequate authority. For example, such authority would allow the Commission to order structural remedies directly, such as divestiture, needed to mitigate market power.

E. Demand Responsiveness

Markets need demand responsiveness to price. This is a standard means of moderating prices in well-functioning markets, but it is generally absent from electricity markets. When prices for other commodities get high, consumers can usually respond by buying less, thereby acting as a brake on price run-ups. If the price, say, for a head of cabbage spikes to $50, consumers simply do not purchase it. Without the ability of end use consumers to respond to price, there is virtually no limit on the price suppliers can fetch in shortage conditions. Consumers see the exorbitant bill only after the fact. This does not make for a well functioning market.

Instilling demand responsiveness into electricity markets requires two conditions: first, significant numbers of customers must be able to see prices before they consume, and second, they must have reasonable means to adjust consumption in response to those prices. Accomplishing both of these on a widespread scale will require technical innovation. A modest demand response, however, can make a significant difference in moderating price where the supply curve is steep.

Once there is a significant degree of demand responsiveness in a market, demand should be allowed to bid demand reductions, or so called "negawatts," into organized markets along with the megawatts of the traditional suppliers. This direct bidding would be the most efficient way to include the demand side in the market. But however it is accomplished, the important point is that market design simply cannot ignore the demand half of the market without suffering painful consequences, especially during shortage periods. There was virtually no demand responsiveness in the California market. Customers had no effective means to reduce demand when prices soared.

It would be helpful for Congress to send a message that instilling a significant measure of demand responsiveness into electricity markets is in the public interest. I would recommend that legislation strongly encourage FERC and state commissions to cooperate in designing markets that include demand responsiveness. This would help to ensure just and reasonable wholesale prices and would be an effective market power mitigation measure.

TRANSMISSION SITING

I would recommend that Congress transfer to the Commission the authority to site new interstate electric transmission facilities. The transmission grid is the critical superhighway for electricity commerce, but it is becoming congested due to the increased demands of a strong economy and to new uses for which it was not designed. Transmission expansion has not kept pace with these changes in the interstate electricity marketplace.

Although the Commission is responsible for well functioning electricity markets, it has no authority to site the electric transmission facilities that are necessary for such markets to thrive and product consumer benefits. Existing law leaves siting to state authorities. This contrasts sharply with section 7 of the Natural Gas Act, which authorizes the Commission to site and grant eminent domain for the construction of interstate gas pipeline facilities. Exercising that authority, the Commission balances local concerns with the need for new pipeline capacity to support evolving markets. We have certificated well over 12,000 miles of new pipeline capacity during the last six years. No comparable expansion of the electric grid has occurred.

I recommend legislation that would transfer siting authority to the Commission. Such authority would make it more likely that transmission facilities necessary to reliably support emerging regional interstate markets would be sited and con-

structed. A strong argument can be made that the certification of facilities necessary for interstate commerce to thrive should be carried out by a federal agency.

MARKET TRANSPARENCY RULES

I agree with the White Paper's recommendations in this area.

MISCELLANEOUS PROVISIONS

I agree with the remainder of the White Paper's recommendations with respect to the repeal of PUHCA and PURPA, and with respect to renewable resources, information to customers, a Public Benefits Fund, and the repeal of tax provisions that inhibit structural changes in the market.

CONCLUSION

I stand ready to answer questions and to assist the Committee in any way. Thank you for this opportunity to testify.

The CHAIRMAN. Thank you, very much.

Commissioner Wood, why don't you go ahead.

STATEMENT OF PATRICK WOOD III, COMMISSIONER, FEDERAL ENERGY REGULATORY COMMISSION

Mr. WOOD. Thank you, Mr. Chairman, Senator Feinstein. I think in reading the White Paper, it just occurs to me that anywhere you plant the flag is going to be a battleground, so you might as well go ahead and plunge deep in the pro-competition, pro-customer territory and plant it deep. And that's where they'll start nibbling.

I think issues like transmission siting, FERC's jurisdiction over bundled rates, reliability—all these are going to be fought, so we might as well plant the flag deeply where it ought to end up for the good of the public. And I applaud this paper and am heartened when I read it, and I read it after I read the President's energy strategy and look at a bi-partisan, almost seamless web of how to get from the battle raging around your feet to a vision of the future that is sustainable and makes this a country that we're proud of.

I was young FERC staffer here in 1992 when the President's father signed the Energy Policy Act, and there weren't a whole lot of electric provisions in that act, but there were a few. And those were pretty clear in my mind. I think they're clear as I read them now, nine years later, about the vision of Congress at that point to get to a competitive power market from coast to coast.

We've got a long way to go to get there. I think the legislation authority—and my colleague Bill Massey just said this—the legal authority is there. The reaffirmation of that by the current Congress would certainly strengthen the Commission's hand in doing the difficult tasks of converting the vision into reality. And so in that regard, while I do believe the Commission has relatively broad power to enact the vision of a competitive market that works for the benefit of both investment and of the customer, any affirmation of that by this Congress would certainly help.

The specific issue of an RTO—I guess I've thought about it in a little bit different framework than some of the debate has gone, and so I want to just throw that into the discussion. An RTO—Regional Transmission Organization—of which—as this Commission laid out 2 weeks ago—there would be five in this country—the four FERC jurisdictional and the one in Texas—that they would have really four principal goals. And they would fall under one roof,

which I think is the distinction between some of the talk on reliability being over here and siting authority here.

I think the Regional Transmission Organization is a recognition of the realities of physics reflecting the interstate nature of most of the power grids in this continent and the political sensitivities to not federalize every problem but to look instead at an in-between step, which is an empowered regional organization, as our prior witness talked about, which dealt with the issues unique to that region of the country.

So the four things I would see these RTOs doing—which are largely captured by the Commission's order last year in Order 2000—are first of all, implementation of the NERC type reliability functions, not as a stand-alone group but as part of what an RTO does. It looks at the day-to-day reliability of the grid to make sure that lines don't get overloaded, that sufficient voltage support is existing around the entire grid. Secondly, that competitive open access of the 1992 act is part of the reality there.

Those two things sometimes come in conflict. The reliability needs and the competitive open access needs some time are in tension. And I think those need to be dealt with under the same roof so that those balances and trade offs and analyses can be made together.

Thirdly and importantly as we've seen particularly out in the West, a goal of the RTO should be resource adequacy. We're not just talking about whether there are enough power plants. That's certainly a big part. But also; are there sufficient natural gas pipelines? Is there sufficient access to coal resources or to renewable resources? Is there—as we've talked about many times before this committee and at the Commission—is there sufficient demand side participation in the market. Bill just mentioned that in his comments as well.

The fourth goal of the RTO should be transmission planning. Is the grid robust enough? At that point, I guess I would vary a little bit from both the white paper and my colleagues to say that the RTO really is the one in charge of making sure the grid works. So if the RTO thinks there needs to be a transmission line from this part of Montana to that part of Idaho, theirs should be the dispositive voice. It has to go through regulatory approval at the State level—or the FERC as a backstop I'm relatively indifferent to—but if the RTO is the one directing where transmission planning goes for the foreseeable future, that is the appropriate body that balances the right interest.

So putting these all under one roof makes a lot of difference, I think. In diagnosing the California problem, one of the things that hasn't been talked about was the multi-headed master. You have the PUC here, the Energy Commission here, siting authorities here. You have a couple of FERC jurisdictional entities—the ISO and the PX—over here. You have a reliability council, the Western Systems Coordinating Council. A bunch of independent organizations that no matter how many times you tell them to work together, they really have their own institutional kind of inertia and don't work together well.

I think the "it's their problem" approach has been really just been frustrating, and we're part of the problem, I will confess. But

I do think that a vision of the world that puts these under one body to which both you and we can hold them accountable for the fulfillment of a broad panoply of market goals is a very important vision. And I applaud my colleagues for the vision that we took two weeks ago to really set that future up. It's going to need some backstopping from Congress without question.

I just think if a dozen countries in Europe can pull together, overcome language and cultural differences to put together an international grid, we certainly ought to be able to do this. And I look forward to working with you all to get there.

[The prepared statement of Mr. Wood follows:]

PREPARED STATEMENT OF PATRICK WOOD, III, COMMISSIONER, FEDERAL ENERGY REGULATORY COMMISSION

Mr. Chairman and Members of the Committee, thank you for the invitation to appear this morning. I share the view that the nation needs a robust, affordable, reliable electricity sector. Almost ten years after Congress laid out a vision of competitive power markets in the 1992 Energy Policy Act, the goal is largely unfulfilled. There are some well-functioning competitive power markets in the nation, but most of the nation's customers are not in them.

I believe the FERC has sufficient statutory authority to do much to fulfill Congress' vision already, but, based on personal experience as a state regulator in Texas, a ringing legislative reaffirmation of this goal, either through clarifications or changes in the law, or more informally, through hearing such as this one, will speed the advent of coast-to-coast competitive power markets.

To address the points in the Chairman's recent White Paper.

1. TRANSMISSION JURISDICTION

It would simplify and clarify FERC's ability to create truly open, competitive electric markets if FERC has clear authority over all interstate transmission. Unless every transmission owner participates in Regional Transmission Organizations (RTOs) of some sort, there will remain barriers of legality, cost, and time that will slow the entry of new generators and increase the wholesale and retail costs of electricity. This should not be viewed as a raid on state jurisdiction, but a necessary step to provide some needed certainty for investment in this crucial industry. Transmission is a critical component of the electric power industry, but on average, it only makes up about 5-7 percent of the total retail cost of electricity. Having one agency making the calls on cost recovery and nondiscriminatory treatment of customers makes a lot of sense.

I wholeheartedly agree that interconnection rules and procedures should be standardized, to minimize the cost and barriers for new generation. A related issue is how costs of new interconnection should be borne my colleagues and I have already agreed to address both of these issues more globally in the near future. I also believe the FERC has a leadership role to play in establishing interconnection rules and procedures for small-scale, distributed generation as well.

2. RELIABILITY

Maintaining grid reliability is a basic duty of utilities. Over the years, industry members have devised a number of standards that govern reliable operation of the grid. More often, in recent years, pure reliability standards have come under some tension with the needs of a robustly competitive marketplace. Combining the responsibility for balancing reliability and competitive open access in the regional transmission organizations makes a lot of sense. FERC should be given clearer authority to enforce (either through the RTOs, or directly, if necessary) all rules against any party who fails to adhere to the standards.

3. RATES AND MARKET POWER

Without question, FERC should promote competitive markets; I doubt an additional legislative mandate is required. Workable competition in a market is a prerequisite for deregulation of an electricity market, and adequate infrastructure and balanced market rules are the defining characteristics of workable competition. FERC has a number of tools already to ensure that these events occur in the correct sequence, but one additional tool might be helpful: the ability to assess administra-

tive penalties for violations of the law or Commission rules. (This would also encompass reliability infractions mentioned above).

Vigilance is the price of liberty. FERC must watch over these markets as the cop on the beat walks through neighborhoods to keep them safe. In recent weeks, the FERC has made notable strides toward meeting this challenge but more work will be required. We must have ongoing, aggressive, sophisticated market surveillance together with RTOs and state regulators. We must couple this with the understanding of how to know when a market is working properly, how to diagnose when and how markets go awry, and how to intervene in ways that are effective without destabilizing future investment in the sector.

Markets work far better when all buyers and sellers see accurate price signals. Because this necessarily involves both state and federal regulators, coordination is necessary to pursue a host of customer-focused goals: demand-side resource participation in power markets; combined heat and power and classic energy conservation measures; access to advanced technologies such as real-time and demand-metering, distributed generation, and energy storage; and other measures that give customers more control and options over their energy use and its costs.

4. REGIONAL PLANNING AND SITING

Transmission investment is more than just who sites the facility; it involves a full and engaged process of planning, consultation and execution. Placing the responsibility for regional transmission planning in the hands of RTOs makes a lot of sense as RTOs will have the clearest view of what new transmission is needed to facilitate competition and enhance reliability. A proper balance of state and federal responsibility might go something like this: the regional RTO makes a pure engineering determination that a specific need exists for certain amounts of transmission in certain portions of the grid. Either a competitive process or a direct designation is used to determine who will build such a facility. Then the relevant state or states focus on line routing and environmental issues, ideally through a multistate regional regulatory process. Given the urgent need for many new transmission lines to relieve reliability constraints or economic constraints in the national grid, some time limit for action could be placed upon these state-specific approvals—for instance, if a state or regional transmission authority has not acted upon a transmission project within one year of the filing date, then the case should be sent up to FERC for formal review.

5. MARKET TRANSPARENCY RULES

Workable markets rest on a foundation of good, accessible and timely information. If there is too little information available to market participants, players' decisions may be poorly founded and risks and their costs increase as they leave money on the table. Other information crosses the line into strategic, business-critical data that helps individual competitors more than it helps the market as a whole. Overall, we need to create market rules and authority that assure the collection and fair dissemination of market-supporting data on market transactions. But we should rethink which data we need and how we collect, process and use these data it does no good if we collect the wrong information, or collect it so late and hold it for so long that it has no value to market participants. I do not have any specific recommendations at this time, but I will be working with my fellow commissioners and staff at FERC to better understand what we need to do to improve market information and transparency.

6. TAX PROVISIONS

It is important that tax laws are not used as excuses by certain market players to not move aggressively toward competitive power markets. In that regard, proposals to address public power and cooperatives' private use restrictions and investor-owned utilities' current disincentives to transfer transmission assets to RTOs should be addressed in legislation.

7. OTHER

I have been of several minds about the best location of customer protection duties such as customer information labeling and slamming/cramming prevention. Rather than house these duties at the Federal Trade Commission, I think they might fit better at the FERC. This would be good not only for the issue, but for the FERC. As state commissions do, FERC would benefit from being closer to the people directly impacted by our regulation. It also makes "good government" sense to have one federal agency overseeing electric matters, not several. A regulator that has all

aspects of an industry under its umbrella can generally be more effective and efficient in balancing the many interests involved.

The CHAIRMAN. Thank you very much.

Commissioner Brownell.

STATEMENT OF NORA MEAD BROWNELL, COMMISSIONER, FEDERAL ENERGY REGULATORY COMMISSION

Ms. BROWNELL. Thank you, Mr. Chairman. The good news about responding to such a well thought out paper is that it's easy to agree. You've made our job easier, and being last in a list of smart colleagues makes it that much easier.

I just want to comment on a couple of things. The first is why we must change. I really applaud the efforts of the committee to grapple with the issues of transforming energy markets. Balancing competing agendas and leading the charge is neither easy nor neat.

Many people have asked you and raised with us why we have to change at all. And I think we have to remind ourselves that this country has enjoyed a standard of living that is unparalleled precisely because it has been willing to take risks, embrace change and leverage its intellectual assets.

It would be a tragedy to let jurisdictional differences, regional differences, get in the way of a vision that would make us miss the opportunities created by the advances in technology that have transformed so many other industries. Without a coherent integrated national energy policy and its associated legislative and administrative changes, we will disadvantage our industries, our environment, and our constituents.

I want to quote from the *New York Times* yesterday from a professor commenting on the changes in New York. 'Every process of change reaches a point where it all comes together and accelerates exponentially, and we've reached that point with electricity. In 5 years we won't even recognize the landscape.'

Frankly, if you do your job and we do our job, I hope we don't recognize the landscape next year. Let me comment on just a couple of the high points of your White Paper and a couple of additions.

As my colleagues have said, and I think Pat articulated extremely well, the critical nature of RTOs to a variety of issues—planning, reliability, long-term vision, and in fact, building out an infrastructure, which is so critical in creating the certainty that will attract the investment to do that.

We may debate on what they should look like and how they should work, but we must get to those, because you can understand that they are fundamental to any transformation of the market. And we can structure regulatory oversight committees. We can have regulatory compacts. But we must empower the FERC, by reaffirming its power to create these RTOs and the rules that regulate them.

Part of the change that we are seeing and certainly recommending such as the repeal of PURPA and PUHCA, will also require us to strengthen our market monitoring. And I would like to suggest that, in fact, we will need additional tools, and we may come to you and ask for those tools. We do need civil penalties. We need to have the ability to cause pain, and we need to stop whatever abuses may

be happening in the market as quickly and as efficiently as possible.

Part of that is also empowering us to get additional information from all the entities playing in the market. I think—I have not seen the legislation that's been introduced, but transparency is important, is critical, and everyone must be willing to share those documents.

I would also add that one of the regional opportunities for cooperation is for us to develop market monitoring systems and share them with both the States and the regions. States are really resource poor and may not be able to develop the tools that they need to look at what's happening in their own market. So I think there are lots of opportunities for us to work together there.

We've talked about standardized interconnections and uniform business rules. The market doesn't work unless everyone has to play by the same rules, and we are truly disadvantaging the introduction of new technologies by the lack of interconnection standards. So I would—we have certainly all as a group I think committed to moving forward with those principles—but I think it's important that you speak on those principles.

I appreciate the concerns that some of the regions have expresses and certainly some of your members have expressed about he cost benefit analysis of RTOs. And it may be that the committee wants to empower DOE or some other entity to support an independent evaluation of cost benefit analysis among the regions.

We need to get comfortable. We are comfortable that those benefits are there and benefits that we have not yet seen. But it's certainly important that everyone understand what these benefits may bring over time. And it may take time. I understand we're asking people to change their way of thinking and change their way of doing business. We know why we have to do it. Let's perhaps provide people with better information about what the costs really will be. Thank you.

[The prepared statement of Ms. Brownell follows:]

PREPARED STATEMENT OF NORA MEAD BROWNELL, COMMISSIONER, FEDERAL ENERGY REGULATORY COMMISSION

Mr. Chairman and Members of the Committee, good morning. Thank you for opportunity to testify before you today on the various energy restructuring legislation pending before your Committee. I strongly believe that the goals of any new legislation involving energy restructuring should be to facilitate the development of competitive regional energy markets and the removal of any barriers, regulatory or otherwise, to the development of such markets, while allowing the Commission to perform effective market monitoring. We must also create a regulatory environment which ensures reliability and investment in infrastructure.

I want to applaud the efforts of this Committee to grapple with the issues of transforming energy markets. Balancing competing agendas and leading the charge for change is neither easy nor neat. Many people wonder why we have to change at all, particularly after events of the past year. We must remind ourselves that this country has enjoyed a standard of living that is unparalleled precisely because it has been willing to take risk, embrace change, and leverage its intellectual assets. It would be a tragedy to ignore the opportunities created by the advances in technology that have transformed so many other industries like communications and transportation. Without a coherent, integrated national energy policy and its associated legislative and administrative changes, we will disadvantage our industries, our environment and our constituents. I urge us all to share a sense of urgency to do what needs to be done to move forward. There are many ways to address the issues of transforming markets. I will address some of the most important.

The Public Utility Holding Company Act (PUHCA), enacted during the Depression, and the Public Utility Regulatory Policies Act (PURPA), enacted during the Carter Administration, are impediments to restructuring that, in my opinion, should be repealed. Among other things, PUHCA requires that utility holding companies that are required to register (because they do not meet any one of the exemptions enumerated in the statute) submit to heavy-handed regulation by the Securities and Exchange Commission, including seeking permission for many activities that companies engage in during the ordinary course of their business. PUHCA also subjects holding companies to requirements that they operate an "integrated" and contiguous system and does not adequately address the relatively new phenomenon of "convergence" mergers between gas and electric utilities. While PUHCA was a necessary reaction to abuses that existed a half-century ago, it has outgrown its purposes, and equally important, no longer reflects the utility industry of today, including the rapid rise of non-vertically integrated energy companies.

As just one example of PUHCA's perverse effects, because of the provisions for foreign utilities, the statute causes foreign companies to buy here and U.S. companies to invest overseas. Investment decisions should flow from economics, not from an outdated statute.

PURPA also needs repeal. PURPA requires utilities to buy from alternate energy sources at what are frequently quite high prices. PURPA was enacted in response to a perceived need to reduce dependence on oil for electric generation, and it was thought that this kind of subsidy would help accomplish that result. Now, 22 years later, when a gas-fired generator can be on-line in less than two years, and many advances are being made in distributed generation, PURPA's subsidies for certain types of generation no longer is rational.

Having stated that I believe that PUHCA and PURPA should be repealed, I also believe that we should listen to the concerns of those, like the rural CO-OPs, who are asking us to replace the safeguards, however flawed, that these statutes were intended to provide. It is a change in approach that I have in mind. Instead of relying on heavy regulation, safeguards should be a product of a market oriented approach. We must do everything possible to encourage advances in technologies, particularly renewables, and investment in infrastructure in order to bring them to market as quickly and efficiently as possible. We must also do everything possible to promote transparency and uniform business rules in order to guard against manipulation. We must do everything possible to enhance our market monitoring and enforcement capabilities in order to react and remedy any market abuse. Responses must swift and certain.

There are a number of ways to accomplish this changed approach. I strongly support legislation affirming the Commission's authority to require the formation of RTOs and to shape their configuration according to the characteristics outlined in Order No. 2000. Large, regional, independent RTOs can improve grid reliability by facilitating transmission planning across a multi-state region, create better pricing mechanisms such as eliminating "pancaking", improve efficiency through better congestion management, and attract investment in infrastructure by facilitating regional consensus on the need for construction. RTOs play an important role in assuring reliability. I recognize that markets do have different characteristics and I do not dismiss those differences. We must work collaboratively with the stakeholders to determine where those differences are real and where they are merely the basis for barriers to entry. Ultimately, however, large regional RTOs must be formed in a timely manner.

I also strongly endorse creating standardized interconnection rules and uniform business rules. Where rules are standardized, there is less room for manipulation. I believe that all interstate transmission facilities should be under one set of open access rules, including the facilities owned and/or operated by municipals, cooperatives, the Tennessee Valley Authority, and the federal power market administrations. These entities, which together control approximately 1/3 of the nation's transmission grid, currently enjoy non-jurisdictional status. Placing all facilities under the same set of rules will eliminate disparities in treatment that operate as disincentives to open access, and better ensure seamless electricity markets.

I must emphasize that it is imperative that we place all transmission, whether related to unbundled wholesale, unbundled retail, or bundled retail transactions, under one set of non-discriminatory open access rules. Our experience since the issuance of Order No. 888 indicates that it is no longer necessary to segregate the transmission for native load. Having all transmission under one set of rules will eliminate a patchwork of state rules regulating "retail transmission" and better ensure a properly functioning and transparent transmission grid. We must ensure, however, that we do not interfere with state oversight of retail and consumer responsibilities.

I believe that the Commission must be given ultimate authority over the siting of transmission facilities. At the time that the Federal Power Act was enacted, it was appropriate to defer to the individual states for siting transmission facilities within their borders. Times have changed, however, and today, there have been major technological advances in transmission that have created interstate superhighways. State-by-state siting of such transmission superhighways is an anachronism that impedes transmission investment and slows transmission construction. It is possible for one state to veto a desperately needed transmission project. The best solution to this dilemma is through an interstate regional compact or properly functioning RTO, with significant input of the states, to be the first stop for siting approval. However, at some point, it may be necessary for the Commission to make the final determination. Therefore, I would suggest that the Commission act as a backstop. In other words, grant the Commission siting authority over interstate transmission comparable to the interstate natural gas pipeline siting authority in Section 7 of the Natural Gas Act after we have determined "need" on the basis of an evidentiary record. This is one way in which interstate transmission expansion can keep pace with generation.

A final piece to the puzzle is the market monitoring and enforcement capabilities. The Commission's "tool kit" must be strengthened to facilitate the Commission's expanded role in monitoring for, and mitigating, market power abuse. I believe that the Commission needs to develop and expand its market monitoring expertise. The Commission can tap the existing expertise of other federal agencies, and perhaps even private organizations, that are experienced in market monitoring. It can also seek consultants with expertise in electronic trading and market simulation. In either case, it comes down to funding. As the markets we regulate change, we must be prepared to change our regulatory tools. The Commission should be given sufficient funding to ensure that it can hire, train, and retain personnel skilled in market monitoring and market power mitigation or buy expertise on a short-term basis as needed. Legislative solutions must be coupled with the Commission's ability to acquire the necessary talent that can implement its new responsibilities.

I am also of the opinion that market monitoring should not solely be the Commission's responsibility. We should involve the states in a serious discussion of whether combined state and federal action is necessary when market power abuses are occurring in both retail and wholesale markets. It should involve the RTOs. I intend to explore such creative approaches as the development of regional oversight committees, which work with existing regional coordination councils or other similar entities, including state regulators, to better assist the development of workably competitive markets. We should explore the development a coordinated system whereby we share standardized information thereby reducing both the administrative and cost burden on the respective agencies and stakeholders. We must leverage our resources in concert with the states, particularly with regard to information sharing. Further, we must be certain we are asking the right questions. We must clear about what constitutes market power. We must understand the changing nature of the transactions (e.g., on-line trading). We must use the information effectively.

I believe that the Commission must have timely and reliable data and information to have an effective market monitoring program. There are many different players in the energy markets, many that have not traditionally been subject to our jurisdiction. A significant amount of relevant information about the operation of markets is in the possession of these entities. At times, there has been a reluctance to cooperate and provide the necessary information. It may be appropriate to clarify that the Commission has the authority to seek the information necessary to perform its statutory responsibilities from either jurisdictional or non-jurisdictional sources. Transparency is impossible without the involvement of all market participants.

Naturally, the necessary companion to market monitoring is enforcement. There has historically been a reluctance to apply traditional antitrust doctrine, including penalties, to electric and gas markets, since they were not competitive markets, but were subject to pervasive regulation and sanctioned monopoly structures. That should no longer be the case as we move further and further down the path to deregulation and restructuring. The enabling statutes the Securities and Exchange Commission and the Federal Communications Commission provide for a range of enforcement measures, such as civil penalties, which I believe may be appropriate for the Commission. I would suggest consideration of a significant civil penalty to indicate to market participants that we take violations of the Federal Power Act and Natural Gas Act seriously, and are prepared to remedy such violations above and beyond our refund authority, which is statutorily limited. We must also act swiftly and with certainty to respond to market abuses. Markets are fragile and prolonged problems will destroy the market and the confidence of consumers.

The work that you have done is quite extensive and I could probably expound forever, but I believe these are some of the most important. Thank you for asking for my input on these critical issues. I stand ready to assist your Committee in your deliberative process. I again thank the Committee for this opportunity to testify.

The CHAIRMAN. Thank you. Thank you all very much for the excellent testimony. One thing I wanted to inquire about is the statement that Secretary Salisbury, who was just ahead of you as a witness here, testified to saying that the Governors—the Western Governors—were opposed, as I understood her testimony, to any siting authority being provided at FERC and one of the reasons she gave was that there are no applications, as far as they can tell, no instance where an application to build transmission lines has been turned down. Is that your view of things, or is this—and is that—is that really an adequate indicator of whether or not the job of getting an adequate transmission system in place is being carried out? Is the fact that State commissions have not turned down applications a determinative on that issue? Commissioner Hébert, do you have a view on that?

Mr. HÉBERT. Mr. Chairman, with all due respect, I will be glad to comment on what you told me. I was not here to hear her testimony. I did read her testimony before I came here.

I don't think whether something has been done or not done is ever determinative on why something beyond that should be done or not done. Whether or not we move forward with siting authority, I don't know. This year, I guess I've testified before this committee a half a dozen times, and I have repeatedly said, it is my thought that as we move forward with regional transmission organizations, that those organizations would have some input and would certainly be, I think, in the best position to decide what has to be done when it comes to interstate siting of transmission. FERC can always be the backstop, but it is very important as we deal with State commissioners, which mean, in the end, that we deal with State Governors as well, that we at least give some deferential period to them and allow them to act.

If there have been no applications that have been denied for transmission, it at least means that the ones that have been applied for have been dealt with, hopefully, appropriately.

What it does not suggest or, better, what it does not answer, is whether or not the proper incentives and opportunities are out there to promote such filings for certificates of eminent domain and moving forward with siting.

I don't think we have appropriately done that at FERC. I don't know that the States have done that, but we certainly have to do a better job ourselves at FERC to try to make people understand that what is best for America is as much of a seamless grid as possible that physics and economics will allow, and you've got to build out the transmission system to do that. We need investment in those systems. But just because the Federal Government gets siting of electric transmission does not necessarily mean it will be done right.

The CHAIRMAN. Commissioner Breathitt.

Ms. BREATHITT. Mr. Chairman, I have one comment to add to this discussion. When I was chairman in Kentucky at the PSC, we had several instances where applications were withdrawn, so the

Commission never ended up acting, and I haven't done any research on my own to see how many applications have gone forward in the States for transmission siting, but I do know anecdotally that they take a long time, but I also don't know how many applications never make it to the decisional stage and are withdrawn because of siting difficulties and problems.

The CHAIRMAN. Okay. Anybody else want to comment on that?

Mr. HÉBERT. Mr. Chairman, if I may, I would be glad to get the staff to look into whether or not what Commissioner Breathitt has just spoken to has happened and give you some information on that.

The CHAIRMAN. Yes. Anything you could tell us. I guess my sense is that what we're talking about in terms of having an adequate national transmission system, we may not be able to say that we have an adequate national transmission system as long as nobody files an application to improve it. I mean, it may be that there is a responsibility beyond just sitting back and waiting for a permit to be requested.

Mr. MASSEY. May I comment, Mr. Chairman?

The CHAIRMAN. Yes. Go ahead.

Mr. MASSEY. It may be that applicants are discouraged and frustrated and feel like it's so difficult to get transmissions sited in many, many parts of the country that it's not worth filing the application. I think there's a great sense of frustration in the industry out there that it's very difficult to get transmission facilities sited, and there are examples in various parts of the country of how difficult it is for a State to grapple with a proposed transmission project necessary for the interstate market, but that may not provide direct benefits to that particular State. It seems to me, that is the fundamental difficulty here. We're moving to regional markets. We need at least regional solutions, as your bill proposes, and I would take it a step further and say there ought to be Federal siting. There ought to at least be some way to break the logjam. If facilities are necessary for regional markets to thrive, then it seems to me that is precisely what your White Paper is all about. If those facilities are necessary, there's got to be a way to break the logjam and to get them sited. Maybe a Federal backstop role.

The CHAIRMAN. Mr. Wood.

Mr. WOOD. The problem that hasn't been addressed is, who's doing the applying for? Today it's regulated utilities who really are going through a tremendous gauntlet to do something that they probably won't get direct corporate benefit from, as in days of old, but they're helping build an international or an interregional grid, basically tying from their utility to another utility, so that a competitor, somebody they don't even care about or really like, can benefit from it. So, I mean, there's not a tremendous incentive in the first place. Now, some utilities actually are trying to look broadly and think, "I don't want to impede anybody," but it's not in their natural corporate interest to do anything to beef up the grid kind of around the edges. They just want to make sure it's good in downtown Houston, around the edges, but not really tying the whole grid. It's the problem we had back in the ERCOT region, with our utilities—it's hard to go through landowners. It's hard to take the PR hit for new wire construction. These guys are all try-

ing to get into the retail market, so they don't want to have their corporation have a bad image with landowners. There are a lot of incentives to just not filing in the first place, which is where Linda was going with her response.

Mr. HEBERT. Mr. Chairman, if I might add one thing to that, and I think Commissioner Wood pointed out something that is really extremely important to talk about as you move forward here. The complexity of the issue has changed. For instance, ERCOT is a great example. When you take a transmission line and you run it from Austin to Houston, Texas knows they're going to benefit from that line. When you take it and you run it from Idaho to Montana, the question arises as to who benefits, how much, and what is the cost of such benefit? So, the complexity of the issue as to the siting of that transmission has changed, which is going to make it more difficult.

Ms. BROWNELL. I would add Mr. Chairman, that it speaks to the need, then, for a new approach, and as controversial and difficult as this is, it's pretty clear to me that when the market has identified, as it clearly has, that there is need for additional transmission in a number of places, and no one is stepping forward to build that, that there are lots of signals out there that suggest, "do not apply."

The CHAIRMAN. Okay.

Senator Feinstein.

Senator FEINSTEIN. Thanks very much, Mr. Chairman, and I'm very pleased to see all the Commissioners here. I want to thank them because I wrote to them a letter awhile ago and asked for any suggestions they might have with respect to improving FERC, giving it additional authority.

I want to just speak bottom line for a minute. My observation of FERC is that it has been a toothless tiger. I would oppose any increased jurisdiction until FERC really had the regulatory authority that's adequate and effective to do its job, and that means, Senator Wyden referred to the CBS Report. I spoke about the Williams A.E.S. issue on the floor some months ago. I find it unconscionable that the public will never really know, because all the evidence is sealed in that case, that a company that has admitted to telling operators at a plant owned by A.E.S. that Williams could provide a financial incentive to extend the outage. That's unconscionable. It's unconscionable that all this stuff is sealed, and I believe that you can never do the job you're meant to do unless you have the real disincentive to abusive behavior on the part of the companies, and I—well, to make a long story short, I'm very grateful Mr. Wood, Mrs. Brownell came in yesterday and we spent some time. Commissioner Massey, you took some time and really very thoughtfully addressed my concern. I'd like to enter into this record a copy of your letter to me dated July 13, and I think your letter really gets to the heart of the issue in terms of the things that I'm interested in, which is giving the FERC the teeth it needs to deal with what has been a swashbuckling industry with very little real customer loyalty we have found in California, and I want to work with the chairman and other members of this committee to include some of Commissioner Massey's concepts wherever we can.

I'm very heartened to hear that three Commissioners have now said that they would support civil penalties to insure that there is

an adequate penalty for bad behavior, and I hope that that will be part of our energy bill, and that the FERC will move expeditiously in that direction.

Secondly, the natural gas market. FERC has very little authority to oversee natural gas markets. Virtually everybody in California's bill has gone up two-thirds over the natural gas issue. The natural gas issue has actually caused refinancing of companies, has caused employees to lose their jobs, has caused companies to go in for refinancing. I pointed out at an earlier hearing, C&H Sugar, whose average gas bill was $450,000 a month, at one point was paying $2 million a month. They had to let employees go. They had to shut down. They had to go in for bridge financing. That shouldn't happen, and FERC ought to have the authority to move like this and see that it doesn't happen, and they do not today.

So, I want to see that there is transparency in these markets among the various players in multiple States.

Thirdly, I think FERC should be given oversight over online trading of natural gas and electricity. In many cases, it's the only trading entity that knows the prices sellers are willing to bid and buyers are willing to pay for a given energy commodity, and I've heard many allegations that these transactions drove up the price of natural gas at the California border and elsewhere this past winter.

Fourth, as Commissioner Massey's letter points out, FERC needs direct authority to mitigate market power. FERC doesn't have the tools to prevent excessive power costs, and it's my hope that FERC will reevaluate the criteria it uses to permit market rates in the wholesale marketplace, and also in retail markets, if asked by a State commission. The aim of this clearly is to prevent manipulation and to encourage responsible competition.

Fifth, FERC doesn't have sufficient authority to review mergers. I agree with Commissioner Massey that involve generation firms. Significant mergers dependent upon how they are structured, Commissioner Massey points out, are outside of FERC jurisdiction. That's just an invitation to structure your merger this way and get out of FERC jurisdiction.

Additionally, I am very concerned that FERC does not have the needed authority to regulate transactions and agreements among holding companies and their subsidiaries or between affiliated companies. I think if the Congress is to repeal both PUHCA—well, particularly PUHCA, FERC should be given the authority to deal with these complex interactions. I'm very pleased three Commissioners have also talked about and agreed on the transparency of data, as well as changing FERC's refund authority for electricity rates, which I think is extraordinarily important.

The San Diego marketplace went through, you know, a six time increase in rates. It was incredible what happened. Rates were way up. The wholesale rates were way up at 3 a.m. in the morning, and yet the present rule doesn't allow you to go back to include your refunds to that entire regional area. That's a mistake. We ought to change it.

Now, California's present position is that it will fight any inclusion in an RTO, and the reason is, because it feels it's been a victim and it doesn't have recourse for remediation of abuse. Until

FERC can provide this recourse—or can provide remediation of abuse, I can do nothing but support California in this regard. You know, if you can solve that problem, then I think California will change its mind and perhaps join a regional transmission system.

I'd like to ask this question, particularly as it relates to the secrecy of the settlement agreements, that as long as they're secret, serve as no disincentive to any other company to go out and try the same thing. I mean, they're going to profit much more than they're going to have to settle. I'd like to ask this question of the Commission: Do you believe that the results of investigations and the evidence should be made public in this regard? Let's start with the Chairman. Mr. Hébert.

Mr. HÉBERT. I think we should follow the practice of settlements, which is, follow the stipulation of the settlement. As an attorney, I will tell you that there is much to be gained from settlement processes, especially when it comes to expediting putting things behind us. As you know, we've become a litigious society, so anything we can do to move us forward in that regard I think is beneficial.

I do, however, understand your concern in wanting to know what the information was behind that. Do let me say this, though: I actually see AES Williams as something very positive that I think you should all know about, and that is this. There's been much in regard to FERC's inability to do things outside of the 60-day period. I have testified time and again that, in fact, this Commission has tools in regard to behavior that it deems to be illegal through anti-competitive behavior, contractually against the contract, filed tariffs, filed rates, anything in that regard. As you know, the AES Williams settlement was one that dates back previous to the 60-day period. It was in the summer of 2000, so I understand your concern. I understand wanting to see the information. Senator, you and I have met several times and I truly believe the settlement process does bring benefits, and I do think it is a good indication that FERC is, was, and will continue to be, vigilant even 24/7 outside of that 60-day period.

Senator FEINSTEIN. The problem is, all we've got is, we have to take your word for it.

Mr. HÉBERT. I understand.

Senator FEINSTEIN. There's no way to examine what happened, and, you know, I'm not saying I doubt your word, but I'm saying, it isn't good enough in this kind of situation.

Mr. HÉBERT. I understand that.

Senator FEINSTEIN. So, I wonder if I could just hear quickly from other Commissioners. I just want to know, "yes" or "no"——

Mr. HÉBERT. Well, that's fine.

Senator FEINSTEIN [continuing]. Do you think this information should be made public? Mrs. Brownell, let's begin and go right down the line.

Ms. BROWNELL. Okay. Senator, I agree with the Chairman that the settlement process is important and critical. I wish all the California participants would get back there and try and settle what we've been trying to help them with, but the reality is, you're right. The environment is, at this point, so poisoned, and the credibility of many of the participants is so damaged that, for me, I believe it is important that the appropriate enforcement actions with the

appropriate record built, need to be made public so that we can, frankly, build back our own credibility and that of the market participants, because everybody is not guilty.

Senator FEINSTEIN. Commissioner Massey.

Mr. MASSEY. Senator, in the California debate, I have always felt that the question of withholding was a core question. We had before us a live case with very interesting evidence, and I think the public interest would have been well served by having that record made public.

Senator FEINSTEIN. Ms. Breathitt.

Ms. BREATHITT. Yes. Senator, I wanted to add that—this particular case—had the Commission chosen to open the settlement to the public could have caused the parties to renege on the settlement which resulted in about $8 million and could have gone to trial, and when we go to trial, withholding cases are very, very difficult to prove. So, this was much more complicated than saying, "Yes, let the information out," because it could have ended up going to trial, and then we could have ended up with—we could have ended up losing, because withholding cases are so hard to prove.

We have a tough enforcement chief at the Commission. I would like for you to meet her sometime. She made a very compelling argument for upholding the confines of this settlement. I spent a lot of time on this case.

Senator FEINSTEIN. All right. I had an answer to Mr. Hébert.

Mr. Wood.

Mr. WOOD. I would tell him it's better to lose, and I don't know if this was one of those cases, because I wasn't here looking as close as Linda, and Curt, and Bill did at the evidence, but the—sometimes the evidence says more than even a judge can conclude, and I think that's where you're going. A few heads on the stakes around the campfire make all the animals behave a lot better in the forest, and I think this may well be, certainly in the front end of the transition of the competition. Maybe in the more mature market you would do private settlements.

Senator FEINSTEIN. All right. I appreciate that. We don't quite have three Commissioners, but if it were in legislation, perhaps we might get it done, so I will press for that because I strongly believe that the lesson learned is as important as the penalty in this case, and you can't learn the lesson unless everybody knows clearly what it is that you did.

The other point I'd like to make to you, Mr. Chairman, is, I have real concerns right now about extending FERC jurisdiction over all transmission rate making and access issues, wholesale and retail. I don't want to get into a war right now with the co-ops and the munis, and as you know, we have—we'll have their very strong opposition. I know when we tried to put together our cost-based rates legislation, I think it could end up defeating anything that we might be able to do, so my emphasis is on giving this Commission teeth, bringing sunshine to the debate, seeing that they have civil penalties, seeing that they can give the refunds way back, seeing that they can move expeditiously. I don't want to see another time when the Chairman of the Commission has to bring in 16 boxes and put them before us and say, "This is why we can't do something." And I'd just like to respectfully suggest that we direct our

policy to that end. Let's get them so that they can function in what has been a swashbuckling marketplace in an effective and appropriate manner.

I thank you very much.

The CHAIRMAN. Let me just clarify. I don't think that in our legislation, our White Paper, we're not suggesting that we're trying to get FERC into the business of retail rate making and distribution. We're trying to give them authority so that the transmission system works, and anybody who is involved in the transmission of power we think should be subject to their jurisdiction.

Senator FEINSTEIN. Now, that's a fine point that we need to talk about a little bit.

The CHAIRMAN. I agree.

Senator FEINSTEIN. Thank you.

The CHAIRMAN. Senator Landrieu.

STATEMENT OF THE HON. MARY L. LANDRIEU, U.S. SENATOR FROM LOUISIANA

Senator LANDRIEU. Mr. Chairman, I appreciate it. I'm sorry I had to step out for a meeting with constituents, but I've been following both these hearings, yesterday and today, with great interest and have read and reviewed a lot of the testimony, and I guess it's appropriate to follow up on the Senator from California's comments and the Chair, to say that I am prepared and will be dropping legislation on this Electric Transmission Improvement Act. The Electricity Transmission Improvement Act is what we're calling it, a clear, straight-forward name. We tried to think of something a little more creative, but—but we've been so busy, but I want to thank you all for your testimony today, and in writing, about the importance of trying to develop in this Nation, despite the obvious pockets of objection and push-back that will come, the need to open up this transition grid. Based on the very good, I think, white paper that our chairman has produced about the history of the way our electricity system was developed in this Nation and how it was, not regional but very parochial, and while it served this Nation in a great and terrific manner for so many decades, clearly it is apparent, and through the testimony that you have given, you've helped make it even more apparent that we need a new regime, and so this bill attempts. It doesn't go as far as some people want us to go, Mr. Chairman, and it doesn't go far enough in other people's mind. But just to summarize that this open access issue is addressed by giving States and the RTO's the opportunity to do what they need to do and, if not, it's sort of a backdrop for FERC to step in and to provide the transmission grid that this Nation desperately needs as a foundation of our economic growth in the future.

There is some strong language on siting. We would give FERC clear jurisdiction to be a backdrop. If siting States and regions can't do their siting within 180 days, the bill says that FERC can then step in and try to put down rules and regulations for siting of the power lines. It also establishes incentives for the transmission grid to be increased. Our demand has grown four fold and the capacity for transmission has only been a very small percentage. I mean, it's outstripped it four to one. This bill attempts to address incentives

for the transmission grid, and then the interconnection standards. We have a patchwork. It's a process now. It will give FERC the opportunity to make more standard those provisions.

So, I look forward to—I'm going to probably drop this bill in looking for co-sponsors, and based on some of the testimony I've heard today, I think we can build a consensus around a piece of legislation on the transmission grid which, Mr. Chairman, I hope will serve as a key component of our whole energy policy, because in hearing, after hearing, after hearing, there is enough testimony on the record to indicate that we just have got to move a little—a lot further than we are today.

So, I commend this for my colleagues and look forward, Senator Feinstein, to working with you. I know that munis and co-ops have some reservations, of course, because their interest has been very parochial, and for good reason. That's the way the system was designed, but we need to create an interstate highway system just like the highway system that our automobiles and trucks and business people, large and small, can bring their products to market, can move goods, can create the kind of economy, and our electricity system is no less needy of that kind of system, and we have developed over the century a very good partnership between States and local governments and the Federal Government to create this interstate system for our, you know, transit. We need to have the same sort of cooperative effort in designing this system for our electricity and the flow of power. Whether it is produced from clean coal, nuclear, oil, gas, or alternatives, whatever this committee decides and Congress decides is the mix of supply, you still need an open transmission grid to get it from the source to the consumer, and I think it's a very important component, and I just encourage us all to—I'm going to lay this bill down as, hopefully, some sort of—hopefully—a compromise to build on some common ground, and I'm going to ask, not today, but for each of you all to submit in writing your thoughts about what is in here, what is not in here, and I look forward to working with you all to provide you the legal authority you need to help us to do that.

With respect to all the regions and to all the States, and to the munis and the co-ops, we have just got to make this highway work for our country.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman.

Let me begin by commending FERC's decision yesterday to establish a special evidentiary hearing into what have been skyrocketing electricity prices that have plagued the Northwest for the last year. As you are well aware by now, Washington State has been hard hit by the Western energy crisis, which has really taken an enormous toll on our consumers and businesses, and a variety of sector of our State economy.

I believe that this new evidentiary proceeding will confirm what has seemed to be obvious to many residents in my State, as they've seen as much as a 50 percent increase in their utility bills, that there have been, in fact, unjust and unreasonable rates.

In addition, I am pleased that the Commission has at least taken notice of the structural differences between the Northwest and California energy markets. While we, in the Northwest, rely on bilateral forward contracts rather than a centralized ISO, our prices have moved in lock step with those charged in the California spot markets.

Now that we, in the Northwest, have been given the opportunity to plead our case, I hope that the customers of our hardest hit utilities will ultimately see refunds for those unjust and unreasonable rates, whether through FERC or through a settlement process that might play out here in the next several weeks.

The truly daunting reality for the pacific Northwest is that we have not yet seen the worst of this issue, given that Bonneville Power Administration has a 46 percent rate increase to take place later this fall, and that our peak energy usage in the Northwest doesn't really occur until the winter heating season, so it is my hope that refunds for our region can either alleviate some of the pain our residents have already felt, or prevent them from having more pain inflicted upon them.

Along those lines, I hope that FERC will also take into account that fact that many northwest utilities, especially BPA, have gone to extraordinary lengths in helping with the California crisis, even, at times, to the detriment of the reliability within our own region, and some of those have not been repaid by the sales to the California entities.

I'm very appreciative of the steps that FERC has taken in showing a commitment to help right the wrongs visited upon the Northwest by last year's—by the last year's runaway prices, and I'm pleased today that the Commissioners have, I think, finally acted to highlight the need to restructure our electricity system so that energy suppliers will never be able to create the sort of dysfunctional atmosphere in which we have all been so impacted by.

I would like to, if I could, ask the Commissioners, Mr. Chairman, about a couple of things specific to the order, and then some broader questions as it relates to our hearing this morning, but first I noticed in the hearing—the order document from yesterday, on page 38, regarding the Pacific Northwest proceedings, that the proceeding is—and I'm reading from the document—"The proceeding is intended to facilitate the development of factual record on whether there have been unjust and unreasonable charges for spot market bilateral sales in the northwest for the period beginning December 25, 2000 through June 20, 2001."

So, if members of the Commission could comment on that, I'm assuming in that recognition that there is, in fact, a different market functionality in the Northwest, that spot market bilateral sales in the Northwest basically include some of the longer term contracts, or depending on how you wanted to find them, shorter contracts that were sales made during this time period that are different than how you have been viewing the California situation and California refunds.

Mr. HÉBERT. Well, the problem that you get into with the Pacific Northwest is, they don't have a 24-hour spot trading market, as does California, and you pointed that out, and that's correct. This Commission has been very focused on trying to make certain that

at the most opportune times for market manipulation, that FERC intervenes. That is exactly what the price mitigation was all about. I continue to believe that that 24-hour period is what this Commission should be focused on.

Now, not having a 24-hour spot product that you trade in the Pacific Northwest presents some difficulty in establishing facts when it comes to establishing what the refund criteria, if any, would be, so that is what that language is in there for. I think you will find, as you talk to the other Commissioners, there is some agreement and there is some disagreement as to what direction we should go in there, so I think it would be fair to let them answer, as well.

Ms. BROWNELL. Senator, I think if you also look at the footnote on page 43, it acknowledges that, in fact, there are differences, and it is our hope that what those differences are may be clearer from the evidentiary proceeding, and the Chairman is right, there is still discussion and debate going on, but it was clear to me—I can speak for myself—that there are differences and we need to look at that in a different way. Where that evidence takes us, however, remains to be seen, so we implore the parties to get it all out and make their case.

Mr. MASSEY. Senator, it seems to me that the dysfunctional California markets had a huge impact on the Pacific Northwest that played out through bilateral contracts, and our order says explicitly that what is a spot market sale in the Pacific Northwest may be different. We may define it differently, and we tell the judge to accept evidence on that question.

My own view is that contracts in the range of a month or even longer would qualify as spot sales in the Pacific Northwest, and I said that yesterday. For the record, our order intends to open this issue up, but it is somewhat ambiguous about what a spot market sale is. In the Pacific Northwest, we're counting on a record to be developed.

Senator CANTWELL. Commissioner Wood or——

Ms. BREATHITT. Senator, I would just like to read one sentence from the order that says, "We direct all parties to the Puget Sound Complaint proceeding to participate in the proceeding and to focus on settling past accounts related to spot market sales in the Pacific Northwest." We tried to be as precise as we could about what that means to the Northwest. I am confident that the proceeding will at least give parties if not the perfect result that they wanted, will give them the forum in which to settle these past accounts which is due process and it should be fair.

Mr. WOOD. Your specific question about what is spot market——

Senator CANTWELL. Well, my specific concern is that the Northwest utilities and Northwest consumers who have seen prices go from $26 a megawatt during this time period to $500 a megawatt are not penalized on coming up with a solution simply because they don't run an ISO like California, and because—and I guess I think it speaks somewhat to the potential limitations or concerns about FERC moving forward if we can't make decisions that recognize the differences between these markets when unjust and unreasonable rates have occurred. So, I'm taking your order as to mean that you are—that the judge has discretion to determine that there are longer term contracts that could attract the spot market and that

these contracts, just because they didn't operate under an ISO functionality are unjust and unreasonable during this time period.

Mr. WOOD. I think clearly the intent of the footnote 74 that I believe Nora referenced a moment ago, which reads, "What is a spot market sale for bilateral transactions in the Pacific Northwest may differ from what is a spot market sale in the California ISO and PX organized spot markets" was really an indication that there's plenty of room to look at this a bit differently in the Northwest proceeding.

Senator CANTWELL. Thank you. If I could, following up on this issue, as we look at the larger restructuring issue, part of the challenge for us in the Northwest being 78 percent hydro dependent and the fact that we have the worst, or second worst, drought on record, part of this is planning for the future, having—then going out to the spot market, which was seeing exorbitant prices obviously made it a very complex year for us. How, in looking at these issues on restructuring, what are some of the Commissioners' ideas on further safeguards, whether through FERC or whether through different entities, to make sure that the planning process, given a hard environmental hydro years, would be a way, or for anybody who may not be hydro related, but are forced to go out on the spot market and higher peak times.

Mr. MASSEY. Senator, let me say—and this may be politically unpopular in the Pacific Northwest and in the West—but I think the ultimate solution is a single RTO for the Western interconnection that plans for the entire Western interconnection. This is the way to solve that problem.

Senator CANTWELL. And what functionality would—I mean, we obviously are hearing a lot about an RTO and I think if you said today to people in the Northwest, "Hitch your wagon to the California ISO and let's create a regional situation," I don't think people would be very comfortable with that. I'm not even sure California would be comfortable with that.

The issue is, what can we do to require utilities to have more predictability for hard economic times? And, of course, we want to assume that there's a stable market operating and, yes, that's a larger question about how we—what are the safeguards or the empowerment as we've heard discussed from our colleagues today, everything from transparency to the transmission grid, but what is that certainty on backup plans? I equated to FDIC insurance that banks have, and when there's a run on a bank, they have a backup plan on how they're going to deal with it so that consumers are protected. So, what is our equivalent in this situation?

Mr. WOOD. Traditionally in the regulated environment, there is a requirement on every utility to have 15 percent, or some percent, more under contract or under ownership of generation than it needed for the hottest or coldest, whichever the climate is, day of the year, so that it always had that insurance policy on top of what it needed.

In the more competitive markets, those regulatory mandates have taken more the format of a tradeable right that a generator can sell for the obligation to deliver power 3 years from now for that 15 percent, or whatever it may be, and that's sold to a retail provider today. California did not have such a requirement at all.

Looking back, I think everybody is kicking themselves that there wasn't a build-ahead requirement, but in the Eastern markets, in fact, we were dealing with orders just this week, looking at what they call installed capacity, ICAP, it has various other names, but they are probably not the perfect mechanism out there yet, but it's one of those probably critical lists of five things we've got to do to put into regional planning across the country to make up for what happened out there.

Hydro is unique because it can go away pretty fast, unlike natural gas. Three years ago, we had—with the merger of railroads, we had some coal dislocations. Gosh, who would have thought coal would have become undependable for awhile, but we've probably got to factor in the probability of unavailability for each one of these resources when we're figuring out that 115 percent. In hydro this year, at 46 percent of what it was two years ago, looks—it's pretty variable and I think in future planning, we've got to account for that.

Ms. BREATHITT. Senator, what I would add to what my colleagues have just said is—and you're probably doing this in the Pacific Northwest because you are 76 percent dependent on hydro which is so—which succumbs so to weather, and snow, and rainfall, that the Pacific Northwest look at diversifying its energy portfolio so you, over time, reduce the dependency on perhaps hydroelectricity to include perhaps more natural gas, more clean coal, more renewables, coupled with demand reduction and conservation. That would be—and then picking up on Pat Wood's comment of a reserve margin, which I'm sure—I think you have in the Northwest with the WSCC.

Senator CANTWELL. Yes, but a 15 percent reserve, which most of these people had, didn't last them very long.

Mr. HÉBERT. Let me get a couple of things that I think are—you should definitely know about. I do think the single RTO for the West is critically important. What we have all learned from this—understanding Senator Feinstein's concerns about how we do that—I am certainly sympathetic to that, but it's important that we do all learn from this. I mean, it's one thing to listen; it's another to learn, and let's learn, and what we have learned is, in fact, that the Northwest and California help and hurt one another, depending upon their actions.

Having said that, if you have an RTO that is set up so as to plan in such a way that it will have as much free-flowing transmission as possible, it will have the installed capacity that is necessary to get it through the bad years, I think that's very important, but it also brings up a couple of other things, and Commissioner Breathitt touched on it.

The fact that you are so dependent on one single source leads you down that path a little bit. I will tell you that due to the dependence on hydro and the fact that hydro is such a cheap, in the end, or less expensive form of energy, not to mention all the very positive things when it comes to emissions, but it has made it very tough for gas and pipelines to come out there and compete. When you have very good hydro years, the pipeline companies don't do very well, so you might want to think about, and certainly it's something that I continue to talk about, incentives for the pipes so

that we're not so dependent. Now, that is not to say that you can do with less hydro, because I think quite the opposite. I think you need as much hydro as you've got, and I think you need to squeeze every megawatt possible out of that hydro, but I think you also need some gas and maybe some clean coal technologies, anything that is going to bring you additional capacity.

Having said that, you're in a period where the relicensing of those hydro facilities is critically important. It is also critically important that that be expedited and it not be weighed down and it not be stopped through a regulatory framework. We are committed to that. We will continue to do that, and, hopefully, we will help the Northwest get on their feet. I think you do know and understand that we are committed to that.

Senator CANTWELL. I don't think that we've ever missed an opportunity, when the Secretary of Energy was here, to encourage him in his dialogues and discussion with Canada, British Columbia and Alberta about the large reserves of natural gas that they have there that could be an aid to the West.

Commissioner Brownell, do you want to comment on that?

Ms. BROWNELL. Senator, I do. I certainly think that my colleagues have covered the gamut of opportunities to address the issues in the Northwest, but I want to comment on the concerns that you have expressed, Senator Feinstein have expressed, about a Western RTO.

We recognize that there are dramatic dysfunctionalities in the markets, and we recognize that we need to fix those incrementally before we suggest that a westwide RTO would be perfectly suited to addressing these problems. So, we also need to understand that there are different levels of maturity in different markets that require different responses. The Northeast, being that much more mature, is probably more ready for an RTO on a larger scope than the West is. But I do think it's important because we're looking at a planning function that is very clearly more critical than we ever knew of, as we begin to move forward in thinking in terms of regional planning and how we might get there, both in the short term and the longer term. So, we can't let today's problems make us—force us into decisions that, for the long term, are not good, and therefore that planning function at the RTO level, I think, is critical.

Senator CANTWELL. Well, and I just want to note that within the region that the reciprocal agreements that we have with Washington—the Northwest has with California now on power that have worked well for many years, but the issue is creating a—making sure there's a functional market and what the unique impacts are within each region.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Senator Feinstein, I know you had a matter you wanted to follow up on. Why don't you go ahead and do that.

Senator FEINSTEIN. Thanks very much, Mr. Chairman.

I may have misspoke by saying that we didn't have three votes on the Commission to make investigative data public. My staff informs me that I missed something, Ms. Brownell, that you said you would support it.

Ms. BROWNELL. I would. I mean, retroactively, I could not undo a settlement, but going forward, I absolutely would support it.

Senator FEINSTEIN. That's good. Then we have three votes for that, as well. So, I would like to, if I understand it, as the Commission this question. There are three votes, as I understand it, on additional authority with respect to—well, making—moving up, the Rule 206 rule on refund authority to the date of filing the complaint. Is that a correct assessment?

Ms. BREATHITT. I think that's what I said in my letter to you.

Senator FEINSTEIN. Yes, right, and I think others—Commissioner Massey, you suggested that——

Mr. MASSEY. I would go further back than that. I think FERC ought to have the refund authority any time it determines that prices are unjust and unreasonable, going back retroactively with some reasonable limitation, of course.

Senator FEINSTEIN. All right.

And Commissioner Wood.

Mr. WOOD. I have not spoken on it, but I would agree with what Commissioner Breathitt just said, that certainly on the date of filing, from that day forward is a pretty clear signal to the person you're filing against that their behavior is under potential refund obligation.

Senator FEINSTEIN. Now, I haven't asked this question, but how about making it retroactive?

Mr. WOOD. Prior to the date of the complaint? We had this discussion yesterday at the Commission meeting with a bright woman on our staff talking about what do we have today? If they had violated a tariff, and from this point forward, I think all the market based pricing certificates that we've granted that I think some of you have not been real happy that we've granted on the market basis, could have a conditional amendment that would provide a sort of a hook, that, in fact, you have violated a preexisting tariff. That's a little different and that would give you the ability to go—if you broke something that you promised you wouldn't break 10 years ago and you broke it eight months ago, when you file a complaint really doesn't matter. If it's a new issue, like what we saw with the San Diego Gas and Electric filing last August, then that becomes subject to a specific new complaint, so the bottom line is, we do have more authority to go back currently than we had expressed in the section 206 complaint, but it has not been found, and I think we looked for a way to look for it to go back before August of last year. Going forward, we can condition certificates so that there is an earlier-in-time-bright-line point.

Senator FEINSTEIN. Obviously the reason I'm raising this is that the San Diego situation just sort of stands out there like a——

Mr. WOOD. Right.

Senator FEINSTEIN. It's almost unfair.

Mr. WOOD. I agree with the——

Senator FEINSTEIN. I'm trying to see if the Commission can take any action in that regard,

Mr. MASSEY. I agree with you. Any time prices are determined to be unjust and unreasonable, there ought to be refunds available. It's unconscionable that we cannot go back to last June—June of 2000—and order refunds for prices that were clearly out of control

and unjust and unreasonable, and that is an issue that needs to be addressed. I think the first complaint was probably filed in late June or early July. By the time we got around to addressing it with the 60-day buffer zone, it was October 2, but that's a good 4 months of out of control prices with no remedy, that's number one.

No. 2, the Commission allowed sales at market based prices with virtually no conditions attached to that certificate. There was a condition against affiliate abuse. There was no condition in those tariffs against withholding a generation. That seems unbelievable to me, but there was absolutely no condition.

Mr. HÉBERT. We have since changed that.

Mr. MASSEY. We have since changed it for the Western interconnection as of April 26, 2001, but there ought to be a national standard, and as the Commission updates its market based pricing standards, and there's probably a majority of the Commission that's willing to do that, we ought to include the conditions that are necessary to protect the public interest.

Senator FEINSTEIN. Well, I'd like to ask you to do so. I think that would remedy a major inequity if this could go back into the year 2000 which, after all, it was in the early point there where some of the biggest spikes were, you know, where some of the most egregious happenings took place, and nothing is going to happen, so it's sort of like the old adage of closing the barn door after the horse is out and I'd like to make the request that the Commission—and we will do so in writing, as well—take a look at that.

If anyone would like to respond, please.

Mr. HÉBERT. Yes. I have actually a response and a couple of questions, one to something you mentioned a little while ago on market power, and the other on your question as to the settlement, and I want to make sure I understand your question properly and the direction that you believe the majority of the Commission may be taking.

Is it your understanding, then, that the majority of this Commission will not accept settlements that do not disclose the reason for those settlements and the facts of that case?

Senator FEINSTEIN. Of course, now, you're putting it in the negative.

Mr. HÉBERT. No. I'm just asking.

Senator FEINSTEIN. What I'm saying is, that the—this is a public Commission that the evidence on which you base decisions should be made public so that everyone can look at it. I mean, this is not something that's operating in the private sector. This is a public sector effort, and as such—see, there's no—part of what I'm aiming at is to create a disincentive for bad behavior, and the disincentive is, everybody is going to know about it, the credibility and integrity of the company is affected. I think that's appropriate in this kind of case.

Mr. HÉBERT. I want you to know, I do not disagree with anything you're saying as to the importance of people seeing things, but I will tell you, for someone who has committed many hours of—every day in the last 6 months to try to turn this thing around, that every now and then the opportunity to trade certainty for uncertainty versus protracted litigation is so strong that I think this Commission must do that, and I think we will see that again in

the future, and it is my hope that this Commission will not turn its back on accepting settlements to give certainty to this industry to try to turn things around. That is my only thought.

The other thing—I guess you can come back to it, because it doesn't have anything to do with this—has everything to do with market power that you brought up, and I'd like to comment on that.

Senator FEINSTEIN. Fine. Fine.

Ms. Breathitt.

Ms. BREATHITT. Senator, I was just sitting here listening and thinking. The question in my mind is, is the embarrassment factor going to achieve our goal of stopping withholding? Is that going to be more effective than going to trial?

Senator FEINSTEIN. May I answer that?

Ms. BREATHITT. Yes, because I don't know the answer to that, and I think that's what you're asking.

Senator FEINSTEIN. The answer, I think—all right. I think Mr. Wood answered that question. It may be worth going to trial, even if you lose, to let all of this be out there.

Ms. BREATHITT. I was just trying to think through whether the embarrassment factor gets us where we want to go as opposed to proving actual instances and having a legal predicate upon which to move forward.

Senator FEINSTEIN. I can tell you, over and over in the California situation. As you know, ENRON had to be subpoenaed and resisted providing data, and I gather they're now going to do it, and everything is a fight. Everybody on the other side says, "Oh, there's no smoking gun. We did nothing wrong." Well, look, in my heart of hearts, I know plenty was done that I would consider wrong, but you can't get to it unless you've got somebody that—unless a whistle blower comes forward.

Now, you can't have this kind of situation that, for justice, the only hope is a whistle blower, which is, today, the situation in California. There has to be the ability of the regulatory authority to make these things public, and currently there is not, and that's why I think we had such egregious behavior on the part of the generators, because it was no lose for them, and if you combine this with the lack of transparency, when it's the—when the online dealing takes place and the natural gas at the border—I mean, you've got a very complicated and an impossible situation for anybody really to sort out.

Mr. HÉBERT. It is perplexing, because I guess somehow I haven't heard what I thought I've heard, because I have been thinking over the last couple of months that, with all deliberate speed and almost at all cost, we should put the California and the Northwestern matter behind us, try to get that settled, and I guess now what I'm confronted with is, if tomorrow this Commission is presented with a settlement with all parties in California and the Northwest, and all those parties agree that they want to settle as to the amount, but they do not want to disclose why that amount was there and what the activities behind that were, you're saying you would rather this Commission say no to that, that we want the ALJ to hear the case, perhaps a hearing before the Commission, and inevitably, surely, before the full Circuit——

Senator FEINSTEIN. No.

Mr. HÉBERT [continuing]. Which is a much longer duration. I mean, that's the trade-off.

Senator FEINSTEIN. It is also costly for the companies. I'm not sure that this really is the trade-off. I'm not sure. I understand it in the private sector when there's a lawsuit and the parties come together and they have a settlement and that settlement is a secret settlement, but this isn't the private sector.

Mr. HÉBERT. I don't disagree with that.

Senator FEINSTEIN. I have a real problem because of what has been going on with the State legislature has been trying to do, and the difficulty in being able to do it. Now there's someone you can go to all in secret, you can work out your deal, nobody ever knows what really happened. That's wrong, Mr. Hébert. It's wrong, particularly, when you have companies laying off people because they can't afford the rates. I mean, I remember talking to the Sempra people about what was happening at 3 a.m. in the morning.

Mr. HÉBERT. I'm not disagreeing the right and the wrong of that with you. What I'm disagreeing with you about is the opportunity for this Commission to provide certainty and get settlements and issues behind it and move forward. That is all I'm disagreeing with you about.

Mr. MASSEY. May I comment, please? It seems to me that the difficulty this Commission faced over the whole past year is our credibility. Were we actually doing what needed to be done? Were we tough-minded enough? Were we serious enough to solve this problem? And in that context, a big case involving withholding, with very interesting evidence, comes before us and we bury the evidence and it hurts our credibility and makes it look like we're conspiring with the industry. Your comment is dead on. We would have been better off to spread that evidence on the record through litigation. That would have been much more valuable than the $8 million that we got.

Senator FEINSTEIN. My time is up. I want to thank the Commission.

The CHAIRMAN. I'm going to have to terminate the hearing. I want to thank all Commissioners. I think it's been very useful testimony. I think you've brought out some very useful points and we want to stay in close touch with the Commission to work with them in developing legislation that is in the best interest of the country.

Thank you all very much.

[Whereupon, at 11:52 p.m. the hearing was adjourned.]

APPENDIXES

APPENDIX I

Responses to Additional Questions

PORTLAND GENERAL ELECTRIC COMPANY,
Portland, OR, August 31, 2001.

Hon. JEFF BINGAMAN,
Committee on Energy and Natural Resources, Democratic Staff, U.S. Senate, Washington, DC.

DEAR CHAIRMAN BINGAMAN: In response to your letter of August 20, 2001, I am enclosing my responses to the questions submitted by the office of Senator Larry Craig.

Thank you for the opportunity to provide additional information.

Very truly yours,

JULIE KEIL,
Director, Hydro Licensing.

RESPONSES OF JULIE KEIL TO QUESTIONS FROM SENATOR CRAIG

Question 1. Ms. Keil, I have read some testimony containing anecdotal evidence reflecting the apparent Department of the Interior belief that since no licensee has refused to accept or surrender a license immediately after issuance, these licensees must have economic value.

When your Company, or any utility company considers refusing to accept a new license for an existing project don't you have to factor in the costs of tearing down that project and is it fair to say that licensees are often confronted with simply choosing the lesser of two economic disasters?

Answer. When confronted with a license that it believes to be uneconomical, a licensee faces an impossible choice. It can either continue to produce electricity at the site, a losing proposition. Or it can surrender the license, also a losing proposition. The cost to surrender a license and remove a project can be enormous. In addition, agencies frequently demand additional mitigation for the removal itself, adding to the burden. In today's regulatory environment, there is little assurance that surrender and removal costs can be recovered in a utility's rates.

Question 2. In reviewing all of the 246 relicense proceedings in which a license was issued or declined between October, 1986 and January of this year, FERC, in its 603 report, found an average annual generation loss of 4.3%. Some may claim that this figure is insignificant. I disagree. In today's megawatt-thirsty climate, that is a significant amount of power that is being lost. However, as a licensee, you are familiar with other factors that impact a project's economic viability. Can you describe what peaking power is, and how the loss of that flexibility affects revenues and the stability of the electric grid?

Answer. Electrical systems must exactly match generation and demand on an instantaneous basis. Needless to say, demand is variable. It varies throughout the day; in most service areas there is a morning peak and an early evening peak in usage. In addition, demand varies seasonally. Historically, for example, the Pacific Northwest has been considered to be a "winter peaking" system, due to low use of air conditioning and the relatively high use of electric space heat.

Peaking power, then, is the ability of the grid to respond to these peaks in use, both daily and seasonally. Hydro, with its ability to store electricity in the form of water in reservoirs is the most flexible and economic way to meet peak loads. Units at hydroelectric projects can be stopped and started more quickly than thermal units and with less damage to the machinery.

If operational flexibility is lost at hydroelectric projects, it must be replaced with other resources. Often this replacement generation is gas fired, which is a much more expensive way of meeting this system need.

If the flexibility of hydro projects is lost to the system and is not replaced, the result is that the system can no longer meet peak loads, which can result in blackouts.

Question 3. Some within the environmental community have criticized the hydro industry as "a solution looking for a problem." From your perspective, having invested millions of dollars in your own relicensing efforts, how do you respond to that statement? Are you searching for a problem?

Answer. PGE has invested many thousands of dollars and hours of my time to seek reform of the system under which we currently license and relicense hydroelectric projects. It serves no one well. It costs too much, raising the cost of a critical service to our customers, and it takes too long, increasing uncertainty and delaying important environmental protection and enhancement measures. While we believe that the process should permit every interest to be represented, at the end of the day, someone has to make a decision.

Question 4. I wonder if you could talk a little about the role that hydropower plays in the Western electricity grid and, specifically, how the current hydro licensing process currently hinders, or might hinder, your abilities to provide consumers with a reliable, reasonably priced, supply of electricity?

Answer. As I discussed above, hydropower is critical to a reliable, reasonably priced electricity system. It provides 70% of the capacity in the Pacific Northwest and accounts for approximately 24% of California's total electrical generation capacity. Flexibility and capacity are often victims of the relicensing process. The benefits are hard to quantify and almost impossible to see in surveys of licensing outcomes. The seemingly innocuous demand for "natural" river systems and hydrographs threatens to strip the system of this valuable component.

I think it is worthwhile pointing out that the flexibility of hydro power projects is important to the viability of other renewable resources. Wind power, for instance, requires back up from the hydro portions of the grid in order to make a useful contribution to electricity supply.

Question 5. American Rivers claims that hydro licensing improvement would "upset the delicate balance between hydroelectric generation and wildlife habitat and river front economies." In your opinion, does this "delicate balance" exist?

Answer. No, I do not believe that a delicate balance exists. It is perhaps true that when projects were originally constructed, the focus was on providing electricity rather than environmental protection. Now, however, the pendulum has swung too far in the other direction. The relicensing process is driven by agencies with mandatory conditioning authority who have no ability, under their existing statutory authorities, to consider the cost of their demands to the electric system to residential customers or to businesses. Licensing decisions should be made in the public interest, in its broadest sense.

Question 6. In recent press releases, American Rivers has stated that "our rivers are already giving us all the electricity they can." Do you agree with that statement?

Answer. No, I do not agree. There are many opportunities for project improvements and additions that would have little or no environmental impact. In addition, there are many dams that are not currently equipped with generation capability. The uncertainty and expense of the licensing process is a major factor in our failure to capture these opportunities.

FEDERAL ENERGY REGULATORY COMMISSION,
Washington, DC, September 10, 2001.

Hon. JEFF BINGAMAN,
Chairman, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: Thank you for your August 20, 2001 letter forwarding questions from Senator Ron Wyden, for the record of your Committee's July 19, 2001 hearing on proposals relating to the Commission's hydro relicensing procedures. My answers to those questions are enclosed.

I hope that my responses are helpful. If you need additional information, please do not hesitate to let me know.

Sincerely,

J. MARK ROBINSON,
Director, Office of Energy Projects.

[Enclosure.]

RESPONSES OF J. MARK ROBINSON TO QUESTIONS FROM SENATOR WYDEN

Question 1. The Idaho National Engineering Laboratory released a study finding there are potentially thousands of megawatts of untapped hydropower at existing hydro facilities. This untapped power could become available by installing additional turbines or more efficient turbines. Given the relatively minimal environmental impacts of these improvements and the need for alternatives to gas-fired plants, streamlining the process for licensing improvements to existing hydro facilities is one of the greener alternatives available to help meet the region's needs. What, if anything, is the Commission doing to streamline the process for installing additional turbines or more efficient turbines at existing dam sites?

Answer. The Commission is taking steps to ensure that this occurs. In 1991, the Commission initiated a program for capacity and efficiency upgrades at existing projects through streamlining its procedures and minimizing pre-filing requirements, with the objectives of promoting domestic energy production, encouraging utilities to evaluate investment in energy efficiency and making more efficient use of the nation's existing hydroelectric resources. The Commission ultimately revised its regulations (18 C.F.R. § 4.201(b)), so that many capacity upgrades are considered routine maintenance that do not require Commission approval. Many licensees have already taken advantage of this opportunity, and continue to do so when it is economically practical.

On March 14, 2001, the Commission issued its Removing Obstacles To Increased Electric Generation And Natural Gas Supply In The Western United States Order (Docket No. ELO1-47-001). One key component of the order was increasing generation at existing Commission-licensed hydropower projects, consistent with protecting environmental resources. The Commission stated that installation of additional turbine generators was one way of providing additional generation at existing hydropower projects. The Commission also called for conferences to be held in the Western Systems Coordinating Council region focused on improving the energy situation in the Western states.

Commission staff held conferences in Portland, Oregon, and Sacramento, California. As a result of the conferences, the Commission received four applications to amend licenses by adding small hydroelectric turbine-generator units to existing facilities. The Commission has authorized two of these amendment proposals, a 70-kilowatt (kW) turbine-generator unit at the Pelton-Round Butte Project No. 2030 and a 437-kilowatt turbine-generator unit at the LaGrande development of the Nisqually Hydroelectric Project No. 1862. Two additional proposals to install small hydroelectric units at the Rock Island Project No. 943 (700 kW) and the Rocky Reach Project No. 2145 (800 kW), both located on the Columbia River, are currently pending at the Commission.

Question 2. The Commission's report to Congress under Section 603 of the Energy Act of 2001 recommends that the Clean Water Act be amended to limit water quality certification to a subset of water quality parameters. Does FERC believe that it knows better than the states as to how to protect and restore water quality for a state?

Answer. FERC believes the states are properly the leaders in setting water quality standards such as the physical and chemical composition of water. However, to the extent that the Federal Power Act requires the Commission, in issuing hydropower licenses, to balance the various beneficial public uses of waterways, including power and development and environmental uses, the Commission continues to work in partnership with the states, as well as with other federal agencies, Indian tribes, non-governmental organizations, and other stakeholders. Commission staff believes that all of these parties have valuable contributions to make to the licensing process.

Pursuant to the Clean Water Act, the states play an important role in establishing objective standards for the physical and chemical composition of water (dissolved oxygen content, pollutant-levels, temperature, etc.). Commission staff is concerned that, to the extent that states utilize their authority under the Clean Water Act to require conditions beyond the physical and chemical composition of water, such as those dealing with recreation and fish and wildlife requirements, it makes it difficult, if not impossible, for the Commission to perform the balancing required by the Federal Power Act.

Question 3. The report suggests that states be prohibited from requiring "instream flows." Does FERC believe that good water quality can be achieved without water quantity? How do you achieve water quality standards for temperature without increasing flows?

Answer. Clearly water quality and quantity are related, however, the determination of flow requirements can be an issue that does not have water quality impacts. Water quality is generally addressed with numeric temperature and dissolved oxygen criteria in certifications. Water quantity requirements often bear no relationship to these water quality standards, but rather are designed to address particular uses of the waterway, such as fish habitat or boating.

In fact, there are a number of ways to meet water quality standards without imposing water quantity requirements. For example, many reservoirs stratify thermally, particularly during the summer when high river water temperatures are of concern. In such cases, cooler summer water in the rivers downstream may be achieved through selective withdrawal of cold, deep reservoir water, rather than necessarily increased flows. This method may allow for a smaller amount of water to be released to meet water temperature standards, and result in water being available for other purposes, such as filling a reservoir for summer recreation use or peak generation. Similarly, if project works are integral with the dam (i.e., there is no bypassed reach), selective withdrawal into the turbines may eliminate the need to require spillage to meet water quality standards. Likewise, myriad aeration techniques, such as turbine venting, can be used to meet dissolved oxygen standards downstream, without requiring additional flows.

It is nevertheless true that providing sufficient quantities of water for beneficial public uses is extremely important, and balancing the use of water is studied carefully by Commission staff in all hydropower licensing proceedings. Indeed, the Commission includes minimum flow conditions for purposes such as fish and wildlife, recreation, and aesthetics in virtually every license it issues.

APPENDIX II

Additional Material Submitted for the Record

WESTERN GOVERNORS' ASSOCIATION,
Washington, DC, July 11, 2001.

Hon. JEFF BINGAMAN,
Chairman, Senate Committee on Energy and Natural Resources, Dirksen Senate Office Building, Washington, DC.

Hon. FRANK MURKOWSKI,
Ranking Minority Member, Senate Committee on Energy and Natural Resources, Dirksen Senate Office Building, Washington, DC.

DEAR SENATORS BINGAMAN AND MURKOWSKI: We urge the Congress to support the rapid enactment of federal electricity reliability legislation that provides for delegation and deference to decisions made within an electrical interconnection and authorizes the establishment of state advisory bodies. Such provisions are embodied in the consensus legislation prepared by the North American Electric Reliability Council. This legislation has bi-partisan support. The provisions passed the Senate last year and are included in numerous bills in this Congress. Western governors expressed our support for such legislation a year ago in the attached resolution. We reiterated our position in the recommendations from the February 2, 2001 Western Governors' Association Energy Policy Roundtable and again during a Western Governors' Association Transmission Roundtable on May 9, 2001.

The enactment of federal reliability provisions that reflect the position of Western governors is vital to assuring reliability in the Western Interconnection. We urge you to support rapid action to enact such legislation.

Sincerely,

DIRK KEMPTHORNE,
Chairman, Western Governors' Association.

[Enclosure.]

POLICY RESOLUTION 00-009

A COMPETITIVE AND RELIABLE WESTERN ELECTRIC POWER SYSTEM

Approved June 13, 2000

SPONSORS: Governors Johnson and Geringer

A. BACKGROUND

1. The Western electric power system is experiencing fundamental change driven by customer demands for choice, lower cost generation, and state and federal regulatory reforms to enhance the competitive wholesale Western electricity market.

2. The Western electric power industry is central to the region's economy. As the regional power outages of July 23, and August 10, 1996 highlight, the Western economy is dependent upon a reliable supply of electricity. Annual expenditures for electric power in the West are over $700 per capita or $63 billion. This is more than the gross output of the agriculture, forestry, and fisheries sectors combined.

3. The Western region has the second highest regional average electricity rates in the nation. But retail rates vary greatly from state to state. The Western region contains states with the lowest retail rates in the nation, as well as states with rates significantly higher than the national average.

4. The Western electric power industry is very diverse. Investor-owned utilities, publicly-owned utilities, and federal power marketing administrations all play major roles in supplying electricity and providing transmission in the region. Seventy investor-owned utilities provide nearly 70 percent of the West's electric supply. Nearly

1,000 publicly owned systems, including public power districts, rural electric cooperatives, municipals, and regional, and federal systems, provide about 30 percent of the West's electricity. Non-utility power suppliers, power marketers and brokers, and load aggregators are adding to the diversity of the electric power industry.

5. Past Western state utility policies have been instrumental in (a) cutting the cost of energy services through cost-effective conservation investment, (b) expanding the production of electricity from abundant Western renewable resources such as wind, geothermal and solar, (c) fostering industry-sponsored research and development, and (d) helping low-income consumers pay their electricity bills. However, the methods by which these policies promoting social objectives have been implemented may not be sustainable in a competitive industry. New approaches will be required.

6. The federal government has acted to open access to the high voltage transmission system, a necessary step in promoting wholesale competition. In 2000, Congress is expected to consider legislation that could expand competition in the wholesale electric power industry.

7. Nearly every Western state is evaluating or has acted on regulatory or legislative proposals that would change the existing structure of the electric power industry.

8. The Western electric power system is increasingly challenged by load growth and expanding power sales across the transmission system. Recent analyses show an increasing probability of power outages in the next few years.

B. GOVERNORS' POLICY STATEMENT

1. Western Governors support expanded competition among electricity generators to lower electricity costs to Western consumers. Impediments to increased competition among generators need to be removed. The Governors believe that all segments of the Western industry, including investor-owned utilities, public power, federal power marketing administrations, power marketers and brokers, and independent power producers, should participate in the competitive market, at least at the wholesale level. The decision whether to require or allow participation in a retail competition program, and the form and timing of participation in retail competition should depend upon determinations made at the state and local levels. Western Governors also support further implementation of access to the Western transmission grid on a non-discriminatory basis.

2. Western Governors recognize that the Western electric power system is a highly integrated interstate grid. In order to maintain or enhance reliability, this "interstate highway of electrons," which moves at the speed of light, requires a high level of coordination among those using the grid, as well as the cooperation of those in each state and in the federal government charged with the responsibility for oversight of the various elements of the system.

3. The transition to a more competitive market must ensure continued reliability and safety in the provision of electric power service. Western Governors encourage private sector solutions that promote system reliability. New approaches to establishing and enforcing regional reliability criteria need to be adopted. These new approaches should include federal legislation that, consistent with the Governors' policy statement 10 below, provides for:

a. Use of a public process for setting reliability criteria.

b. Review of proposed reliability criteria by states.

c. Application of reliability criteria to all users of the grid.

d. Enforceable sanctions for non-compliance with reliability criteria.

e. Mandatory membership by operators and users of the transmission grid in regional reliability organizations.

f. Deference by a North American electric reliability organization to interconnection wide standards and practices developed in the West.

g. The organization of regional advisory bodies of affected states and Canadian provinces to advise regional and North American reliability organizations, the Federal Energy Regulatory Commission (FERC) and appropriate Canadian and Mexican regulatory authorities on the governance of a regional reliability organization, proposed reliability standards and their enforcement, and fees to support system reliability activities. FERC should defer to the advice of such regional advisory bodies when the advisory bodies cover an entire interconnection.

4. To protect reliability in a competitive market, Western Governors urge the expeditious establishment of a single Western Interconnection Organization that promotes efficient electricity markets, ensures reliability, increases the effectiveness of the institutional support structure, eliminates overlap or duplication of effort among

grid management organizations and provides for a clear determination of authority and responsibility. States should be members of the Board of Directors of the organization.

5. Western Governors also support the development of new market mechanisms to enable retail consumers to receive appropriate price signals so that they can effectively participate in the power market and thereby help ensure system reliability at the lowest reasonable cost possible. The Western Governors also recognize that exporting efficient, low-cost generation will enhance reliability.

6. Western Governors urge the Western electric power industry, in cooperation with Western states and the federal government, to support the formation of cost-effective Regional Transmission Organizations to maintain and enhance system reliability, examine and mitigate market power, and facilitate efficient power transactions in a restructured industry.

7. Western Governors support the adoption of "system benefit" charges to continue appropriate support of social purposes, including acquisition of cost-effective energy conservation, research and development, expanded use of renewable energy resources, and low-income assistance.

8. Western Governors urge the federal government to work with the states to develop effective approaches to mitigate market power.

9. Western Governors urge Western state public utility commissions and Attorneys General to examine whether new measures are needed to protect electricity consumers in a more competitive market and educate consumers of their rights and risks under a competitive electric system.

10. Western Governors urge the federal government to refrain from adopting preemptive legislation that would impose a "one-size-fits-all" approach to the restructuring of the electric power industry that fails to recognize the unique characteristics of the Western electric power industry. No action by Congress or FERC should abridge the existing powers and authorities of state and local governments. Any action taken by Congress should enable states to restructure the electric industry, but not impose a mandate on states to do so. Congress should ensure that federal institutions, such as the power marketing administrations, participate in regional actions to promote competition, such as the creation of Regional Transmission Organizations system operators. Additionally, any federal legislation must retroactively include state actions to establish retail competition.

11. Federal agencies and federal legislation should facilitate effective decision-making by the states and empower the states, with the cooperation of other regional stakeholders, to create regional mechanisms, where appropriate, to address transmission, reliability, market power and other regional concerns. FERC should be required to defer to the decisions of such bodies.

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The Committee on Regional Electric Power Cooperation (CREPC), a joint working committee of the Western Interstate Energy Board and the Western Conference of Public Service Commissioners, is directed to work with the Western industry and the federal government to achieve the policies set forth herein. CREPC is to report on the progress in implementing these policies.

NUCLEAR ENERGY INSTITUTE,
Washington, DC, July 18, 2001.

Hon. FRANK H. MURKOWSKI,
U.S. Senate, Hart Senate Office Building, Washington, DC.

DEAR SENATOR MURKOWSKI: This month, the United States will continue to negotiate an appropriate global response to the issue of climate change at the Sixth Conference of the Parties in Bonn, Germany. Nuclear energy is the most effective technology to reduce greenhouse gas emissions in the industry sector. I enclose for your consideration a letter from the international nuclear energy industry asking that you support nuclear energy as part of the solution to reducing greenhouse gases and other air pollutants.

Each year, the use of emission-free nuclear electricity around the world avoids billions of tons of carbon dioxide, the most prevalent greenhouse gas. Nuclear energy technology reduces more carbon dioxide emissions than any other method in the U.S. voluntary program to reduce this greenhouse gas. In the United States alone, nuclear energy accounts for nearly 70 percent of all emission-free electricity production. Overall, nuclear energy is a source of electricity production for one out of every five homes and businesses in the United States.

On behalf of my colleagues in the global energy industry who have signed the enclosed letter, I encourage you to support a global recognition of the need for expanded nuclear energy production to avoid greenhouse gas emissions. Nuclear energy is part of the solution for any regime that seeks to improve our air quality.

Sincerely,

JOE F. COLVIN,
President and CEO.

[Enclosure.]

AN OPEN LETTER TO GOVERNMENTS AROUND THE WORLD

11 July 2001

World demand for electricity will continue to increase as population grows and countries develop and expand their industrial base. All methods of electricity generation have some impact on the environment. As representatives of the international business community, we recognize our global challenge is to minimize this impact while satisfying the electricity needs of all peoples of the world.

Nuclear power plays an important part in meeting this challenge because it provides much needed electricity, protects the environment, and supports sustainable development. Prevention and management technology needed to protect all affected environmental media is either in use or available. And nuclear electricity generation avoids the emission of greenhouse gases, thus playing a key role in limiting potential climate change, particularly in the developed world where significant emissions reductions are sought.

Continued safe, effective use of nuclear electricity and further development of advanced nuclear power plant technology are an integral part of the international effort to manage risk from global warming. We encourage you to support policies that give every country engaged in greenhouse gas control programs the right to access all technologies as needed, including nuclear electricity.

Nuclear is a necessary and uniquely effective part of the solution. Parties to the UN Framework Convention on Climate Change should acknowledge nuclear electricity as an acceptable energy and environmental resource that successfully avoids greenhouse gas emissions. This will ensure that global-emission control programs are flexible and preserve the right of individual countries to make their own energy and development choices.

[Note: This letter has been signed by 93 CEOs and leaders of the nuclear industry world-wide].

FOREST STEWARDS GUILD,
Sante Fe, NM, July 27, 2001.

Senator JEFF BINGAMAN,
Hart Office Building, Washington, DC.

DEAR SENATOR BINGAMAN: On behalf of the Forest Stewards Guild, I would like to submit comments regarding the Forest Resources for the Environment and the Economy Act (S. 820) for consideration by the Senate Energy and Natural Resources Committee. The Guild is an organization of practicing foresters and other resource management professionals. The mission of the Guild is to promote ecologically responsible resource management that sustains the entire forest across the landscape.

Carbon sequestration is increasingly recognized as a critical goal of forest management, and we applaud the Senate's initiative to promote this goal and institute effective steps for monitoring success. S. 820 has a number of merits that constitute critical steps in developing a productive national approach to carbon sequestration. However, the bill also proposes a number of features that can potentially subvert truly effective carbon storage efforts and/or sidetrack and impair national policy on carbon storage.

In particular, we would call your attention to the following:

Section 2 contains problematic language and definitions. In particular, "Forest Land" is defined in such a way as to enable the classification of virtually any land in the country as forest land. This definition should establish a time frame for the presence of forest land within at most several decades in order to more effectively focus efforts.

In Section 4, in the Definitions proposed in the language for the new Sec. 1600 of Title XVI of the Energy Policy Act of 1992, in items 2 and 3, forest products are included as potential carbon stores. While some forest products may be appropriately classified as carbon stores, this classification requires much more explicit

guidelines and standards for "durability," or the length of time that carbon would be stored. For instance, there is a considerable gulf between how long carbon will effectively be stored in a paper bag or even a sheet of plywood as opposed to a framing timber. Moreover, standing timber is generally easy to keep track of, while forest products can be highly mobile—how can we effectively monitor the durability of many forest products that may undergo accelerated decay due to fire, demolition, rot and many other processes?

In Section 4, item 5(b), there is a proposed requirement that the Secretary of Agriculture report within a year on the amount of carbon in the National Forest system, potential benefits to water and wildlife as well as the global carbon budget, and an assessment of impacts of forest management factions on a comprehensive range of forest management objectives. Given the inadequacies of current national timber inventories and federal monitoring performance, these reporting requirements seem unreasonable at best. A rough estimate of amount of carbon being stored on the national forests would be a tall order on its own, but would at least provide a clearer focus.

Section 5, item (c)(1), on eligible carbon activities lacks a definition of "sustainable management activities." There is a wide diversity of perspective on this issue within the nation and the professional forestry community—this term provides little guidance for prioritizing loan monies. The lack of rigorous standards, definitions, and guidelines for actual forest management practices in the bill leaves the door open for a wide range of activities whose inputs may actually increase carbon outputs rather than storage. Reliance on chemical herbicides, pesticides, fertilizers, heavy machinery, and so forth carry a carbon "cost" of their own. These costs are typically heaviest in short-rotation tree plantation systems. Such costs are substantially minimized or eliminated through approaches to forest management that rely on significantly less industrial inputs. Interestingly, the argument in favor of short-rotation tree plantation systems as opposed to long-rotation natural forest management is typically an economic one—yet this bill seems to target the former system as opposed to the latter as if in need of government subsidy. If the short rotation systems are not paying off economically, perhaps they should be eschewed, in as much as they are largely devoid of ecological value as well.

Section 5 also emphasizes under-producing or understocked forest lands, while it lacks any mention of forest lands being managed with activities that maximize carbon storage for the longest possible time. This is a very important point, given that late successional forest stands and old growth store considerably more carbon than tree plantations, but often carry additional costs to land owners who manage for them that tree plantations do not. Moreover, the current emphasis of the bill seems to reward past poor management, while overlooking the investment of time and energy by landowners who have developed and are maintaining well-stocked, mature timber stands through good management.

A fundamental decision needs to be made as to whether the objective of this bill is to store carbon or support pre-commercial timber harvest activity that may or may not result in significant benefits for carbon storage. Because the focus of the bill is ostensibly carbon storage, we would urge the Senate to clearly set priorities for the nation on this issue. By emphasizing short-rotation tree crops as the answer-to-carbon sequestration, this bill in its current state would set an inappropriate trajectory for carbon storage efforts—one that has already met with significant global resistance. The Guild believes that the best all-around way to store carbon and provide ecological and long-term economic benefits is to manage forest stands on a long rotation basis, using site-appropriate species mixes. The bill should be revised to directly address, prioritize, and offset the costs carried by landowners managing for long rotations and maximum carbon storage. Support to forest management approaches that result in less carbon storage, such as short-rotation industrial tree plantation management, and the mass production of forest products of limited durability, should be de-emphasized. If economics are driving decisions to pursue short rotation forest management systems, then they should pay for themselves without taxpayer subsidy.

Sincerely,

MARY CHAPMAN,
Director.

STATE OF OREGON,
OFFICE OF THE GOVERNOR,
Salem, OR, July 30, 2001.

Hon. JEFF BINGAMAN,
Chairman, Committee on Energy and Natural Resources, Washington, DC.

Re: Written testimony on S. 71, subtitle C of title VII of S. 388, and title VII of S. 597

DEAR MR. CHAIRMAN: Thank you for the opportunity to comment on three bills related to the licensing of hydroelectric projects. I regret that Oregon was unable to testify in person at the July 19, 2001 Subcommittee hearing, but offer this letter and its attachment as written testimony for the record.

The bills and respective titles on which you requested comment include: S. 71, The Hydroelectric Licensing Process Improvement Act of 2001, introduced by Senator Craig; subtitle C of title VII of S. 388, The National Energy Security Act of 2001, introduced by Senator Murkowski; and title VII of S. 597, the Comprehensive and Balanced Energy Policy Act of 2001, introduced by Senator Bingaman.

Of the three bills, I believe that S. 597 holds the most promise for improving the licensing process. S. 597 makes two process changes whose merits are clear, and requires further study of ways to improve the licensing process. The process changes should enhance the quantity and efficiency of power production and promote the health of rural economies without adversely affecting natural resource protection. The study requirement is consistent with GAO findings that existing information is inadequate to determine the best way to improve the licensing process. Further comments on this bill are included in the attachment to this letter.

The provisions of S. 71 and subtitle C of title VII of S. 388 are substantially the same. Although these two bills may prevent some loss of power production and reduce some costs to power producers, I believe they will do so at a cost to taxpayer's and natural resources that is not in the public interest. My concerns are explained further in the attached statement.

I hope you find these comments useful, and encourage future collaborative approaches to improving the licensing process.

Sincerely,

JOHN A. KITZHABER, M.D.,
Governor.

[Enclosure.]

STATEMENT OF HON. JOHN A. KITZHABER, M.D., GOVERNOR OF OREGON

Content of this Statement: This document details some of the reasons that I do not believe S. 71, The Hydroelectric Licensing Process Improvement Act of 2001 and subtitle C of title VII of S. 388, the National Energy Security Act of 2001 are in the public interest. The statement also explains my support for the two process changes proposed by S. 597, the Comprehensive and Balanced Energy Policy Act of 2001, and proposes some modifications to the study provision of that bill.

Importance to Oregon: Hydroelectric licensing is important to Oregon because the outcome of relicensings over the next ten years will have important implications not only for consumers, but also for the State's land, air, and water resources. In the next ten years, more than ten hydropower projects within the state will be involved in the relicensing process. Although these relicensings should not significantly affect the short-term scarcity of energy faced by many Western states, we recognize the importance of hydroelectric power in the state's energy portfolio. Hydropower is important as a source of renewable energy that can track demand.

Just as the energy produced by hydropower is important to the state, the quality of the natural resources that are impacted by hydroelectric projects is also important. The quality of natural resources is fundamental to both the State's economy and our identity as Oregonians. A 1995 consensus report by more than 20 Northwest economists found that protection of the natural environment is critical for maintaining the economies of the northwest states. They found that businesses are drawn to the Northwest because employees want to move there, and that people want to move there because of the quality of the natural environment.

Most of the projects with expiring licenses in Oregon were constructed in an era when economic development was given priority over protection of natural resources. These projects do not meet modern environmental standards. Some examples of the impacts caused by these projects include: dams form impoundments that can dramatically impact the river system by precluding movement of fish, changing water temperature, and trapping and altering sediment transport; penstocks or power canals on many projects divert water out of the natural channel, bypassing miles of

river that receive very little water; and turbines kill some of the fish passing through them.

The Public Interest: Oregonians are interested in developing and maintaining a diverse economy, while protecting the natural resources that traditionally served as the base for both our economy and our quality of life. We necessarily view hydropower in a context that includes economic and social values beyond just those related to power production. We believe that the Federal Power Act (FPA), as modified by the Electric Consumers Protection Act (ECPA) also recognizes this need to accommodate diverse values.

The FPA gives FERC responsibility to balance power-related interests, but limits its ability to "balance away" certain resource protection requirements that are best evaluated in contexts broader than just power production. Under the FPA, resource agencies with mandatory conditioning authority set a "floor" of natural resource protection, above which FERC is free to make economic tradeoffs to ensure an efficient and plentiful power supply. The agencies who provide the floor for the energy sector are the same ones who provide the floor for other economic activities such as agriculture, forestry, and urban development. This promotes a level playing field across sectors. To encourage local involvement and decision-making, these authorities are vested in federal and state agencies according to their respective expertise and geographic scope.

In Oregon, State and Federal agencies have used their respective authorities in a collaborative and productive manner. While we haven't always agreed on every issue, better outcomes have resulted from our discussions. Oregon state agencies have relied on specific expertise that the federal agencies bring to the licensing table, such as fish passage design and geomorphologic process evaluation, to assist us in making better recommendations for protection and mitigation measures at a project. FPA Section 18 fishway authority has been a critical federal tool for helping meet state goals, and Section 4(e) authorities can serve to backstop state recommendations under FPA Sections 10(a) or 10(j). For this reason, the three bills under discussion are of particular interest with respect to protection of Oregon's fish and wildlife resources.

Specific Concerns with S. 71 and subtitle C of title VII of S. 388: Although the goals of these two bills are laudable, I believe the provisions of the bills will create inefficient use of government resources and will result in undesirable reductions in natural resource protection.

As an example of the inefficiency the bills will produce, one section requires that agencies such as NMFS and USFWS consider diverse factors such as economic values, air quality, irrigation, and drinking water supply when writing license conditions. Unfortunately, these agencies have neither the expertise, nor the information required to evaluate such factors. There are other agencies who already have responsibility and expertise to evaluate and condition for those factors. For example, the Oregon Department of Environmental Quality has obtained federal delegation under both the Clean Air and Clean Water Acts to protect air and water quality. It is neither practical or useful for other agencies to make their own independent determinations concerning these issues during licensing.

As another example of inefficiency, another requirement of these bills is that consulting agencies must take into account the mandatory conditions of other agencies. While this seems reasonable, the bills later add a process requirement that conditions be submitted to the applicant 90 days prior to the filing of a license application. At this point in the process agencies cannot know how the applicant proposes to operate the project under the new license, nor how it should best be conditioned. Agencies don't have enough information to determine their own conditions—much less to conform them to other agencies' mandatory conditions. The likely outcome is that conditions would have to be written and fully justified twice, creating extra work with little payoff.

In addition to the above-mentioned problems, the two bills will result in inadequate protection of natural resources. By requiring federal resource agencies to meet untenable process standards and to base their conditions on a balance of factors outside their expertise and traditional jurisdiction, the bills will greatly diminish those agencies' ability to write defensible conditions. Defensible conditions are important for a number of reasons, including the fact that the bills provide that these conditions may be contested by the applicant to an outside reviewer. The difficulty is compounded by a stipulation in the bills that if the outside reviewer does not act within 180 days, the conditions lose their mandatory character and may be regarded as discretionary by FERC. Because the resource agencies have no ability to ensure timely action on the part of the external reviewer, this is a serious loophole.

When the process requirements of S. 71 and S. 388 are combined with their focus on economics, the bills effectively remove the natural resource protection floor provided by ECPA, and reduce the ability of agencies to balance the burden of resource protection across sectors, leaving others to repair damage caused by the hydropower industry. Where this damage can't be repaired, it may deprive future generations of the opportunities and quality of life that is their proper heritage.

S. 71 and subtitle C of title VII of S. 388 have other troubling provisions. This document doesn't address them all, but presents two science issues as further examples: 1) the bills require that agencies base their conditions on "current empirical data or field-tested data." This limitation precludes use of historical data and statistically modeled projections and is therefore inconsistent with good science. Good science makes use of all accurate data and available statistical tools. 2) The requirement that conditions be subjected to peer review is unrealistic and unnecessary. "Peer review" normally refers to the process a scientific article goes through before being published in a scientific journal. In order to meet this requirement, a whole new consulting industry would be needed. Such review would be costly and would delay issuance of licenses. The review is not needed, because review is already provided within agencies and among the parties to licensing processes.

Comments on S. 597, The Comprehensive and Balanced Energy Policy Act of 2001: The two process changes made by this bill should minimize generation and revenue losses, help agencies better perform their jobs, and give a boost to some rural economies.

The provision that allows applicants to contest a condition that they believe is inefficient to the agency that prescribed the condition has several merits. It retains authority in the agency where the expertise and responsibility resides, provides an avenue to ensure that project improvements are made as inexpensively and efficiently as possible, and ensures that improvements are adequate to meet resource protection standards. However, I would like to propose one slight amendment: In order to provide the prescribing agencies with the information they need to make scientifically sound decisions on alternative measures, such as alternative fishways, I recommend that S. 597 be amended to include the language in H. 2587, which requires the applicant to provide supporting evidence to the prescribing agency when an alternative is proposed: Additionally, I recommend that this section clarify that supporting information should be provided during the pre-filing consultation process currently in place under FERC rules. These changes are consistent with the Federal Power Act, in that applicants are required to conduct studies necessary for determining appropriate mitigation for project impacts at licensing.

The provision that directs fees paid to FERC away from the general Treasury, and to the agencies that work on the projects should increase the ability of agencies to participate early and adequately in licensing processes. The authority granted to spend some of the funds on job training, and for rural community and project-environment improvements should further the effectiveness of dollars spent on mitigation.

The provision that requires FERC to gather more information should prove useful. However, I suggest that the data for collection include characterization of the reason for delays associated with Clean Water Act compliance. FERC's 603 Report identified issuance of Clean Water Act Section 401 Certificates as a major source of delay in the licensing process. Apparently, FERC did not investigate the reason for the reported delays, but attributed them to state requests that applicants withdraw and refile their applications.

In fact, the idea that applicants withdraw their Clean Water Act certifications to give states more time to act is both counterintuitive, and contrary to our experience. In a comment letter to FERC during the development of the report, the Oregon Department of Environmental Quality expressed frustration with the fact that the State has no recourse when applicants withdraw and refile their applications for certification. The letter also mentioned that of the [then] five applications for 401 Certification received by the State in the current relicensing class, all have been incomplete. Two were withdrawn at the applicant's initiative to serve the applicant's purposes, and two were denied because of incompleteness. One application has been withdrawn and resubmitted twice. The (third) draft of that application was acknowledged by the applicant to be incomplete upon submittal.

There is a need to determine whether delayed issuance of 401 Certifications is due to applicant failure to provide necessary information in a timely manner, or whether states are the cause of the delay. Once this information is known, further analysis will be needed to determine the reasons for the delays, regardless of the degree to which various parties are responsible.

Finally, I'd like to note that asking FERC to identify and solve problems with the licensing process when FERC is a key player in that process is less than desirable.

I believe that the task would be better assigned to an outside agency with expertise in program evaluation such as the General Accounting Office, and that the timeframe for the study should be increased to one year to allow for a more thorough analysis. The study would be even further enhanced if state agencies were listed among those to be consulted during study development.

STATEMENT OF DR. WILLIAM T. HOGARTH, ACTING DIRECTOR, NATIONAL MARINE FISHERIES SERVICE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, DEPARTMENT OF COMMERCE

This Statement provides the views of the National Oceanic and Atmospheric Administration (NOAA) on S. 71, the Hydropower Licensing Process Improvement Act of 2001, and S. 597, the Comprehensive and Balanced Energy Policy Act of 2001. It also provides recommendations for legislation to improve the hydroelectric relicensing process.

ROLE OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) IN HYDROPOWER RELICENSING

The National Oceanic and Atmospheric Administration, via the National Marine Fisheries Service (NOAA Fisheries), is responsible for conserving and managing anadromous and marine fish resources and their habitats, in accordance with several statutes, as discussed briefly below.

The Federal Power Act (FPA) provides the Secretaries of the Interior and Commerce with the authority to prescribe fishways at hydropower projects licensed by the Federal Energy Regulatory Commission (FERC), and provides NOAA Fisheries, FWS, and state resource agencies with the authority to submit recommendations for fish and wildlife habitat protection. The Magnuson-Stevens Fishery Conservation and Management Act requires Federal agencies to consult with NOAA Fisheries if their actions may adversely affect essential fish habitat. The Fish and Wildlife Coordination Act requires Federal agencies to consult with NOAA Fisheries and FWS if their action modifies a water body. The National Environmental Policy Act provides a mechanism that enables NOAA Fisheries, other resource agencies, and other stakeholders to provide comments on Environmental Assessments and Environmental Impact Statements prepared for hydropower project licensing decisions. Finally, the Endangered Species Act requires Federal agencies to consult with NOAA Fisheries or FWS if their action may affect listed species or their habitats.

HYDROPOWER EFFECTS ON FISH AND ASSOCIATED HABITAT

Although hydropower is cleaner than fossil fuel and nuclear power, it is not free from adverse environmental effects, and can have significant impacts on anadromous fish and their habitats. Pacific and Atlantic salmon, shortnose sturgeon, American shad, and many other fish species depend on access to upriver habitat to complete their lifecycles. Habitat alteration, impeded fish passage, degraded water quality, and compromised flows are significant adverse effects of dams on river systems.

Many dams were constructed before their effects on river systems were fully understood, and before key environmental laws were in place. Many lack adequate fish passage and other environmental protection measures, and will have to come into compliance with current environmental laws and FPA mandates upon relicensing. Fortunately, these impacts can-be greatly reduced by including state-of-the-art fish passage facilities and other measures to ensure adequate resource protection. Given the large number of license expirations in the next decade, there is an unparalleled opportunity to modernize projects and provide fish and habitat protection measures.

NATIONAL ENERGY POLICY

The new National Energy Policy provides recommendations to the White House and Congress to improve hydropower licensing, and addresses issues that relate to NOAA Fisheries' role in the licensing process. The Department agrees that the process can be improved, and has worked to develop administrative reforms and legislative recommendations to achieve a better, more efficient licensing process. These reforms are discussed below.

RECENT ADMINISTRATIVE REFORMS

NOAA Fisheries has been working with FERC, other Federal resource agencies, and stakeholders to streamline and improve the hydropower relicensing process. These efforts include participating in the Interagency Task Force to Improve Hydro-

power Licensing Processes (ITF), developing a proposed interagency policy on section 18 Fishway prescriptions, and participating in the National Review Group (NRG) of the Electric Power Research Institute (EPRI). Through these cooperative efforts, we have made considerable changes to the process that will improve hydropower relicensing.

Interagency Task Force to Improve Hydropower Licensing Processes

The ITF was formed in October 1998 to develop practical ways to improve the licensing process. It was a coordinated effort between FERC; the Departments of Commerce, the Interior, Agriculture, and Energy; the Environmental Protection Agency; and the Council on Environmental Quality. Seven ITF reports recommend substantial administrative measures to make hydropower licensing more efficient. The Department of Commerce (Department) has committed to implementing these reforms, as have the other member agencies. Federal agencies held a series of implementation workshops throughout the country, and continue to ensure that the reforms are administered agency-wide.

Section 18 Fishway Interagency Initiative

On December 22, 2000, The Departments of Commerce and the Interior published a proposed Interagency Policy on section 18 fishway prescriptions. NOAA Fisheries and the Fish and Wildlife Service are continuing to work on this document which will provide clearer guidance for the prescription process and improve consistency between the Departments of Interior and Commerce.

Electric Power Research Institute National Review Group (NRG)

The NRG is a working group consisting of representatives from the hydropower industry, environmental interests, states, FERC, and four Federal agencies (NOAA, EPA, USDA, and DOI). During 1999 and 2000, this group met regularly and developed a report, "Hydro Relicensing Forum: Relicensing Strategies," that provided a set of voluntary best practices for all stakeholders in hydropower relicensing. The NRG is proceeding with a new phase of meetings to pursue further collaborative means of improving the licensing process.

NOAA COMMENTS ON S. 71 AND S. 597

S. 71 and S. 597 contain several provisions that would affect the way NOAA Fisheries takes part in licensing and relicensing by FERC of non-federal hydropower projects. Some provisions are already addressed by administrative reforms, some represent positive steps toward an improved relicensing process, and others would add delay to the process. Listed below are common themes in the bills.

Alternative Fishways

Section 701 of S. 597 allows licensees to propose an alternative fishway prescription, and directs the Secretary of the appropriate Federal agency and FERC to accept the alternative, if the Secretary determines that it provides equal or greater fish passage, is based on sound science, and will either cost less to implement or result in less loss of generating capacity than the fishway prescription deemed necessary by the Secretary. The Department recommends that the licensee proposing the alternative fishway be required to provide substantial evidence supporting the alternative fishway. Supporting evidence is necessary to allow the Secretary to make a reasoned decision. In addition, the Department recommends that the licensee be required to submit alternative prescriptions early in the pre-filing stage, and no later than 60 days following submission of preliminary prescriptions. This would prevent a situation in which the Department, the licensee, FERC, and other parties spend years developing a fishway prescription only to have that work negated by an alternative presented late in the process. Further, the bill text should be changed to indicate that it would be an applicant, not necessarily a licensee, submitting the alternative fishway. The Department also notes that the ITF administrative reforms already commit NOAA Fisheries to considering the least cost alternative, if it provides adequate fish passage.

Deadlines

S. 71 imposes deadlines and penalties that may have detrimental effects on NOAA trust resources. Section 4 removes NOAA Fisheries' authority to prescribe fish passage if NOAA Fisheries misses a deadline for submitting final conditions. Although a lack of reasonable deadlines often leads to delay in the licensing process, NOAA Fisheries believes that this severe penalty is not productive to the process and ultimately compromises the health of fish and habitat resources. The Department has nothing to gain by missing deadlines and, in fact, the longer a licensing

proceeding takes, the longer the fish and associated habitats are without protections.

Relicensing Study

Section 703 of S. 597 requires FERC to conduct a study of all new licenses issued for existing projects since January 1, 1994. NOAA Fisheries supports this provision but suggests that the data gathering should continue beyond one year to ensure accurate and useful data reporting. We also suggest that FERC develop the study methodology in consultation with the Federal resource agencies. This data could be used in the future as a basis for modifying the licensing process to increase efficiency and decrease cost. The General Accounting office noted that FERC's record keeping and reporting mechanisms are inadequate, and section 703 could greatly improve the current system of maintaining records.

Coordinated Environmental Review Process

Section 33 of S. 71 establishes a single National Environmental Policy Act (NEPA) process, to be conducted by FERC, and bars consulting agencies from performing individual NEPA reviews. NOAA Fisheries supports a single, consolidated NEPA review, and already relies on FERC's NEPA analysis that includes our recommendations and fishway prescriptions. The Department would like to have the option of being a cooperating agency with FERC. However, FERC's interpretation of its ex parte communication requirements concludes that by becoming a cooperator in the NEPA process, an agency forfeits its right to appeal a license decision. NOAA Fisheries believes that FERC should be provided with a legislative exemption from ex parte communication prohibitions, for the specific case of allowing agencies to become NEPA cooperators without losing their right to appeal licensing decisions. This would improve the entire licensing process by allowing a collaborative approach.

NOAA FISHERIES PROPOSALS FOR LEGISLATION

NOAA Fisheries submits the following recommendations for legislation to improve the licensing process. As stated previously, NOAA Fisheries has already implemented several administrative reforms that make a better, more efficient licensing process, and recommends the following legislative measures to further improve the process and encourage more efficient utilization of our natural resources.

1. NEPA cooperator/intervenor status

Participation of the resource agencies as cooperators in NEPA development would improve the relicensing process by 1) allowing FERC and other resource agencies to work together on resource protection issues, 2) decreasing the likelihood of future intervention and/or appeal by cooperating agencies, and 3) making the relicensing process more efficient.

FERC interprets its ex parte rules such that Federal agencies cooperating on developing NEPA documents are precluded from intervening in the proceeding for which the NEPA document is developed. To preserve the right to subsequent appeal, Federal agencies currently choose to not participate in the NEPA process as a cooperating agency.

Recommendation

NOAA Fisheries recommends amending the Federal Power Act section 797(c) by adding the following to the end of the paragraph, "Any work with the executive departments and agencies of the federal government as cooperating agencies on an environmental assessment or environmental impact statement in the NEPA process, developed pursuant to the National Environmental Policy Act, is exempt from ex parte communication prohibitions. Executive departments and agencies of the federal government may become NEPA cooperators without losing their right to intervene and appeal licensing decisions."

2. Deadlines

FERC's regulations implementing the Federal Power Act provide a number of deadlines for participants in the licensing process. However, FERC itself has no deadlines, which often causes delay in the process. The National Energy Policy specifically encourages FERC to adopt internal deadlines. Particular areas of concern for resource agencies include lack of a deadline for completion of the final environmental analysis or environmental impact statement, and lack of a deadline for FERC to complete its analysis of requests for rehearing.

Recommendation

NOAA Fisheries recommends that Congress require FERC to promulgate regulations that provide deadlines for itself.

3. Annual licenses

FERC's ability to easily issue annual licenses contributes to delay because there is little incentive for an applicant to complete the licensing process by the time the old license expires. These annual licenses have no new conditions for resource protection and are merely extensions of the expired license. Delays may postpone the costs of implementing new resource protection measures, but harm fish and associated habitat, and increase uncertainty for all involved.

Recommendation

NOAA Fisheries recommends that Congress require FERC to amend its regulations to place strict limits on the issuance of annual licenses. Specifically, FERC should develop guidelines to determine situations in which there is a demonstrated need to grant an annual license. These situations could include new information becoming available, a need to provide a supplemental environmental analysis or environmental impact statement, or other circumstances beyond the control of the applicant. In addition, NOAA Fisheries recommends that Congress provide the appropriate resource agencies authority to provide interim mandatory conditions in annual licenses, for resource protection purposes. These interim conditions should be measures that require minimal capital expenditures, such as minimum stream flows, or other measures to protect fish and associated habitat.

4. Studies

Disagreements between NOAA and applicants about studies are a major source of delay. NOAA has committed, via the ITF documents, to provide a clear link between study requests, project impacts, and resource management goals and objectives; and to take cost into consideration.

Recommendation

NOAA recommends that Congress require FERC to amend its prefiling regulations to require applicants to conduct requested studies in a timely fashion, if NOAA Fisheries and other agencies submit study requests that provide a clear nexus between studies, project impacts, and resource management goals and objectives.

CONCLUSION

The hydropower licensing process is complicated, and can take years to complete. An abundance of license expirations in the next several years demands that the process become efficient and effective for all stakeholders. Administrative and appropriate legislative reforms such as those outlined above can create an efficient and effective process. Additionally, incentives to replace older power generating units with new energy efficient ones should help increase power production with no harm to the environment.

Thank you for the opportunity to provide testimony on these important issues.

STATEMENT OF DONALD SAMPSON, EXECUTIVE DIRECTOR, COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION, PORTLAND, OR

Thank you for the opportunity to offer testimony regarding Senator Bingaman's hydroelectric relicensing bill, S. 597, and Senator Craig's hydroelectric relicensing bill, S. 71. My name is Donald Sampson; I am the Executive Director of the Columbia River Inter-Tribal Fish Commission (CRITFC) in Portland, Oregon. I believe we share common desires to find solutions to our national energy problems that are affordable and environmentally sound. The CRITFC tribes are developing a tribal energy vision and have the expertise and the resources available in the Northwest to alleviate the region's energy shortages. Additionally, tribes and tribal lands across the nation hold vast resources and stand ready to offer solutions to the nation's energy problems. At the same time, the tribes are prepared to be good stewards of the land and plan for the long-term sustainability of the national economy through wise energy planning.

Formed by resolution of the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakama Nation, the Columbia River Inter-Tribal Fish Commission provides coordination and technical assistance to ensure that the resolution of outstanding treaty fishing rights issues guarantees the continuation and restoration of our tribal fisheries into perpetuity. Since 1979, CRITFC has contracted with the BIA under the Indian Self-Determination Act (Public Law 93-638) to provide this technical support. The tribes' technical experts have identified where federal and state resource managers have

fallen short in protecting and restoring the habitat and production of all salmon stocks. Wy-Kan-Ush-Mi Wa-Kish-Wit, the Spirit of the Salmon, the tribes' restoration plan, the only gravel-to-gravel salmon restoration plan in the Columbia Basin, identifies threats to salmon, proposes hypotheses based upon adaptive management principles to address those threats, and provides specific recommendations and practices that must be adopted by natural resource managers to meet treaty obligations. Wy-Kan-Ush-Mi Wa-Kish-Wit can be viewed at www.critfc.org. These four tribes have rights reserved by treaty with the United States of America[1] to take fish destined to pass the tribes' usual and accustomed fishing places. This right covers fish originating in the Columbia River Basin. Protection and enhancement of those streams that provide spawning and rearing habitat and migration corridors for these fish are of critical importance to the tribes and the region. The CRITFC provides technical and legal support to the tribes to carry out those goals.

In 1855, the United States entered into treaties with the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakama Nation to ensure the mutual peace and security of our peoples. For the four tribes' cession of millions of acres of land, the United States promised to protect and honor the rights and resources the tribes reserved to themselves under those treaties. Those resources, among them our most treasured resource, the salmon, are being destroyed largely by hydroelectric projects on the Columbia and Snake Rivers. The salmon are also imperiled by relicensing processes at those dams that seek to delay necessary environmental analysis and changes to hydro structures and operations under the Federal Power Act. Existing license holders, who use process and delay to shortchange environmental protections necessary to insure the continued existence of salmon, are trampling upon our rights, our culture and our religious beliefs that are tied to the salmon.

The Treaty Tribes grow weary when our expertise to protect our treaty resource is ignored, when our input in public processes is ignored, when our negotiations lead to settlements and those settlements are ignored, when our good faith efforts to cooperate and participate in decision-making forums are ignored, and when the treaties signed by the U.S. Government are ignored in order to protect the unreasonable economic interests of dam owner/operators. The Columbia River Treaty Tribes will strongly oppose any effort to expedite the dam relicensing process that will lessen environmental analysis and protection of salmon at hydro projects as well as any effort to diminish tribal and public input during relicensing. The Columbia River Treaty Tribes will oppose any effort to cripple the jurisdiction of the federal agencies that have the trust responsibility to protect reservation lands and fish and wildlife through mandatory license conditions. Any compromise of the Department of Interior's authority under Section 4(e) of the Federal Power Act to protect reservation lands and treaty resources will obstruct the obligation of the United States to "secure" our treaty rights. Any compromise of fish and wildlife agencies' authority under Section 18 of the Federal Power Act to prescribe fishways to protect treaty resources will also be seen as an attempt to interfere with our treaty rights. Reducing cost and time in relicensing at the expense of the public, the natural resource or the federal agencies with jurisdiction will be seen as an abrogation of duty and the treaties entered into between the tribes and the United States government.

With that being said, the CRITFC tribes are developing a Northwest Tribal Energy Vision that will simultaneously provide the region with affordable energy solutions while taking energy policy and development off the backs of salmon and off the Columbia and Snake Rivers. Our energy solutions complement the national recommendations of the Inter-Tribal Energy Network. Tribes currently have twenty percent of the Nation's energy resources on their lands. However, on average, tribal citizens spend more of their income on energy, have the highest percentage of homes without electricity, have the least control over quality of service, and are experiencing two to three times the national population growth. Northwest Treaty Tribes, along with the aforementioned impacts, are losing their treaty-reserved salmon resources to poor energy planning and policy.

Through the national Inter-Tribal Energy Network, draft legislation has been introduced that will help the nation address its energy shortages through development of tribal energy resources that are cost effective and offer opportunities for joint partnerships; will help tribes serve tribal members with reliable energy; will foster economic development on tribal lands and promote sovereignty and self sufficiency. The draft legislation envisions establishing an Office of Indian Energy in the De-

[1] Treaty with the Yakama Tribe, June 9, 1855, 12 Stat. 951; Treaty with the Tribes of Middle Oregon, June 25, 1855, 12 Stat. 963; Treaty with the Umatilla Tribe, June 9, 1855, 12 Stat. 945; Treaty with the Nez Perce Tribe, June 11, 1855, 12 Stat. 957.

partment of Energy. Critical to this recommendation is significant funding made available to the Office of Indian Energy for tribes to ascertain their energy resources and the best way to develop those resources. Also vital is the ability to bring resources on-line in an expedited fashion using interagency cooperation while protecting environmental quality.

The Northwest Tribal Energy Vision is premised on the idea of promotion of energy development that will serve Northwest energy needs while protecting the tribes' treaty-reserved resources. It allows for faster siting of projects with enhanced value on tribal lands; allows for distributed generation opportunities to meet rural loads; allows for opportunities for transmission siting on tribal lands; and addresses key fundamental concepts to protect the tribes' treaty rights. Energy policy and development must not continue to diminish the tribes' treaty-reserved resources. Energy policy and development must get off the Columbia and Snake rivers. Energy policy must get off the backs of salmon. Our treaty-reserved resources continue to be sacrificed for the sake of bad energy planning.

The current energy problem exists because of poor planning. Poor planning has pushed salmon to the brink of extinction and will cause further environmental degradation. Salmon's rapid decline has been known for decades and yet new energy development to meet demand has lagged. Substantial generation in California has been curtailed in order to drive up prices, but it could alleviate immediate pressures to run the Columbia River without regard to salmon if that generation was made available at a reasonable price. The lack of adequate precipitation is always a potential limiting factor and contingencies have not been developed to adequately mitigate for that risk. As American Rivers has so aptly pointed out in their testimony, the facts simply don't support FERC's claims that there is either an energy crisis or a hydroelectric relicensing crisis. We must not lose the protections built into our system of laws to care for our public resources. The current hydroelectric relicensing bills would cast aside the public resource protections that have served us well for decades.

The tribes are concerned that the hydroelectric power industry is not availing itself of the opportunities during relicensing to make their projects more responsive to the public interest. There are innovations that will both protect our waterways and deliver power, but the industry seems more intent on maximizing their profits at the expense of the public resource. Congress must take into account the needs of the public waterways to remain healthy, to protect the public trust, to respond to the nation's need for a diverse energy plan and the federal government's responsibility to honor its treaties to the Columbia River Treaty Tribes. Congress must not maximize the profits of the hydro license holders at the expense of our nation's public waterways; must not maximize the profits of an industry that has made billions of dollars while paying no fee for the use of the public resource.

The current hydro relicensing bills tend to focus on the resource agencies for costs and delays in the relicensing process. The bills tend to consolidate authority with FERC. FERC's claimed ability to assume the authorities of the resource agencies is unsupported by recent analysis by the GAO and counter to the reasoning for mandatory conditioning authority set forth in the Federal Power Act (FPA). It also abolishes the system of checks and balances necessary within our system of government to protect the public interest and consolidates the authority within an agency that often takes little notice of petitions, complaints, comments, analyses and dialogue. The FERC does not have the expertise of the resource agencies to determine conditions for hydro licenses.

While we often talk specifically about salmon and the Northwest, our input can be generalized to the entire nation; the future direction of hydropower raises fundamental questions concerning the health of our public waterways. We must make extremely careful decisions today, as they will affect us for the next 50 years and beyond. We risk losing important species as a result of our decisions. We risk losing our heritage as a result of decisions made today. We are asking for vision, for forward-looking farsightedness. We are rushing headlong into public resource over-appropriation in the guise of so-called wise economic use. This over-appropriation only serves to set up frustration among competing users, leads to depletion and exhaustion of the public resource, causes environmental degradation for which mitigation measures are inadequate, and denies significant benefits to future generations.

In our treaties—signed by the United States and ratified by this body, the Congress—our tribes were promised the right to fish for salmon now and forever into the future. Yet we are currently faced with amendments to the FPA which give unreasonable influence to those that can afford to stack the record for decsionmaking in their favor by using exorbitant financial resources and self-interested lobbying efforts. This does not protect the public resource or our treaties. The current bills offered by Senators Bingaman, Craig and Murkowski provide for less protection of

public resources while hamstringing the federal agencies that are charged with protecting those public resources.

States and federal agencies are in the field where the dams are and have the expertise necessary to protect the public resources in their charge. These agencies should be better funded to provide the input necessary under the law. Their responsibilities are outside of FERC's area of expertise. Shifting their authorities to FERC would concentrate decisionmaking in Washington, D.C., instead of in the states where the dams exist, and it would preclude open and honest discussions in local communities. If anything, the FPA should be amended to allow for more balanced competition for hydro licenses. Competition for licenses should award the entity that is the most able and willing to protect the public's resources in the long run while providing cost-effective, reliable power.

SPECIFIC COMMENTS

Senator Craig's Bill, S. 71

Despite continued voluntary fishery closures and reductions by the tribes, and significant reductions in the other ocean and in-river fisheries, anadromous fish stocks continue to decline. Recent analysis by the National Marine Fisheries Service indicates the Mid-Columbia River stocks are declining at a rate similar to the Snake River stocks. Snake River stocks are projected to be functionally extinct by 2016. That is only three or four life-cycles away. Many of the stocks in the Columbia River Basin are listed under the Endangered Species Act as threatened or endangered. Many more stocks are on their way to being listed under the ESA. A number of stocks have already gone extinct. Dams on the Columbia and Snake Rivers and tributaries have been and continue to be the major factor in this decline. While hydropower has brought energy benefits to the country, there was very little foresight as to the environmental consequences when the dams were built. Dams cause significant damage to aquatic and riparian environments by altering the physical, chemical and biological processes of river systems. We have learned much since these dams were first licensed. And now that dams are in the relicensing cycle, we must apply what we have learned to make the dams more suitable to what we now understand. S. 71 will make it more difficult, if not impossible, for federal and state agencies to ensure that the operators of hydroelectric power facilities adequately mitigate for or minimize their impacts.

Section (b). Factors to be considered

S. 71 attempts to redefine the public interest standard articulated in the Federal Power Act and by the Supreme Court[2] in Sections (b)(1) A, B, and C. These sections fall short of the recognized public interest standard, mentioning only that the consulting agency must consider the impacts of the condition on economic and power values, electric generation capacity and system reliability, air quality (including consideration of the impacts on greenhouse gas emissions), and drinking, flood control, irrigation, navigation, or recreation water supply. Conspicuously missing from this list are many of the resources for which the resource agencies are required to protect by law. Project applicants are not required to report economic information about their projects. How will a resource agency measure economic impacts of their conditions without economic project information? The answer is that the analysis will be meaningless. S. 71 does not mention the original purposes of Sections 4(e) and 18 of the FPA; to protect and utilize reserved lands and to ensure that fish can pass and survive hydroelectric projects. These proposed amendments would require the resource agencies to ignore the resource they are required to protect while obliging the agency to look more closely at the factors in Sections (b)(1) A, B, and C. The consulting agencies would be required to do more process in areas where they do not necessarily have expertise. This would expend precious financial resources in a time when agencies are already underfunded.

Then S. 71 would require the FERC to do the same analysis if requested by the applicant under Section (h)(1). The public interest standard would be based on (b)(1) Sections A, B, and C and not on the original meaning of the public interest standard as defined by the Supreme Court. This would result in duplication of effort, waste of resources, and a fundamental shift from protecting natural resources to protecting the hydropower owner's financial opportunities.

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[2] *Udall v. Federal Power Commission,* 387 U.S. 428 (1967). "The test is whether the project will be in the public interest. And that determination can be made only after an exploration of all issues relevant to the 'public interest,' including future power demand and supply, alternate sources of power, the public interest in preserving reaches of wild rivers and wilderness areas, the preservation of anadromous fish for commercial and recreational purposes, and the protection of wildlife." *Udall,* at 450.

It would also undermine the purpose of Section 100) of the FPA. S. 71 would require FERC to balance recommendations made by state and federal fish and wildlife agencies under 100) to protect, mitigate and enhance fish and wildlife and their habitat using the new public interest standard as described in sections (b)(1) A, B, and C. This is unacceptable.

These provisions in S. 71 and similar bills in the House and Senate would change the FPA substantially so that the resource agencies could no longer protect the resource needs or trust responsibilities to the tribes and the public. The underlying resources must be protected and the FPA recognizes this. This bill would require undue procedural burdens on the resource agencies that would subordinate their statutory obligations under the FPA.

Section (b)(2). Documentation

This section requires the consulting agency to create written documentation outlining how it has complied with Section (b) above. Courts have long held that mandatory conditions must be supported by substantial evidence in the FERC record. This renders Section (b)(2) unnecessary and duplicative. The Columbia River Treaty Tribes oppose this section.

Section (c). Scientific Review

This section requires each mandatory condition to be based on current empirical data or field-tested and to be subjected to peer review. The addition of scientific review would produce further delays in an already lengthy process. It is also duplicative because the federal agencies presently consider results of peer reviews and base their decisions on the best available science. Additional review would be costly and time consuming. The federal agencies already directly involve applicants when developing fishway prescriptions. Applicants can provide their own scientific analysis and peer reviews and the federal agency gives that information appropriate consideration in final decisions. S. 71 would lengthen the process unnecessarily. The Columbia River Treaty Tribes oppose this section.

Section (e). Administrative Review

This section would require the resource agency to submit their mandatory conditions to the applicant at least 90 days before the applicant has filed its application for a new license. This begs the question, how can agencies write license conditions for a project that has no application and how can the agency know when 90 days will run? Without an application on file, FERC will not have begun to scope their environmental analysis. This makes it unreasonable to require agencies to submit conditions at this stage of the process.

The section also allows the applicant to obtain review by an Administrative Law Judge (ALJ) or other independent review panel to determine the reasonableness of a condition or whether the condition complies with the new public interest standard set forth in Section (b)(1) A, B, and C. The use of an ALJ or other independent reviewing body to determine the reasonableness of a proposed condition is inappropriate because they will not have the resource agencies' expertise nor the mandated authority to protect the resources under the FPA. Furthermore, it is infeasible for resource agencies to provide conditions 90 days before the applicant files for a license because the agency will not have the necessary information to make the proper conditioning decision. Of course, this would also mean the ALJ or reviewing body would not have information available on economic or energy values for the project as required in this section.

Additionally, under this section, if the ALJ or reviewing body takes longer than 180 days to make a decision, this section states that FERC can treat the condition as a recommendation. This invites manipulation of the process by the applicant to overturn the resource agencies' mandatory conditioning authority. Fish passage measures would be frustrated in clear contradiction to the purpose of the Sections 4(e) and 18 of the FPA as well as the public interest standard as recognized by the Supreme Court. The Columbia River Treaty Tribes oppose this section.

Section (f). Submission of Final Condition

This section sets a deadline of up to one year for submission of mandatory conditions after FERC gives notice the license application is ready for environmental review. The deadlines imposed by this section do not take into account FERC's own NEPA analysis timelines. The result of FERC missing the deadline would affect the fishery resources negatively. A mandatory condition could not be finalized if FERC had not completed a draft NEPA analysis within the one year deadline and FERC's analysis is often delayed more than a year. Now, the resource agencies have the opportunity to modify prescriptions based on information developed during FERC's NEPA analysis. The deadlines imposed by this section would change this capability.

Furthermore, the default option in (f)(3) would deny the consulting agency the ability to make mandatory conditions if the deadline is not met. Fishery resources could suffer considerably if deadlines beyond the control of the resource agency are not met. Again, this measure puts the burden on the resource and particularly fish and wildlife. This would encourage applicants to delay providing information to the resource agencies and increase the possibility of missing deadlines and causing default. The Columbia River Treaty Tribes oppose this section.

Section (g). Analysis by the Commission

This section would require FERC to conduct economic analysis of each mandatory prescription to determine whether it would make the project uneconomic as well as require FERC under (g)(2) to measure all 10(j) recommendations against the new public interest standard list proposed in (b) A, B, and C and the new scientific review in (c). This would require the resource agencies to duplicate analysis covered in FERC's NEPA analysis. While it is appropriate for the resource agencies to base their recommendations and conditions on their expertise, the resource agencies do not have access to the types of information that FERC applies to balancing. To require the resource agencies to comply with this section will deplete their already limited resources, duplicate effort, and require the agencies to go outside their area of expertise. The new public interest standard set forth in S. 71 does not comport with established Supreme Court law or with the FPA. The Columbia River Treaty Tribes oppose this section.

Section (h). Commission Determination of Effect of Conditions

This section again contravenes the public interest standard as set forth in the FPA and by the Supreme Court. The ability of an applicant to request a determination that a mandatory condition meets the new public interest standard set forth in (b)(1) renders the broader public interest subservient to the needs of the owner. This is unreasonable and a threat to the resources the federal agencies are obligated to protect. The Columbia River Treaty Tribes oppose this section.

Section on Conforming and Technical Amendments

This section amends Sections 4(e) and 18 of the FPA. This section is unnecessary because Sections 4(e) and 18 of the FPA should not be revised. To do so under S. 71 would be to reverse needed environmental regulation of hydropower projects and cripple the resource agencies' ability to protect the resources they are obligated to protect by law. The Columbia River Treaty Tribes oppose this section.

Coordinated Environmental Review Process

This section mandates that FERC shall conduct a single consolidated environmental review and that the resource agencies shall not perform any environmental review performed by FERC. Resource agencies must conduct environmental analysis to determine the nature and applicability of the conditions they may impose. It is inappropriate to prohibit the resource agencies from performing any environmental review of the conditions they may require. The Columbia River Treaty Tribes oppose this section.

This section also grants FERC the ability to set deadlines for submission of comments on the environmental documents. This section is unnecessary because the Council on Environmental Quality already provides deadlines for comments on NEPA documents.

Study of Small Hydroelectric Projects

The FERC already has a procedure for streamlined review of small hydro projects. Where this section diminishes the role of the resource agencies it is unsupportable. Small hydro can have huge impacts on fish and wildlife and this section should not impair the resource agencies' ability to protect the natural resources within their responsibility.

SENATOR BINGAMAN'S BILL, S. 597

Section 701, Alternative Conditions

The tribes are very concerned whenever jurisdiction is taken away from the federal agencies with mandatory conditioning authority or whenever more process is required of these federal agencies without the necessary funding or expertise to carry out the mandate. This provision would create excessive strain on the federal agencies to determine which alternative condition was best. This could produce significant delays in the relicensing process. It also creates the opportunity for entities with unlimited funds to manipulate the process with multiple alternative conditions that the federal agency would then have to, corroborate. This creates a situation of

the haves overpowering the have nots. This would not protect the public resource or the public interest, only those that have the deepest pockets. The sound science provision would lead to confusion and litigation. The substantial evidence standard should be retained in all provisions of this law. In general, the tribes oppose this section.

Section 703, Resource Studies

Determinations on which studies and information are necessary to make decisions under Sections 4(e) and 18 of the Federal Power Act should remain with the resource agencies empowered to protect the resource. These determinations should not be given to the FERC. The resource agencies have the expertise to protect the resources in their charge and the trust responsibility to protect tribal lands and resources.

Section 704, Joint Agency Procedures, Relicensing Study

The tribes do not oppose this section per se. However, this study should not be used to change the nature and extent of the mandatory conditioning authority of the resource agencies. Current hydroelectric licensees have used the public waterways for decades and have reaped great financial benefit. Now that relicensing is taking place, it is time for evaluation of the public resource. Additional protective measures are necessary. The treaty resources of the CRITFC tribes need the protections promised under the Federal Power Act as carried out by their trustees, the federal resource agencies. Attempts to change this recognized duty is tantamount to abrogation of the tribes' treaty rights. As we have seen the tribes' and the public's resources decimated by hydroelectric projects, it is time we thought about shorter license duration with more flexible license conditions in order to protect the tribes' treaties and the public interest. It is time to change our heavy reliance on hydroelectric power and develop a more sensible, more diverse electric energy future that does not overburden our nation's waterways. The tribes are committed to planning for that future and have developed a Northwest Tribal Energy Vision for the Columbia River that can restore the health of our rivers while maintaining a reliable and affordable electric energy system. This kind of forward planning is possible in all regions of the nation. We would be glad to share this vision and planning with the Committee.

CONCLUSION

There is an existing statutory framework for hydroelectric dam relicensing that is sound and workable. S. 71 and S. 597 propose many "reforms" that either do not make sense, elicit delay as a tactic by the applicant, create delay within the framework of the bill, create new unneeded procedural hoops, and take away authority and expertise from federal agencies. For these reasons, the Columbia River Treaty Tribes oppose S. 71 and S. 597. Wherever shortcomings may exist in the current process, solutions should be crafted administratively and with substantial public input. The federal government must protect the public resource of our waterways. Further degradation is unacceptable and will be vigorously opposed by the Treaty Tribes. Again, thank you for this opportunity to provide the views of the Columbia River Treaty Tribes on this proposed legislation; please contact me, staff at the CRITFC, or staff at one of CRITFC's member tribes for additional comments.

STATEMENT OF THE AMERICAN PETROLEUM INSTITUTE

The American Petroleum Institute is a national trade association representing 400 companies engaged in all aspects of the oil and natural gas industry. Our members have a unique perspective on the issue of potential climate change because of the unique role we play in society. First, we have been heavily involved in efforts to improve the energy efficiency of our operations and these efforts contribute to avoiding greenhouse gas emissions. Second, our members have significant experience at decision-making in highly uncertain environments with relatively long-time frames—not unlike the climate change issue. And third, our members are technological innovators and are actively involved in research and development on many new technologies that result in new efficiencies.

Two central elements of the climate change issue are complexity and uncertainty. These elements are echoed in the recent report of the National Academy of Sciences, *Climate Change Science: An Analysis of Some Key Questions.* While this insightful report addressed a large number of specific aspects of the issue, a key finding for those with the difficult task of developing policy and legislation is the following:

> Because there is considerable uncertainty in current understanding of how the climate system varies naturally and reacts to emissions of greenhouse gases and aerosols, current estimates of the magnitude of future warming should be regarded as tentative and subject to future adjustments (either upwards or downwards).

The National Academy of Sciences also sought to "articulate more clearly the level of confidence that can be ascribed to those assessments [of climate change] and the caveats that need to be attached to them. This articulation may be helpful to policy makers as they consider a variety of options for mitigation and/or adaptation."

Based on API's unique perspective and the cautions suggested by the National Academy of Sciences, we recommend these principles for a sound approach to the long-term issue of potential climate change:

- Advance scientific understanding of potential global climate change in order to calibrate and adapt future policies accordingly;
- Promote advanced, energy-efficient technologies and sequestration options as part of a long-term, low-cost strategy, without government selection of "winners and losers";
- Remove regulatory impediments to the rapid adoption of energy-efficient technologies and capital stock turnover;
- Identify and expand cost-effective, near-term voluntary actions to mitigate greenhouse gas emissions;
- Avoid damage to economic growth posed by mandatory policies involving unrealistic near-term emissions targets and timetables or energy consumption taxes;
- Export advanced, energy-efficient technologies to the developing world through financing incentives and reduced export barriers, while protecting property rights;
- Promote global participation to address this challenge most cost-effectively.

Following these principles, common sense efforts should be able to identify a wide range of near- and long-term opportunities that address cost-effective methods to mitigate emissions, improve our understanding of climate science, and accelerate the research, development and dissemination of advanced energy technologies on a global basis.

API and its members are already undertaking actions reflecting these principles. For example, in early 1999, in response to findings that there were wide variations in the ways that API member companies estimated greenhouse gas emissions data, API established a Greenhouse Gas Estimations Methodology Working Group to develop a consistent industry methodology.

This extensive effort reached a milestone earlier this year when API published a new *Compendium of Greenhouse Gas Emissions Estimation Methodologies for the Oil and Gas Industry.* The *Compendium* was the result of intensive work by API and it member companies and documents calculation techniques and emission factors available for developing greenhouse gas emission inventories for carbon dioxide and methane. The estimation techniques cover the full range of oil and gas industry operations—from exploration and production through refining to product marketing—including emissions from transportation of crude oil, natural gas and petroleum products.

This *Compendium*:

- Provides examples of the types of greenhouse gas emission sources that should be considered in developing an inventory;
- Describes the segments of the oil and gas industry that should be involved in developing an inventory and provides an expansive list of potential emission sources for each industry segment;
- Describes in general terms the calculation techniques that can be used in developing an inventory and the technical considerations pertaining to standard conditions and common unit conversions;
- Presents specific methodologies that can be used for developing an inventory, with extensive exhibits to demonstrate preferred and alternative calculation methods; and
- Provides case studies, using the methodologies provided to develop illustrative inventories for typical oil and gas industry facilities.

A copy of the *Compendium* is attached * to this submission and demonstrates the scope and complexity of the oil and gas industry efforts to estimate emissions at the facility and company level. The *Compendium* is available in paper and CD-ROM versions and is currently in a one-year test phase. Based on the results of that test

* Retained in committee files.

phase, the *Compendium* may be revised if necessary. To our knowledge, this is the first industry-wide, detailed effort of its kind.

API member companies are also undertaking a wide variety of actions to address potential climate change issues. Among the many actions our members are undertaking are the following:

- Participation in a variety of government programs such as Natural Gas STAR for operational efficiencies, Vision 21 for ultra-clean integrated energy plants, and Energy Star Buildings program to improve commercial building efficiency.
- Research options for handling quantities of associated natural gas that is produced where there is no market for the gas. Alternatives to venting and flaring include conversion to liquids as well as reinjection.
- Expanding corporate energy management programs and institutionalizing efficiency efforts company-wide.
- Undertaking co-generation technologies at refineries and similar facilities to generate electricity and process heat/steam simultaneously for substantial increases in efficiency.
- Research and testing of geologic sequestration of carbon dioxide to verify under what circumstances carbon dioxide storage is safe and reliable.
- Capturing carbon dioxide from the production of synthetic natural gas from lignite and using it for reinjection to enhance oil recovery while reducing carbon emissions.
- Supporting projects that use forests to sequester carbon dioxide and simultaneously provide a wide range of other environmental and ecological benefits.
- Providing funding for expansion of fundamental research on climate change.
- Undertaking research and development projects for more efficient capture of carbon dioxide from turbine exhaust, plus sequestration options for carbon dioxide.
- Undertaking basic research on fuel cells to significantly increase automotive efficiency and reduce greenhouse gas emissions.
- Supporting research on other automotive technologies such as direct-injection diesel.
- Undertaking research, development and marketing of renewable technologies like solar power and geothermal power.

We note that API's recommended principles for climate policy and the many actions being taken by API and its members include similarities to provisions of the proposed legislation being addressed by this Committee. For example, one provision seeks federal agency review of regulations and standards to determine if they act as barriers to market entry for emerging energy-efficient technologies such as fuel cells, combined heat and power, or distributed generation. Another provision supports research and development efforts to improve the efficiency and safety of natural gas transportation and distribution, and for distributed energy resources. Another looks closely at forest resources and carbon sequestration, including the methodologies for reporting, monitoring and verifying voluntary carbon storage activities. Finally, another would seek better information and understanding of the costs of different options to mitigate U.S. greenhouse gas emissions, particularly those that are cost-effective, voluntary and technologically feasible.

Climate change is an issue of extreme complexity and uncertainty. It involves our evolving understanding of natural climate and man's potential impact on climate, and unknowables about population levels, standards of living, technologies and energy supplies, not just in the U.S. but globally—and not just in the next 10 or 20 years, but 100 or more years into the future. Finding an approach that promotes a flexible and creative global path, without locking-in excessive short-term costs, is a tremendous challenge. We support your efforts to find that path.

STATEMENT OF HANCOCK NATURAL RESOURCE GROUP

The Hancock Natural Resource Group (HNRG) is a wholly owned subsidiary of John Hancock Financial Services. HNRG has been in business for 15 years and is the world's largest forestry investment management organization. It currently manages about 3 million acres of forest land, valued at $2.7 billion in the United States, Canada and Australia.

HNRG has been active in the area of carbon sequestration for the past year. In June of 2000 we announced the establishment of a new carbon program to design financial products related to carbon sequestration by forests for business and institutional investors. Our program is now in operation and currently offering two financial products, one in the United States and one in Australia. These investments are based on pooling equity by private investors and establishing a portfolio of refor-

estation projects on areas of marginal agriculture land across the United States and Australia, respectively.

We believe strongly that forests provide an important range of environmental services to society, including water quantity and quality regulation, wildlife habitat and conservation, and carbon sequestration. We are encouraged at the growing trend for these environmental services to be linked with emerging commercial environmental markets. In particular the emphasis on utilizing the power of the marketplace to find low cost solutions to reducing net greenhouse gas emissions will significantly enhance the attractiveness of forest investment.

In bill S. 820, there are really three key elements. The first is to improve our ability to account for the carbon sequestration occurring in U.S. National Forests. The recent reductions in timber harvesting from those forests will likely lead to an extension of carbon storage, and it is important that the U.S. government be able to monitor those changes.

The second area relates to the establishment of an Advisory Council to oversee the development and implementation of guidelines for carbon accounting in forests. A body such as this is critically important to creating consistency in the measurement and verification of carbon stock changes in forests.

Finally the bill establishes the basis for cooperative agreements and Federal-State loan programs to non-industrial private landowners to encourage reforestation and improved forest management practices. This should have the effect of assisting with the cost of reforestation or improved management by small private landowners who otherwise would not have the resources to undertake these important activities.

In general, HNRG is supportive of the aims and mechanisms included in bill S. 820, although our primary recommendation would be for a strengthened role for the private sector in funding and managing the emerging business of carbon sequestration. Much of the basis of future efforts to address climate change will rely on the ability of private capital to invest in new technologies and methods of carbon sequestration. Emissions trading markets will stimulate this investment, as the value of carbon emissions and sequestration will become transparent. Thus capital investment will be able to factor in additional revenue from carbon trading.

While enhanced carbon sequestration in U.S. National Forests will contribute substantially to national efforts to reduce net greenhouse gas emissions, it is unlikely to play a role in a future emissions trading regime. Unless the government intends to auction carbon credits from national forests, actions by private sector investors will be needed to generate sufficient carbon offsets to create market liquidity and to reduce the price of traded emissions reductions.

Governments can stimulate early private investment in this area by establishing standards for carbon accounting, by establishing legal registries for carbon credits, and by recognizing that any credits registered will be usable in future emissions trading regimes. In most cases the single most important constraint to the investment of private capital in carbon sequestration is the uncertainty of what will count against a future regulatory or trading regime.

Government loans to private landowners should also be designed to stimulate the private production of carbon credits for use in future emissions trading regimes or against future carbon dioxide emission regulation. In most cases, we expect that the carbon stocks being built up through enhanced reforestation or forest management activities will be pooled by financial intermediaries. This pooling approach will help to address risk factors in regards to fire, insect and disease damage, or climatic events.

In carbon pooling however, the participants will need to have ownership of the rights to the carbon sequestration in their forests. Where a government lien encumbers those rights it will make it difficult for intermediaries to register the carbon sequestration credits and sell them on the market. Another key point for a robust emissions trading regime is the need for the sellers of carbon sequestration credits to be financially strong. Markets recognize this through financial ratings. In many cases the financial rating of a financial intermediary will have a bearing on the price paid for the carbon sequestration credits by the market. Carbon pooling entities that reduce risk factors and underwrite the long term guarantee of the permanence of the credit will lead to a higher price being paid for credits.

In summary, we believe that the government can stimulate greater private investment in carbon sequestration by creating standards for carbon accounting and creating early certainty of the future value of carbon sequestration credits. As with many areas of private investment, the reduction of risk and uncertainty is paramount to creating investor confidence.

Thank you for the opportunity to provide these comments.

[Attachment.]

KEY PRINCIPLES FOR CARBON SEQUESTRATION COMPONENT OF A U.S. NATIONAL CLIMATE CHANGE ACTION REGISTRY DESIGN

A. GENERAL POINTS

1. The registry should create confidence in the business community that any legally registered credits will apply against any subsequent national regulation of carbon dioxide emissions
2. The registry should create a standardized definition and measures for ensuring that all tons of carbon dioxide whether from sequestration, certified reductions or other offsets are treating as equal and exchangeable.
3. The registry should be voluntary, but should create limits on what types offsets and credits will be included in the registry.
4. For carbon sequestration, the concepts of additionality, permanence and leakage should be addressed.

B. SPECIFIC POINTS

1. Modular design, with standards established for each module. For Sinks the modules could be:

   i. Reforestation
   ii. Agricultural soil sequestration
   iii. Extending carbon sequestration in existing forests
   iv. Conservation of forests with documented threats of deforestation

2. Each form of offset should have sufficient rigor in its definition, baseline, measurement accuracy, inventory control, and verification to be fungible. In other words a tonne of any form of sequestration must meet a threshold which makes it the same as any other ton.
3. Addresses permanence by linkage of credits to pools or entities that can demonstrate the rights or ownership of carbon in the areas having been used as the basis for registration. This means that an entity who wishes to produce carbon credits from forests, must have some demonstration of unique ownership, and carries the ongoing responsibility for those credits. While the total stock of carbon can vary from place to place the sum of the carbon stocks, minus any baseline stocks, must be protected or offsets purchased.
4. Addresses sustainable development by having the endorsement of the government in the country where the project is located.
5. Addresses additionality as follows:

   i. For reforestation, must provide air photos to demonstrate that the area was cleared land, under non-forest land use before reforestation.
   ii. For agricultural soil sequestration, must demonstrate statistically the soil carbon content to a depth of 1 m. Credits are provided only for statistically demonstrated increases.
   iii. For existing forests, must identify the land area concerned and present a statistically robust estimate of carbon stocks.
   iv. For conserving forests threatened by deforestation, this must be substantially documented, independently reviewed on a case by case basis, endorsed by the national and/or sub-national government authorities and then protected. In these areas, the issue of leakage must be specifically addressed. If ever in future the forests are cleared or otherwise impacted these credits must be fully bought out of the system. These forests are the most difficult to integrate into the system, as they are based on some intangible decisions. These forests must also address the issue of leakage, where protecting one area simply leads to accelerated deforestation elsewhere.

6. Baseline year: This should be 1990, or point of project commencement. Where land use change is occurring, the year 1990 should be used to prevent clearing and reforesting of forest being eligible for crediting.
7. Definition of product. A standard based on an Environmental Management System or Total Quality Management System can be used for each form of sequestration credit. These systems require documentation of policies, planning, inventory, modelling, continuous improvement systems, etc. They can be the basis of verification and auditing of carbon stocks.
8. The product is a ton of sequestration, vintaged by the year in which it is activated, and serialized. The tons are certified by the registry based on independent verification of the estimates by accredited third parties.
9. The registry must list serial numbers of tons, by vintage years, and additionally indicate the land base associated with those tons. It should encourage pooling, by also ensure that the linkage between which tons link to which land pool is clear.

It should also provide for extinguishment of the tons in emissions trading, "green product" promotions, or other purposes.

10. The governance of the system should be based on a steering committee of government, business, academics and conservation movement specialists in this area. The steering committee would endorse the standards for each module, would accredit verifiers, would accredit carbon pool managers, would oversee registry operations, would resolve disputes, and would approve policies for ongoing auditing of the carbon stocks in the registry. The steering committee could be appointed by the Secretary of Commerce or another government figure.

11. Ultimately the register should include both emissions and all forms of offsets in a fully fungible system that would underpin regulation and/or trading.

12. Entities placing offsets into the registry, must also be accredited by the steering committee. The key criteria would be expertise, systems, financial solvency, and good character.

13. In the event that a carbon pool manager became bankrupt, the registry would immediately take control of the carbon rights associated with the pool.

14. The ultimate accountability for the carbon stocks and the credits is with the carbon pool manager. Any decision by the steering committee, subject to appeal, can require the carbon pool manager to make good on carbon stock shortfalls, or provide additional documentation or reverification of the carbon stocks at any time.

15. The steering committee, subject to government approval, may also enter into bi-lateral arrangements with carbon pools in other countries or with international carbon pools, assuming accounting, verification, documentation and third party government endorsement.

16. In the event that the government changes rules or standards in a way that impacts negatively on the carbon pool managers, compensation will be payable.

17. The operation of the registry will be funded by government for a five year trial period, and then the registry will fund its own operations by a fee for registration of new credits.

STATEMENT OF SHARON KNEISS, VICE PRESIDENT FOR REGULATOR AFFAIRS, AMERICAN FOREST & PAPER ASSOCIATION

The American Forest & Paper Association appreciates the opportunity to provide testimony to today's meeting of the Subcommittee on Energy and Air Quality.

The American Forest & Paper Association represents more than 240 member companies and related associations that engage in or represent the manufacturers of pulp, paper, paperboard and wood products. America's forest and paper industry ranges from state-of-the-art paper mills to small, family-owned sawmills and some nine million individual woodlot owners.

The U.S. forest products industry is vital to our Nation's economy. We employ 1.5 million people and rank among the top ten manufacturing employers in 42 states, with an estimated payroll of $51 billion. Sales of U.S. forest and paper products top $250 billion annually in the United States and export markets. Products from America's forest and paper industry represent more than eight percent of our country's manufacturing output.

S. 820 AND FORESTRY ISSUES

AF&PA has been engaged in the issue on the role of forests and global climate for more than a decade. We have sponsored research through the technical research arm of the industry, supported efforts of the U.S. Forest Service and cooperated with many agencies on programs to improve the understanding of forests and their role in mitigating carbon dioxide buildup.

Senate bill 820 introduced by Senator Wyden (D-Or) and co-sponsored by Senator Craig (R-ID) represents a good first step in bringing the issue of forest carbon sequestration to the forefront of America's potential response to programs that will reduce the build-up of carbon dioxide concentrations in the atmosphere. Forests provide enormous benefits. Only recently has carbon dioxide removal by forests been recognized as a major co-benefit to the environment in addition to wildlife habitat, water quality, recreation, aesthetics and other resource amenities. As Congress proceeds to create forest carbon sequestration economic and environmental opportunities, the AF&PA membership believes that forest management must be a driving force in improving forestland health and productivity. Incentives that encourage forest stewardship, improve land management practices and prevent the further conversion of forestland to other uses will provide multiple benefits including carbon storage. It is important to not lose sight of the contribution that existing managed forests make in the global carbon cycle. They contribute mightily to the global car-

bon balance and should not be taken for granted or dismissed. I will come back to these concepts at the end of this section. However, I would like to take the opportunity to comment more directly on the concepts contained in S. 820.

S. 820 is much broader than assessing "opportunities to increase carbon storage on national forests derived from the public domain." It includes recommendations on amending the Department of Energy's 1605(b) reporting guidelines, incorporates opportunities for non-industrial private forest landowners to take advantage of loan programs, establishes an advisory board to provide recommendations to the Secretary of Agriculture on carbon storage from management actions, defines terms and concepts and emphasizes the development of project-based accounting systems.

The provisions that would amend the carbon monitoring and verification guidelines under Title XVI of the Energy Policy Act of 1992 should examine and compare existing project-based guidelines to determine which methods are most accurate, cost-effective, transparent and verifiable. Because carbon may become a market commodity to buy and sell, it is important that the trading system be based on sound technical footing. A ton of carbon in one part of the country or the world must be equivalent to a ton of carbon measured in another region of the country or the world.

Monitoring and verification of carbon on a project specific basis is essential. The private sector needs certainty when investing in carbon sequestration projects. Certainty in this case includes verification of the carbon offset credits, value of the carbon credits and a proper accounting system to ensure valid carbon transactions.

AF&PA notes that a national accounting system is critically important but is not addressed in the legislation. Presently, the U.S. Forest Service (USFS) provides estimates of carbon sequestration on all managed forestlands in the United States, including public and private. These estimates are based on forest inventory data collected through the Forest Inventory & Analysis Program of the USFS. Carbon projections are estimated by using a combination of sophisticated timber supply, area projection, wood use and carbon content models. These estimates must provide a reliable prediction of current and future carbon sequestration in the forest strata including soils, understory, overstory, and trees. The models are the basis for estimating the long-term storage of carbon in wood and paper products and in landfills. This is extremely important information particularly when there is a lack of reliable published research estimates. The failure to account for the long-term storage of carbon overestimates worldwide carbon dioxide emissions by ten percent.

Understanding the existing forest base can shed important light on how to improve existing forest management practices for the retention of carbon and what opportunities exist to enhance the existing forest land base to store more carbon. AF&PA suggests increasing funding levels to the Forest Inventory & Analysis (FIA) Program contained within the USFS Research program as specified in USFS/National Association of State Foresters Memorandum of Agreement and endorsed by the Second Blue Ribbon Panel on FIA. This data collection and analysis program, recently amended in the 1998 Farm bill by Congress, called for annual data collection with a completed cycle in each state every five years. We strongly support this effort. It provides the underlying data not only for carbon sequestration but also provides the core information on forest resource trends. It is not possible to separate site-specific project level accounting from the implications of what occurs outside of a project boundary. Altering forest management practices, reducing harvest levels or preserving forest acreage in a specific location could have an impact on forestlands outside the project boundaries. This is known as leakage. AF&PA agrees that harvesting and regeneration will be displaced to other locations. A comprehensive national model such as the one developed by the USFS must be well funded to monitor trends in forest sequestration and carbon storage reservoirs to understand the impacts this will have on atmospheric carbon dioxide levels and carbon storage in forests. We urge that the USFS Research program be adequately funded to conduct regular updates of forest carbon sequestration and develop the appropriate software and model links to improve the accuracy and technical elements. The model, known as FORCARB, was the basis for the U.S. State Department's submission to The Hague at the Conference of the Parties negotiations in November 2000 on the Kyoto Protocol.

While S. 820 does begin a process for establishing project specific guidelines to determine carbon sequestration, the development of a carbon market trading system, issuance of carbon credit certificates and other carbon credit banking systems need to be considered. For the private sector to make these types of investments there needs to be certainty on the regulatory rules, financial market rules and transferability of credits must be known. We have to ensure the government does not subsidize activities that could undermine private investments. The payback periods are long and extend beyond the normal three to five year return period for

most private capital investments. It is important that a free market system develop with appropriate verification procedures that ensure the credibility of the carbon financial instruments.

There are a couple of other considerations AF&PA believe are important for your subcommittee and the Senate to consider as domestic and international policies are developed to determine what market opportunities forests will have in reducing atmospheric concentrations of carbon dioxide. The role of this nation's existing forests has been dismissed because of an assumption that they are removing carbon dioxide from the atmosphere "anyway." Given the dramatic changes in forest ownership, stewardship, population increase and urban and suburban growth and development over the past decade makes the continuity of forest land use less than a certainty. According to figures developed by the USFS, existing forests currently remove seventeen percent of total U.S. greenhouse gas emissions per year. We believe that with active and sustainable forest management of the existing forest base, these figures can increase and assist the nation in a balanced approach to stabilizing or reducing atmospheric carbon dioxide buildup. The committee should seriously consider how the forests of today can be more actively managed to increase carbon sequestration and prevent emissions through and improved productivity. To this end, we would urge the Committee to increase funding for forest productivity research in tree physiology, biotechnology and soil productivity as outlined in a compact with the Department of Energy in the Agenda 2020 industry partnership program.

It is also important to briefly mention the significant inequities, lack of incentives and scientific misunderstanding of how the Kyoto Protocol (KP) undervalues and creates significant distortions for existing forests and what it could mean for the United States. Under the terms and conditions of the Protocol, only new forests established after 1990 on lands not in previous cover would be eligible for carbon credits. However, the carbon credits accrued would only be for the tree growth between 2008 and 2012. If you established a "new" forest today the only carbon credits potentially awarded would be for the incremental growth during that time period. While the nation would not receive any carbon credit for existing forests to achieve the KP targets the U.S. would be obligated to maintain the same level of carbon stock as in 1990 or further reduce emissions to meet the agreed upon international targets. There is no possibility to receive credit to absorb carbon dioxide from the atmosphere but significant liabilities and disincentives. This is neither a fair or balanced carbon accounting system. In addition, the KP ignores the scientific validity and positive contribution that existing forests have on atmospheric carbon dioxide levels. The other misunderstanding and scientific misconception of the KP is the role of avoiding tropical deforestation. Under the KP, "avoidance of deforestation" is considered a carbon sequestration activity. AF&PA and the forest research scientific community would consider these activities to be an avoidance of emissions, not sequestration. Most of these tropical ecosystems are in highly mature states and older age class structures. They are more likely to leak carbon as these stands breakdown. Under the rules being considered for the KP, these existing systems would be awarded carbon credits for avoiding deforestation. Again, from a scientific viewpoint a growing and sustainably managed forest can remove significantly more carbon dioxide from the atmosphere than the mature systems although we recognize these forests as repositories of huge quantities of carbon. The inequities in awarding credits for "new" forests or for "avoidance of deforestation" will have adverse consequences and spill over effects for the existing forest base and we think this should receive considerable thought.

We have more specific comments on the bill regarding the make-up of the advisory council membership, loan programs, financial incentives to grow carbon and land. We would be willing to sit down with you and members of the committee to discuss these at your convenience.

STATEMENT OF DR. AARON RAPPAPORT, FORESTS AND CLIMATE CAMPAIGN COORDINATOR, AMERICAN LANDS ALLIANCE

Mr. Chairman and Members of the Committee, the American Lands Alliance is grateful for the opportunity to submit testimony for the record of your July 24 hearing on issues and legislation connected with the problem of global warming. We are also grateful for interest on the part of the Committee in the issue of forest carbon sequestration and commend Senator Wyden and Senator Craig for their efforts to develop legislation to encourage such activities.

I would like to note at the outset that some of the most difficult and contentious environmental issues in the United States today involve the protection of habitat for threatened and endangered species on private land. American Lands believes

carbon sequestration offers a partial escape from the current gridlock around these habitat issues. Both the protection of natural ecosystems and long rotation forestry reduce emissions of carbon dioxide (CO_2). If these benefits were officially recognized by American climate policy then voluntary landowner conservation activities would be eligible for the financial rewards that are generally proposed to encourage a decrease in our nation's CO_2 output.

Such a mechanism for encouraging badly needed conservation activities has the added benefit of potentially involving little or no net cost to the federal treasury. In most climate policy proposals, over-emitters of CO_2 provide the funds to encourage others to under-emit, through mechanisms such as balanced tax incentives and disincentives.

In this context I will confine the rest of my testimony to comments on the legislation that Senator Wyden and Senator Craig have developed, S. 820 or the "Forest Resources for the Environment and the Economy Act". Since the July 24 hearing date, this bill has been combined virtually unchanged with Senator Brownback's "Carbon Conservation Incentive Act", S. 785, into S. 1255, the "Carbon Sequestration and Reporting Act". Thus, comments on S. 820 remain applicable to S. 1255.

SPECIFIC COMMENTS ON S. 820

In general S. 820 as currently written appears to not focus on creating the incentives for voluntary landowner conservation activities that carbon sequestration is capable of providing. Indeed, the bill appears to go so far as to exclude the creation of reserve areas, such as riparian buffers to protect salmon streams, from eligibility for its revolving loan program. Even if such habitat protection is eligible, the bill's emphasis is clearly strongly in favor of reforestation rather than the creation of fish and wildlife reserve areas and the promotion of long rotation forestry.

To more fully achieve the conservation potential of carbon sequestration policy, we suggest the following changes:

1. The Purposes section should emphasize the protection of habitat for species listed under state and federal endangered species acts. Similarly, the definition of a Forestry Carbon Activity in the bill should require that these have a positive impact on habitat for listed species.

2. The list of governmental entities involved in the revolving loan fund should broaden beyond the Secretary of Agriculture and State Foresters to include the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and their state equivalents.

3. A broader set of stakeholders should have representation on the Forest Carbon Advisory Council that S. 820 establishes. As currently construed the Council fails to include representatives from such stakeholders as the commercial and recreational angling industries, the tourism industry, and municipal water boards. On the governmental side of the Council, we believe it wise to include representatives from the National Oceanographic and Atmospheric Agency, U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and their stateside counterparts. As an alternative, the Council could be redesigned to be a technical advisory panel made up of independent academic scientists.

4. The bill should establish a legal standard to prevent both its loan fund and guidelines from encouraging environmentally destructive silvicultural methods. These include the heavy application of fertilizers, pesticides, and herbicides, and the use of monoculture plantations and genetically engineered trees.

5. Sections of S. 820 that appear to directly exclude the creation of forest reserves from the bill's revolving loan program should be changed. Currently, loan funds may only cover costs associated with planting trees (Section 5 (c)(8)) and only projects that allow "a variety of sustainable management alternatives" (Section 5 (c)(1)(C)) qualify for loans. Thus, the single activity of reserve-creation appears to be ruled out.

6. More weight should be given to forest protection in the bill's basis for establishing a formula to govern the distribution of loan funds. As currently written this basis appears strongly weighted towards tree planting rather than forest protection. (See Section 5 (b)(8)(B)(ii).)

7. Loan funds should be fully available for states that lack large areas of federal forest. Indeed, the need for forest conservation is even more acute in these states than in those containing abundant federal land. As currently written, the bill virtually excludes states with little federal forest from eligibility for loan funds by awarding these preferentially to states that have experienced significant declines in timber industry employment due to decreases in logging on federal lands. (See Section 5 (b)(8)(B)(iii).)

8. The bill should call for forest greenhouse gas accounting standards that include all greenhouse gasses, rather than just $C0CO_2$. This would ensure that $NOCO_x$ emissions from the use of fertilizers are properly accounted for.

9. The bill should raise its standard for canceling loans in return for permanent conservation. We commend Senators Wyden and Craig for this section of the bill but urge that the current standard, which is protection "at a level above what is required under applicable federal, state, and local law", be raised considerably to better achieve the double win for landowners and the environment that carbon sequestration could provide.

10. The bill should recognize that immediate emissions reductions are more valuable than future ones. This is recognized by, for instance, ton-year carbon accounting methods.

In conclusion, I would like to thank the Committee Members once again for this opportunity to testify and for their interest in forest carbon sequestration.

STATEMENT OF DAVID SILVERSTEIN, ON BEHALF OF THE SOUTHERN APPALACHIAN BIODIVERSITY PROJECT, ASHEVILLE, NC

I am writing on behalf of the Southern Appalachian Biodiversity Project to urge the U.S. to not replace old growth stands of forest with young Kyoto stands, and oppose the construction of more dams, as part of the Clean Development Mechanism designed to meet the goals of the Kyoto Protocol.

A myriad of scientific studies now indicate that old growth forests are far more efficient at sequestering carbon than younger, monoculture tree farms. See, for example, Ernst-Detlef Schulze, Christian Wirth and Martin Heimann in the 22 Sep 2000 issue of Science, at pp. 2058-2059. Schulze et al., found that "the accumulation of carbon in a permanent pool increases exponentially with stand age." This will "continue to contribute to a stable part of soil organic carbon unless disturbed by harvest or fire." Thus, "replacing unmanaged old-growth forest by young Kyoto stands, as well as the harvesting of previously unmanaged old-growth forest stands as part of forest, management, will lead to massive carbon losses to the atmosphere mainly by replacing a large pool with a minute pool of regrowth and by reducing the flux into a permanent pool of soil organic matter. Hannon et al. have demonstrated that cutting of old growth forests will release carbon sequestered over the course of 200 years in some cases. M.E. Hannon, W.K. Ferrell, J.F. Franklin, Science, Vol. 247, pp. 699-702. In that study, Hannon et al. determined that nearly 70% of the carbon accumulated in a tree from sequestration is emitted into the atmosphere within 10 years after the tree is cut down. Even if old growth stands are cut down and replaced by young Kyoto stands, it can take decades before enough carbon is absorbed by the new stand to equal the pulse of carbon re-released into the atmosphere when larger, older trees are cut. In fact, Schulze et al. demonstrated that, with increasing life-span of the stand, proportionally more carbon can be transferred into a permanent pool of soil carbon (passive soil organic matter or black carbon). Since "time without disturbance is required to channel carbon through its cycle into a nonactive pool of soil organic carbon and the production of black carbon depends on biomass", old growth forests play an invaluable role in the sequestration of carbon.

Also, the best scientific information available indicates that dams cause as much or more greenhouse gas emission as burning fossil fuels. The June 1st edition of New Scientist magazine reported that much of the greenhouse gas is generated by organic matter washed into a reservoir and from the decay of submerged forests. Since "stagnant water produces the worst emissions because the decaying vegetation", the reservoirs release carbon dioxide and methane. According to that study, a reservoir will produce more methane than the river did before the dam was built. "Greenhouse gases are emitted for decades from all dam reservoirs in the boreal and tropical regions for which measurements have been made. This is in contrast to the widespread assumption that such emissions are zero," the Commission added.

Thus, the promotion of management practices that replace old growth stands with fast growing tree farms, and the building of new dams, we will actually contravene the anticipated aim of the Kyoto Protocol. In general, over-emphasizing carbon sinks will not adequately address the global warming problem. According to Professor John Shepherd, director of Britain's Tyndall Centre for Climate Research, shifting the emphasis to carbon sinks is diverting the talks from the main issue of cutting emissions. Carbon sinks only partially compensate for fossil fuel emissions; it has been estimated that sometime within the next century our forests will serve as a net carbon source rather than a net sink. According to Shepherd, the maximum that could be absorbed by carbon sinks would only be equivalent to a quarter of that

needed by 2050 to prevent major rises in global temperature. If the anthropogenic production of greenhouse gasses continues to increase at current rates, then it will be inevitable that we will saturate and overwhelm our carbon sinks and will be powerless to stop or reverse global warming. Rather than creating more loopholes for polluting industries, SABP demands-that the U.S. argue forcefully for the reduction of carbon emissions from fossil fuel consumption, preserve all of our old growth forests, and allow the younger, less developed forests to achieve old-growth status.

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