

TRANSMISSION INFRASTRUCTURE

HEARING BEFORE THE COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

TO

CONDUCT A LEGISLATIVE HEARING TO EXAMINE DRAFT LEGISLATION
REGARDING SITING OF ELECTRICITY TRANSMISSION LINES, INCLUDING
INCREASED FEDERAL SITING AUTHORITY AND REGIONAL TRANSMISSION
PLANNING

MARCH 12, 2009



Printed for the use of the
Committee on Energy and Natural Resources

U.S. GOVERNMENT PRINTING OFFICE

48-760 PDF

WASHINGTON : 2009

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
Fax: (202) 512-2104 Mail: Stop IDCC, Washington, DC 20402-0001

COMMITTEE ON ENERGY AND NATURAL RESOURCES

JEFF BINGAMAN, New Mexico, *Chairman*

BYRON L. DORGAN, North Dakota	LISA MURKOWSKI, Alaska
RON WYDEN, Oregon	RICHARD BURR, North Carolina
TIM JOHNSON, South Dakota	JOHN BARRASSO, Wyoming
MARY L. LANDRIEU, Louisiana	SAM BROWNBACK, Kansas
MARIA CANTWELL, Washington	JAMES E. RISCH, Idaho
ROBERT MENENDEZ, New Jersey	JOHN MCCAIN, Arizona
BLANCHE L. LINCOLN, Arkansas	ROBERT F. BENNETT, Utah
BERNARD SANDERS, Vermont	JIM BUNNING, Kentucky
EVAN BAYH, Indiana	JEFF SESSIONS, Alabama
DEBBIE STABENOW, Michigan	BOB CORKER, Tennessee
MARK UDALL, Colorado	
JEANNE SHAHEEN, New Hampshire	

ROBERT M. SIMON, *Staff Director*
SAM E. FOWLER, *Chief Counsel*
MCKIE CAMPBELL, *Republican Staff Director*
KAREN K. BILLUPS, *Republican Chief Counsel*

CONTENTS

STATEMENTS

	Page
Bingaman, Hon. Jeff, U.S. Senator From New Mexico	1
Clark, Tony, Commissioner, North Dakota Public Service Commission, on Behalf of the National Association of Regulatory Utility Commissioners and the North Dakota Public Service Commission	14
Detchon, Reid, Executive Director, Energy Future Coalition	58
Dickenson, James A., Managing Director and Chief Executive Officer, JEA	63
Edwards, Graham, Acting President and CEO, Midwest Independent Trans- mission System Operator, Inc.	53
Morris, Michael G., Chairman, President and Chief Executive Officer, Amer- ican Electric Power	41
Murkowski, Hon. Lisa, U.S. Senator From Alaska	3
Reid, Hon. Harry, U.S. Senator From Nevada	3
Welch, Joseph L., Chairman, President and CEO, ITC Holdings Corporation ..	46
Wellinghoff, Jon, Acting Chairman, Federal Energy Regulatory Commission ...	8

APPENDIXES

APPENDIX I

Responses to additional questions	77
---	----

APPENDIX II

Additional material submitted for the record	105
--	-----

TRANSMISSION INFRASTRUCTURE

THURSDAY, MARCH 12, 2009

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

The committee met, pursuant to notice, at 9:33 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 and get started. Senator Murkowski is on her way and will be here very shortly.

This morning we're to hear from witnesses on a proposal to change the way that we permit and plan the transmission system for the Nation. Over the last 120 years or so the system to supply electricity has grown in importance for our economy and our lives. In the early days there was not much in the way of what we call transmission today. There were just local distribution systems and they were not interconnected. As time passed, we came to understand the economies that were possible with broader sharing of electric resources and the transmission system became important.

Still, the transmission system was built to serve the needs of individual utilities for the most part. There were exceptions, of course, like in New England and in the Mid-Atlantic, where power-sharing pools grew up.

We here in Congress have changed the laws to encourage competitive markets in electricity with both the Public Utility Regulatory Policy Act of 1978 and the Energy Policy Act of 1992. Increases in the trade in electricity have followed these changes. Along with these increases, new problems have arisen. Congestion on the transmission system chokes off opportunities for trade in electricity that could benefit entire regions. More recently, we're becoming more aware of the opportunities for cleaner domestic energy supplies. We have become aware that a lack of transmission inhibits those opportunities.

The transmission system has not kept up with these changes in the way that industry works. I think the North American Electric Reliability Corporation tells us that we will see twice the growth in generation that we see in transmission over the coming decade if we stay on the same course we're on today.

In 2005 this committee tried to create a way to overcome the difficulties we had in siting transmission and getting it built. The Department of Energy was charged with examining congestion on the

system and designating corridors of national interest. FERC could then site transmission in those corridors when States were unable or unwilling to do so.

That system is widely seen as insufficient today. It does not apply to most of the country. It does not take into account future need. As a result, we've heard increasing calls for broadening Federal authority. Voices such as the Manhattan Institute, Governor Pitako, T. Boone Pickens, the Center for American Progress, the former Chairman of the FERC Joe Kelleher, Jim Hecker, the American Wind Energy Association, environmental organizations, they've all called for a greater Federal role.

Senator Reid introduced a bill this last week to address these issues. He's here today to talk about that proposal. I have circulated a discussion draft that is similar in thrust, but has some differences. The proposals that we have before us today are attempts to take on what most commentators have identified as the three most difficult issues: the siting authority, the regional planning, and the allocation of costs. I hope that this hearing can help begin a discussion that will lead us to constructive legislation in this area.

Senator Reid, we know your time is valuable. Why don't you go ahead with your testimony at this time and then when Senator Murkowski comes she will undoubtedly have a statement to give as well.

Senator REID. Here she comes.

The CHAIRMAN. Oh, OK.

Senator MURKOWSKI. Good morning.

The CHAIRMAN. Hi. How are you?

Senator MURKOWSKI. Doing wonderful today.

The CHAIRMAN. Good, good.

I just did a little opening statement here and we're glad to hear one from you if you'd like, and then Senator Reid is our first panel, and then we have two others.

[The prepared statement of Senator Mark Udall follows:]

PREPARED STATEMENT OF HON. MARK UDALL, U.S. SENATOR FROM COLORADO

Mr. Chairman, thank you for holding today's hearing on electricity transmission.

Our transmission grid is in trouble. It is overextended, inefficient, and vulnerable, and does not allow for the expansion into new energy sources, such as renewable energy.

And that is a problem. We need to expand our use of sustainable and domestically produced energy. I have long been a promoter of renewable energy—I helped Colorado develop a renewable electricity standard (RES), which requires that our state produce 20 percent of our electricity by 2020. I also worked to get a 15 percent by 2015 amendment passed through by the U.S. House of Representatives in 2007. Unfortunately, that effort failed in the Senate.

I am very pleased to be working with Chairman Bingaman and others to bring a national RES to the President's desk this year.

Expanding and strengthening our transmission infrastructure will be critical to implementing a national RES, but it will also help make our energy use more efficient, open up new areas to energy development, and make our grid system more secure.

However, there are several issues that we in Congress must address to move this transmission work forward—specifically, how new transmission projects are planned, where and how the transmission infrastructure is sited, how to make it more secure, and how this new infrastructure is paid for.

I'm looking forward to hearing from our witnesses on all of these issues today.

**STATEMENT OF HON. LISA MURKOWSKI, U.S. SENATOR
FROM ALASKA**

Senator MURKOWSKI. Wonderful. Thank you, Mr. Chairman. I appreciate you convening this hearing this morning. A really difficult issue before Congress as we discuss our Nation's transmission infrastructure. We know that we've got a problem. We've got aging transmission infrastructure that is simply not keeping pace with demand. By 2030 the EIA projects a 30 percent increase in U.S. electricity demand, but the transmission has only grown 6.5 percent since 1996.

So it's understandable that our transmission isn't adequate to meet our future electricity needs. We all recognize that transmission projects face enormous costs as well as public opposition. In the 2005 Energy Policy Act we directed DOE to designate national transmission corridors in constrained areas, provided FERC with limited backstop siting authority. This EPAct provision was controversial in its inception and has yet to result in additional transmission capacity. So we know we've got to do better.

Energy security is a national goal and transmission infrastructure is a backbone requirement. We know that we need to build the lines out to bring location-constrained renewable resources to load. But as far as I'm concerned energy security means transmission must be an asset for all of our energy sources, and we must ensure the reliability and the cyber security of the grid while at the same time we make it smarter.

It's a tall order, but I commend you and our Majority Leader Reid for crafting proposals aimed at addressing the many obstacles to constructing transmission.

We've got a pretty good panel here this morning and I think we'll get right to the issues: With planning, should we establish interconnection-wide planning entities or are we going to make progress through ongoing collaborative regional efforts? Is additional Federal siting authority needed, and if so what about the States' role?

Who pays? Who pays for the cost of the new transmission? Should the cost be allocated throughout the interconnection or should those who benefit pay for the costs?

Then, should we direct or dedicate new transmission to renewable resources? I have to ask the question whether that's even possible. In reviewing some of the testimony today, I really had to smile when one of the witnesses cautioned us to remember that Congress has the power to change all laws except the laws of physics.

So we've got a lot in front of us, Mr. Chairman. Again, Majority Leader Reid, I appreciate your leadership on this issue and look forward to the testimony from our witnesses.

The CHAIRMAN. Senator Reid, why don't you go right ahead. Welcome to the committee.

**STATEMENT OF HON. HARRY REID, U.S. SENATOR
FROM NEVADA**

Senator REID. Mr. Chairman, thank you very much. This is such an important committee. I'm happy to see such good attendance here today.

I really do feel that I have to comment on the ranking member of this committee. When I first came to the Senate, we had Senator Mikulski. She was the woman on the Democratic side. You know, men are always very macho about overcoming injuries and putting up with stuff. Senator Murkowski flew all night after really tearing up her knee, to come back and participate in what we are doing here this week. It's admirable.

But I do say, Senator Murkowski, the things that we've done to allow women—and I say “allow women”—to participate in athletics is stunning. My 9-year-old granddaughter broke her arm Friday in a bicycle accident. She didn't know that. But she went and played in two basketball games on the weekend. She's left-handed. She broke her left arm, and was the star of the tournament. Her mother said that she would a lot of times grab her arm after playing.

So I think we've established, at least in my mind, that women are tougher than men, or at least as tough as.

Senator MURKOWSKI. Thank you.

Senator REID. I say to John McCain—I want a chance to say this to you. Your daughter was on the Rachel Maddow Show last night and she was so good, stunningly good.

Senator MCCAIN. Thank you very much. I am not a regular viewer.

[Laughter.]

Senator REID. One reason that I'm sure the show was watched so much last night, because frankly I would have turned it off too, but she said that your daughter was going to be on. So I kept watching it, rather than flipping to ESPN, which I usually do when I'm eating my dinner.

Senator MCCAIN. Thank you. Thank you for your kind words.

Senator STABENOW. Just for the record, I watch her start to finish, just for the record.

[Laughter.]

Senator REID. Mr. Chairman, members of the committee: Thank you very much for allowing me to testify here this morning. This is a critical, important issue.

In 1931 the legendary inventor Thomas Edison had some advice that he gave to Henry Ford. Here's what he said—and off course you know Henry Ford's were driving up demand for gasoline. He told Ford, and I quote: “I'd put my money on the sun and solar energy. What a source of power. I sure hope we don't have to wait until oil and coal run out before we tackle that.” End of quote.

It's been more than 7 decades since then and today we find ourselves facing a three-pronged energy crisis, threatening our economy, our environment, and our national security. Our national security we tend to just fluff over, but we cannot be a secure Nation when we import almost 70 percent of our oil from Chavez of Venezuela, the unstable Middle East, and on and on.

The leadership of President Obama, members of this committee, especially under the leadership of Chairman Bingaman, and many elected officials, business leaders, and the American people, gives us reason for hope that the time for solutions has finally come. President Obama sent a strong message that renewable energy development will be a cornerstone of his Administration by placing

major investments in clean energy at the center of his economic recovery plan.

I'm confident that the President's plan will help create jobs and lay the groundwork for long-term economic growth in Nevada and across the entire country. We all realize that the President's recovery plan is just the first of a number of steps. Our energy crisis has been deepening for decades and we're not going to solve it overnight. But we know one thing for sure: Working together, in partnership with the White House, Federal, State, and local governments, community leaders and the private sector, we can and we must meet this moment with the action it requires.

In addition to the innovation that has always carried our country forward, the private sector and State and local governments are already making great strides. They are laboratories of creative ideas that we hope to stimulate with recovery plans, with venture capital, and with reforms to our national energy policy. For instance, in Pennsylvania renewable energy has sparked more than \$1 billion in private investment.

Senator Udall, I've spoken to Governor Ritter and he said that the spur of jobs developed with renewable energy in Colorado has stopped the economic crisis in Colorado from deepening. In Iowa, shuttered factories are now re-opening to build parts for wind turbines. In Nevada, which some call the Saudi Arabia of renewable energy, we already have nearly 60 operating renewable energy projects, producing enough power to heat and cool hundreds of thousands of homes.

This is just the beginning. The solar power in Nevada and the desert Southwest alone could meet our entire energy needs seven times over. The wind energy in the Great Plains, the Midwest, and off both our coasts is similarly abundant. The potential for geothermal energy still largely untapped is simply staggering.

There has been a massive increase in wind energy generation in recent years, creating 45,000 new jobs last year alone. Solar power is poised for similar growth over the next few years. NV Energy recently—that's the power company in Nevada—announced plans for a 250-megawatt solar thermal plant in Nevada, with plans for molten salt storage to firm up the plant's capability.

All these actions have been thriving without sustained Federal investment, at least until very, very recently. But absent a permanent long-term Federal commitment and major policy reforms, we're not close to reaching our national potential. Our landscape is dotted with renewable projects, but until now few have been connecting the dots. These renewable projects are mostly where there aren't people. We need to take it where there are people.

Senator Murkowski, during the last 10 years, elaborating on what you said, we have developed 6,000 miles of natural gas pipeline; less than 600 miles of power lines in the same 10 years. So we've got a problem.

Remember, we had to do something drastic when we built our railroads to make sure that the trains could go where we wanted them to go, and we did the same with the national highway system; and we need to do the same with this energy that we're talking about, connecting these dots with this smart transmission grid, using new technologies developed and built here in America to con-

nect the places we produce renewable energy with the places we use it.

A smarter grid would make it possible for consumers to save money on their power bills by making energy efficiency more profitable and transparent and cost-effectively integrate affordably priced renewable power.

With input from stakeholders on all sides of this important issue, I have introduced S. 539, and I appreciate the work this committee has already done. Part of this legislation is to break the logjam that's preventing access to incredible renewable energy potential that exists across the entire country, and in Nevada.

The country needs a plan that will result in the construction of new transmission lines to these renewable energy-rich zones, where the sun, wind, and heat of the earth are super-abundant. At the other end of these lines, consumers will get affordable and reliable clean power, power that will help us meet our environmental and national security challenges. By connecting these remote locations to the population centers that consume the overwhelming majority of energy, we'll open up vast new markets for a clean home-grown product that creates American jobs that can never be outsourced.

That's why this legislation requires the President designate quickly renewable energy zones. Then the bill starts a massive national planning effort to maximize the production of renewables, to connect these regions to population centers throughout the country.

Building this national smart transmission grid, this super-highway, requires us to reform the current siting process. Now a developer who is willing to invest in new transmission lines must go through a long and painful process involving many different regulatory hurdles that can add years and tremendous cost to transmission projects. The L.A. Times wrote within the past 2 months the average time of taking electricity from one point to the other is 18 years. So that pretty well says it all.

This legislation creates a Federal backstop transmission siting authority which gives the Federal Energy Regulatory Commission the authority to move renewable transmission projects if their progress is stalled.

The next part of this legislation calls for States to make proposals for allocating the cost of building and upgrading these lines. We give States the opportunity to succeed in their own, but we also give the Federal Energy Regulatory Commission, FERC, the authority to step in if and when assistance is required to keep projects moving forward and funded equitably. If necessary, the FERC can use construction permits and the Federal power marketing agencies can use bonds to finance this construction.

This legislation calls for most of the capacity of these new green transmission lines to be available for renewable energy generators. That can be handled easily through an interconnection agreement between a renewable generator and a transmission provider.

Many of us here today strongly support a national renewable electricity standard and a carbon cap. I believe we are moving closer toward these critical goals. No one's been more out front on the global warming issue than Senator McCain. But until we achieve these—that is, the smart renewable electricity standard and a carbon cap—we should act now to set performance requirements for

our new smart transmission grid both in terms of how it works and what we attach it to.

I'm pleased to see that a lot of the bill that I introduced has been incorporated into our staff draft, Mr. Chairman. I appreciate that very much, especially the components that address regional transmission planning and cost allocation. So I look forward to continuing to work with the committee as we develop legislation that powers our States while ensuring that we achieve the necessary goal of integrating renewable energy into our electric grid.

We have not arrived at a final product—I know that's the case—but rather an excellent framework. As this legislation moves forward, all sides will have an opportunity to take part in the debate. That's how this committee has worked for years and it will continue to work, I'm confident.

In recent months support for steps I've outlined and the goal of ending our devastating addiction to oil have really started to gel. At the Clean Energy Summit that we held in Las Vegas last August and here in D.C. within the past month, we've seen an extraordinary level of bipartisan problem-solving. This committee will play a critical role in keeping us on that productive path.

There will come a day when our children and grandchildren look back upon this moment in history. They'll see that we knew the scope of this multiple-pronged crisis, but, unlike any generation before us, we took action to solve it.

Mr. Chairman, we can be here 10 years from now lamenting the fact that we built 600 miles of transmission lines for electricity, or we can really look back and say, you know, we really did something. I've said to a number of people, we can in the years to come give ourselves high-fives and cheer each other on and look at all the renewable energy we could create we have created, but if it can't move anywhere we've accomplished nothing. That's what this is all about, being able to move electricity from where it's created to where it's needed.

I appreciate very much the long period of time. I'd like to apologize to the committee for taking so much time, but I appreciate the opportunity.

The CHAIRMAN. Thank you very much for your strong leadership on this issue and for the bill that you put forward and the testimony here this morning as well.

I did not have questions. Let me just ask if Senator Murkowski or any member wanted to ask Senator Reid a question. If not, we can dismiss him and proceed to the other two panels.

[No response.]

The CHAIRMAN. Thank you again. We appreciate it.

Let me call forward panel one, which is made up of: the Honorable John Wellinghoff, who is the Acting Chairman of the Federal Energy Regulatory Commission; and also the Honorable Tony Clark, who is a Commissioner reporting NARUC, and he is out of Bismarck, North Dakota.

Chairman Wellinghoff, why don't you go right ahead. Then after you testify we'll hear from Commissioner Clark, and then we'll have some questions.

**STATEMENT OF JON WELLINGHOFF, ACTING CHAIRMAN,
FEDERAL ENERGY REGULATORY COMMISSION**

Mr. WELLINGHOFF. Thank you, Mr. Chairman, members of the committee. My name is Jon Wellinghoff and I'm the Acting Chairman of the Federal Energy Regulatory Commission. Thank you for the opportunity to appear before you today to discuss the issues related to electric transmission lines. I commend you, Mr. Chairman, and the committee for your decision to hold this hearing, and I also commend you and Senator Reid for the legislation that each of you has circulated and-or introduced on these important issues.

I think the place to start is determining what problem are we trying to solve. Taking full advantage of our capacity to develop clean, renewable power is essential to meeting our national energy goals. These goals include reducing our greenhouse gas emission and reliance on carbon-emitting sources of electric energy and strengthening our national security, as well as revitalizing our economy.

Thus the problem is how to construct the new electric transmission facilities that are essential to bringing new sources of renewable energy to market. I believe that we need a national policy commitment to develop an extra-high voltage, EHV, transmission infrastructure to bring renewable energy from remote areas where it's produced most efficiently to our large metropolitan areas, where most of this Nation's power is consumed. We must also commit to developing the feeder lines and network upgrades that will be necessary to interconnect and deliver large amounts of energy from those remote renewable resources.

Developing local renewable energy and resources is important as we expand our capacity to generate clean power. But it should not be confused as a separate issue from, and it's not a substitute for, developing the EHV transmission infrastructure that I have described. The two should work hand in hand.

A critical issue in constructing an EHV transmission infrastructure is transmission siting. I believe that without some level of broader Federal siting authority to accommodate high levels of renewable energy it's unlikely that the Nation will be able to achieve energy security and economic stability.

The commission has the institutional structure, capacity, and experience to make important contributions to this national transmission grid-building effort. Should Congress decide to give the commission some form of enhanced transmission siting authority, I recommend that Congress base that authority on the principles of energy infrastructure development that have worked well in other areas of energy infrastructure siting under the commission's jurisdiction. Through decades of experience in siting natural gas pipelines and in siting hydro projects and associated transmission lines, the commission has established regulatory regimes that encourage timely development of appropriate energy projects. These regimes provide for extensive public participation, including participation by affected States, protecting the interests of consumers, and safeguarding the environment.

We also have learned that a single Federal agency having the responsibility and authority to make siting decisions with regard to

projects that affect the national interest is the most efficient way to site major energy projects.

In addition to siting, we must address closely related issues of transmission planning, cost allocation, and reliability if we are to develop an effective national EHV electric transmission grid that can spur the production and movement to consumers of renewable energy. The commission has recognized that transmission planning increasingly must look beyond the needs of a single utility or even a single State to examine the transmission requirements of the entire region. Effective regional transmission planning will improve reliability, reduce congestion, increase the deliverability of existing power supplies, and identify investments necessary to integrate significant and potential sources of renewable energy that are constrained by lack of adequate transmission capacity or facilities.

We would achieve greater benefits and efficiencies by developing interconnection-wide transmission plans focused on facilities that are needed to transport electric energy from areas rich in renewable energy resources to load centers.

I recommend that any new transmission planning requirement be harmonized with, rather than supplant, planning efforts already taking place at the State and local level. Similarly, if Congress determines that there are broad public interest benefits in developing an EHV transmission system necessary to accommodate the Nation's renewable energy potential, and therefore the costs of transmission facilities needed to meet our renewable energy potential should be fairly spread to a broad group of energy users, then Congress should consider giving the commission clear authority to allocate such transmission costs on all load-serving entities within the interconnection or part of an interconnection.

Even when delivered via an EHV transmission system, renewable energy resources must be integrated into the transmission system in a manner consistent with reliable operation of the grid. The commission has approved the first set of mandatory reliability standards for the bulk power transmission system and the commission will continue to approve reliability standards, including cyber security standards, to ensure transmission grid reliability.

I would like to highlight two other factors that contribute to reliability. First, in addition to improving market transmission efficiency, demand resources, including demand response, are the glue necessary to reliably integrate large amounts of energy from renewable energy resources into the transmission system.

Second, section 1305 of the Energy Independence Security Act of 2007 requires the commission to promulgate rules for the smart grid standards to govern interoperability. These standards will modernize the transmission grid, making it more efficient and more able to accommodate both additional renewable resources and demand resources as well.

In summary, to achieve our national energy goals Congress and Federal and State regulators, including the commission, must address in a timely manner the issues of transmission siting, planning, and cost allocation while recognizing reliability issues. Congressional action in these related areas, particularly additional siting authority to build an EHV transmission line to accommodate

high-quality location-constrained renewable energy, would provide greater ability to achieve these important goals.

Thank you again for giving me this opportunity to appear before you today. The commission stands ready to work with Congress, State and Federal agencies, and other stakeholders on these important issues, and I will be glad to answer any of your questions. Thank you.

[The prepared statement of Mr. Wellinghoff follows:]

PREPARED STATEMENT OF JON WELLINGHOFF, ACTING CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION

Mr. Chairman, and members of the Committee: My name is Jon Wellinghoff, and I am Acting Chairman of the Federal Energy Regulatory Commission (Commission). Thank you for the opportunity to appear before you today to discuss the critical topic of the siting of electric transmission facilities. The timely siting of electric transmission facilities will be essential to meeting our Nation's goal of reducing reliance on carbon-emitting sources of electric energy and bringing new sources of renewable energy to market. To meet the challenges of building needed new transmission facilities we must address not only the role of Federal siting authority but also the closely related issues of transmission planning, cost allocation and reliability. The time has come to develop a regulatory framework that will allow us to successfully meet these challenges.

I commend you, Mr. Chairman, and the Committee for your decision to hold a hearing on these important issues. I also commend you and Senator Reid for the legislation that each of you has circulated or introduced in this area.

INTRODUCTION

President Obama has stated that the country that harnesses the power of clean, renewable energy will lead the 21st century. As the President noted in his February 24 speech to Congress, the recovery plan developed by the White House and Congress calls for doubling our supply of renewable energy in the next three years, with historic investments in basic research funding that will spur new discoveries in energy. The President also stated that we will soon lay down thousands of miles of power lines that can carry new clean energy to cities and towns across this country.

I believe that, to implement these goals, there must be a mechanism to invoke federal authority to site the transmission facilities necessary to interconnect renewable power to the electric transmission grid and move that power to customer load. We need a National policy commitment to develop the extra-high voltage (EHV) transmission infrastructure to bring renewable energy from remote areas where it is produced most efficiently into our large metropolitan areas where most of this Nation's power is consumed. Certainly, developing local renewable energy and distributed resources is also important as we expand our capacity to generate clean power, but that is a separate issue from, and is not a substitute for, developing the EHV transmission infrastructure that I describe above and the related feeder lines that will interconnect renewable energy resources to the transmission grid.

Without this National commitment, we will not be able to take full advantage of our capacity to develop clean power. Clean power is essential to meeting our National energy goals, such as reducing greenhouse gas emissions, strengthening our National security, and revitalizing our economy.

At a conference held by the Commission on March 2, a diverse group of commenters shared the view that broader federal transmission siting authority is necessary to promote the growth of renewable energy. Development of a structured regulatory framework will enable the United States to build the EHV transmission infrastructure necessary to deliver our Nation's high quality, location-constrained renewable resources to load centers. That framework must adequately address transmission siting and the related issues of transmission planning and cost allocation.

THE COMMISSION'S EXPERIENCE IN SITING ENERGY INFRASTRUCTURE

The Commission has the institutional structure, capacity, and experience to make important contributions to this National transmission grid building effort. The Commission is well-versed in reviewing and authorizing critical energy infrastructure projects, and in establishing a regulatory regime that encourages the development of appropriate energy projects, while at the same time protecting the interests of consumers and safeguarding the environment.

Since 1920, the Commission has been charged with licensing and overseeing the operation of the Nation's non-federal hydropower projects. Today, the Commission regulates over 1,600 projects with the capacity to produce over 54 gigawatts of clean, renewable electric energy. Further, under existing authority in the Federal Power Act, the Commission has sited thousands of miles of electric transmission lines related to these projects that have delivered this power to the Nation's consumers.

Under the Natural Gas Act, the Commission has authorized the construction of natural gas pipelines for over 65 years. Under the Commission's oversight, the country has developed a robust, comprehensive pipeline grid that moves natural gas supplies from producing areas to consuming regions. Since 2000, the Commission has approved over 13,000 miles of new pipeline, with a capacity of nearly 95 billion cubic feet per day of natural gas. In total, there are nearly 215,000 miles of interstate natural gas pipeline in service that cross multiple states.

Based on its decades of experience in siting natural gas pipelines and in siting hydropower projects and associated transmission lines, the Commission has developed comprehensive, efficient processes that provide for public notice and extensive public participation, including participation by affected states. These processes ensure the early identification of issues (and where possible, consensual resolution of them), development of a thorough environmental analysis, and decisions based on a complete record and consideration of the public interest. We have also learned that a single federal agency having the responsibility and the authority to make siting decisions with regard to projects that affect the National interest is clearly the most efficient way to site major energy projects. In a typical infrastructure proceeding, the Commission involves, from the pre-filing process forward, federal and state resource agencies (as well as other relevant federal agencies, such as the Department of Homeland Security and the Department of Transportation), Indian tribes, local government, and private citizens, to assist in the early identification of issues and the development of the record. After gathering input from these sources, the Commission crafts a decision that comports with all aspects of the public interest.

THE COMMISSION'S TRANSMISSION SITING AUTHORITY

In 2005, Congress gave the Commission authority to site and permit interstate electric transmission facilities, under limited circumstances and only within geographic areas designated by the Secretary of Energy as National interest electric transmission corridors. The Commission issued regulations establishing procedures that involve extensive information-sharing and consultation with state and federal agencies, members of the public, and other stakeholders. The Commission staff is currently working with one potential applicant under these regulations, using the pre-filing process to provide information regarding necessary data and analyses. As discussed later in this testimony, the pre-filing process is the first step the Commission takes to involve all stakeholders in the siting of energy infrastructure.

However, the United States Court of Appeals for the Fourth Circuit has recently held that the limited authority granted by Congress to the Commission to review and site facilities needed to transmit electric energy in interstate commerce is not available in situations where a state agency has timely denied an application for a proposed project, regardless of how important the project may be in relieving congestion on the interstate grid. The court's ruling is a significant constraint on the Commission's already-limited ability to approve appropriate projects to transmit energy in interstate commerce.

Congress should consider the question of how best to exercise its authority over interstate commerce to ensure that necessary transmission is built in a timely manner to deliver location-constrained renewable power to customers. Without broader Federal siting authority to accommodate high levels of renewable electric energy—authority similar to that which exists for interstate natural gas pipelines and most non-Federal hydropower projects—it is unlikely that the Nation will be able to achieve energy security and economic stability. Similarly, the development of new EHV interstate transmission facilities, bolstered by broader federal siting authority, would assist states in meeting their renewable portfolio standards.

PRINCIPLES FOR SITING TRANSMISSION FACILITIES

Should Congress decide to give the Commission some form of enhanced transmission siting authority, I recommend that Congress consider basing it on the following principles of energy infrastructure development, which have worked well in the other licensing areas under the Commission's jurisdiction: 1) a pre-filing process that allows and encourages all affected stakeholders to identify issues early; re-

quires working on environmental review and a project application simultaneously; and involves common efforts to resolve conflicts and to identify an acceptable environmental alternative; 2) designating a single agency to make the overall public interest determination, while respecting the roles of other federal and state agencies; 3) allowing that agency to establish a schedule for all actions related to a proposed project, thus ensuring that agencies act in parallel and that the public can rely on predictable milestones; 4) building one federal record, including one environmental document, on which decisions are made; 5) providing for expeditious judicial review in a single United States court of appeals (either in the circuit where the proposed facility is to be sited or in the District of Columbia Circuit), based on the record developed by the lead agency; and 6) once a federal decision has been made, authorizing the permittee to use federal eminent domain to acquire the property needed for a project that has been determined to be in the public interest.

RELATED MATTERS

In addition to siting issues, the following are also crucial aspects of developing an effective National EHV electric transmission grid that can spur the production and movement to market of renewable energy.

Planning

Effective regional transmission planning will improve reliability, reduce congestion, increase the deliverability of existing power supplies, and identify investments necessary to integrate significant potential sources of renewable energy that are constrained by a lack of adequate transmission capacity or facilities. Increasingly, such planning must look beyond the needs of a single utility or even a single state to examine the transmission requirements of the entire region.

The Commission has recognized the need for improvements in transmission planning. To improve the coordination of transmission planning among utilities, it required all public utility transmission providers to establish and participate in open and transparent regional transmission planning processes (Order No. 890, February 2007). The Order No. 890 regional planning process is in its first year, and the Commission is reviewing how well those are working, is monitoring implementation, and will be looking for ways to improve the regional planning process.

Meeting our National energy goals will require building on such regional planning initiatives and expanding their scope. For example, we would achieve greater benefits and efficiencies by developing interconnection-wide transmission plans focused on facilities that are needed to transport electric energy from areas rich in renewable energy resources to load centers. I recommend that any new transmission planning requirements be harmonized with, rather than supplant, planning efforts already taking place at the state and local levels.

Cost Allocation

Renewable energy resources such as wind, solar, and geothermal are usually found in economically developable quantities at dispersed locations remote from load centers. For this reason, there are often high costs associated with developing transmission facilities needed to deliver power from such resources.

Under FPA sections 205 and 206, the Commission ensures that public utilities' (investor-owned utilities) rates, terms and conditions of transmission service in interstate commerce are just, reasonable, and not unduly discriminatory or preferential. This responsibility includes allocating the costs of new transmission facilities built by public utilities. At present, the Commission has greater ability to assign such costs over broad geographic areas where there is a regional transmission organization (RTO) or independent system operator (ISO).

If Congress determines that there are broad public interest benefits in developing the EHV transmission system necessary to accommodate the Nation's renewable energy potential, and therefore that the costs of transmission facilities needed to meet our renewable energy potential should be fairly spread to a broad group of energy users (for example across a region or an entire interconnection), then Congress should consider giving the Commission clear authority to allocate such transmission costs to all load-serving entities within an interconnection or part of an interconnection.

Reliability, Demand response, and Smart Grid

Renewable energy resources, even delivered via an EHV transmission backbone system, must be integrated into the transmission system in a manner consistent with reliable operation of the grid. EPAct 2005 added a new section 215 to the FPA, pursuant to which the Commission has certified an Electric Reliability Organization, approved the first sets of mandatory reliability standards for the Bulk-Power

System, and is enforcing compliance with approved standards. The Commission will continue to approve reliability standards, including cybersecurity standards, to ensure transmission grid reliability. Two additional factors are noteworthy with regard to the transmission grid. First, building on the Commission's existing authority with respect to demand response, section 529 of the Energy Independence and Security Act of 2007 directs the Commission to complete a National Assessment of Demand Response and a National Action Plan on Demand Response. In addition to improving market and transmission efficiency, demand resources (including demand response) are the "glue" necessary to reliably integrate large amounts of energy from renewable energy resources into the transmission system. Second, section 1305 of the EISA requires the Commission to promulgate rules for "smart grid" standards to govern interoperability. These standards will modernize the transmission grid, making it more efficient and more able to accommodate both additional renewable resources and demand side resources.

COMMISSION ACTIONS FACILITATING TRANSMISSION FOR RENEWABLES

The Commission has undertaken a number of initiatives, within the scope of its current FPA authority, to encourage the transmission of renewable power. These include:

- In June 2005, the Commission, in Order No. 661, required standardized interconnection procedures that recognized the operational characteristics of wind generation.
- In November 2006, the Commission issued a final rule establishing procedures for implementing the limited transmission siting authority provided by the Energy Policy Act of 2005.
- In February 2007, the Commission issued Order No. 890, implementing open-access transmission reforms, which, among other things, required that public utilities offer conditional firm service, which is of particular importance to wind resources; required transmission providers to conduct studies to evaluate transmission upgrades needed to connect major new areas of wind generation; required, where appropriate, comparable treatment in the transmission planning process of advanced technologies and demand-side resources; exempted wind and other intermittent resources from the highest tier of energy and generator imbalance provisions; and found that sales of ancillary services to support transmission systems by demand response and other load resources shall be permitted, where appropriate, on a basis comparable to service provided by generation resources.
- In April 2007, the Commission approved an innovative California Independent System Operator (CAISO) proposal to allocate costs of facilities needed to interconnect location-constrained resources (such as wind and solar) to the electric transmission grid.
- In March 2008, the Commission provided guidance to RTOs and ISOs on processing interconnection queues, responding in part to backlogs in regions that have attracted significant new renewable energy resources.
- In October 2008, the Commission granted transmission rate incentives for PacifiCorp's Energy Gateway lines to deliver renewable energy in six Western States.
- In December 2008, the Commission granted transmission rate incentives for the Prairie Wind and Tallgrass lines to access wind power in Oklahoma and Kansas.
- In February 2009, the Commission approved rates for the Chinook and Zephyr lines to move wind power from Montana and Wyoming to the Southwest, adopting a more flexible approach to securing financing for merchant transmission projects.

Despite all of these actions, existing and future transmission will not be adequate to fully realize our potential for renewable energy development unless Congress provides additional tools. Foremost among these tools must be a way to facilitate the siting of new EHV transmission capacity.

CONCLUSION

In summary, to achieve the Nation's renewable energy goals, Congress and Federal and state regulators, including the Commission, must address in a timely manner the issues of transmission planning, transmission siting and transmission cost allocation. Congressional action to address all three of these related areas, particularly additional siting authority to build EHV transmission lines to accommodate high quality, location-constrained renewable energy, would provide greater ability to

achieve these important goals. For example, both the bill that you, Mr. Chairman, have circulated and the bill introduced by Senator Reid last week address all three of these areas. I would be happy to work with the Congress as you consider legislation to provide a regulatory framework for tackling the challenging energy issues that we face, and to provide Commission staff technical assistance respecting any legislation the Committee may consider.

Thank you again for giving me the opportunity to appear before you today. I stand ready to work with Congress, state and federal regulators, industry, and other stakeholders on these important issues. I would be happy to answer any questions you may have.

The CHAIRMAN. Thank you very much.
Commissioner Clark, why don't you go right ahead.

STATEMENT OF TONY CLARK, COMMISSIONER, NORTH DAKOTA PUBLIC SERVICE COMMISSION, ON BEHALF OF THE NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS AND THE NORTH DAKOTA PUBLIC SERVICE COMMISSION

Mr. CLARK. Thank you, Mr. Chairman, and good morning, and Ranking Member Murkowski and members of the committee. My name is Tony Clark and I'm a member of the North Dakota Public Service Commission. I also serve as Second Vice President for the National Association of Regulatory Utility Commissioners, or NARUC. Today I'll be testifying on behalf of NARUC and, where noted, the North Dakota PSC.

I'm honored to have the opportunity to appear before you this morning and to offer a State perspective on transmission in general and specifically on legislative proposals on Federal siting and regional transmission planning. I'd like to have my testimony submitted into the record and will summarize my views here.

The CHAIRMAN. We'll include all the testimony as if read.

Mr. CLARK. All right, thank you.

There are many challenges to the development of much-needed growth in the transmission system that is vital to reliable electric service, our economic growth, and our national security. Without increased transmission capacity, our ability to develop the resources necessary to meet current and future demand may be jeopardized, particularly if we embark on a policy that limits greenhouse gas emissions and increases our reliance on renewable generation. In addition, it has been projected that the demand for electric energy in the United States will grow by more than 30 percent in the coming decades. Significant upgrades will be necessary in order to meet this demand. Solutions to the current transmission challenges facing us are not quick, simple, noncontentious, inexpensive, or in some cases obvious. Finding and implementing solutions will require cooperation by, not confrontation among, the various stakeholders.

In my written testimony I mention that NARUC is debating a new policy on transmission. I'd like to update that and state for the record that NARUC did in fact update and adopt a new policy just this Tuesday afternoon, and I would request that this resolution* also be submitted into the record.

I'm going to stray a bit from what's in my written testimony, but I want to provide you details on the new policy and the context in

*Document has been retained in Committee files.

which it was adopted. It should come as no surprise, and I'm sure it comes as no surprise to members of this committee, that as an association made up of State regulators, NARUC generally opposes further Federal authority over transmission siting and planning. We're barely 3 years removed from the passage of the Energy Policy Act of 2005 and we would prefer to see that process, which gave the Federal Energy Regulatory Commission backstop authority over certain national interest lines play out before we start over.

That being said, the White House and Congressional leadership have both made clear that they intend to move forward with additional Federal oversight of transmission expansion. Our membership recognizes that this is reality and has been discussing since mid-February possible updates to our existing policy. Our membership held a spirited debate last month and earlier this week and the consensus reached was that, although we continue to believe that Congress should not expand Federal authority over transmission siting, we believe that we did come up with a set of principles that we believe Congress should incorporate should it decide to address this issue.

These principles reflect the vitally important role State regulators play in siting and planning transmission and are geared to ensure that States and regions are more than just stakeholders, but key drivers in developing new energy infrastructure. The principles, which are available on our web site, are as follows.

First of all, any additional authority granted to FERC by the legislation allow for primary jurisdiction first by the States and that FERC provide, as Senator Reid referenced, a backstop authority that be as limited in scope as possible. In no event should FERC be granted any additional authority over the siting and construction of new intrastate transmission lines. We hope that those very in-State lines, you would continue to see that the benefit rests in having those be at the State level rather than Federalized.

In no event should FERC be granted any authority to approve or issue a certificate for new interstate transmission line that is not consistent with the regional transmission plan developed in coordination with affected State commissions or other designated State siting authorities and regional planning groups that covers the entire route of the proposed project. We do note that planning is an important part of the legislation.

In no event should FERC be granted any additional authority to approve or issue a certificate for a new interstate transmission line unless there are already in place either cost allocation agreements among the States through which the proposed project will pass, that governs how the project will be financed and paid for, or a FERC-approved cost allocation rule or methodology that covers the entire route of the project.

In no event should any legislation allow FERC to preempt State authority over retail ratemaking, the mitigation of local environmental impacts under State authority, the interconnection to distribution facilities, the siting of generation, or the participation of affected stakeholders in State and-or regional planning processes.

Finally, in no event should any legislation preempt State authority to regulate bundled retail transmission services.

Mr. Chairman and members of the committee, I want to reiterate the statement that NARUC President Fred Butler made when he was commenting on Senator Reid's transmission bill last week. He said that he appreciates Congress's attention to this issue and that we do look forward to working together.

I thank you, Chairman Bingaman, for your leadership as well and for opening your doors to us as you crafted your draft proposal. I know you and Senator Reid recognize the important role States play in this and we all want the best possible result for the environment and, most of all, for our consumers.

These issues are extremely sensitive within our organization precisely because they do not lend themselves to simple or consensus solutions. Siting and cost allocation issues are often controversial because in most situations someone's gain is someone else's loss. There are no easy fixes here, but if we work together and maximize the core competencies between the State and Federal Governments we believe we can make progress.

Thank you. I look forward to any questions you may have.

[The prepared statement of Mr. Clark follows:]

PREPARED STATEMENT OF TONY CLARK, COMMISSIONER, NORTH DAKOTA PUBLIC SERVICE COMMISSION, ON BEHALF OF THE NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS AND THE NORTH DAKOTA PUBLIC SERVICE COMMISSION

Good morning Chairman Bingaman, Ranking Member Murkowski, and Members of the Committee:

My name is Tony Clark, and I am a member of the North Dakota Public Service Commission (NDPSC). I also serve as Second Vice President of the National Association of Regulatory Utility Commissioners (NARUC). Today I will be testifying on behalf of NARUC and where noted, the NDPSC. I am honored to have the opportunity to appear before you this morning and offer a State perspective on "transmission" in general and specifically on legislative proposals on federal siting and regional transmission planning.

NARUC is a quasi-governmental, non-profit organization founded in 1889. Our membership includes the State public utility commissions serving all States and territories. NARUC's mission is to serve the public interest by improving the quality and effectiveness of public utility regulation. Our members regulate the retail rates and services of electric, gas, water, and telephone utilities. We are obligated under the laws of our respective States to ensure the establishment and maintenance of such utility services as may be required by the public convenience and necessity and to ensure that such services are provided under rates and subject to terms and conditions of service that are just, reasonable, and non-discriminatory.

There are many challenges to resolve prior to the development of the much-needed growth in the transmission system that is vital to reliable electric service, our economic growth, and our national security. Without increased capacity in the transmission grid, our ability to develop the energy resources necessary to meet current and future demand may be jeopardized, particularly if we embark on a policy that limits greenhouse gas emissions and increases our reliance on renewable generation. In addition, it has been projected that the demand for electric energy in the United States will grow by more than 30 percent over the coming decades. Significant upgrades will be necessary in order to meet this demand. Solutions to the current transmission challenges facing us are not quick, simple, non-contentious, inexpensive, nor, in some cases, obvious. Finding and implementing solutions will require cooperation by, not confrontation among, the various stakeholders.

Currently, NARUC is debating a new policy position on transmission. These difficult discussions are ongoing and I bring this to your attention in an effort to illustrate that the nation's utility regulators are well aware of the issues and complications surrounding the transmission policy. These issues are extremely sensitive within our organization precisely because they do not lend themselves to the simple or even consensus solutions. Siting and cost allocation issues are often controversial because in most situations someone's gain comes at someone else's expense.

BACKGROUND

The Energy Policy Act of 2005 (EPA 2005) required the Department of Energy (DOE) to conduct a study of electric transmission congestion one year after the legislation was enacted, and every three years thereafter (language was included in the recently signed “stimulus” legislation modifying the DOE congestion study process). After considering alternatives and recommendations from interested parties, DOE must issue a report, based on the study, which may designate any geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers as a national interest electric transmission corridor (NIETC).

The first DOE Congestion Study was issued on August 8, 2006. On April 26, 2007, the DOE issued two draft NIETCs: the Mid-Atlantic Area National Corridor (some or all counties in Delaware, Ohio, Maryland, New Jersey, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia); and the Southwest Area National Corridor (seven counties in southern California, three counties in western Arizona, and one county in southern Nevada). On October 2, 2007, DOE finalized the designations of both NIETCs: the Mid-Atlantic Area National Interest Electric Transmission Corridor (Docket No. 2007-OE-01); and the Southwest Area National Interest Electric Transmission Corridor (Docket No. 2007-OE-02). DOE affirmed the NIETC designation orders on March 10, 2008.

EPA 2005 gave federal backstop siting authority of certain electric transmission facilities, based upon the process outlined above, to the Federal Energy Regulatory Commission (FERC). Upon NIETC designation by DOE, FERC may issue permits to construct or modify electric transmission facilities if FERC finds that:

- (1) A State in which such facilities are located does not have the authority to approve the siting of the facilities or to consider the interstate benefits expected to be achieved by the construction or modification of the facilities;
- (2) The applicant is a transmitting utility but does not qualify to apply for siting approval in the State because the applicant does not serve end-use customers in the State; and
- (3) The State with siting authority takes longer than one year after the application is filed to act, or the State imposes conditions on a proposal such that it will not significantly reduce transmission congestion or it is not economically feasible.

To issue a permit, FERC must find that proposed facilities:

- (1) are used for interstate commerce;
- (2) are consistent with public interest;
- (3) significantly reduce transmission congestion in interstate commerce;
- (4) are consistent with national energy policy; and
- (5) maximize the use of existing towers and structures.

SITING

A major impediment to siting energy infrastructure, in general, and electric transmission, in particular, is the great difficulty in getting public acceptance for needed facilities. This tells us that no matter where siting responsibility falls—with State government, the Federal government, or both—as prescribed in the EPA 2005, siting energy infrastructure will not be easy and there will be no “quick fix” to this situation.

During the EPA 2005 debate, NARUC opposed the “backstop siting” provision. NARUC’s position prior to passage of EPA 2005 was, and continues to be, that to have the greatest economical and environmental benefits transmission facilities should not be nationalized but encouraged to be regionalized. Just as States have a role in the siting of interstate highways, States need to continue having an active role in transmission decisions.

As Congress considered EPA 2005, NARUC expressed deep concern with the language that eventually became Section 1221. At that time, NARUC opined that the language could in essence overrule legitimate State agency concerns and laws with regard to how a State ruled on a transmission project. The language would then permit FERC to vacate the decision and preempt State law and actions. It appears as though our initial observations and fears were accurate and led to a federal court case. In *Piedmont Environmental Council v. FERC*, the Fourth Circuit overturned FERC’s expansive interpretation of its backstop siting authority in NIETCs. The court followed Commissioner Kelly’s dissent to Order 689, and held that section 216 of the Federal Power Act (which gives FERC backstop siting authority if a State “withheld approval for more than one year”) clearly does not give FERC siting au-

thority when a State affirmatively denies a siting permit application within the year.

In its comments on the FERC rulemaking which inspired the court action, NARUC said it expected the backstop siting authority to have limited applicability because the majority of the State commissions have the authority to approve or deny proposed transmission projects within their jurisdictions and State commissions are frequently allowed to address the interstate benefits of proposed projects. Furthermore, many State statutes require a petitioner to obtain a certificate of public convenience and necessity, or some other similar certificate, from a State commission before constructing transmission facilities regardless of whether the applicant provides electric service to end-use customers. In its comments, NARUC proposed that:

1. FERC clarify that federal backstop siting authority under FPA Section 216 is only triggered when the State Commission fails to or cannot act in a timely manner;
2. FERC clarify how it will apply the federal backstop criteria;
3. The proposed rule be revised to implement the due process requirements of the statute; and
4. The Final Rule adopted should incorporate a reference and deference to extensive siting records developed at the State level to prevent duplication and confusion.

The Final Order gave the States one full year to consider a transmission line siting application before the federal pre-filing process begins. The intent is to avoid conducting “parallel proceedings”—where a State commission and FERC would be considering a siting application at the same time. If such “parallel proceedings” were allowed, that process would create ex parte and prejudgment concerns under State law. Such a situation could potentially result in an applicant “gaming” the siting process by purposefully filing a deficient application to the State with the hopes of starting the one-year federal clock and precluding adequate State consideration of the application. NARUC did not appeal the FERC backstop siting rule and our members have generally been attempting to work within the framework of the EPACT 05 backstop provision.

With this as a backdrop, our membership is troubled, that Congress finds it necessary to begin consideration of changing the siting provision that was just established in EPAct 05. This provision has not been given an appropriate amount of time to ascertain whether or not it can, will or is working. We are pleased, however, to see that members of this body are also concerned with federal government involvement in the siting of electric transmission. For instance, there is currently a proposed transmission project in New York State, which is encountering intense local opposition. In the February 20, 2009, edition of the Utica Observer-Dispatch, Senator Charles Schumer (D-NY), was quoted “We will do everything we can to make sure that New York has final say on routing decisions, which is what the court intended.” We suspect that many federal elected officials will reach a similar conclusion when confronted with angry and vocal constituents whose rates may go up in order to pay for a line which they believe will provide them no benefits while producing financial gain for generators and transmission owners.

If Congress does anything on siting, it should affirm the Fourth Circuit decision by clarifying that if a State turns down a transmission line proposal for good reason and within a reasonable time frame; FERC should not be able to second guess the State. FERC Commissioner Suedeen Kelly correctly reasoned that it was incomprehensible that Congress intended FERC to override timely State decision. In addition, it only seems fair that the one-year clock for State action needs to be suspended whenever a federal agency is the cause for the State delay in a permitting decision.

PLANNING

State Commissions are acutely aware of the necessity and process of regionally planning transmission projects. In all sections of the country where there is a regional planning process, State Commissioners and their staffs are participants in the process. For example, the transmission planning effort currently taking place in the Upper Midwest is being led by the Governors and state commissions in the States of Minnesota, North Dakota, South Dakota, Iowa and Wisconsin. Our five States have formed the Upper Midwest Transmission Development Initiative (UMTDI) to coordinate sub-regional electric transmission planning and related cost allocation issues. I would like to speak to that now in my capacity as a member of the North Dakota PSC.

With a geographically dispersed resource like wind, generation development may be impeded because the large transmission lines needed are not available where the wind resource is best. But, the transmission lines do not get built because there is currently limited generation development there. We are attempting to break this “chicken and egg” cycle that can too often impede renewable projects. Rather, as a region, we believe wind will be a major player in meeting our electricity needs going forward. To encourage wind development, we plan to proactively choose a number of geographic zones for development and then model a transmission and cost allocation system from there. In many ways, it is an attempt to learn from the success of the Texas Competitive Renewable Energy Zones process, but over a region where there are five states, a regional transmission organization (RTO), and FERC, as opposed to just Texas and ERCOT.

Over the last six months, utility regulators, governors’ staff, utilities, transmission owners, non-governmental organizations and the Midwest ISO have been working to identify our States’ optimum renewable energy resource zones and the regional transmission expansion needed to link those resources to load, both in our States and possibly beyond our region. In addition, we are working to develop a sub-regional cost allocation approach that is vetted among State stakeholders to help ensure that adequate transmission infrastructure gets built. Our plan is to have a sub-regional transmission upgrade plan ready for inclusion in RTO and regional planning processes by October 2009.

We also recognize that modernizing and expanding the transmission system is essential to expanding renewable energy generation and reaching the renewable portfolio goals outlined by President Obama and many congressional leaders. In my region, we are encouraged by FERC openness to ensuring that States—and particularly, multi-state initiatives such as ours—can participate in developing national interest strategies that allow us to move forward with policies that provide equitable benefits to our citizens. We understand the challenges and have moved aggressively to address those that have seemed intractable in the past. Multi-state need and siting review requirements have been incorporated into the UMTDI planning considerations. Through the Organization of MISO States, the five States have reviewed opportunities to coordinate regulatory procedures.

Current expansion efforts by the transmission owners in our sub-region reflect progressive development practices that should facilitate predictable outcomes. In my opinion, the UMTDI effort and its openness in working with all stakeholders is exactly the kind of effort that is needed to develop efficient transmission infrastructure.

COST-ALLOCATION

State regulators are concerned about transmission reliability, adequacy, and the costs required to support the development of robust competitive wholesale markets. The investment that is needed to upgrade the transmission grid in order to support expanded wholesale power markets will cost billions of dollars. Notwithstanding the general benefit to the wholesale electric marketplace of encouraging the construction of new generating capacity and its interconnection to the grid, it is also important to provide proper price signals to encourage optimal demand response and promote economic and efficient expansion of the grid and siting of generation. The FERC has in the past adopted transmission pricing policies that generally provide for the direct assignment of costs to the parties causing the costs.

FERC Order No. 2000 stated the “[m]arket designs that base prices on the average or socialization of costs may distort consumption, production and investment discussions and ultimately lead to economically inefficient outcomes.” FERC has departed, in some instances, from a transmission pricing policy that provides for the assignment of costs to the cost-causative parties. In general, NARUC supports efficient pricing policies that result in the economic use and expansion of the transmission system to support a robust wholesale electricity market. We recognize that investments needed to maintain the reliability of the existing transmission systems should continue to be recovered through rates charged to all transmission users. We advocate that the cost of upgrades and expansions necessary to support incremental new loads or demands on the transmission system should be borne by those causing the upgrade or expansion to be undertaken, except that FERC should not preclude the assignment of interconnection cost to the general body of ratepayers within a State when that State’s regulatory body determines that such allocation is in the public interest.

A robust regional electric transmission system is an essential prerequisite to support both reliability and the market function allowing more generators to reach loads and compete directly for wholesale sales to such loads in order to increase

competition among generation suppliers and meet national goals for renewable generation and energy independence. A new rate design is needed that will facilitate the construction of the strong transmission backbone required to support the nation's wholesale electric markets, future increases in renewable generation capacity, and reliability.

MAJORITY LEADER REID'S TRANSMISSION LEGISLATION

Last week, Majority Leader Reid introduced "The Clean Renewable Energy and Economic Development Act." We want to thank Senate Majority Leader Reid and his staff for reaching out and consulting NARUC as he drafted this proposal. Sen. Reid is to be commended for bringing this issue to Congress' attention, and we are optimistic that our continued dialogue will produce a better outcome for consumers and the environment. However, we are very troubled by a number of the provisions included in this legislation. I would like to outline our concerns and comments here:

- Sec.402—How does the National Renewable Energy Zone Designation relate to the 2009 Renewable Energy Transmission Study required by § 409 of the American Recovery and Reinvestment Act? It seems logical that designation of a Renewable Energy Zone be tied to the study.
- Sec. 403—It is unclear how subsequent National Renewable Energy Zone designations become reflected in the plan. Is the plan expected to be revised every year (as suggested by the requirement that the plan be submitted to the Commission annually §403(e)(8))? How does that fit with the requirement that the plan cover at least 10 years into the future (§403(e)(5))?
- Sec. 403(a)—The selection process for the regional planning entities is somewhat obtuse. We would recommend that the States and other stakeholders that must participate in the planning process have a clearer role in selecting and shaping the planning entity.
- Sec. 403(d)—The one-year time frame from the date of designations is too short for a comprehensive planning process with multiple stakeholders. Although we recognize the importance of immediate action, realistically it seems like at least two years will be necessary for an initial plan.
- Sec. 403(j)(B)(ii)(I) requiring Governor certification that all load-serving entities "offer a fairly priced renewable power purchase option to all the customers of the entities."—It is unclear what this section means. It seems that it may begin to mandate consumer choice, and we would suggest striking it. We believe it is inappropriate for Congress to mandate retail rate-design on a one-size-fits-all basis. For example, in North Dakota the Commission rejected a proposed "green tariff" at the urging of many in the environmental community because it treated wind as a boutique fuel as opposed to an integral component of the integrated system.
- NARUC opposes Sec. 404. Further, we think that the section preserving State siting authority Sec (404(n)) creates potential for forum shopping.
- Sec. 404(a)(1)(B) which allows federal siting for a project that is not included in the Interconnection-wide transmission plan (if the developer assumes all of the risk and cost of the proposed facility) may undermine the planning process and cause organizations to circumvent the planning process. This also will allow for siting of a line without ANY State input. We suggest that this section either (a) be removed or (b) require State consultation before the siting of a line outside of the Interconnection wide transmission plan, even if the developer assumes all of the risk.
- Sec 404(c)(2)—This section should include language that would require the Commission to consult with the States in promulgating regulations regarding the permit applications.
- Sec 404(g)—the provisions providing for State consultation allow the States to offer recommendations in only a very limited number of areas and allow the Commission to easily override the State recommendations. These provisions should be changed to strengthen the States' role in identifying siting constraints and mitigation measures.
- We appreciate Section 406(b) for acknowledging that if the States submit a joint cost allocation plan, the Commission should approve the cost allocation unless the plan violates the conditions of just and reasonableness or unduly inhibits renewable energy.

We look forward to conversations with the Majority Leader's office and the members and staff of this committee so we can bring about a mutually acceptable outcome.

In conclusion, the electric transmission system must have the capacity to meet the growing energy needs of the nation, regardless of the generation source. The solutions to the challenges will not come quickly or easily. These solutions will require the cooperation of all stakeholders, including State and federal government, and must not require ratepayers to bare the financial burden with the reward allocated to the owners of generation and/or transmission. Thank you and I look forward to your questions.

The CHAIRMAN. Thank you both very much for your testimony. I'll start with 5 minutes of questions. Chairman Wellinghoff, let me ask you first. I don't know if you've had a chance to look at this discussion draft that we've circulated in the last couple of days.

Mr. WELLINGHOFF. Briefly, Mr. Chairman, briefly.

The CHAIRMAN. Do you have any thoughts, initial thoughts as to how it comports with the recommendations that you have made about expansion of the commission's authority? Do you believe that there are ways in which it differs from what you are proposing, or do you consider it be consistent?

Mr. WELLINGHOFF. I believe that Senator Reid's bill and the draft that the committee staff has circulated are very similar, and certainly to the extent that there are a designation of regional planning authorities I believe in both bills, and those are regional planning authorities that as I understand it could primarily be composed of State entities, then to that extent they would decide on planning and could decide on cost allocation, in fact could even be involved in the siting to some degree. I think that's very consistent with what I am proposing.

Really, I do not have a concrete proposal here today. I'm simply here today to indicate that I believe that there does need to be more Federal involvement in an interstate system if we are to put in place a system that can effectively deliver location-constrained remote renewable resources to load centers.

But I think, with that said, I think the positions that are in the two bills are very consistent with that overall approach that I'm proposing and I think not all that inconsistent with what we're hearing from NARUC today, from my fellow colleague.

The CHAIRMAN. Let me just bear down a little on this issue of planning. Clearly that's one of the most difficult things to figure out, is how to accomplish the planning that needs to be accomplished. We've suggested—I believe Senator Reid's bill does as well—that there should be a regional planning entity in each interconnection, that should undertake this role, that it should be approved by the commission, by FERC, and that the plan should be approved by the commission as well. Further, that if a body should not emerge as this planning group, then FERC itself would undertake this role.

I guess one obvious question is is it practical to suggest that planning bodies such as this should be interconnection-wide? That's one question. Second, is it practical to think that FERC could undertake this task if a group did not come forward to do that planning?

So let me ask both of you those couple of questions. Maybe we should start with Commissioner Clark.

Mr. CLARK. Thank you, Mr. Chairman. With regard to regional planning, one of the things that I think most NARUC commissioners would certainly rally around is the idea that there should

be an allowance for a bottom-up type process and, while there certainly can be a role for interconnection-wide planning, we also realize that as regions and sub-regions many of us have been working together for some time.

For example, in my own region of the upper Midwest, the States of North and South Dakota, Wisconsin, Iowa, and Minnesota have been working on just these very ideas regarding working up renewable energy zones and figuring a system to get it to load.

We would hope that any system that Congress comes up for allows for those sub-regions to continue to operate and really allow that interconnection-wide process to be a compilation of those parts, as opposed to starting from a top-down type mechanism.

The CHAIRMAN. Chairman Wellinghoff.

Mr. WELLINGHOFF. Yes. I think it is feasible to do interconnection-wide planning. In fact, the western Governors are doing that right now. So we have an example of an entity that could be designated in the western interconnect to do interconnect-wide planning, that is taking into account, as Commissioner Clark indicated, the sub-regional activities—there's sub-regional activities in many of the States—that is then going to be put into that interconnect-wide plan, that will look at location-constrained renewable resources and determine how to deliver those through an extra high voltage transmission system.

So I think it is feasible on an interconnect-wide basis and as a backstop I believe that if, for whatever reason, an interconnect entity was not successful, I believe FERC could carry that out. We could carry it out with our national reliability organization, NERC, which we already engage in planning with respect to reliability. So I think it certainly could be done by FERC if necessary, but I think it would be preferable to have it done by the regions on an interconnect-wide basis.

The CHAIRMAN. Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman.

I want to follow up on the planning side of it. There's certainly a lot of transmission planning that is happening right now. We've got DOE that's looking at the transmission needs. We've got WGA that's taking on a renewable energy zone effort. The RTOs are planning. We're going to hear from some today. FERC has directed utilities to do a regional planning approach. In the stimulus bill there was \$80 million to FERC and DOE for transmission planning. Then just yesterday the FERC of Interior established renewable energy zones on public lands.

So there's a lot going on within the planning, and I would agree with the chairman that this is a very important area here. But at some point in time does this, the creation of new planning entities—do we get to a choke point where we may disrupt ongoing collaborative planning efforts and possibly slow the growth of transmission? Should I be worried about this or not, chairman?

Mr. WELLINGHOFF. I don't think so, Senator, in the sense what we're looking at here I think is as I see it anyway, a very focused purpose. The focused purpose again is to plan for these location-constrained renewables and moving them to load centers. That's the transmission planning I'm discussing. I think it's the core of

Senator Reid's bill and in part what is in the draft circulated by the committee Staff as well.

So that planning process doesn't in any way supplant or substitute for or interfere with all the other transmission planning that should continue for all the other purposes, for reliability, for reduction of congestion, etcetera. In fact, Senator Reid's bill doesn't remove the section 216 provisions of the 2005 EAct for congestion corridors that DOE designated.

So I see it as a separate process that I don't think would interfere with what's ongoing for general transmission planning. I see it as very focused.

Senator MURKOWSKI. Would you agree, commissioner, that these are not duplicative, but that you've got focuses in different areas that allow for greater collaboration, as opposed to creating a choke point?

Mr. CLARK. Mr. Chairman and Senator Murkowski, I do worry a bit about that, which is I think one of the reasons that NARUC has argued that whatever comes about needs to be very narrowly tailored, so that what Chairman Wellinghoff is talking about is in fact what happens. I think that we have perhaps a bit of a concern that if there's mission creep beyond the sort of renewable energy zone type concept, hooking up a national grid to meet potentially a national portfolio standard, that we could have some of those choke points occur.

For example, in my own State I know we would hate to think of the 70-mile line that we've just sited between Belfield and Rhame, which is purely in State, be held up because of an interconnection process that has to take into consideration theoretically something that could happen in Florida due to the fact that we're both in the same interconnect.

So I think your concern is valid, which in our mind argues for a specific and tailored role in the legislation.

Senator MURKOWSKI. Let me ask you, Chairman Wellinghoff, about the announcement from Secretary Salazar, his secretarial order yesterday that called for Interior to not only establish these renewable energy zones, but to handle the permitting and the environmental review on Federal lands. Do you think that we need one Federal authority with the authority to coordinate and oversee the environmental review of the transmission projects on the Federal lands? If so, is FERC the best entity to do that?

Mr. WELLINGHOFF. I actually met with Secretary Salazar yesterday. I'm meeting with him again this afternoon. I don't think his vision is incompatible with mine. Certainly the BLM and other Federal agencies must permit the siting of the actual renewable facilities and I think that is what he is referring to. But with respect to the transmission lines that would connect those facilities, I think you do need one Federal entity and I think FERC would be an appropriate one to do that, to the extent that it is this system that we're talking about of an interstate system to deliver remotely located renewable energy to the load centers.

So I don't think what Secretary Salazar is proposing is inconsistent with what I'm saying. I think they are compatible.

The CHAIRMAN. A question for you, Commissioner Clark, on the cost allocation. You mentioned in your resolution coming out of

NARUC, you speak to that. What is your opinion on the possible interconnection-wide allocation of the transmission costs? Your resolution provides that no additional authority to issue a certificate unless there is already in place a cost allocation agreement among all the States through which the proposed project will pass.

Is this one of the most difficult aspects that we're going to be dealing with, is how we resolve this cost allocation issue?

Mr. CLARK. Senator Murkowski, I think you're exactly right. One thing you probably will not see from NARUC is a very specific point, is a consensus point on what that cost allocation should be, because very much within our organization, just as within Congress, where you're at on that is very much related to where you sit.

So this is one of those times that I get to separate myself a bit from NARUC and say that as an organization we don't have a specific formula on what the cost allocation should be. As a North Dakota commissioner, coming from a State that has huge renewable energy potential for export, and looking at how sometimes the cost allocation process can attempt to determine a very finite value to costs and benefits and really gets bogged down in that entire process, I could potentially for some certain types of projects that serve a national need see more of a postage stamp type pricing mechanism, simply because it can facilitate the building of those lines. It's been successful where tried within ERCOT in Texas. There are economists who would probably quibble with me whether that's the appropriate way to do it, but I think that there are a lot of benefits to a fairly clean and simple way to fund it. But again, that's speaking from my own perspective and not necessarily the association.

Senator MURKOWSKI. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Udall.

Senator UDALL. Thank you, Mr. Chairman.

I want to welcome the panel this morning. This is a very important topic, obviously. We just passed in the last few weeks the economic recovery package and in that package there were \$14 billion, if I have the number right, for transmission grid infrastructure development and energy storage development. I wonder if both of you would be willing to comment on where those dollars are being spent, and do we have a chicken and egg dynamic here, given what we're discussing today, especially with transmission siting?

In other words, are those dollars sidelined until we answer some of the questions that are being raised today? Chairman, if we could start with you and then move to Commissioner Clark.

Mr. WELLINGHOFF. Thank you, Senator.

As I understand it, and again this is primarily under the purview of the Department of Energy with respect to the expenditure of those dollars, but as I understand it those dollars will largely not be spent for transmission lines per se, but for upgrades, things like phase monitoring units. In fact, the meeting I was in with Secretary Salazar yesterday, Secretary Chu was in that meeting as well. One of the things that Secretary Chu directed his staff to do was to put some of those dollars into things like sensing units on transmission lines so we can gain more data about how those transmission lines are operating, so we can plan better overall.

So it's my understanding that a good part of those dollars is going into that kind of an effort. I don't think what we're doing here today will in any way inhibit those dollars being spent. We're talking about a lot larger amounts of money for these types of systems, potentially hundreds of billions of dollars. That would primarily come from the private sector and is coming from the private sector now. So I don't think there is a conflict there.

Senator UDALL. Mr. Clark.

Mr. CLARK. I'll apologize in advance because I'm afraid I probably don't have a very good answer for you. I think Chairman Wellinghoff did a good job of explaining the waterfront. I think States are still trying to get their hands around exactly what the potential for those dollars are. I know that DOE has been working hard to promulgate regulations and gather information on how that money should be spent, but I am afraid I probably can't offer much more specific answer than that. I think we're still struggling to figure out exactly how all these new mechanisms and levers will work.

Senator UDALL. Commissioner Clark, to move to another subject, you both touched on eminent domain and the use of it in your testimony. It's a sensitive issue. It certainly I believe will come to the fore in certain areas and certain projects. Would you care to comment in any further detail on eminent domain and how you see the use of it and how we can best manage it?

Mr. CLARK. Senator Udall, I would just comment that I note that at least one of the drafts, I think Chairman Bingaman's, allows for either a Federal or State court venue for eminent domain. I know in North Dakota the commission itself does not have eminent domain authority. It's strictly the purview of the courts.

You're right, it is always a contentious issue when it gets to that point. We work very hard in our commission to try to encourage utilities to, when they file applications before us, not be in the position where they feel like it may be going to eminent domain; that it's far easier to get those things worked out in advance. Unfortunately, sometimes that can't be done and those times there are the courts that are available.

We would, of course, urge that there continue to be potential State relief for eminent domain and not just a Federal eminent domain provision.

Senator UDALL. Chairman Wellinghoff, do you care to comment?

Mr. WELLINGHOFF. I certainly think that eminent domain should be used very sparingly, and I think the history of siting natural gas pipelines in fact demonstrates that. I have some statistics here. For example, for the Rex West Pipeline, approximately 700 miles of 42-inch pipeline in Wyoming, Nebraska, Kansas, and Missouri, there was only 18 reported eminent domain actions taken out of 1746 parcels, less than 1 percent. That's replicated in a number of other instances: Gulf South, 110 miles of 36-inch pipeline with 336 affected landowners there was no contested eminent domain proceedings whatsoever.

So we're at least seeing in the gas pipeline area that eminent domain is used very, very sparingly, if at all.

Senator UDALL. Perhaps those lessons could be applied in this challenge we have to expand our transmission system, and we can

look to you and other experts to understand how we can bring those same lessons to bear.

Mr. WELLINGHOFF. I think it's part of the process, by having one Federal agency coordinating with the landowners and with the other affected entities to ensure that the process can work smoothly and that there is a limited exercise of eminent domain.

Senator UDALL. Thank you.

The CHAIRMAN. Senator McCain.

Senator MCCAIN. So if I understand your answer to Senator Udall's question, Mr. Wellinghoff, there are occasions where eminent domain is appropriate after all other avenues have been explored?

Mr. WELLINGHOFF. In very limited instances, that's correct. There have been some instances with respect to siting pipelines, for example, where eminent domain proceedings have been appropriate.

Senator MCCAIN. Do you agree with that, Commissioner Clark?

Mr. CLARK. In some cases I think it's true they may be appropriate because there is a greater need. At the same time, I think it perhaps illustrates a point that, at least for an initial crack at siting, States are an appropriate venue to be because it's frankly much easier for landowners and utilities to work together in Bismarck or Phoenix or in their local State capitals, as opposed to expecting landowners to interact at the Federal level, which is much more difficult to do so.

So I think to the degree that it argues anything, perhaps it does argue for, again, that more narrowly tailored Federal role.

Senator MCCAIN. Chairman Wellinghoff, in 2005 one of the major goals of the legislation was to give your commission the authority to site and permit interstate electric transmission facilities under limited circumstances and, as you well know, within geographic areas designated as national interest electric transmission corridors.

The U.S. Circuit Court of Appeal, Fourth Circuit Court, has basically negated that, wouldn't you say?

Mr. WELLINGHOFF. I think they certainly have limited it to the extent that they've indicated that if a State in fact denies an application then there is no backstop authority for FERC. I think that will substantially limit it. We are currently considering whether or not to appeal that particular case, but I do think it does limit the effect of that particular piece of legislation.

Senator MCCAIN. Even with that legislation in effect, before the Fourth Circuit Court held as they did there really wasn't any applications for implementation of that legislation, was there?

Mr. WELLINGHOFF. That's correct.

Senator MCCAIN. So we really have not seen the expansion of facilities that we would have liked to have seen?

Mr. WELLINGHOFF. We certainly haven't seen developers proposing to expand facilities in corridors that were designated by DOE.

Senator MCCAIN. So that whole aspect of this issue needs to be reviewed in pending legislation?

Mr. WELLINGHOFF. To the extent that that continues to be a goal of Congress, that would be correct.

Senator MCCAIN. You agree with that goal?

Mr. WELLINGHOFF. I certainly agree that we need to do what's necessary to reduce congestion in the transmission system, and I think that was the intent of that particular piece of legislation, which is much different from Senator Reid's legislation. As I indicated, as I say, Senator Reid's legislation left in place that legislation and then added on this piece, which has a different purpose, the purpose is to take location-constrained renewable resources and delivering them to load centers. That's different than looking at congestive corridors as the 2005 legislation did.

We certainly need to do what we can do to relieve congestion in corridors. We have issues there and problems. I'm not sure that the way that the legislation was structured in 2005 is the most effective way to do that. I don't have a recommendation today as to the most effective way. But I certainly would be happy to get back to you in writing on that issue.

Senator MCCAIN. Thank you.

The legislation that Senator Reid discussed requires that 75 percent of the generating capacity connected to a new line must be renewable, and under his proposal and others they define "renewable" as solar, wind, biomass, landfill gas, renewable biogas, geothermal energy, new hydro capacity at existing sites.

I notice by its absence that nuclear power is not part of that, quote, "renewable energy." Do you believe that nuclear power is renewable energy?

Mr. WELLINGHOFF. Currently, Senator, where we have the problem today is with respect to renewables, the ones you've enumerated.

Senator MCCAIN. My question is do you believe that nuclear power is renewable energy? My time is expiring.

Mr. WELLINGHOFF. No, I do not believe nuclear power is renewable energy.

Senator MCCAIN. Remarkable.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator SHAHEEN.

Senator SHAHEEN. Thank you, and thank you to our panelists for being here.

In New England we have some different challenges than I think you do in the West, Commissioner Clark. But this is really a question for both of you. Municipal and cooperative utilities in New England have told us that, at least in New Hampshire, that they would like the opportunity to jointly plan, finance, and own new transmission facilities. They think their participation will bring additional capital, will bring more political support, and will make cost allocation decisions easier.

Do you support joint ownership by these utilities? Is this a partnership that you think could make sense going forward?

Mr. CLARK. Senator Shaheen, I think it's worth exploring. Coming from a State like North Dakota, cooperative power is a big player in our State's electric system and electric grid and the economy, as well as Federal power, the Western Area Power Administration. We have seen where utilities have very effectively jointly coordinated their systems with those entities.

So I see the point, concede it, and think it's something that's certainly worth exploring.

Senator SHAHEEN. Chairman Wellinghoff.

Mr. WELLINGHOFF. Yes, Senator, absolutely I believe that we need to look at multiple ways to own, finance, and develop transmission lines, and that would include cooperatives and municipal entities being co-owners of those lines. I would very much support that.

Senator SHAHEEN. In the Energy Policy Act of 2005, load-serving entities were granted long-term transmission rights. Does your view of Federal transmission policy going forward recognize those rights?

Mr. WELLINGHOFF. Yes, it absolutely does.

Mr. CLARK. I would concur.

Senator SHAHEEN. To go to the two bills in front of us today, do you think it's more cost-efficient and effective to design a transmission grid that only delivers for renewable resources or does it make more sense as we're looking at the resources we have for the future to look at all of the challenges affecting us on the grid as we're thinking about how to design and spend resources for new transmission?

Mr. WELLINGHOFF. Senator, we certainly need to look at all the challenges, and I think what these two bills suggest is that we're not excluding anything. Again, all the transmission planning that would be underneath this overlay of an extra-high voltage line that's intended, again, to address a specific problem. As I indicated in my testimony, over 300 gigawatts of renewable energy currently in the queue that can't get onto transmission lines, that can't be developed, is the target of the draft bills. In addition, however, we can continue to plan for all the other resources, both the distributed resources at the local level, local renewables in your State and New England as well, offshore, all that can be planned as well.

I don't think the two are mutually exclusive in any way. I think they in fact can be made consistent and harmonious.

Senator SHAHEEN. But let me ask, because I understand the setting up the grid so that it provides for those renewable connections. As I looked at it, it presented sort of a challenge for us in New England because we don't have enough resources or enough potential energy in the queue to qualify for the amount of energy that would be needed to have one of those new load centers.

So I'm not sure how we would then be affected by this. Also, as I look at the design of that grid, there are significant resources on both coasts with respect to wind and potentially tidal energy that would not be included at all in that design.

Mr. CLARK. Senator, I appreciate the concern. I think that perhaps the reason that renewables take on a particular role in this is under the discussion of a Federal RPS. If there's going to be a Federal mandate, then you at least have some rationale for a Federal role in the siting of these EHV lines that could help meet that Federal mandate without impacting the underlying system.

The concern I think that State commissioners might have is if you get beyond that and start incorporating everything into it, then there can be, as I spoke about before that, mission creep into areas that we think probably are not needed and could be perhaps harm-

ful, by moving some of these steps from a more local level up to the Federal level.

Mr. WELLINGHOFF. Senator, it was never my view or vision that this extra-high voltage system delivering renewables primarily out of the Midwest, for example, to the East Coast, would not be able to take advantage of that same system to deliver the wind energy off the coasts and the ocean hydrokinetic energy that may be available to not only load centers on the East, but back into the Midwest, Chicago and those areas as well.

So it could potentially go both ways. I don't see that as a barrier either. I think we can develop our offshore wind as well as develop our onshore wind. But what we ought to do is develop the cheapest things first, and as I understand it the wind in the Midwest, is much less expensive to develop than, offshore wind.

Senator SHAHEEN. Thank you.

The CHAIRMAN. Senator Corker.

Senator CORKER. Thank you, Mr. Chairman, and thank both of you for your testimony.

I'm curious as to just an order of magnitude, not necessarily dollars, but what kind of investment would be necessary to deal with congestion and reliability issues that really strongly affect our energy security in this country, versus the investment, if you will, to deal with renewables that is being so discussed here, as far as causing our country to deal with those basic needs that are so important for us to function versus adding on renewables? Give me an order of magnitude of what needs to be invested in our transmission lines?

Mr. CLARK. Senator, I think there's going to be a speaker who probably can detail those costs very well, perhaps better than I or Mr. Chairman. But I think the JCSP, which is the Joint Coordinated System Plan, for at least the interconnect had for renewables a cost of about \$80 billion to meet a 20 percent mandate. Their baseline study not including that, just using existing resources, I think was \$50 billion.

Senator CORKER. Baseline?

Mr. CLARK. If you didn't consider a national 20 percent RPS.

Senator CORKER. So \$50 billion for the basic needs, \$30 billion for the renewable needs?

Mr. CLARK. I believe so, subject to check.

Mr. WELLINGHOFF. Senator, I would agree with those numbers. But again, I think you've got a better witness coming up in the next panel on that.

Senator CORKER. How will the reliability of the grid be affected with the addition of so much intermittent type of energy, energy that cannot be used in any way for baseload power?

Mr. WELLINGHOFF. Senator, that's one of the keystones I think of this entire planning process. It shouldn't be affected at all. In other words, we need to ensure that by putting on variable resources, which would include wind and solar, that there is no degradation in the reliability of the grid.

There are multiple ways to ensure that. One is through additional storage. Another is through things like demand response and other load-modifying means. Another way is through combined cycle combustion turbine units. So there's multiple ways to ensure the

reliability of the grid. Another way, of course, is better sensing on the grid, better communications on the grid so we can actually know what's happening and be able to control it in a much better, efficient, effective way.

Under the 2005 Energy Policy Act, FERC was given the responsibility to ensure reliability on the grid and we've taken that responsibility and enacted a series of requirements. We have a national reliability organization, NERC, that in fact oversees reliability on the grid, and so we will continue to ensure that the grid is reliable, would ensure that, even with putting these additional resources on the grid, the interconnect-wide plan was set forth in such a way that reliability was maintained.

Senator CORKER. One of the avenues that you didn't mention is the need for redundance also. That's the other way you ensure reliability. I'd like to understand from your perspective how much redundance would be necessary to ensure reliability, just percentage-wise?

Mr. WELLINGHOFF. With respect to redundance, you need a lot more redundance with large central station plants, a nuclear facility for example. A 1,000 megawatt nuclear facility, you're going to need redundance there. In the West, for example, the Palo Verde unit is the largest contingency on the western interconnection.

If you have multiple wind systems or multiple solar systems, there's not as much need for redundancy because ultimately you're not going to have all those systems fail at once. You're going to have, some of them may go out. But if you have one single large contingency, you have a much higher redundancy requirement.

Senator CORKER. So no percentage?

Mr. WELLINGHOFF. I don't have a specific percentage for you. That would take a very large study to determine percentages for a particular plan.

Senator CORKER. But it would be interesting to know because as we talk about costs, as you mentioned, with the nuclear component that is figured into the cost, whereas as we look at the cost here, the overall cost to the public, the fact is that that redundance is at a cost that's probably not going to be calculated in as we move ahead; is that correct?

Mr. CLARK. Senator, what you raise are excellent points. It's actually the type of planning that has to take place from an engineering standpoint to make sure that it is sound. I would agree with you, all of the costs need to be considered as we move forward. We talk about the cost of deliverable power to consumers. You need to consider the fact that there are intermittent resources.

I would concur with what Chairman Wellinghoff said and would only add that in the case of wind it does argue for much more geographically dispersed wind. Wind does not tend to work particularly well if it's just located in one specific spot, because even in a State like North Dakota there are days in the summer with very high load and the wind doesn't blow. So you need those geographically dispersed resources to be able to even out the peaks and valleys.

Senator CORKER. I know my time is up. Just No. 1 or two, would you say that taking care of our needs to deal with reliability and congestion, if you have priorities, is one or two as it relates to deal-

ing with the renewable component? Which of the two is of highest priority for our country's energy security?

Mr. CLARK. Senator, just speaking from my own perspective as a State commissioner who deals with some of these issues in cases, reliability paired with cost are always the things that come to the top of the list.

Senator CORKER. So the basic need would be of highest priority.

Mr. WELLINGHOFF. Certainly, Senator, we've been given the direction by Congress that reliability is the top priority.

Senator CORKER. Thank you.

The CHAIRMAN. Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman, and I thank both of our witnesses.

Mr. Wellinghoff, in the Northwest we're pretty blessed with already a centralized planning organization, the Bonneville Power Administration, and we've done quite well on renewables. We've been able to, using the open season process for electricity, basically getting rid of the queue and allowing people who put the resources in to be evaluated up front as a way to get the best projects on line.

But we have gone from a little more than 25 megawatts of wind 10 years ago to more than 1500 megawatts of wind today, and we expect those figures to double by the end of 2009. That's how much we're doing, that wind generation will equal about 30 percent of BPA's peak load. That's quite significant given our hydro history.

So one of the questions I have is how do you think that—I'm concerned about the western interconnection process, disrupting what is already I think kind of a model planning process for the country with what we already have in the Northwest. So what are your concerns about the legislative proposal before us and how that would affect the system?

Mr. WELLINGHOFF. I think Senator Reid's proposal certainly allows for consideration of what Bonneville has already done and the successes that you have there. Again, designating a western interconnect-wide entity that would include the regional entities as part of it, would include Bonneville. So their interests would be considered and those interests would be folded into the overall plan that would be developed. That would be my expectation, and it would be folded in in such a way that it would be consistent with, compatible with, and continue to be beneficial for the Northwest. I would hope and expect that it would in fact do that.

Senator CANTWELL. But with our planning process already working well and the thought of some maybe \$80 million surcharge, people I think are thinking about the improvements within our region, not necessarily improvements—I mean, how would that be affected? That would be a very big concern, to think that Northwest ratepayers would be paying some sort of surcharge for improvements in another planning system.

Mr. WELLINGHOFF. Some part of that \$80 million ultimately is what you're saying, to improvements that you're saying you may not need, given how successful you are.

Senator CANTWELL. I'm actually saying that open season process has been pretty good and the planning has been very good. I mean, it's working. So I think we need to think about what's working about that and apply that, is I guess what I'm saying.

Mr. WELLINGHOFF. Right. I do see that.

I think what's missing in the Northwest, and I think you've hit on it actually. I had a visit from Steve Wright. What's missing in the Northwest is you expect almost 30 percent wind in your system, and when you reach 30 percent wind you're going to have some difficulties with stability and reliability of the system. I think an interconnect-wide planning process could help you there, help you in a way to do things like dynamic scheduling and other things that will ultimately help you integrate more renewables into your system.

So I think there is some value that could be added by this process, and that value I think could certainly be sufficient to offset any costs that might come to the Northwest.

Senator CANTWELL. We'll be very mindful of that, because we think it's working well for us already. So I think we need in the Northwest more analysis on that, because wind and hydro go very well together. They very well tradeoff. When the wind's not blowing you can use the hydro system, or you can diversify. So we think it's working pretty well, so we'll have concerns.

But I have another question about distributed generation as we're looking at the build-out of the transmission system. Obviously, distributed generation gives us the ability to do things more efficiently. I think it's something like you can eliminate 8 percent of the energy loss of long distance transmission by just having the distribution focus on a more regional basis.

So do you think that the process that FERC would undertake should actually include a thorough analysis of relative life cycle costs and energy efficiency in making these decisions, so that you really are looking at distributed generation as an alternative?

Mr. WELLINGHOFF. I think absolutely, and I would again expect that the interconnect-wide planning processes that were done by these regional entities that were designated would have to include distributed generation. Because I think again addressing Senator Corker's question with respect to reliability, these distributed resources can enhance reliability for the location-constrained renewables that are brought in.

So we need to do all we can with distributed resources, which would include the types of things that you're talking about.

Senator CANTWELL. What greater authority would FERC need for that, if any?

Mr. WELLINGHOFF. No greater authority than suggested in Senator Reid's bill or suggested in the bill circulated by Committee Staff. I don't think we need any more than that. In fact, now under our current planning process under Rule 890, where transmission owner operators are required to do regional transmission planning, we have specifically directed that those transmission planners look at not only the supply side, but they look at and consider the demand side in that planning process.

So we're already doing that today, in essence requiring that transmission planners look at both sides and fully consider what are all the demand side options, like distributed resources that you're discussing should be included in the plan.

Mr. CLARK. Senator, I would only add that I think that your question does argue again for a very much bottom-up process, be-

cause just as you're concerned about potentially some Federal interaction with a process that seems to be working well in the West, we would be concerned that when you do talk about distributed generation it's hard to get much further down into the distribution network than that, and it would really require the significant input of States to help provide that kind of data.

Senator CANTWELL. Thank you. I would just say, Mr. Chairman, technology is changing so rapidly, that's why I think that we have to have an open mind about that aspect of it.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Barrasso.

Senator BARRASSO. Thank you very much, Mr. Chairman.

Thank you for being here. If I could just ask you, Commissioner Clark. I think one of the things you had said a little earlier was where you are is where you sit, and in North Dakota, Wyoming is the largest net exporter of energy in America. We have it all. We have the coal, the oil, the gas, the wind, the hydro. We have it all.

There is a specific opportunity, a significant opportunity in Wyoming, for the growth in the wind industry. I want to make sure that my State's energy resources can serve the needs of others. We want to make sure that we make American energy as clean as we can, as fast as we can, without driving up the price to consumers.

I want to make sure that my constituents receive fair treatment in the process. This gets to the issue we were talking about with cost allocation. The question that I hear from people around Wyoming is, why should they pay for transmission lines across their property if the energy is just being shipped to a population center elsewhere, whether it's California, whether it's Nevada?

What are your thoughts on that and how can we make sure that it's fair for the consumers who are not utilizing, the people who actually are not consuming the electricity, but are the areas where the transmission lines are going in terms of how that payment works?

Mr. CLARK. Senator, that's the heart of some very difficult questions. Now, North Dakota—and I hear from similar constituents to the ones that you do, who have those questions. At the same time, there are undeniably some reliability benefits that accrue to the whole system when there are large-scale transmission projects that are built. From an economic development standpoint, the State certainly has an interest in, as I'm sure much as yours does, in having these transmission lines built. So there is a bit of a cost-benefit tradeoff that folks need to consider.

I also keep in mind that on some of these cost allocation issues that, while they're important and while we need to get the best answer that we can, at the same time transmission continues to be a relatively small portion of a consumer's bill. It's about 10 percent of the bill compared with everything else about 90 percent.

I do worry that if, as a State and a Nation, we get too hung up on the cost allocation issues we can hold captive the 90 percent of the bill that could drive down costs to try to really chase pennies in the 10 percent of the bill.

So your concern is very valid and, as I said, there are no easy answers because each State has a little bit different interest in these lines.

Senator BARRASSO. The other issue is that, your State, strong private property rights, as is Wyoming and so many of our western States. Do you believe that private property owners have a right to say no to transmission lines on their land, and how do you work with that?

Mr. CLARK. Senator, as we both indicated earlier, at times there are appropriate times for eminent domain to be exercised because there is a greater good that's needed, whether it's for roads or transmission lines or so on and so forth. I think again the thing that we want to have as much as possible of is that early public input, and I think that that argues for potentially transmission corridors, so that there's not duplicate lines being built across the landscape. It provides some certainty and hopefully provides early on in the process public input so that a landowner who just wants to have a tower footing moved a few hundred feet away from a windrow or whatever they want to have that moved, has the ability to access that in a meaningful way and doesn't feel like they have to trek to Washington to get that done.

Senator BARRASSO. I guess that goes to the question of the chairman, then. Do you agree that using public land in lieu of using eminent domain should always be the top priority?

Mr. WELLINGHOFF. It certainly is preferable. I can cite for you, for example, one transmission project that came to FERC that is going to go from Montana to Mead in southern Nevada, which is near Las Vegas. I think it's over 1200 miles. They told me in that 1200 miles there were only 17 landowners. So in the West it's certainly very doable and I think it usually is preferable to use the public lands if possible.

Senator BARRASSO. I think, Mr. Clark, you talked about duplicate lines and parallel lines. My question is, if we're talking in some of these proposals about a certain percentage, 75 percent of the new generating capacity needed to be renewable—I don't know how you can tell where the electrons are coming from, but would it be wise to include a percentage of what has to go through the line, because that may cause to have several lines needing to be built when otherwise you could just move it all through a single line.

Mr. CLARK. Senator, I don't know if percentage is the right way to go about this or not. But I think that NARUC would certainly argue that the more narrow and tailored that you can make the Federal siting authority is better, because it does then delineate that there may be some national needs that the Federal Government is seeking to address, but reserving for State and local authorities those much more sub-regional and local needs.

Senator BARRASSO. Thank you, Mr. Chairman. My time has expired.

The CHAIRMAN. Senator Dorgan.

Senator DORGAN. Mr. Chairman, thank you very much.

Commissioner Clark, I was chairing another hearing, so I was unable to be here for your testimony. But I've read your testimony and I appreciate very much your work and your being with the committee today.

Mr. CLARK. Thank you.

Senator DORGAN. If I might make just a couple of comments and then ask a question. No. 1, it seems to me electrons are color-blind, so you read and hear about people that want to build a green transmission line that would host only renewable energy or green energy. The fact is a transmission line and electrons it seems to me will carry whatever is put on the line, and electrons are color-blind.

No. 2, it is almost certain that a renewable portfolio standard or a renewable energy standard will pass this Congress. We'll have a heavy debate about that, I say to some of my colleagues, but almost certainly we will pass a renewable energy standard. If so, we must have additional transmission capability and connectivity in this country so that in areas where we produce renewable energy in particular, we are able to maximize that production and move it. Otherwise we'll have stranded renewable energy, and we're going to need that renewable energy to meet a renewable energy standard or a renewable portfolio standard.

In the past 9 years we've built 11,000 miles of natural gas pipeline and 668 miles of interstate high voltage transmission. That just describes the dilemma.

So the question to me is not whether we decide to embark on building additional transmission. The question is how do we do it, and that brings us to this issue of planning, pricing, and citing. Chairman Wellinghoff, you're involved in that from the standpoint of the Federal Energy Regulatory Commission, and the question of how much authority you should have or you feel you should have, and how much authority we should give you. Commissioner Clark, you're involved with the National Association of Regulatory Utility Commissioners and from the State authority.

So let me see if I can drill in just a bit on these questions of citing especially. It seems to me citing is one of the very significant issues. Commissioner Clark, you've described to us the NARUC proposition with respect to citing. Does that reflect generally the view of all of the States or most of the States, or does it reflect your view? Tell me where you are on these issues?

Mr. CLARK. Thank you, Senator. I appreciate the opportunity to comment.

Certainly each State has its own views and, as I indicated before, it's often where you're situated. North Dakota, speaking just from our perspective, is perhaps a case study in exactly the types of problems that have occurred with renewable energy development, in that tremendous wind resource potential, also about as far from most major metropolitan centers and load as you can get. So North Dakota has at times been more supportive of a robust Federal role to help break some of those logjams because, while we're able to site lines quite well in North Dakota—in fact, our average siting process at the commission is probably something like 4 months, 5 months—once it gets to our borders it's not always as easy. So we've been at times frustrated.

So strictly speaking from a North Dakota perspective, we can see some value in having a Federal role with regard to those renewables. But I would say, even from a North Dakota perspective, we would have a few guiding principles. One is we'd like to have the first crack at siting those lines, at least within our State. We don't

believe that primary jurisdiction should rest with the Federal Government, that people should still have an avenue of relief available in Bismarck with a local hearing in the county that it's going, and so on and so forth.

Even in North Dakota, we would argue that there needs to be sub-regional planning, that it can't be a top-down process. So while I certainly accede to the point that there are different views and within a State like ours we may wish for a little bit more Federal action to help break some of those logjams, at the same time we do see very much a need for this to be a process that starts at the local level, and then only as a backstop authority goes to Federal Government.

Senator DORGAN. I'm a very strong supporter of renewable energy. North Dakota is called the Saudi Arabia of wind, and you said there are times the wind doesn't blow. I'm not familiar with that, but—

[Laughter.]

Senator DORGAN. It is also the case that if we build lines principally to unlock stranded energy in, for example, wind energy corridors or solar and so on, because that's going to be produced in many cases far from where it's needed, it's also the case that those same lines will carry and can carry energy that is now locked from a coal-fired generating plant. Isn't that the case?

Mr. CLARK. Senator, that's absolutely true, and in North Dakota we have a confluence of a number of things that could potentially be beneficial to the entire country, including not only the wind portfolio that we've talked about, but the fact the two have a large coal reserve and it happens to sit geologically in a very favorable location for carbon capture and sequestration.

Senator DORGAN. Mr. Wellinghoff, you participated in a roundtable meeting I had a while back with all of the stakeholders, including NARUC, which was very helpful to me in trying to think through and plan through this notion of how to address the transmission issue, because we don't have a choice. We've got to address that.

Senator Corker talked about reliability. All these things are a part of the need to address it. We might have different ways to address it, but I think this committee would probably agree that this is not whether any longer—it's how.

I think the testimony and the judgments that you have offered are helpful. The same is true with NARUC and Commissioner Clark.

Most of us would agree, I think, that if you try to unlock this so that you have the opportunity to proceed, we want the Federal role to be as narrow as possible while still allowing the progress that we know is necessary for the country, because there is a national interest here. So eminent domain, we agree with I think both of you that we want all these things to be narrowly constructed, but constructed in a way that provides us certainty that we're going to proceed.

So let me thank both of you for your testimony and the work that you've done.

The CHAIRMAN. Senator Brownback.

Senator BROWNBACK. Thank you, Mr. Chairman.

Panelists, I appreciate your comments and your thoughts. It seems to me that at the core of all this we've got to figure out how we hold the cost down of electricity to the consumer. At the end of the day, Commissioner Clark, I think you're probably well aware of the sensitivity of price of the consumer to all of this. You start messing with people's rates, they get real interested real fast, and real mad.

That's why I would hope, Chairman Wellinghoff, that we look at these issues from the standpoint of what it is and how it is that we do these things in a mixed ratio to the point where we can hold the costs down the most that we possibly can.

Mr. Clark, you mentioned about your coal reserves in North Dakota. You believe you're the Saudi Arabia of wind. We have claimed that title in Kansas as well, and we believe we're closer to market, too, than you are, and we have as many wind resources.

But the need to mix the ratios of electric generation from a coal, say, fired power plant and wind to hold your overall costs down so that this is a sustainable national policy is something I presume you've looked at and are fairly sensitive to. Is that something you've been considering, on how you mix the renewables with the non-renewables to hold your costs down and to have the reliability which is central to the electric grid?

Mr. CLARK. Senator, I think you raise an excellent point. I think each State commission probably takes those twin goals that I mentioned earlier of reliability and cost most seriously of any of the duties that we have. You're exactly right, when rates go up we do hear from consumers.

In the upper Midwest, we find ourselves, much as I'm sure Kansas does, in the situation where, because our wind resource is so good, it is quickly becoming a very competitive source of energy. So we have in the five States that I mentioned earlier where we're doing this planning, have assumed that wind will be an important part of that portfolio.

The thing about wind that differs from other baseload—

Senator BROWNBACK. Because my time is going to run out—but coal isn't part of the mix, too, for you?

Mr. CLARK. Oh, in our region coal absolutely is.

Senator BROWNBACK. Because of the price that coal can do and the reliability that you can mix it?

Mr. CLARK. Absolutely. We are the second most coal dependent State in the country.

Senator BROWNBACK. We're I think 60 percent coal-fired, from in many cases depreciated coal-fired power plants. So the electric rates are very competitive within that. Yet we're bringing wind in when we can be competitive with it.

My point in saying that is we've got a situation now in my State where there's a big debate about building two coal-fired power plants for electric generation in State and then to market that into the Front Range in Colorado and on down into Texas at a cheap rate, that then can build the lines, the power lines into those regions, that I can hook the wind into. Because our problem, like yours, is getting our wind to market. We've got a lot of it. We've got to get it to market and the markets are a little bit of a distance away. To do that you've got to have the power grid to do it.

I just think we've got to think a lot smarter about these things, about how you mix these in so that you have a long-term sustainable policy that's low cost, so that the consumer is seeing those benefits to that. I would hope that's being considered, Chairman Wellinghoff, as you look at these mixes on it, because this is how we can do this in a sustainable, smart basis over the longer term.

My other point. Chairman Wellinghoff, I had one of my utilities in the other day and they said, you know, we have enough trouble getting lines planned through a regional entity, let alone a nationwide transmission grid. They don't see this getting simpler. They see it getting harder for them if we bring a national entity in. So you're going to have that, that to overcome, I think as well as we look forward on how we're going to be able to get this done, because they just don't see the FERC as being able to make this a simpler process on getting the wind and other renewables to market.

But a final thought here on it is that in some States it's going to be cheaper to do renewables than other States. Has there been given consideration to any sort of offset or trading system within States, just as some way that you can say, you know, this is going to be simpler for one State and cheaper for one State than another, that you could then trade some of those credits back and forth to help people and not make it so expensive?

Chairman Wellinghoff.

Mr. WELLINGHOFF. I think that argues for a national RPS, what you're suggesting. Certainly if we had a national RPS then you could trade the credits back and forth. Right now you can't, but if you had a national RPS you could. So that could solve the problem.

Mr. CLARK. Senator, from a North Dakota perspective, we have been participating with other Midwestern States in developing that type of green credit trading system.

Senator BROWNBACK. The point, though, would be that you can't do it as a way that just raises costs to somebody else, because if it does then why should they be for it. You're just going to raise their electric rates and they get nothing different, and I don't think that's sustainable long-term.

The CHAIRMAN. Senator Risch.

Senator RISCH. On these, one of the issues we have in the West is the environmental issues with environmental groups. No matter what happens, no matter what kind of an application is made for use of the land, it is immediately filed by a NEPA lawsuit or one of those. We have a number of species right now, particularly high desert species—high desert, of course, in Idaho is where we use a lot of these corridors for our electrical siting.

Is there any thought about—and these things go on forever. I mean, we've got environmental suits that go on—5 years is not unheard of at all. You can expect when the prairie chicken or what have you is involved, you're going to wind up in a 5-year lawsuit.

Both of you, briefly, what are your thoughts on how we wander through this with Federal legislation?

Mr. WELLINGHOFF. Senator, going back to the experience FERC has with respect to gas pipeline projects. Through a coordinated Federal agency approach where you ultimately have an agency that coordinates with the other appropriate agencies, whether it be the

Forest Service or the BLM or the Fish and Wildlife Service, and with the environmental groups and the other stakeholders, we've had a great deal of success siting natural gas pipelines, as Senator Reid indicated in his opening remarks.

So I think these issues can be overcome as long as there is a coordinated approach to looking at the issues and addressing them through mitigation. We have in most of our proceedings a long list of mitigation measures that we specify that must be done before that particular project can move forward, and many of those mitigation measures are for the purpose of addressing environmental issues.

Senator RISCH. Mr. Chairman, I would, with all due respect, and I understand you work in a different area than I do, but when I was Governor and other times our impression in our State is that the term "Federal coordinated approach" is an oxymoron.

Thank you.

Mr. CLARK. Senator, I would only add that I know in talking with some of my colleagues from the West they have expressed concern similar to yours, that when there's discussion about Federal siting they'll often state, within our State if the feds would site quicker then there wouldn't be any issue, because the State sites far more quickly than crossing Federal lands.

I know in North Dakota's case we don't have nearly as much Federal land as many other western States, but when I have sited those cases typically utilities will go to great pains to avoid any sort of Federal interaction because they don't want to trip just those processes that you had mentioned.

Senator RISCH. Mr. Clark, I agree with you. When I was Governor I signed a memorandum of understanding for the Northern Lights Line, which I'm sure you're familiar with, and they were doing just that. They were trying to identify corridors where they could avoid Federal properties. So I think that needs to be addressed when we get to the end of the line here.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Wyden.

Senator WYDEN. Thank you, Mr. Chairman. I'm late and I apologize to our witnesses.

But as far as I can tell, what we're doing here is discussing electric transmission siting and somehow other considerations, like liquefied natural gas and natural gas pipeline siting, are just going to be worked out. That is not happening. I think, Mr. Wellinghoff, you know in our part of the country the natural gas siting process has just been a disaster. We've got the landowners up in arms about how they've been treated. The State of Oregon doesn't have a good thing to say about their participation in the State process.

For the first major project, the Bradwood Landing project, basically every major participant is now filing to reconsider the decision. Even NOAA, another Federal agency, has filed to have the decision reconsidered. It's not just Bradwood. We are seeing this on other projects. The Palomar one, that I think you're aware about as well, that's supposed to connect to Bradwood by cutting through the Mount Hood National Forest.

So my sense is we've got to come up with a way to fix this, and I'm trying to figure out why somebody ought to take comfort in

making electric transmission siting more like natural gas project siting, because certainly if you ask people about that in Oregon you wouldn't get a lot of support for that.

Mr. Wellinghoff.

Mr. WELLINGHOFF. Thank you, Senator Wyden. I'm not suggesting that transmission siting be more like natural gas siting, in the sense that the two bills that are being considered here, one by Senator Reid and the one that the committee staff has circulated, primarily give the planning, siting, and cost allocation decision to two interconnect entities, Eastern Interconnect and Western Interconnect. I think that's the appropriate way to do it.

I think Senator Dorgan put his finger on it. What we're trying to do here, as I understand it at least, is advance the process of developing remote renewable energy resources to load centers in the least intrusive way, in the least way of having some Federal intervention or Federal oversight in that. I think the two bills that have been put forward do that. They're different from natural gas.

I hope that we are trying to address your issues with natural gas in Oregon and I do understand those issues and I am very concerned about them, Senator Wyden, and we are trying to do everything we can to address those issues as best we can.

Senator WYDEN. I know you haven't been in your current position but a couple weeks. I will tell you, I'm still troubled about the Federal Energy Regulatory Commission having the final say here. I think that we have not had an experience that has bred a lot of confidence, and I want this understood that you've really been reaching out to our State. The problem has been virtually nobody else has been, and now we're talking about whether we ought to transfer a process that has been dysfunctional to Oregonians—and I could go on through these kind of horror stories. I just have a minute or so left and I'm going to spare you. But we're going to need to work with you a lot more before I can approve something like this, because we have had so many problems.

You can't get all of these parties in agreement very often. They are all in agreement that the process with respect to liquefied natural gas has been a disaster. I'm going to do everything I can to get this straightened out with respect to liquefied natural gas before we then leap to say this is the model that we ought to be using elsewhere.

Again, I want to commend you because I think you have been reaching out, and you've been just about the only person who has, and we look forward to working with you.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Stabenow.

Senator STABENOW. Mr. Chairman, I will pass on questions at this point in the interest of time. I apologize for coming in and out. I have three committee meetings I'm trying to be at. I'm looking forward to the technology that says "Beam me up, Scotty" so I can be at all three. But I have reviewed the testimony and I appreciate the witnesses coming in today.

The CHAIRMAN. Senator Murkowski, did you have any other questions of this panel?

Senator MURKOWSKI. No, thank you.

The CHAIRMAN. Thank you both very much. As you can tell from the attendance of Senators, there is great interest in your testimony. So thank you for being here.

Mr. CLARK. Thank you.

Mr. WELLINGHOFF. Thank you.

The CHAIRMAN. Why don't we invite the second panel to come forward. Let me introduce them as they are coming forward. We have Michael Morris, who is CEO of American Electric Power in Columbus, Ohio; Graham Edwards, who is with the Midwest ISO in Carmel, Indiana; James Dickenson with JEA in Jacksonville, Florida; Reid Detchon, who is with Energy Future Coalition here in Washington; and also Joseph Welch, and I believe Senator Stabenow is going to make an introduction of Mr. Welch since he hails from her home State of Michigan.

Senator STABENOW. Thank you, Mr. Chairman.

I'm so pleased to have Joe Welch here as a part of this panel, hailing from Michigan. He's the Director, the President, CEO, Treasurer, and Founder of ITC, which is the first independently owned and operated electricity transmission company in the United States. It's the only publicly traded company of its kind.

Before launching ITC, Mr. Welch worked at Detroit Edison from 1971 to 2003 and he knows the ins and the outs of the electricity business and understands well the challenges that the industry faces in bringing renewable energy to market.

So I welcome you, and I apologize again that I will be running in and out. But I am so pleased that you're here and that all of the witnesses are here.

Mr. WELCH. Thank you for those kind words.

The CHAIRMAN. Thank you all for being here. Why don't we just follow the same procedure: ask each of you to take about 5 minutes or so and give us the main points we need to understand about this issue or about the proposed pieces of legislation, and then we will, after we hear from all of you, we'll have a few questions.

Mr. Morris, why don't you start. Thank you for being here.

STATEMENT OF MICHAEL G. MORRIS, CHAIRMAN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AMERICAN ELECTRIC POWER

Mr. MORRIS. Thank you, Chairman Bingaman, and Minority Leader Murkowski and Senators. Thanks for being here.

Senator Stabenow, I know you know that we serve the southwest corner of Michigan with our Indiana-Michigan, and proud to serve Kingsport, Tennessee, one of the few non-TVA-regulated utilities in the great State of Tennessee.

American Electric Power is among the largest utilities in this country. Most importantly as it comes to this point, we have 300,000 miles of transmission and distribution, 39,000 miles of extra-high voltage transmission, in fact 2100 miles of EHV transmission 765,000 volt—the largest transmission system in the country. We serve 10 percent of all the energy that flows in the Eastern Interconnect, 10 percent of all the energy that flows in ERCOT.

So we feel very happy to be here. We're pleased that the Senate is finally taking up this most important piece of legislation. Sen-

ator Bingaman, your leadership here is surely welcomed and we thank you for that.

The grid was built in a different time for different purposes, and our company, along with some of our colleagues, have constantly pushed the concept of making it more reliable, making it more cost effective, and continuing to add intellect to the grid so that we can be a self-curing energy delivery system.

Reliability was talked about with the other panel. It's essential that we build this system out not only for reliability, but also for the rationalization of generation across the country. If there's a need going forward—and I never have agreed with the EIA numbers of 30 percent growth in 30 years; that almost seems impossible. But let's presume that you need to build 20 power plants in the United States over the next 20 years. If we truly build an interstate highway-like system for the electric transmission, you could probably build about half of those stations. If they come in at \$3 billion a copy, the transmission cost not to build half of them would be much, much less than the price we would have incurred by building those systems out.

The concept of bringing renewables into the system, it's essential to have this grid. Senator Dorgan, the State utility representative from North Dakota made it crystal-clear. Tremendous load center, and we always hear people say, well, that will go all the way to New Jersey. I doubt that. It might make it as far as the Twin Cities. But if the grid were built out, demand on the East Coast would be served by a much less congested system. Customers on the great eastern seaboard would save more money by a developed grid than they pay for electricity today or that they would pay for incurring the costs associated with that.

Your bill and Senator Reid's bill touch on these issues quite pointedly. Three issues that you laid out are critical: Planning, it needs to be more regionalized. It may well be the entire eastern interface. I worry about how we do that without another layer of bureaucracy that will get in the way rather than help get this done.

Siting is essential. You heard the numbers of natural gas. I spent the first 12 years of my life at American Natural Resources. You can build an interstate natural gas transmission system, because the permitting and the cost allocation is done at the FERC. It isn't State by State battling over how do we allocate this out. In fact, your cost allocation concept if we go to regional planning for a national surcharge, it's not a bad idea.

We heard numbers this morning of 50 to \$80 billion. When you take that down to a per kilowatt hour cost, it's a mill on the per kilowatt hour basis. A \$1 billion transmission project yields an annual cost of about \$130 million to be recovered from our customers. If you take the capacity that that could handle, it is in fact less than one mill added to the overall cost of the utility rate. You're talking about maybe a quarter a month for the customer's bill.

The ability of this grid to allow the expansion of the United States' ability to serve its own needs, not only in energy security, reliability, is simply a time that is at hand. The technology's at hand. The private equity's at hand, the willing participants at

hand. We need just the simplest change to give FERC the authority to site and allocate once the planning is done.

Thank you very much for the opportunity to be here.

[The prepared statement of Mr. Morris follows:]

PREPARED STATEMENT OF MICHAEL G. MORRIS, CHAIRMAN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AMERICAN ELECTRIC POWER

Good morning Mr. Chairman and distinguished members of the Senate Committee on Energy and Natural Resources.

Thank you for holding this hearing and allowing me an opportunity to offer the views of American Electric Power (AEP) regarding the need for federal transmission legislation to facilitate expansion and updating of the nation's electric transmission grid to support our nation's economic, environmental and energy goals.

My name is Mike Morris, and I am the Chairman, President, and Chief Executive Officer of American Electric Power (AEP). Headquartered in Columbus, Ohio, we are one of the nation's largest electricity utilities—with over 38,000 megawatts of generating capacity—and we serve more than five million retail consumers in 11 states in the Midwest and south central regions of our nation. AEP also owns the nation's largest electric transmission system with three Regional Reliability Organizations overseeing our vast system, and we are members of three Regional Transmission Organizations.

The AEP transmission system is a 39,000-mile network, integrating power delivery across 11 states. Our network includes more than 8,000 miles of extra-high-voltage (EHV) lines, including a network of 2,100 miles of 765-kilovolt (kV) transmission lines, which today serves as the backbone of the PJM Interconnection (PJM) EHV system in the eastern United States, facilitating efficient power flow within that region. 765 kV is the most efficient voltage class in commercial use within the United States. While initially designed to provide service to AEP's native customers, today it is the foundation of the NM system and, enables PJM to link to neighboring systems in all geographic directions.

SUMMARY OF AEP'S POSITION ON FEDERAL TRANSMISSION LEGISLATION

I want to thank you for putting before this Committee the issue of federal authorization of interstate transmission facilities. This is one of the most important challenges that must be resolved if we are going to make meaningful progress in addressing the nation's future electric energy needs. The President and Congress are clearly committed to charting a path for our energy future that seeks much greater energy independence and reliance on renewables, greater economic and energy efficiency, and the integration of constantly evolving new technologies. Critical to ensuring that future, as you have recognized, Mr. Chairman, is a modern transmission grid that meets both our near term requirements and our future ambitions for a cleaner, more reliable and secure energy future.

AEP strongly supports development of an EHV interstate backbone transmission system. Such a system can significantly improve the reliability and security of the current grid, permit rapid integration of new energy sources, including renewables, and support the electrification of the transportation sector with plug-in hybrid vehicles.

Today, the development of interstate transmission lines is slowed by a fragmented regulatory system that discourages investment in major interstate transmission projects. We believe that the best solution is to empower the Federal Energy Regulatory Commission (FERC) to authorize interstate transmission projects and to convene all interested parties in siting proceedings to ensure that all voices are heard and that a timely, final decision is made. We also believe that FERC should have meaningful authority to oversee and ensure the development of an interconnection-wide plan for EHV transmission and ancillary facilities and that cost allocation principles should be established that spread these costs broadly, so that no single customer bears a disproportionate share of costs that will clearly benefit multiple regions over long periods of time.

With these objectives in mind, I commend the Chairman for his leadership. Your draft legislation includes the critical elements required to get our modern grid built. We believe it is exactly the right starting point for fashioning a comprehensive and workable plan for promoting transmission investment, protecting the rights of interested parties, and setting us on the path to meeting our nation's long term energy goals. I also wish to thank Senator Reid for his leadership and interest in this important issue. We are confident that the legislative process will get us to a common end.

We very much look forward to working with the Committee and the Congress to refine these proposals. We also strongly urge you to act quickly, so that we can get about the business of building the modern transmission system that will ensure the better energy future that we all desire.

MEETING FUTURE NEEDS BY EXPANDING OUR CURRENT TRANSMISSION SYSTEM

The economic prosperity of the United States relies on the efficient production, transmission and use of electric energy, today and into the future. The nation's transmission grid should enhance reliability and operational efficiency; and support energy independence and environmental goals, including expanded use of renewable resources. Unfortunately, our existing system is ill equipped to meet these needs.

Originally designed to connect local generation resources to distribution systems over small geographic areas (primarily in one state), the grid now integrates resources on a more regional level, over larger areas and among numerous utilities with a high degree of reliability. The current transmission grid has supported dramatic changes in use and demand growth, including the development of wholesale power markets, without significant investment over the last few decades. But, the existing grid now is being pushed to its limits; it is frequently overloaded with congestion losses growing dramatically throughout the country, and reliability degraded during certain times. This both increases the cost of electricity to consumers and threatens an economy that is increasingly dependent upon reliable electricity service. While sound, today's grid is in need of significant investment if it is going to play a role in meeting our long term policy objectives.

There is no question that a primary goal in expanding the transmission system is to enable broad scale integration of renewables—a critical first step on the path to addressing climate change. In 2008, the United States added 8,358 megawatts of new renewable wind generating capacity and surpassed Germany, one of the countries with the highest wind utilization in the world. Yet, our nation has only begun to harvest the available wind and solar resources within our borders. All agree that new transmission is the key to unlocking this important resource. But our current system for permitting new transmission projects just isn't up to the task. It takes, on average, only two years to develop a wind project, but many years to site, permit and build the transmission lines to deliver the wind power to consumers. If we want renewables soon, we need transmission sooner.

While I know there is great excitement around transmission for renewables, I strongly caution this Committee to remember that our future economic and energy security requires a commitment to a robust system that meets a number of important objectives. Within the past 24 months, our nation has witnessed unprecedented price volatility in oil and other commodities, major economic turmoil and growing concern about climate change. Our current situation has increased demands for energy independence, development of renewable energy resources, and growth for our economy, all as we seek to produce, transport and consume energy more efficiently. Through the strategic expansion of the transmission grid, we can address the limitations of our current system, permit the rapid integration of new energy resources, including renewables, and support the electrification of the transportation sector, with plug-in hybrid vehicles. In essence, we must build the system that we need for our future today.

For that reason, we strongly support the development of an EHV interstate backbone transmission system. That system would overlay and build upon the existing EHV and lower voltage infrastructure, relieving major congestion and reduce electricity costs, improve reliability and provide maximum flexibility for interconnecting new resources and load, particularly renewables. Accomplishing this goal will require legislation that clearly supports and facilitates the timely planning, construction, and equitable sharing of costs for a transmission system that meets these multiple purposes.

ELEMENTS OF EFFECTIVE TRANSMISSION LEGISLATION

Today's need for a bold, national commitment to upgrade and expand the electricity grid is no less compelling than the circumstances that drove the development of the interstate highway system in the last century. To achieve that goal we need to create a new federal process that dramatically changes the way we plan, site and pay for EHV transmission systems. Legislation implementing this federal process requires three critical components:

- **Interconnection-wide Planning**—FERC must have the authority to bring together experts in the field with the representatives of affected states, regional planners and others to determine what facilities are needed and resolve com-

peting concerns, so that those implementing the plan know what to build and where.

- **Transmission Siting**—FERC must have the authority to approve and site projects proposed by private companies that are consistent with the interconnection-wide plan.
- **Cost Allocation**—FERC must have the authority to allocate the cost to consumers throughout an interconnection for those projects approved by FERC as consistent with the interconnection-wide plans.

Interconnection-wide Planning

Currently, transmission is planned using a fragmented approach that is unworkable for expanding EHV transmission beyond the borders of an existing planning region. Today, we plan transmission using rigid and often narrow reliability and economic criteria that vary significantly by region. The result is a line-by-line approach to transmission development rather than a “system based” approach. To develop an interstate transmission system, we need an open, transparent and widely participatory planning process that applies broad and strategic views to transmission development.

Transmission Siting

The second piece is a single federal siting process for new EHV transmission. Today, siting EHV transmission across several states is a difficult and time-consuming process that involves affected states, federal land agencies, and local regulators, each with individual authority to disapprove a project. Many state processes do not recognize or consider regional and inter-regional transmission needs or benefits and may disapprove projects that do not directly benefit their state. With federal siting authority for EHV projects, FERC would assume responsibility for environmental reviews and would solicit state participation to ensure state input and involvement to resolve the “on the ground” concerns as FERC designates the transmission route. The point is not to exclude the many voices that need to be heard but to convene them in a single proceeding that will produce a final decision in a reasonable amount of time.

Cost Allocation

Similar to siting, current methods of allocating the cost of EHV transmission projects by identifying specific beneficiaries is difficult, contentious and often includes vigorous attempts to shift and re-shift costs among groups of customers. Interconnection-wide planning will address national policy objectives and result in an interstate transmission system that provides benefits across broad regions and anticipates future needs. Therefore, legislation should include simple and predictable cost allocation policies, which ensure that everyone who benefits from the system shares in the cost of its development. Wide allocation of cost also will mitigate the individual rate impact of significant transmission investments.

Companies like AEP are ready to step up and build a transmission system that enhances our economy, supports renewable energy investment and enhances energy security. Today, we are hindered by the outdated patchwork of policies that currently constrain the development of an interstate grid. Only Congress can address this predicament.

CONCLUSION

As our country faces unprecedented economic, environmental and national security challenges, I urge this Committee and the Congress to seize the opportunity before them and, using the Chairman’s draft as the framework, to enact the legislation necessary to build the future transmission system our country requires. I am confident that AEP and our industry stand ready to commit the necessary resources and talent to plan, site and construct an interstate transmission system necessary to support our nation’s economic, environmental and energy goals. We strongly urge you to join Chairman Bingaman to provide the leadership and tools necessary to complete this undertaking in a timely and coordinated manner.

Again, Chairman Bingaman, thank you for holding these hearings and thank you for proposing your draft transmission legislation. We look forward to working with you and your Committee to address the transmission needs of our country—

I am happy to answer questions.

The CHAIRMAN. Thank you very much for your testimony.
Mr. Welch.

**STATEMENT OF JOSEPH L. WELCH, CHAIRMAN, PRESIDENT
AND CEO, ITC HOLDINGS CORPORATION**

Mr. WELCH. Good morning, Chairman Bingaman and Ranking Member Murkowski and members of the committee. As you know, my name is Joseph Welch and I'm the Chairman and President of ITC Holdings, the Nation's first and only independent transmission company.

As an independent transmission company, ITC is singularly focused on ownership, operation, maintenance, and construction of transmission. ITC has been able to maintain its focus on improving transmission, making it more reliable, more efficient, lowering the delivered cost of energy and ensuring nondiscriminatory access. ITC has invested more than \$1.1 billion in transmission upgrades over the last 5 years.

Right now the outdated laws that govern our electricity grid are standing in the way of America's energy goals. If Congress is serious about making renewable resources available, reducing our dependence on foreign oil, meeting renewable energy standards and addressing climate change and other environmental challenges, we need to start by modernizing the rules that govern the grid.

Congress must develop a cost allocation methodology for regional transmission projects that would allow the costs to be allocated based on the benefits realized by individual entities within regions.

Many of the issues set forth today in the hearings are the symptoms of one fundamental issue, the lack of a national energy policy to guide planning. To plan properly, we need to set forth the goals, such as a national RPS, so we can effectively and efficiently meet them.

Regional transmission planning. ITC is a member of the Midwest Independent System Operator, MISO. In ITC's estimation MISO has established a first-rate technical staff and done a very good job within the confines of the existing system that has been thrust upon them to develop consensus around the MISO transmission expansion plan.

However, the MISO and its peers face significant challenges in their ability to develop truly regional transmission improvement plans under the current regulatory framework. It is the endeavor for the transparent planning process that has ultimately led to the undue influence of market participants and the subsequent derailment of true regional transmission plans.

There are many challenges of regional planning—voluntary membership, conflicts of energy markets and transmission planning, influence of market participants, parochialism of States and incumbent utilities—which result in sub-optimal and inefficient solutions. We need your help and guidance to change these rules so we can move to an efficient and effective process.

In order to fix this regional planning issue, we must transform our current planning process to be independent. Where RTOs do exist, FERC's existing authority under Order 890 should be strengthened. As such, all transmission owners would be required to pay an assessment to cover the costs of planning that would be the same regardless of which RTO the utility participates in or if they are outside of an RTO they would be assigned to the one for regional transmission planning purposes.

These new planning-only RTOs would be responsible to develop regional transmission plans with an interconnection-wide scope. We have spent tens of millions of dollars on our current planning process. We don't need to throw it away. We just need to make it independent so that they can do their job.

Federal siting. The FERC should be given a significant role in transmission siting so that the infrastructure development that is needed for the good of the entire country can go forward expeditiously. I'm only proposing that the expansion of that authority to address those regional projects and the systems that are needed to support them, that they be developed in the regional plan.

For transmission that supports only local needs, that authority should rightfully stay with the State. FERC can assume responsibility to issue a certificate of need for projects that come through the more robust planning process. Then the State would be given an opportunity to site these certified lines and if after 1 year they fail to do so then FERC should be given that backstop siting authority, so these transmission lines can move forward and be built.

Once the regional planning and siting processes are resolved, the implementation phase would begin, whereby an independent transmission company would be given responsibility for the overall coordination, development, and operation of the super-regional high voltage system. All incumbent utilities should be given the opportunity to be investors in any regional project that passes through their service territories, but in the end, to ensure no bias in any operational issues, an independent company needs to be responsible for the overall coordination.

One of the projects that we have put forth is our Green Power Express transmission line, which would facilitate development of 12,000 megawatts of power from the wind-abundant regions of the Upper Midwest to Midwestern and Eastern States that need clean renewable energy. According to independent studies by CRA International and the Brattle Group, it shows efficient movement of wind through the Green Power Express would result in reductions of 34 million metric tons in annual carbon emissions, which is equivalent to the annual emissions of about 7 to 9 600-megawatt coal plants or 9 to 11 million automobiles.

The Green Power Express provides access to high-capacity wind, which has the result of making wind economically competitive with all other fuel sources such as coal and nuclear, a fact that is again supported by independent studies.

We have submitted this plan to MISO for their full evaluation. However, cost allocation is the major issue that needs to be addressed for this project.

I would like to thank you very much for my opportunity to be here today and I'll be willing to take any questions you might have.

[The prepared statement of Mr. Welch follows:]

PREPARED STATEMENT OF JOSEPH L. WELCH, CHAIRMAN, PRESIDENT AND CEO, ITC HOLDINGS CORPORATION

Good morning Chairman Bingaman, Ranking Member Murkowski, and Members of the Committee. My name is Joseph L. Welch, and I am chairman, president and CEO of ITC Holdings Corp. ("ITC"), the nation's first—and only—independent electric transmission company. I am honored by the opportunity to speak before you this morning to offer my perspective on legislation regarding transmission regulation.

ROLE OF INDEPENDENCE

Before I begin I would like to provide some background as to the significance of the independent transmission company business model as I believe it is relevant to today's discussion. As an independent transmission company, ITC is singularly focused on ownership, operation, maintenance and construction of transmission facilities as its single line of business. ITC has never invested in generation. All of ITC's revenue is directed back to transmission rather than in any market activities. ITC is now the eighth largest transmission-owning company in the U.S., in terms of load served.

"Independence" means that there is de minimis or truly passive ownership by market participants and that there is minimal operating dependence on, and ongoing relationships or affiliation with, any market participant. To safeguard ITC's independence, the company and its employees do not hold any market participant investments.

Through its independence, ITC has been able to maintain its focus on improving transmission: making it more reliable, more efficient, lowering the cost and ensuring nondiscriminatory access. To that end, in its five or so years in existence, ITC has invested more than \$1.1 billion in transmission system upgrades. In essence, the independent model aligns the interests of the company and its shareholders with those of electricity consumers.

This is markedly different than a vertically integrated utility that owns generation and distribution in addition to transmission. In fact, this vertically integrated utility business model is at the very center for why there has been a 30-year trend of underinvestment in the grid. That is not to say, however, that lack of independence will always result in underinvestment. It is more accurate to say that the lack of independence of a vertically integrated utility may result in transmission being used as leverage to manipulate markets. As previously alluded to, this can be done by minimizing transmission system investment in order to maintain levels of congestion needed to protect high-cost generation.

Conversely, a vertically integrated utility with significant generation resources may want to build transmission as a means to bring its generation to market while perhaps not providing the same opportunity to other generators. It is for these very same reasons that the Federal Energy Regulatory Commission ("FERC") decided to form independent transmission companies in order to promote the provision of non-discriminatory access to the grid.

This independence is of particular importance as it relates to decision-making for field and control room operations, generator interconnections and both local and regional planning. A non-independent transmission owner faces competing interests. As such, independence from the energy market influence is critical in consideration to the electric transmission grid; however, the concept of independence should not be limited to the electric transmission companies. Equally essential is the independence of any regional planning organization with supporting governance and decision-making processes established in a manner that do not provide undue opportunity to thwart transmission development by stakeholders.

OVERVIEW OF LEGISLATIVE ISSUES

Today's full committee hearing gets at the very heart of the issues facing the electric utility industry, and specifically to the challenges impeding the construction of regional transmission. Right now, the outdated laws that govern our electricity grid are standing in the way of America's energy goals. If Congress is serious about making renewable resources available, reducing our dependence on foreign oil, meeting renewable energy standards, and addressing climate change and other environmental challenges, they need to start by modernizing the rules that govern the grid. In other words, due to the historical underinvestment in the nation's grid, transmission, which should be the enabler, today is the roadblock to renewable resources.

However, I would be remiss if I did not also stress the importance of developing a cost allocation methodology for regional transmission projects that would allow the costs to be allocated based on the benefits realized by individual entities within the region. In fact, cost allocation goes hand in hand with regional planning because without one, you cannot have the other. ITC believes that the costs for a regional transmission project should be harmonized across a broad geography in recognition of the multitude of benefits as well as increased system optionality provided by having a robust and highly interconnected transmission grid.

Many of the issues set forth in today's hearing are the symptoms of one fundamental problem: the lack of a national energy policy to guide planning. This national energy policy should clearly define national energy priorities such as the establishment of a federal renewable portfolio standard and federal regulation of

greenhouse gas emissions. Having this information codified would greatly enhance our ability to plan for the regional transmission network that this country needs.

REGIONAL PLANNING UNDER TODAY'S REGULATORY CONSTRUCTS

ITC's operating companies (Michigan Electric Transmission Company, LLC, ITC Midwest LLC and International Transmission Company ("ITCTransmission")) are members of the Midwest Independent Transmission System Operator, Inc. ("Midwest ISO"), and in ITC's estimation the Midwest ISO has established a first rate technical staff and done a noble job working within the confines of the existing system that was thrust upon them to develop consensus around the Midwest ISO Transmission Expansion Plans. However, the Midwest ISO and its peers face significant challenges in their ability to develop truly regional transmission improvement plans under the current regulatory stakeholder framework. It is the endeavor for a transparent planning process that has ultimately led to the undue influence of market participants driven by voluntary membership and the subsequent derailment of true regional transmission plans.

The problems that prevent the development of truly regional transmission plans, however, can be solved by Congress or by the FERC. You may ask: how can it be said that there is no independent regional transmission planning given all the attention that the FERC has devoted to the creation and governance of Regional Transmission Organizations ("RTO") and Independent System Operators ("ISO")?

Voluntary Membership

The largest challenge that independent planning faces under the current model is that membership in RTOs, and thus participation in regional planning and cost sharing, is voluntary. If the regional/public interest and the interest of an individual member diverge, market participant stakeholders may endorse solutions that are not optimal for the region but rather satisfy the stakeholders' individual interests. If the RTO attempts to impose a solution that is in the regional interest, the stakeholder may threaten to leave the RTO potentially using membership fees as leverage. Additionally, individual states have the potential to leverage the voluntary membership to pressure its local utilities to leave the RTO if the state does not support a planned project and its associated cost. Another form of leverage that has been used by state regulators is the threat of not passing through the cost of a particular transmission project or the RTO membership fee.

Conflicts of Energy Markets and Transmission Planning

Additionally, another challenge faced by RTOs is related to their respective governance structures. Owning responsibility for both planning transmission and running the energy market may present competing interests. While a utility may want to join an RTO as a means to participate in the energy market, it will seek ways to avoid having its transmission system encumbered by any regional planning efforts as shown in the recent FERC order in which the Midwest ISO had requested that FERC approve the ability of utilities neighboring the Midwest ISO to become a part of the Midwest ISO energy market without having to join the RTO as a full member. Ultimately and wisely, FERC denied this request, but the request in itself is a demonstration of the conflict of interest of having the RTO responsible for both transmission planning and energy markets.

This conflict of interest often results in RTOs relying on re-dispatch solutions instead of re-enforcing the transmission system. Indeed, one inadvertent byproduct of LMP markets is that the ability to purchase rights to "buy through" congestion effectively prevents building the transmission that would avoid the congestion in the first place. The consequences of doing business this way are evident. To begin, transmission and distribution losses nearly doubled between 1970 and 2001 (from 5 percent to 9.5 percent) due to heavier utilization and congestion. This is exacerbated by the belief that modeling can be done to such a level that all of the benefits of transmission additions can be accurately calculated.

Influence of Market Participants

The challenges inherent with the existing governance structure and stakeholder driven planning processes have one notable result—little to no true regional transmission has been planned or built. As alluded to earlier in the discussion of the voluntary nature of RTOs, the existing governance structures and stakeholder processes compromise the RTOs' ability to independently plan the transmission system due to the influence of market participants. The regulatory framework permitting voluntary membership and the ability of market participants to play critical roles in RTO decision-making, RTOs cannot plan the transmission system from a truly independent perspective.

The stakeholder processes to which RTOs are bound, and to which the Commission continues to defer in Order No. 890, for example, can never be independent because the “stakeholders,” by definition are operating on behalf of their own needs and can “vote with their feet”. In fact, several Midwest ISO TOs have submitted letters of potential withdrawal ostensibly as a means to keep pressure on the RTO to protect their interests. A truly independent planning entity, under which membership would be mandatory, would be able to effectively identify needed regional transmission infrastructure without the threat of incumbent transmission owners threatening to withdraw from the organization.

The existing stakeholder processes result in transmission planning and related cost allocation protocols focused on the least common denominator rather than on developing a robust regional plan with a well-developed regional cost allocation mechanism. As a result, transmission plans have a narrow scope rather than having a regional focus, and the corresponding cost allocation protocols are complex and generally do not promote development of regional transmission.

In addition to categorizing transmission investments in a somewhat arbitrary fashion (e.g., economic, reliability, transmission service request, generator interconnection, etc.), each transmission upgrade is viewed as having winners and losers. Even stakeholders from the same sectors have varying interests. For example, generators in high cost areas have an incentive to frustrate transmission plans as a means to maintain existing constraints whereas generators in low cost areas want to remove existing constraints as a means to broaden their access to markets. Conversely, load regions with high costs want to remove the constraints in order to access more economic sources of energy while load regions with low costs are incented to maintain existing constraints as a means to insulate their area from market prices.

In these cases, some individual state regulators have had a parochial view and attempted to exert influence over the planning process as a means to optimize conditions for their individual state. This presents a case of competing interests because national policy issues such as climate change and a focus on environmental stewardship, energy security, regional reliability and market competitiveness cannot be addressed state-by-state.

Another example in which individual interests come directly in conflict with regional planning is as it relates to how costs are allocated for a particular project. As I mentioned earlier in my testimony, regional planning goes hand in hand with cost allocation. The lack of a cost allocation mechanism can drive sub-optimal regional planning. Direct current (“DC”) is a good technology solution if used in the proper allocation; however, to some extent it has been applied inappropriately due to the lack of a cost allocation methodology. DC is generally used to deliver energy from point A to point B with little opportunity for intermediate on-ramps and off-ramps. A DC line’s single purpose is to bring power from one location and therefore, it does not unload the underlying system through the reduction of system congestion or reduce losses, nor does it not provide network flexibility. This limitation makes it such that the cost allocation issue is easily answered in this case because there are only two beneficiaries—the generator and the load. As a result, a difficult question is averted at the cost of a sub-optimal plan.

Generator Interconnection Queue

As the demand for the integration of wind and other renewable resources grows, the ability to effectively develop regional plans to interconnect these resources where the best source of wind is located is stifled. As shown in the map below,* the current planning processes within the Midwest ISO do not support the level of demand for the integration of the wind resources in the Upper Midwest, a region with some of the most efficient wind resources in the United States. According to some estimates, a new generator would potentially have to wait up to 46 years in the generation interconnection queue before its project can be studied by the Midwest ISO. Clearly, reactive planning under the current configuration will not work as a means to build regional transmission.¹

Midwest ISO Generator Interconnection Queue².

* Graphics have been retained in committee files.

¹ The Midwest ISO has attempted to address this problem with its proposed Forward Looking Interconnection Project (FLIP) process. The link to the related Midwest ISO whitepaper can be found at http://www.midwestmarket.org/publish/Document/20b78d_11ef44fc9c0_-7bf0a48324a/Midwest%20ISO%20Draft%20FLIP%20Whitepaper%20v2%20020609%20clean.pdf?action=download&_property=Attachment

² http://www.midwestmarket.org/publish/Document/735a38_109988af51a_-7f5e0a48324a/MISO_Queue_Map.pdf?action=download&_property=Attachment

In sum the fundamental issues facing transmission planning under the current RTO configuration are directly related to the voluntary nature of RTO membership and the stakeholder-driven planning process that promotes an undue influence of market participants in the development of regional plans.

Moving Forward on Regional Planning

The purpose of today's technical conference is to address regional system planning as a means to integrate renewable energy. Unfortunately, where we stand today will not serve as an effective enabler to get the necessary regional transmission built in support of the nation's vision of renewable energy.

ITC's experience as an independent transmission company has given us unique insight into the value of independence in transmission operations and planning. This independence should not be limited to the transmission owning entity but should be extended to regional planning by the RTOs. ITC is not calling for general mandatory RTO membership; we are calling for mandatory planning. Where RTOs exist, RTO membership should be mandatory for purposes of transmission planning and cost allocation. Where RTOs do not exist, FERC's existing authority under Order 890 should be strengthened. As such, all transmission owners would then be required to pay an assessment to cover the costs of planning that would be the same regardless of which RTO the utility participates in, or if they are outside an RTO, thereby mitigating the risk of utilities voting with their feet.

The regional planning conducted by RTOs is dictated by the scope of the market while it should be performed more broadly based on system considerations. RTOs should have the ability to plan a contiguous region. A broader planning region will facilitate the kinds of multi-state projects that are needed to deliver renewable resources to load centers and to establish a strong backbone system for the grid. Only then when we have a robust and flexible regional electric transmission grid that does not provide discriminatory access to any one party will the U.S. be able to benefit from the vast energy resources available and achieve energy independence.

FEDERAL SITING AUTHORITY

Currently, transmission rates are regulated on a federal level by the FERC, but siting is regulated by individual states that naturally are focused on benefits to their respective state, not the region or the nation. For this reason, the building of significant regional transmission lines is virtually impossible. In many cases, transmission projects are delayed for years through cumbersome state siting processes. The FERC should be given a more significant role in transmission siting so that infrastructure development that is needed for the good of the entire country can go forward expeditiously.

This can be accomplished in one of two ways. FERC can assume responsibility for issues a Certification of Need for projects that come through the new, robust planning process. Under this approach, states would continue to have authority to route project as they are best informed on zoning, land use and other local concerns. Such an approach also avoids potential delays in creating the federal staff needed to undertake routing decisions across the country. There would need to be a reasonable federal back stop in should a state fail to assume its responsibility to route the project.

The same result could be accomplished through expanding and strengthening FERC's existing backstop siting authority. Therefore, regional transmission projects approved by the regional planning entity would continue to subject to state review, but if a state fails to act on, or rejects, a project within a year, the federal government can step-in. This option has the potential of being more complex, could result in delays in siting, and will no doubt be subject to litigation.

IMPACT OF RIGHT OF FIRST REFUSAL / COMPETITIVE BIDDING ON CONSTRUCTION

ITC believes that incumbent transmission owners should have the right of first refusal, meaning the right to build the needed transmission within their respective service territories provided they are willing to make timely commitments to build the approved construction. Right of first refusal without any limitation can impede needed development. In fact, such a "Right of First Refusal" as included in the SPP tariff, for example, is a formidable barrier to new entrants. Stakeholder processes on which RTOs depend, and to which the Commission continues to defer in Order No. 890, for example, can never be independent because the "stakeholders," by definition are operating under parochial constraints. ITC feels strongly that incumbent transmission owners should have a reasonable period of time during which to submit an application to construct and site new facilities. However, to the extent an incumbent fails to act within that timeframe, and then the project should be open

for other parties to undertake. To this end, FERC would be in the position of resolving any conflict arising from competing projects/developers. FERC should look at a variety of criteria to determine who is best suited to build a project including incumbent participation, public power, the ability to maintain facilities going forward, etc.

Some have expanded this concept to argue for competitive bidding for the construction of regional transmission projects. The typical American utility does not have a construction department, and as such, for each individual capital project, it must send the project out to bid based on detail engineering design. The two key components to determining the cost that the consumers will ultimately pay: 1) return on equity ("ROE") and 2) level of ongoing maintenance. As it relates to competitive bidding, ROE is the only area in which utilities may compete. This, in effect, creates negative incentive for utilities to reduce maintenance and operations costs in an effort to recapture profits, which ultimately results in the degradation of system reliability. This is the system we have today and has led us to underinvestment in transmission.

To address these inherent issues, the regional planning issue must first be resolved, and then, in the implementation phase, an independent transmission company should be responsible for the overall coordination with the affected utilities that would have the right of first refusal to build or participate in the building. This would allow the incumbent utility to participate in construction if so desired while ensuring that the independent transmission company takes responsibility for coordinating construction and ongoing maintenance across broad regions thereby ensuring that inventory requirements are met, that maintenance crews are trained and that the necessary capital is available with appropriate ownership so as to prevent the transmission system from being manipulated by market participants.

ITC'S GREEN POWER EXPRESS AS FORCING FUNCTION ON POLICY ISSUES

A more tangible example of the value of independent regional planning can be found in ITC's recently announced "Green Power Express". While this project is still in its very early stages, the question of DC has already arisen. The Green Power Express is a broad network of 765 kV transmission facilities that has been designed to efficiently move vast amounts of renewable energy in wind-rich areas to major Midwest load centers. The Green Power Express is consistent with the vision outlined by President Obama in his national energy agenda. President Obama specifically mentioned his desire "to get wind power from North Dakota to population centers, like Chicago."³

The Green Power Express will allow this goal to be met as well as set the stage for the integration of off-shore wind in the Great Lakes in the future. By having a robust extra high voltage ("EHV") grid that serves as a transmission backbone in various regions, the geographically diverse wind becomes readily accessible and more economic thereby mitigating two of the major challenges with this naturally intermittent resource.

We recently received the results of an independent study conducted by the Brattle Group, entitled "Transmission Super Highway: Benefits of Extra High Voltage Transmission Overlays," which demonstrates that wind power becomes economically competitive when it is generated from areas with the highest capacity levels. The study uses ITC's proposed Green Power Express development project as a model for examining the potential benefits of adding a high voltage overlay to our existing transmission system. It concludes that between 2010 and 2030, the Green Power Express alone could deliver up to approximately 12,000 MW of new wind energy, avoiding significant amount of carbon emissions.

The Green Power Express was designed to be an EHV backbone that would gather the wind from the disparate wind abundant areas and transport it eastward. In other words the Green Power Express as an alternating current ("AC") solution provides many onand off-ramps to gather and distribute the wind power across a broad region. With DC there would be less flexibility for how wind would be integrated into the network. Additionally, DC presents some reliability concerns if used as the initial phase of an EHV backbone. Because it does not allow for easy redirection of power in the case of a line outage, at this point a DC solution would make the system reliability vulnerable.

In effect, through the development of the Green Power Express, ITC filled a gap that exists within the industry due the existing RTO governance that does not currently give the RTOs direction to do regional planning without undue influence of market participants. The absence of market participant influence and ITC's inde-

³Transcript from appearance on Rachael Maddow Show of October 28, 2008: <http://www.msnbc.msn.com/id/27464980/>.

pendence from undue market participant influence was critical in developing the right solution that improves electric reliability, effectively and efficiently integrates high capacity renewable energy to promote a cleaner environment, protects national security, and the environment. However, it should be recognized that while ITC was able to develop this plan free from undue market participant influence, the project will likely face the same challenges related to pressure from stakeholders related to individual interests as ITC shepherds the Green Power Express through an Order No. 890 compliant process.

As envisioned the Green Power Express will touch seven states, or seven distinct siting jurisdictions. Under the current siting system, this could mean that the project could get held up in court siting procedures for an indefinite amount of time. In order to realize the vast economic, environmental and reliability benefits of the Green Power Express in a timely manner, it is imperative that there is some form of backstop siting authority to compel the project forward.

It is widely recognized that the Upper Midwest is a region that has great potential to develop wind energy facilities. There are other regions that have similar opportunities such as wind in the Great Plains region or solar energy in the Southwest. Generation from these potential resources is intermittent due to the variable nature of wind and solar "fuel". As such, regional diversity will provide significant benefits as a means to dampen the impact of this resource intermittency. Consequently, independent regional transmission planning is essential as a means to identify and capitalize on the vast amount of renewable resources economically while protecting the overall reliability of the grid.

CONCLUSION

Our country is trying to tackle 21st Century energy challenges with an electric transmission grid largely built more than 30 years ago while operating under an outdated regulatory system. To put it simply, we will not meet our goals if we don't change how we do business. We urgently need to reform how we plan, locate and pay for new transmission. This requires moving beyond the parochial interests and fractured regulatory structure that has led to decades of underinvestment in our electricity grid. Congress and federal regulators have the ability to modernize the rules to allow private companies such as ITC and others to make much-needed investments. These are solutions that don't require an infusion of taxpayer dollars, but will create new jobs and help address our looming energy and environmental crises.

A modern grid will solve our environmental and renewable energy challenges and improve reliability and associated costs to the economy. Now is the time for Congress to encourage private investment in America's energy infrastructure.

Again, thank you, Chairman Bingaman, Ranking Member Murkowski, and Members of the Committee. I sincerely appreciate the focus that you are providing to the critical issue of the impediments to building regional transmission as the facilitator of an energy policy vision for a brighter, cleaner tomorrow.

The CHAIRMAN. Thank you very much.
Mr. Edwards, please go right ahead.

STATEMENT OF GRAHAM EDWARDS, ACTING PRESIDENT AND CEO, MIDWEST INDEPENDENT TRANSMISSION SYSTEM OPERATOR, INC.

Mr. EDWARDS. Mr. Chairman, Senator Murkowski, members of the committee: I appreciate very much you allowing me to be here with you today. I'm Graham Edwards and I am with the Midwest Independent System Operator.

We think that the legislation that is being reviewed today is critical for the country going forward. At the Midwest ISO we were the first independent transmission organization in the country. We serve all or parts of 14 States, about 97,000 miles of high voltage transmission lines. We have several functions and services that we provide for our market participants and our transmission owners: reliability coordination, transmission administration, congestion management, and as important as anything and probably more im-

portant today is regional transmission planning services. That is critical in what we're talking about today.

As we look at this legislation, this is a national problem and we need a national solution and a process to handle the national problems that we're facing. If it's done correctly and right, I really believe we can end up with a plan that meets our needs and has the right answers.

The interconnection systemwide planning process we think is very appropriate, and also we think it's achievable. I say that because we have just recently at the Midwest ISO over the last 15 to 18 months gone through an interconnection-wide study. Albeit it was a very high level study and a first scenario, Midwest ISO along with several other RTOs—PJM, Southwest Power Pool—as well as MAP Region, TVA, some southeastern utilities, as well as information from New York and New England.

We pulled all this together, built the model for the entire eastern interconnect in order to look at what it would take for a high voltage overlay. We worked also in conjunction with the Department of Energy to develop a scenario that, from the reference case, that if there were a 20 percent renewable mandate, what will the impacts be. We did this process very open and transparent. We had 12 different meetings in 12 different cities, over 300 participants, individuals and entities.

So the process can be done, it's appropriate, and it is doable. However, we strongly recommend that for it to be successful several things need to be considered.

First, clear policy goals and objectives need to be understood and set forth at the outset. Before any plans are started, we need to know what renewable mandates are, we need to know what carbon implications are going to be for the future, what cost expectations are. Those need to be understood up front before the process starts.

Second, we need to develop a very open, transparent, robust, and inclusive process. Collaboration with the States is very critical. It's got to be done in that manner because if not I don't care what the answers are, people will not accept them.

Third, we think that the designated planning authority needs to be one independent both from commercial relationships and from regulatory pressures. They need to be planning from a perspective of independence. They also need to be experienced and very sophisticated systemwide planning experience will be critical to be successful.

In addition, we think that, similar to Senator Reid's bill, we think it needs to be refreshed periodically. Technology changes. Demographics change. We need to make sure we revisit the plans periodically to make sure we're still going down the right road.

Last and probably the most critical is, to be successful in building transmission, the two things that others have talked about, siting and cost allocation, are the most controversial and contentious issues that we've all got to deal with. There's got to be some political will at either the Federal or the State level for those issues to be resolved and for us to move forward. I think that your legislation is on the right road in the role for the States in working cooperatively, so we think that's an appropriate way.

In summary, we think systemwide, interconnection-wide planning is good. We think clear policies are critical. It needs to be transparent, open, independent planner, as well as siting and allocation issues need to be in force and effect.

Finally, Mr. Chairman, I will take credit for the comment made by Senator Murkowski at the onset. Congress has the ability to change laws, to make new laws. I really don't think we can change the laws of physics. What I hope is that the planners don't get into a situation with goals and objectives that go against the laws of physics.

With that, I will conclude my remarks and I appreciate the opportunity and would be glad and look forward to your questions. [The prepared statement of Mr. Edwards follows:]

PREPARED STATEMENT OF GRAHAM EDWARDS, ACTING PRESIDENT AND CEO,
MIDWEST INDEPENDENT TRANSMISSION SYSTEM OPERATOR, INC.

Good morning, Chairman Bingaman, Ranking Member Murkowski, and members of the Committee; thank you for inviting me to speak to you today. I am Graham Edwards, Acting President and CEO of the Midwest Independent Transmission System Operator, Inc. The Midwest ISO is a non-profit, independent, member organization serving members in all or parts of 14 states and one Canadian province, from western Pennsylvania to eastern Montana and Missouri to Manitoba. In 2001, we were the first Regional Transmission Organization approved by the Federal Energy Regulatory Commission. The Midwest ISO operates day-ahead and real-time energy markets and an ancillary services market. In addition, we provide transmission scheduling and reliability services. Relevant to this hearing, the Midwest ISO performs a regional planning function for the members in its footprint.

TRANSMISSION PLANNING AT THE MIDWEST ISO

The Midwest ISO performs transmission planning at several different levels—from individual generator interconnections to smaller sub-regional transmission plans, to an annual expansion plan for the entire Midwest ISO footprint. We are also part of a coordinated effort to look at transmission planning on an Eastern interconnection-wide basis. Last month, the first report from this effort was issued: the Joint Coordinated System Plan or JCSP. The JCSP looked at two future energy scenarios for the Eastern interconnection: a reference future reflecting existing laws and about 5% wind penetration, and a wind future in which 20% of the energy in the Eastern interconnection was provided by wind. Another goal of both scenarios was to bring the lowest delivered cost of power to consumers. Other participants in the study included PJM, the Southwest Power Pool (SPP), TVA, the MidAmerican Power Pool (MAPP), entities in the southeast and input from the New York and New England regions. All of the work was done in collaboration and coordination with the Department of Energy. The JCSP was a first step, and more work needs to be done.

I look at the JCSP as a great success. It was the first joint transmission process that looked at the entire Eastern interconnection and it used new planning tools and techniques to perform its engineering analysis. The results reflect the fact that it was an open process to gather stakeholder input, visiting a dozen cities in all regions of the Eastern interconnection with over 300 entities attending the open meetings. Briefly, the JCSP found that for a 20% wind future, about 15,000 miles of an extra high voltage transmission overlay would be needed for the Eastern interconnection. The cost of this new transmission would be about \$80 billion, but the early estimates show that benefits of the system exceed the costs.

Congress is now discussing how to promote new transmission for various goals such as improved renewables access, carbon reduction, national security/energy independence, and improved reliability. All of these are important goals and new intelligent transmission can help to achieve them all. Having just completed the JCSP, I would like to discuss some of the lessons learned from that 15-month open process that Congress should consider in the legislation being reviewed today, and in any related legislation.

I wish to offer five points today:

- Interconnection-wide planning is appropriate and achievable.

- Interconnection-wide planning is best accomplished with policy goals and expectations stated up front and important 1st level questions already assessed.
- The best and most useful plans come from open, inclusive, robust sessions to develop and vet key assumptions.
- Plans, once developed, must be revisited to keep them relevant.
- To build projects that will fulfill the plan, siting and cost issues must be addressed.

INTERCONNECTION-WIDE PLANNING IS APPROPRIATE AND ACHIEVABLE

Because the issues being addressed in our nation's energy debate involve topics of at least regional and often national scope, it is crucial that they be addressed on the right level. Renewable resources such as wind, solar and geothermal are most often at their peak capacity in areas remote from the nation's major load centers. The electrical grid for the lower 48 states operates in three "interconnections." In the Eastern and Western interconnections, harvesting the most vibrant renewables will mean moving energy over distances of hundreds of miles through an intelligent extra-high voltage grid overlay. To ensure that overlay can integrate renewables with an end goal of the lowest delivered cost of energy, the planning must be over comparably large regions. In our region, moving large amounts of wind energy from the Great Plains to population centers cannot be done with the existing transmission system, or even a slightly improved system—it will require an intelligent extra high voltage grid overlay.

In the West, the folks at WECC have shown that such plans can be produced. In the East, we in cooperation with other entities like TVA, SPP and PJM, among others, have shown an interconnection-wide plan can be accomplished through the JCSP. This plan evaluated what would be necessary for a 20% wind integration by the year 2024. The plan is a good start. Additional efforts are underway to run more scenarios and to consider off-shore wind resources and Canadian resources in the plan. Moreover, we believe that an intelligent EHV overlay could be self-healing and not significantly affect the existing transmission planning processes of utilities, RTOs and ISOs used for transmission that is not part of the overlay. The important news is that interconnection-wide planning can be done in the Eastern interconnection. The draft legislation appropriately requires that planning for an intelligent extra high voltage grid be done on an interconnection-wide basis.

INTERCONNECTION-WIDE PLANNING IS BEST ACCOMPLISHED WITH POLICY GOALS AND EXPECTATIONS STATED UP FRONT AND IMPORTANT 1ST LEVEL QUESTIONS ALREADY ASSESSED

What policy goals one wishes to serve will be reflected in an intelligent grid-overlay plan. It is not enough to say the goal is to integrate renewables. The more Congress can inform the planners in advance, the less they have to make up or decide for themselves and risk frustrating the policy makers who gave them the job in the first place. For instance, what other factors are to be considered—maximum CO₂ reduction, lowest cost of wholesale electricity, national security/energy independence through plug-in electric vehicles, or others? The answers to these questions are likely to result in different grid overlay plans. I am not saying that these goals are mutually exclusive, but the planners need to know what the goals for the grid are so those goals can be reflected in the plan. The draft legislation attempts to provide this clarity to the planners. Further clarity regarding levels of renewables requirements and details of carbon policy would be helpful, but those issues may be addressed in other legislation.

It is also especially valuable if the determination of where the renewable resource zones are located is already made or if the criteria for choosing the zones are set. Planners know generally where the load centers are (the cities); however, identification of the areas where the renewables will come from is just as important in planning the intelligent transmission grid overlay. A process needs to be in place to identify where the renewable resources will be located. This could be done through either a state or federal process or a combination of both; but a process should be identified. The draft legislation does not provide a framework for the process to identify the renewable energy zones. I believe that a collaborative state and federal process could quickly identify those regions where large quantities of renewables are present. DOE has already done much of this work on a national level. The states of the upper Midwest (North and South Dakota, Minnesota, Wisconsin and Iowa) are working together with the Midwest ISO to identify those particular regions in their states (based on the broader DOE work), where wind development is most appropriate. We understand that California, New York and the New England regions are engaged in a similar process. Congress should allow those processes to come to

fruition and then allow that work to be incorporated into a national plan. Incorporation of state plans into a national plan will give greater credibility to the national plan.

THE BEST AND MOST USEFUL PLANS COME FROM AN OPEN, INCLUSIVE, TRANSPARENT, NONDISCRIMINATORY, ROBUST PROCESS USED TO DEVELOP AND VET KEY ASSUMPTIONS AND EXPLAIN THE TOOLS AND PROCESSES THAT WILL BE USED BY THE MODELERS

Because siting and cost issues will arise from the implementation of any plan, it is crucial that the plan be credible and respected by not just policy makers and investors, but by the people and state authorities whose land will be crossed by the projects that implement the plan. When assumptions are arrived at out of sight, they become secrets and the motivation of the planners is questioned. The draft legislation appropriately requires an open stakeholder process to develop the interconnection-wide transmission plan.

The interconnection-wide planning you are considering will be valuable because it will produce an answer; not justify a predetermined path of action. The JCSP was conducted in such a manner. Our experience shows that the values of openness, transparency and inclusion do not have to paralyze a process. Willing people can produce valuable work that is thoughtful and respectful of others within time frames still suited to action.

Another important consideration is the choice of the planner. It should be an independent entity (which could be a joint venture of entities) with experience in large scale transmission planning. These requirements should be added to the draft legislation. Independence is critical so that the planner is not beholden to any party interested in the outcome and persons can have confidence that the planning process was fairly run. Experience is critical because Congress appears to want this process to begin soon. Transmission planning is a very arcane subject and it could take an entity without experience too long to gain the experience and produce a credible plan. Independence and experience will provide greater credibility to the planning entity and its work product.

PLANS, ONCE DEVELOPED, MUST BE REVISITED TO KEEP THEM RELEVANT

Planning is an ongoing process. At its best, it is flexible enough to adapt to new developments, like evaluating out of sequence projects, and prudent enough to reconsider assumptions and incorporate new developments on a periodic basis. The Midwest ISO's own regional plan is a biennial plan. From our experience with the JCSP and our own transmission expansion plans, we have found that no matter what "future" is looked at in the plan, there tends to be a "core" of transmission projects that will be required no matter what. Identifying the core projects allows plan flexibility in the future and helps prevent building a system (or parts of it), that could become obsolete. Flexibility in the plan will build public and stakeholder confidence in the plan and the planning process. This confidence may also aid in the eventual siting and cost allocation issues that will arise. You should consider adding requirements that the plan be updated on a regular basis. This will allow the plan to be updated as conditions change and new technologies are developed.

TO BUILD PROJECTS THAT WILL FULFILL THE PLAN SITING AND COST MUST BE DEALT WITH

The Committee will be considering various siting and cost recovery proposals. It is critical, in my view, that they be addressed; for without their consideration, the state-by-state review of regional projects will be fraught with difficulty. That is not to say that the state role should be eliminated—states have important knowledge that will be valuable to the siting process.

It is also important that the cost recovery mechanisms for the projects not be based on membership by companies in voluntary organizations like RTOs. Recovery should be pursuant to rules that cannot be sidestepped by withdrawing from an organization. The Midwest ISO has its own costs allocation and recovery rules, but those rules are not the same across different RTOs or ISOs or various utilities. It would be very difficult to try and apply different cost allocation and recovery rules for different areas to an intelligent extra high voltage grid overlay that seeks to achieve national goals. However, in our footprint, the states in the upper Midwest are also working collaboratively to reach consensus on cost allocation principles for transmission for renewables. The draft legislation appears to allow this process to continue and be incorporated into a proposal to the Federal Energy Regulatory Commission. We believe that this flexibility and recognition of state efforts in the draft

legislation is good. If these state efforts do not succeed, then perhaps a federal solution would be required.

IN CONCLUSION

- Interconnection-wide planning is appropriate and achievable.
- Interconnection-wide planning is best accomplished with policy goals and expectations stated up front.
- The best and most useful plans come from an open, inclusive, transparent, non-discriminatory, robust process used to develop and vet key assumptions and explain the tools and processes that will be used by the modelers.
- Plans, once developed, must be revisited to keep them relevant.
- To build projects that will fulfill the interconnection-wide plan siting and cost must be dealt with.

Finally, recall that Congress has the power to change all laws, except the laws of physics. I do not see that problem in this draft legislation, but as the bill moves through the legislative process, please do not forget this. Thank you very much for this opportunity to speak to you today. I look forward to your questions.

The CHAIRMAN. Thank you very much.
Mr. Detcheon, go right ahead.

**STATEMENT OF REID DETCHON, EXECUTIVE DIRECTOR,
ENERGY FUTURE COALITION**

Mr. DETCHON. Thank you, Mr. Chairman, and thank you for inviting us to testify. I'm the Executive Director of the Energy Future Coalition, which is a nonpartisan public policy group here in Washington. We have been concerned about the state of the electric power grid in this country since we were formed 7 years ago.

Last fall, in partnership with the Center for American Progress and later the Energy Foundation, we undertook a series of listening sessions with a wide range of stakeholder groups, including all the gentlemen, the groups who spoke before me on this panel. We found remarkably broad support for a new network of extra-high voltage lines to bring high-quality renewable energy resources, whether it's wind from North Dakota or solar from Nevada, to market.

As you know, if we're going to have a renewable energy standard we're going to have to have the transmission lines to get it to market. Our chairman and head of our steering committee Ted Turner wants to put wind and solar on his ranches in New Mexico and Montana, but he has no way to get them to market. There is some 300,000 megawatts identified of wind projects available in this country that are awaiting access to transmission.

In terms of cost, study after study have shown that a renewable energy standard saves consumers money, doesn't cost consumers money, in part because by displacing natural gas in the electric power generation system it brings down the price of gas and saves consumers net-net a lot of money.

But our concern has not just been about renewable energy. It's also been about the efficiency of the system, the ability to manage the system, to deliver power with the least loss, and also security issues. I think that these are important to bring up. As we take on the grid issues, we need to continue to modernize the grid. The vulnerability of the grid to security threats is hair-raising, and I think that as we look forward to ways to get ourselves off our dependence on oil, clearly plug-in electric hybrids are going to be a

central part of that answer, and again it puts us back onto the need for a secure and modern digital grid.

The vision statement that we brought forward for the national clean energy smart grid has been endorsed by some 55 organizations. These include the AFL–CIO, the Council on Competitiveness, the Digital Energy Solutions Campaign, along with many renewable energy groups and environmental group who are not usually prominent supporters of new transmission lines. We have appended both our statement and the white paper produced by the Center for American Progress on this subject to our statement.

What brought these environmental groups to the table, which may, if Senator Risch were still here, be of interest to him, and ultimately to an agreement on this statement was the imperative of action to deal with the climate crisis. These groups could accept the need for additional authority for new transmission lines, but only if those lines were transporting low-carbon energy. Building new lines to deliver electricity from new conventional coal-fired power plants was unacceptable to them and inconsistent with the transition that we see coming at us.

So as part of the package that we recommended, we suggested for the issue of access to these lines a greenhouse gas standard that would reach up to the level of a single cycle gas turbine, in order to make sure that the supply of energy was reliable, but in effect that would exclude new conventional coal-fired power plants without CCS.

As you said, Mr. Chairman, the three most important issues are planning, siting, and cost allocation. Siting is seen as the most pressing issue, but in fact I think that planning turns out to be the most important issue. We've concluded that better planning could reduce the difficulty of siting new lines and would provide the basis for equitable allocation of costs.

We've been gratified by the inclusion of many of our recommendations or similar recommendations in both Senator Reid's bill and in the majority staff draft that you circulated, especially as has been discussed today, interconnection-wide transmission planning under strict timetables, with FERC empowered to act if the States do not, supported by broad-based cost allocation and underpinned by Federal siting authority. I would emphasize the need to build on the existing State and regional planning processes, as we heard today from NARUC, a bottom-up process taking advantage of the good work that's already been done, particularly by the Western Governors Association, and the process just described that MISO participated in. We believe that that early public input and the designation of transmission corridors will do a lot to make the siting process easier.

Finally, I just want to mention that the bills that have been circulated so far do not yet include provisions dealing with security of the grid, especially cyber security threats. The Defense Science Board's report last year, "More Fight, Less Fuel," found that critical national security and homeland defense missions are at unacceptably high risk of extended outage from failure of the grid. I urge you to incorporate provisions to ensure the protection of the grid from external threat. It's vital to both our economy and to our security.

Thank you very much, Mr. Chairman.
 [The prepared statement of Mr. Detchon follows:]

PREPARED STATEMENT OF REID DETCHON, EXECUTIVE DIRECTOR, ENERGY
 FUTURE COALITION

Mr. Chairman, thank you for inviting me to testify and for your conciliatory leadership of this Committee. My name is Reid Detchon, and I am the Executive Director of the Energy Future Coalition, a non-partisan public policy group, supported by foundations, that works to bring together business, labor, and environmental groups around common energy policy objectives.

The Energy Future Coalition was formed seven years ago, in the wake of the 9/11 attack, because of concerns that U.S. energy policy was not adequately addressing issues of national security and climate change. The condition of the nation's electric power grid was an immediate topic of concern and the focus of one of our initial working groups. Since that time, we have advocated for and applauded action by this Committee and Congress as a whole to support advanced transmission and smart grid technologies in the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007, and the American Recovery and Reinvestment Act of 2009.

Several months ago, it became apparent that, thanks in part to the advocacy of T. Boone Pickens, a new groundswell of support was emerging for modernizing the nation's transmission grid and expanding it to serve stranded large-scale renewable energy resources. Without such steps, it would be challenging to meet a national renewable energy standard, including the 25x25 target that we have long supported.

Accordingly, the Energy Future Coalition, in partnership with the Center for American Progress and later the Energy Foundation, began a series of listening sessions with a wide range of stakeholder groups to determine where the areas of agreement and disagreement were. We found remarkably broad support for a new network of extra high-voltage lines (345 kilovolts or above) to bring high-quality renewable energy resources—wind in the Great Plains, solar in the desert Southwest—to market.

With a smaller group of stakeholders, notably including the American Wind Energy Association and the Solar Energy Industries Association (whose joint white paper last summer, "Green Power Superhighways," was an important outline of the challenge and opportunity—<http://seia.org/galleries/pdf/GreenPowerSuperhighways.pdf>), Mesa Power, and the Sierra Club, we then collaboratively crafted a vision statement for the National Clean Energy Smart Grid, which I will describe in some detail. The full statement appears at the end of this testimony, along with a list of some 55 endorsing organizations.* These include the AFL-CIO, the Council on Competitiveness, and the Digital Energy Solutions Campaign, along with many renewable energy advocates and environmental groups, such as the National Audubon Society, the National Wildlife Federation, the Natural Resources Defense Council, Union of Concerned Scientists, and the Wilderness Society. I mention them because they are not usually prominent supporters of new transmission lines.

What brought these environmental groups to the table and ultimately to agreement was the imperative of action to address with urgency the growing global climate crisis. The Sierra Club's Carl Zichella, who ably represented the environmental participants, repeatedly noted that his constituency could accept the construction of new transmission lines if and only if they transported low-carbon energy. Building new lines to deliver electricity more efficiently from conventional coal-fired power plants was unacceptable.

The group agreed that a national Clean Energy Smart Grid is an economic, environmental, and national security imperative—vital to renewing America's economic growth, strengthening national security, and addressing the threat of global climate change. Investments are needed in both interstate transmission and in smart grid technologies to make the system more reliable, resilient, and secure, to accommodate renewable power and enable more energy efficiency by individuals and businesses.

These same conclusions were reflected in a white paper entitled "Wired for Progress," prepared by our partner in this project, Bracken Hendricks of the Center for American Progress, and available on the Internet at: http://www.americanprogress.org/issues/2009/02/wired_for_progress.html.

*Documents have been retained in committee files.

They were also the subject of a remarkable one-day forum on February 23, chaired by Senator Reid with the Center for American Progress, on the “National Clean Energy Project: Building the New Economy.” Participants included Senators Bingaman and Dorgan, Speaker Pelosi, former President Clinton and Vice President Gore, Energy Secretary Steven Chu, Interior Secretary Ken Salazar, former New York Governor George Pataki, T. Boone Pickens of BP Capital, Lee Scott of Wal-Mart, John Sweeney of the AFL-CIO, Andy Stern of the SEIU, and Carl Pope of the Sierra Club.

What are some of the benefits of a modernized grid?

- According to the Department of Energy, obtaining 20% of U.S. electricity from wind in 2030 would reduce electric sector CO₂ emissions by 25%—the equivalent of taking 140 million cars off the road—while creating 500,000 jobs and \$450 billion in economic impact.
- Almost 300,000 MW of proposed wind projects, more than enough to meet 20% of our electricity needs, are waiting to connect to the grid because there is inadequate transmission capacity to carry the electricity they would produce. California alone has over 18,000 MW of wind plants and almost 30,000 MW of solar plants waiting to connect to the grid.
- The Electric Power Research Institute estimates that making the grid smarter with modern control technology could reduce electricity consumption by 5-10%, carbon dioxide emissions by 13-25%, and the cost of power-related disturbances to business (estimated to be more than \$100 billion per year) by 87%.

In our discussions, the three most important issues standing in the way of new longdistance transmission lines for renewable energy were planning, siting, and cost allocation. Siting was seen as the most pressing issue, because opposition to new lines makes siting extremely time-consuming, difficult, and expensive. However, planning turned out to be the more important issue, as the group concluded that better planning could reduce the difficulty of siting new lines and provide the basis for equitable allocation of costs.

For these reasons, more than 55 stakeholder groups came forward to endorse the following policies:

1. Interconnection-wide planning for transmission networks to move renewable power from remote areas to population centers while ensuring the efficiency and reliability of the transmission grid, using a participatory and analytically robust process designed to engage all interested parties early and avoid later conflicts, minimize environmental impacts, and overcome the geographic and procedural limitations of current planning approaches.
2. A simple mechanism to pay for transmission investments and smart grid transmission upgrades identified in the interconnection-wide plans, which would minimize individual economic impacts by allocating costs broadly among ratepayers.
3. Consolidated certification and siting authority to expedite transmission projects identified in the interconnection-wide plans to serve urgently needed renewable energy resources while ensuring the efficiency and reliability of the transmission grid.
4. New policies to make electric grid security a priority, and to coordinate and pay for investments that will rapidly reduce the grid’s vulnerability to cyber and physical attacks and natural disasters.
5. Strong financial incentives for rapid deployment of smart grid distribution and metering technologies.
6. Education and training to create the workforce we will need to build, manage and maintain the National Clean Energy Smart Grid.

Recognizing the complex nature of the electric grid, its importance to the future of our economy, and its impact on our environment, these new policies and authorities should be developed and implemented in accordance with several key principles:

1. Interconnection-wide grid planning should not duplicate or supplant already ongoing planning efforts at the utility and regional level, but rather should build on them.
2. The interconnection-wide planning process should take into account: opportunities for improved end-use energy efficiency, customer demand response, clean distributed generation, and energy storage; opportunities to improve the efficiency of the grid; and opportunities to diversify and transform the Nation’s power supply resources.
3. New transmission plans should dramatically enhance our capacity to meet steep greenhouse gas emission reduction goals by targeting new clean renew-

able energy resources and limiting interconnection for new high-emitting generation (while still ensuring reliability).

We have been gratified to see many of these recommendations reflected in S. 539, introduced last week by Senator Reid, and in the Majority Staff draft circulated prior to this hearing—notably, a system of interconnection-wide transmission planning under strict timetables, with the Federal Energy Regulatory Commission empowered to act if the states do not, supported by broad-based cost allocation and underpinned by federal siting authority. The two bills give preference to renewable energy in different ways; the approach chosen by our group was to limit access to new transmission lines built with these special authorities to energy generators whose greenhouse gas emissions are no greater than that of a single-cycle natural gas-fired combustion turbine—on the basis that gas will be needed on the lines to compensate for the variability of renewable resources. The Majority Staff draft does not appear to provide that same level of assurance.

Neither of these bills, however, yet includes provisions dealing with the security of the grid, especially against cybersecurity threats, the importance of which was recognized in Title XIII of EISA. It is vitally important that the electricity grid be capable of real-time management and instant correction, in order to minimize the risk of disruption and the time for recovery, if a terrorist attack on the system does occur. This will require the ability to monitor the status of the grid on a real-time basis, to instantly recognize and diagnose any unusual events on the system, and to respond intelligently with adaptive changes in power flows, generating unit operations, and load management.

For those of you unfamiliar with the Defense Science Board's 2008 report on energy, "More Fight—Less Fuel," it found that "critical national security and homeland defense missions are at an unacceptably high risk of extended outage from failure of the grid."

The report warns: "Informed and capable saboteurs can inflict damage that would take down significant portions of the grid and other critical infrastructure for long periods and make restoration, even work-around measures, difficult, costly, time consuming and marginally effective"

"Grid control systems are continuously probed electronically, and there have been numerous attempted attacks on the Supervisory Control and Data Acquisition (SCADA) systems that operate the grid. None have yet resulted in major problems in the U.S., but the potential exists for major outages"

"The grid is a relatively easy target for a terrorist. It is brittle, increasingly centralized, capacity-strained, and largely unprotected from physical attack, with little stockpiling of critical hardware. Although the system is designed to survive single points of failure, increasing demand on the system and increasing network constraints make multiple points of failure more likely. These are difficult to anticipate and more likely to result in cascading outages and catastrophic outages that cover large areas for long periods of time. Network Single Points of Failure (NSPF) are abundant. High voltage transformers, breakers, and other long-lead time items are particularly critical system elements. They can be easily targeted and destroyed. Grid sections could be taken down for months even if replacement transformers and breakers could be found; or for years if certain components need to be newly manufactured and transported. There are only limited backups located around the country—generally co-located with operating equipment. For some of the largest equipment, there is no domestic supply and only limited overseas production capacity which is fully booked years ahead. For example, 765 kV transformers are manufactured only by one company in Canada. Armed with the right knowledge, a small number of people could shut down electricity over significant areas for an extended period of time, including power to critical DoD missions. The grid is not designed to withstand a coordinated multi-pronged or wide-area attack."

This situation represents an unacceptable threat to our national security. Addressing it by modernizing the grid with smarter technology to serve a digital economy would pay immediate dividends. In the last Congress, the House Energy and Commerce Committee prepared draft legislation to address the cybersecurity threat in particular; that is a good place to start.

Mr. Chairman, you and your colleagues are well on your way to writing legislation that will enhance our transmission system in important ways. I urge you to take the next step and incorporate measures to ensure the protection of that system from external threats. Our economy and security deserve no less. Thank you for inviting me to participate in this hearing.

The CHAIRMAN. Thank you very much.
Mr. DICKENSON.

**STATEMENT OF JAMES A. DICKENSON, MANAGING DIRECTOR
AND CHIEF EXECUTIVE OFFICER, JEA**

Mr. DICKENSON. Thank you, Mr. Chairman and Senators. I do thank you for this opportunity to address the committee on behalf of our consumers. My name is James A. Dickenson and I am CEO of JEA, Jacksonville, Florida's municipally owned electric, water, and sewage utility. JEA's electric system serves more than 400,000 customers in Jacksonville and adjacent counties.

I'm testifying today on behalf of JEA and the Large Public Power Council. LPPC is an association of 23 of the Nation's largest municipal and State-owned utilities located throughout the Nation, which also includes a number of States well represented on this committee. Together, LPPC members own nearly 90 percent of the non-Federal public power transmission in the United States. LPPC members are also industry leaders in the development of renewable generation and energy efficiency.

On a personal note, I spent the first 20 years of my 36-year career in the electric utility industry designing and building transmission lines.

My testimony today addresses the need for Federal legislation to spur the development of transmission facilities to bring new renewable resources to market, and I will address three issues, that of siting, planning, and cost allocation.

LPPC members believe that enhanced Federal siting authority would be very useful in developing needed transmission. State commissions focus primarily on the interests of their States when deciding whether to issue a permit or certificate for a project. Current Federal authority is not adequate to overcome this barrier since the authority given to FERC under the Energy Policy Act of 2005 is limited to identified corridors and may be even more limited by recent court rulings.

On the subject of siting on Federal lands, LPPC's western members report that Federal agencies lack adequate resources and have difficulty coordinating with each other. Congress should also address this issue.

Finally, LPPC believes it would be a mistake for legislation expanding Federal siting authority to restrict the use of new transmission capacity simply to renewable resources. Such a restriction would raise difficult issues regarding open access policy and feasibility. Transmission lines available to meet multiple needs are vastly more valuable to the grid than those dedicated to a single use.

Planning. With respect to transmission planning, while we believe there may be room for improvement, we do not think that it would be productive to add a whole new planning bureaucracy. Only last year, in Order 890 FERC directed the implementation of a new region-wide planning process that called for an unprecedented level of regional coordination, transparency, and Federal oversight. All major utilities, including JEA, are actively participating in a new region-wide planning process designed to consider inter-regional planning challenges and proposals. Congress should be wary of turning the industry's planning process upside down at the very time we most need a prompt and well-considered response to the new stresses that will be placed on the grid.

On cost allocation, LPPC believes that the users of proposed new transmission facilities should pay for them. I would make several points on the proposals for interconnection-wide cost allocation. First, building transmission to access remote renewable resources is only one of the many ways for utilities to respond to requirements to reduce greenhouse gases. Other options include energy efficiency, demand response, local renewable resources, which include distributed solar, upgrading efficiency of existing generation, new nuclear capability, and plug-in hybrid vehicles. Many of these options will not require major transmission investments.

Second, interconnection-wide cost allocation for new transmission may tilt the field in favor of distant renewables and against development of more economical local alternatives for reducing greenhouse gas emissions, such as energy efficiency and nearby renewables. As Congress establishes new environmental goals for our industry, utilities should have the opportunity to respond in the most cost-effective manner possible in view of the resources available to them. Subsidized transmission for distant renewables should not be allowed to crowd out more economical energy efficiency and local renewables to the detriment of our customers.

Third, while the costs of proposed transmission build-out is unknown at this time, it could be very high. One transmission study estimates that the investment in transmission in the Eastern interconnect alone to meet DOE's 20 percent wind energy scenario would be \$80 billion. Allocating costs of new transmission projects to their users enforces a cost discipline on the project that may be lost if interconnection-wide cost allocation is implemented.

LPPC's view is that Congress should focus on clearing away obstacles to transmission development. These steps include implementing further Federal transmission siting authority that is respectful to State and local concerns.

What Congress should not do in LPPC's view is create an additional bureaucracy to oversee system planning or provide for interconnection-wide allocation of new transmission investment.

I would like to close with a comment on the draft legislation released earlier this week on Chairman Bingaman's behalf by the committee staff. I was pleased to see that it takes a comprehensive, thoughtful look at these important issues and includes provisions which address some of the concerns I've articulated today. First, as I noted, we agree with the premise that new Federal siting authority is called for and that it should not be limited solely to transmission lines for renewable resources. However, we think that the exercise of this new authority need not be premised on the creation of new planning institutions, but should instead be vetted through the regional planning processes recently implemented by FERC Order No. 890.

With respect to the allocation of costs for facilities, we think that Congress should rely on existing law to determine just and reasonable rates for the use of these facilities, rather than trying to sort it out in legislation.

Thank you once again for the opportunity to address the committee.

[The prepared statement of Mr. Dickenson follows:]

PREPARED STATEMENT OF JAMES A. DICKENSON, MANAGING DIRECTOR AND CHIEF
EXECUTIVE OFFICER, JEA

My name is James A. Dickenson and I am Managing Director & CEO of JEA, a municipally owned electric, water and sewer utility system located in Jacksonville, Florida. JEA's electric system serves more than 400,000 customers in Jacksonville and parts of three adjacent counties. I am testifying today on behalf of JEA and the Large Public Power Council ("LPPC").¹ LPPC is an association of 23 of the nation's largest municipal and state-owned utilities. Together, its members own approximately 34,000 miles of transmission, representing nearly 90% of the transmission investment owned by non-Federal public power entities in the United States. LPPC members are located in states and territories representing every region of the country. Our members are not-for-profit entities that are directly accountable to our customers—the citizens in our communities. Our commitment is to provide highly reliable, low cost and environmentally responsible electric service to our citizen-customers.

LPPC members are among the industry's leaders in development of renewable generation and energy efficiency, having invested, on average, in renewable generation at a level above the industry average. For example, Seattle City Light made its first wind purchase in 2000, far before most utilities. Austin Energy now receives about 12% of its energy from new wind resources, and will more than double this in the next few years. Los Angeles Department of Water and Power (LADWP) plans to receive 35% of its power from new renewables by 2020, perhaps the most aggressive renewable goal in the nation. The Sacramento Municipal Utility District will have 20% of its energy resources in renewables in 2010, with a goal of having 33% in renewables by 2020. Snohomish County Public Utility District leads the country in FERC-approved tidal applications. Our members in Florida and the Southeast, however, have significant challenges when it comes to renewables, with biomass and landfill gas resources as our best options.

On Monday, March 9 LPPC received proposed legislative language entitled Siting of Interstate Electric Transmission Facilities, which proposes to amend Section 216 of the Federal Act (16 U.S.C. 824p). LPPC has not yet had the opportunity to fully review and discuss this proposal. However, we will comment on it in a supplemental submission for the record and I will be prepared to discuss the proposal during the hearing on March 12.

My testimony today addresses the need for federal legislation to spur the development of transmission facilities to bring new renewable resources to market. I address four policy issues relating to new transmission: siting, planning, cost allocation and proposals for dedicating new transmission exclusively or predominantly to use by renewable resources. LPPC members support transmission development needed to deliver renewable and other generation resources, and believe that enhanced federal siting authority would be particularly useful. With respect to system planning, while we recognize that there may be room for improvement in existing planning institutions and processes, much is now being done at FERC's recent behest. We believe it would not be productive to layer a new planning bureaucracy on top of the current regime.

As to cost allocation, LPPC believes that the users of the proposed new transmission facilities should pay for them. Some current policy proposals provide for interconnection-wide cost allocation for new transmission facilities—that is, spreading the costs of new transmission facilities constructed in the Eastern or Western Interconnection to all consumers in the Interconnection.¹ This cost allocation policy is not necessary to encourage needed new facilities, and may well discourage the development of more economical alternatives for reducing greenhouse gas ("GHG") emissions, such as energy efficiency and local renewables. I am particularly concerned, from the standpoint of JEA and its customers, that the large subsidies for construction of transmission contemplated by some current proposals would provide little benefit to Florida, and would prove to be a costly burden. If Congress establishes environmental goals for our industry through implementation of an RES or

¹ LPPC's members are Austin Energy, Chelan County Public Utility District No. 1, Clark Public Utilities, Colorado Springs Utilities, CPS Energy (San Antonio), IID Energy (Imperial Irrigation District), JEA (Jacksonville, FL), Long Island Power Authority, Los Angeles Department of Water and Power, Lower Colorado River Authority, MEAG Power, Nebraska Public Power District, New York Power Authority, Omaha Public Power District, Orlando Utilities Commission, Platte River Power Authority, Puerto Rico Electric Power Authority, Sacramento Municipal Utility District, Salt River Project, Santee Cooper, Seattle City Light, Snohomish County Public Utility District No. 1, and Tacoma Public Utilities.

¹ The Eastern and Western Interconnections are the separate interconnected transmission systems in the Eastern and Western United States. A separate Interconnection operates in Texas.

carbon control measures, or both, Congress should let utilities, state regulators, and regional transmission organizations determine how to meet those goals most effectively by making economic choices among an array of available options.

OPTIONS FOR REDUCING CARBON EMISSIONS

Building transmission to access remotely located renewable resources is only one of many means by which utilities may respond to requirements to reduce greenhouse gases (GHGs). The Electric Power Research Institute (“EPRI”) through its “Full Portfolio” analysis and McKinsey and Company in its 2007 “U.S. Greenhouse Abatement Mapping Initiative” show a wide variety of options that we may employ, including: energy efficiency initiatives (many calling for capital investment); conversion of existing generation to more efficient operations; the development of additional nuclear capability; advanced coal generation and carbon capture and storage; distributed renewable resources (including distributed solar); plug-in hybrid vehicles and the development of large-scale remotely located renewable generation.² Many of these options are also useful in meeting a Renewable Electricity Standard (“RES”).

The EPRI and McKinsey studies demonstrate that we should take advantage of the full range of alternatives available to us to reduce carbon emissions. When considering these options from Florida’s standpoint, or the entire Southeast for that matter, we must also remember that the available options depend very much on geography. It is clear that in the Southeast, unlike the West, Pacific Northwest and Mid-West, we are not blessed with substantial wind resources. The Department of Energy’s nation-wide study of wind resources shows plainly that there are no significant on-shore wind resources in the Southeast, and limited off-shore capability.³ It is telling that even American Electric Power’s ambitious proposal for a nationwide transmission build-out does not propose facilities in the Southeast.⁴

What we do have in the Southeast is biomass capability, some limited solar capability, the potential for nuclear development and the opportunity to consume energy more efficiently. These options do not call for an extensive transmission build-out, and it does not seem reasonable or fair to me to call upon electric customers in the Southeast to pay for transmission they cannot use. Certainly, I would not expect others to fund the options we will choose for addressing RES or GHG reduction requirements, including, potentially, new transmission to reach off-shore wind resources. I believe that it makes a lot more sense to permit utilities to make intelligent choices from among the realistic alternatives they have available to them to meet RES and GHG control requirements, without burdening them with costs of transmission facilities useful only in distant regions.

TRANSMISSION SITING

LPPC believes that where transmission to remotely located renewable resources is sensible, there are measures Congress should take to facilitate that development. LPPC agrees that state siting authority is not sufficient to address interstate transmission to benefit renewable resources. State authorities are generally restricted to considering the best interests of their jurisdictions in isolation when deciding whether to issue a Certificate of Public Convenience and Necessity or make state eminent domain powers available for a project, leaving any state in a proposed interstate transmission pathway in a position to exercise an effective veto. Nor is current federal authority adequate to overcome this barrier. While the Energy Policy Act of 2005 (“EPAct 2005”) did amend the Federal Power Act by creating a new Section 216, authorizing the Federal Energy Regulatory Commission (“FERC”) to exercise “backstop” siting authority, the authority is of limited utility for renewable resources. New Section 216 authorizes FERC to issue certificates in instances in which states delay siting facilities that would address transmission constraints in so-called “national interest corridors” previously designated by the Department of Energy. However, it is my understanding that these designations are generally not intended to address transmission for renewable resources. I also understand that the scope of federal authority was recently narrowed by the Fourth Circuit Court of Appeals’ decision in *Piedmont Environmental Council v. Federal Energy Regulatory Commission* (Case No. 07-1651, 4th Cir., February 18, 2009), where the court

²See mydocs.epri.com/docs/public/DiscussionPaper2007.pdf; and <http://www.mckinsey.com/client-service/ccsi/greenhousegas.asp>.

³See http://www.windpoweringamerica.gov/wind_maps.asp.

⁴See <http://www.aep.com/about/1765project/docs/WindTransmissionVisionWhitePaper.pdf>. The map at p. 8 of that proposal shows no facilities planned for the Southeastern United States.

held that a state order directly denying a certificate application did not serve as a predicate for the exercise of federal backstop authority.

I also believe that any additional federal siting and eminent domain authority that Congress creates should be respectful, to the maximum extent feasible, of state and local concerns regarding siting options and land use. State agencies historically responsible for siting transmission facilities are well-equipped to consider environmental and land use issues, the impact on local economies and rates. These agencies have an important role to play in determining routes subject to federal siting authority.

LPPC's Western members have experienced significant obstacles to the development of interstate renewable transmission projects from such federal agencies as the Department of the Interior's Bureau of Land Management, the Forest Service and the Department of Defense, to the extent they are responsible for the administration of federal lands that may be crossed by transmission for renewable resources. Federal land is often traversed by large-scale transmission projects, and LPPC's Western members report that lengthy review processes, and difficulty in valuing benefits of renewable goals can be problems for these agencies. Here, empowering a single federal agency, preferably FERC, to facilitate the federal siting process would be very helpful.

Finally, I note that LPPC believes it would be a mistake for new legislation extending federal siting authority to include restrictions on the use of this new capacity. Some of the current policy proposals would restrict the use of new transmission to renewable resources. These proposals raise difficult issues regarding compliance with open access requirements, verification and equity. In addition, dispatching power into the grid under such a system would be tremendously complex. Such requirements simply may not work when one considers the physics of the electric grid and the intermittent nature of renewable resources.

PLANNING

Coordinated interregional planning will be important in the development of new transmission to interconnect renewable resources. There may be room for improvement in the existing planning institutions and processes—but with the changes mandated by FERC in Order No. 890, I think they are up to the task. In Order 890, issued last year, FERC directed the implementation of new, region-wide planning processes that call for an unprecedented level of regional coordination, transparency, and federal oversight.⁵ Compliance filings by all utilities reflecting these principles were accepted by FERC only a few months ago, and the implementation process is now under way. Utilities in the Southeastern United States, including JEA, are actively participating in a new, region-wide planning process designed to address pan-regional planning challenges and proposals.

Layering a new planning bureaucracy on top of what we are currently developing is likely to be time-consuming and costly, and may delay rather than expedite transmission development. As the industry moves toward a more open, transparent and coordinated process under the Order No. 890 framework, we have been careful to preserve the “bottom up” nature of the planning function, since doing otherwise would risk system reliability. There is no doubt that the focus of this process will change as an RES or other measures governing GHG emissions are implemented. But I believe Congress should be wary of turning the industry's planning process upside-down at the very time we most need a careful, considered response to the new stresses that will be placed on the grid.

COST ALLOCATION

The cost of the proposed transmission build-out is unknown at this time. However, a recent transmission study undertaken by the Midwest ISO, SPP, PJM, TVA and MAPP in the Joint Coordinated System Plan 2008 (“JCSP”) estimates that the investment in transmission in the Eastern Interconnection alone to meet the 20% wind energy scenario studied by the Department of Energy in its Eastern Wind Integration and Transmission Study would be \$80 billion. I think it is reasonable to assume that a nationwide program may cost as much as twice that amount.

If Congress adopts an RES, and with the potential for other carbon control measures, utilities will have every incentive to respond in the most cost-effective manner possible, in view of the resources available to them. Utilities will do what they need to do to meet these goals, and if building transmission to access remote renewable

⁵ Preventing Undue Discrimination and Preference in Transmission Service, Order No. 890, 72 Fed. Reg. 12,266 (March 15, 2007), FERC Statutes and Regulations ¶ 31,241, order on reh'g, Order No. 890-A, 121 FERC ¶ 61,297 (2007)

resources is the most economical alternative, that is what they will do. However, allocating the cost of that transmission on an interconnection-wide basis will tilt the playing field dramatically away from any alternatives that do not depend heavily, or at all, on transmission. If the cost of transmission to remote resources is essentially free from a system planner's standpoint, other alternatives to meeting carbon control requirements will be significantly less economical by comparison. Low cost, subsidized transmission for distant renewables should not be allowed to crowd out energy efficiency and local renewables.

At such time as a Federal RES and some form of carbon control regime is in place, utilities will have a powerful incentive to employ all available options for GHG emission reductions. Of course, many utilities will make plans to build new transmission facilities to access remotely located renewable resources, while project developers will have reason to invest in such facilities in order to access newly motivated markets.

A good deal of work on transmission for renewables is already being undertaken, particularly where state RES requirements are already in place. According to the North American Electric Reliability Corporation's (NERC) 2009 Long-Term Reliability Assessment, approximately 11,000 more transmission miles are planned between now and 2012, a substantial addition to the existing network of 164,000 miles, and more than the system has experienced for many years. Much of this is specifically aimed at integrating new wind resources into the electric grid. For example, there are two major transmission projects in the West planned for completion in 2014 to integrate renewable resources. Each of these 1,000-plus mile lines will facilitate the delivery of 3,000 MW of primarily wind generation from the northern plains to load centers in the Southwest.

Some argue that without an interconnection-wide funding mechanism, needed transmission would not be built. This seems incorrect to me, and it ignores the unavoidable incentive that an RES or carbon control framework will establish. Faced with a direct mandate, or a substantial financial incentive, utilities will respond in full compliance with the law. Where economical, they will build or fund new transmission systems. Whether the investment compelled by these new requirements will support all of the high voltage facilities contemplated by some project developers is an open question. But it doesn't make sense to judge the economics of these lines in a vacuum. If it makes economic sense to build new transmission facilities, when one looks at the available resources and demand and compares the cost of construction to all of the available alternatives, they should be built. Project developers should be making these judgments based on projected generating capacity, anticipated demand and the cost and efficiencies of the facilities. There is no need for legislation addressing cost allocation that would effectively prejudge those decisions.

WHAT INTERCONNECTION-WIDE COST ALLOCATION WOULD MEAN FOR FLORIDA

The options for renewable generation to meet the RES in the Southeast include further reliance on biomass resources, the development of additional solar facilities, a substantial investment in efficiency and demand response initiatives, and the potential development of off-shore wind resources. These options do not depend on a large scale transmission build-out, and no one has made a good case for facilities that would cross half a continent in order to supply Florida with additional wind resources. As I noted above, the transmission build-out proposals I have seen leave Florida and the Southeast out of the mix.⁶

The effect of this, from the standpoint of JEA's customers, would be to call for what amounts to a substantial tax, with no practical benefit from an environmental standpoint. JEA will do what it must to meet RES requirements, generate renewables or purchase renewable energy credits, but adding an interconnection-wide fee for transmission facilities we cannot use makes no sense.

WHAT CONGRESS SHOULD DO

LPPC's view is that Congress should focus on clearing away obstacles to transmission development where they exist. These steps include implementing further federal transmission siting authority that is respectful of state and local concerns. Further, a full review of existing statutes and federal agencies involved in authorizing transmission across federal lands should be undertaken, in order to respond to what I am told is the substantial need for coordination among all federal permitting processes.

⁶ See AEP's proposal for building the new green grid at <http://www.aep.com/about/i765project/docs/WindTransmissionVisionWhitePaper.pdf>. The map at p. 8 of that proposal shows no facilities planned for the Southeastern United States.

What Congress should not do, in LPPC's view, is create an additional bureaucracy to oversee system planning, or require the interconnection-wide cost allocation of new transmission investment. The need to respond to an RES will drive transmission investment where that makes sense. The "socialization" of transmission costs would be a costly subsidy that would suppress other, potentially more economical, alternatives to meeting renewable energy and GHG control goals.

The CHAIRMAN. Thank you very much.

Thank you all for your excellent testimony.

Let me ask a couple of questions. Let me ask Mr. Morris—I think you made reference to your concern about the way we've got the planning provisions for the entire interconnect, as I understand it. I gather that that's what Mr. Dickenson was referring to as well when he was saying that we should defer to the regional planning processes that are already in place as a result of this FERC Order No. 890.

Could you elaborate as to your thoughts on this? We're trying to figure out how to accomplish the planning in a way that doesn't create new bureaucracy, but still has it take into account all it should.

Mr. MORRIS. I offered that comment only as a caution because of my fear for that. I think you've done an excellent job of laying out a concept that would allow for a more interconnected planning concept. As you know, and your legislation addresses the issue, we really have two major electric grids. The Eastern and Western Interconnect, ERCOT, chose some years ago to take care of themselves. I guess today they wish they hadn't, but we'll leave that for another day.

I think you've laid over that a concept that addresses—some of those areas do have RTOs or ISOs. Some of them don't. So you've blended that in when they do have those available, taking advantage of that. Allowing the States to participate is essential. But at the end of the day one of my fellow panelists, I think Graham said it: Someone has to get over the notion of we need to build some things, we need a Federal authority to build them.

When you understand the statistics that both Senator Dorgan and Senator Reid shared with us, we've built thousands of miles of natural gas pipelines and hundreds of miles of electric transmission line. So I think you've really addressed that issue. My caution only was I hope we don't create another intervening slowing down.

You may remember, and I know you know this, in 2005 EAct, it took the DOE forever just to designate three corridors in this entire country. Yours is a much broader concept of addressing it in a much more rational way for the entirety of the two interconnects. So I just worry about the time line, but I champion you for what you're trying to do. I think you've done as well as one could hope in in the planning cycle in that sense.

The CHAIRMAN. Let me just see if anybody else has a comment. Your reference, Mr. Dickenson, to the concern about us creating additional bureaucracies to oversee the system planning—your thought is that this Order 890 is adequate to get the planning done that's needed to be done; is that what I understand?

Mr. DICKENSON. Senator, I think part of my comment is that FERC Order 890 is relatively new in terms of really encouraging regional planning, and I think my comment is just to simply give

that time to work itself out. As one of the other panelists mentioned, the Eastern Interconnect is a very, very wide geographic area with very diverse regional issues, and to allow the regional issues to continue to work through themselves I think is very important.

The CHAIRMAN. Mr. Edwards, let me ask your view of, if you're modeling to determine the transmission system that will reduce greenhouse gas emissions the most, I assume that means you would come up with a different model than if you were modeling to maximize the use of renewables?

Mr. EDWARDS. Yes, sir, but I think the two can go hand in glove. In the coordinated joint system plan that was previously mentioned, that was done at a high level for the Eastern Interconnect. We saw that from the reference case to the 20 percent renewable case actually carbon basically reduced by about 8 percent. So one does complement the other.

To me, the policy issues that need to be identified on renewables are: how much renewables are going to be mandated; and then how much carbon tax or cap and trade or whatever it is, because those two have got to work together and there are economic tradeoffs that we've got to look at.

So I think that you've got to look at both of them, Mr. Chairman, but I think they both go hand in glove.

The CHAIRMAN. Let me defer to Senator Murkowski for her questions.

Senator MURKOWSKI. Thank you, Mr. Chairman.

I believe that both Mr. Edwards and Mr. Dickenson commented on the renewable-only mandate for transmission. But I'd like to ask the others: Do you believe that Congress should mandate that we have a preference for renewable-only transmission? If you do believe so—Mr. Edwards, you commented on the laws of physics and I think we heard it from Senator Dorgan as well: These electrons are color-blind there. How do you determine whether you've got 75 percent of the power flowing in a particular line coming from renewable?

Mr. MORRIS. We should absolutely not do that, for that very reason, Senator. There's not a chance in the world that you'd understand. Remember, electricity moves at the speed of light. There is no way to know that it would be strictly for renewables.

Besides that, you'd have an asset and utilizing it at a substandard capacity factor, which just makes the economics worse. If part of the goal here is to make sure that we rationalize the system not only for the environmental benefits and retiring old or unnecessary fossil-based power production facilities, bringing renewables in is logical in that sense. But limiting it would be like taking the highway system and saying only front wheel drive vehicles can be out here. How silly would that be?

So politically it may sound cute, but practically it won't happen, and it's really ill thought through.

Senator MURKOWSKI. I appreciate those comments.

Any other comments on that?

Mr. Detchon.

Mr. DETCHON. If I might speak to that, Senator. I think that this is a difficult issue, and you've raised some of the reasons for it. But

at the same time, I think that the reason that we're talking about these transmission upgrades is a special purpose, which is how are we going to move large-scale renewables to market. I think we should restrict the special authorities that we're creating to that purpose.

I think that I'm not in a position to argue one way or the other about Senator Reid's bill, but my understanding of the intent of that bill is that 75 percent of the capacity should be available for renewable energy, not an actual measurement of electrons, which of course is impossible.

Senator MURKOWSKI. But just if I could understand your comments, then, if it's made available. But you've got a situation where you may be underutilizing this very, very, very necessary transmission system, is that not correct?

Mr. DETCHON. I think that the concept is that you use the renewable energy when it's available and when it's consistent with the reliability needs of the system. But what we don't want to do is build a lot of new transmission lines under the guise of bringing renewable energy to market and then have those renewable energy lines dominated by coal-fired power plants.

Mr. WELCH. I'd like to comment to that. I agree wholeheartedly with what Mike had to say here, that when we design this grid—and I tried to address this in my prepared remarks—we have to have an objective in mind. What is our objective, and if it is to integrate renewable resources into the grid then what we want to do is make sure that we get the most cost-effective renewable resources into the grid.

When we're operating the grid, which is a totally different issue, we go back to our fundamental principles. Reliability is our No. 1 reason why we're here, to keep power flowing to the customers in industry and everything that's out there. So we're not going to limit these lines as to what they can do. We have the design principles to get us to where we want to be. Then we operate them for the conditions that exist moment by moment on the grid every day.

If the wind's not blowing, you are certainly not going to want us to prohibit that line from flowing coal energy or any other energy, because we have people depending on that for life, for business, and just for pleasure. On the other side of the coin, you can't limit this. When you build one of these high voltage grids, it actually unloads the underlying grid and makes the underlying grid more efficient, which is exactly the reason you want it. We actually achieve energy efficiency by building a high-voltage overlay grid.

I would like to get to the point one of these days before I die where somebody complains that we've built too much transmission. I've been trying to build one big line for about 10 years, and the process is daunting. We need to streamline this.

Senator MURKOWSKI. Thank you.

Mr. Edwards, the question was raised earlier about, when we were talking about reliability—and I think it was you, Senator Corker, that brought up the issue of redundancy. The study that you undertook, the joint coordinated system plan, looking at the future energy scenarios with wind, 5 percent wind energy, and how much that might cost to bring on the transmission; 20 percent wind, a cost of \$80 billion. How much backup generation is needed

in these scenarios to allow for this level of reliability that we're all talking about.

Mr. EDWARDS. Senator, as I heard the question previously, I asked my transmission technical expert behind me, and included in the JCSP study wind was given about a 15 percent credit. So that means that basically you would need about an 85 percent reserve margin for it to effectively operate on parity within the system. So wind will require—again, let me caveat it. Depending on the diversity of the wind, where it's located, all those issues, you will need additional resources. Is it 85 percent, is it 50 percent? We don't know exactly, but you will need significant reserves for the wind.

Senator MURKOWSKI. Are you studying that?

Mr. EDWARDS. We have not studied it at this point in time. We made an assumption in the current study. That is something we need to get our arms around, just like we need to continue exploring wind forecasting, which is a critical issue to all of us in this room.

Senator MURKOWSKI. Thank you, Mr. Chairman.

Mr. MORRIS. I might add to that concept. There isn't really a need for a redundancy. What they need is a requirement for the interconnectedness. Chairman Wellinghoff mentioned the tremendous nuclear station, Palo Verde. Palo Verde is connected to the grid in three or four different ways. When it goes down, as long as the grid is interconnected the Phoenix area lights will not go out. So it isn't a redundancy. It's just an interconnectedness. That's really what you're after here. That's why you want to do the planning on the basis that you spoke to, so when the wind does blow, it will move into the system.

To Joe's point, when the wind doesn't blow the grid will fill itself, because the physics of electricity is that it loves a vacuum and it'll fill it.

Senator MURKOWSKI. Thank you.

The CHAIRMAN. Senator Corker.

Senator CORKER. Thank you, Mr. Chairman.

I really appreciate your responses regarding limiting the grid only to renewable. It's hard to imagine that one would consider that, and I hope that certainly common sense will make its way into this legislation in that regard.

Let me ask you a question, because I can tell there's division based on the panel members. At the end of the day we're going to be debating a renewable electricity standard down the road again, I'm sure, and very soon, it looks like. The fact is that some people regionally benefit far more from that than others in a system like that because there is in fact, no matter how you cut it, a transference of wealth that takes place when people in certain parts of the country don't have the ability for certain defined renewables, especially when important things, very important things like nuclear, are left out of that provision. You have a transference of wealth that takes place.

So just in listening to you, I'd love for you to respond as to, then you have people in our country that greatly benefit from a renewable electric standard financially. So why would it be practical then to share the expense of that transmission throughout an entire region when you have a few people who are benefiting from the en-

tire proposition of renewable electricity standard, and a lot of people the tare losing in that proposition? Why would you spread the costs of a system that's designed basically for renewable electricity around the whole mass of people?

Mr. MORRIS. Senator, that surely is one of the reasons I answered Senator Murkowski's question the way that I did. It would be illogical to do that.

Senator CORKER. Illogical?

Mr. MORRIS. Illogical, yes. I'm sorry. I do hope common sense prevails. In that regard, it's always been that way, that certain areas will get more advantages than others. The renewable energy standard, to me the definition should be as broad as we can make it. I think that allows many, many people to come in.

Senator CORKER. Including nuclear and that kind of thing?

Mr. MORRIS. New nuclear, clean coal. In many Midwest States, the Governors have chosen "advanced energy" as the definition, "energy efficiency" as the definition, and that allows all of us to get there. Our company, that serves 5.2 million customers and 11 States, some States have wind like Texas; other States have wind maybe offshore like Ohio. We don't have sun in the upper Midwest. But we continue to add renewables to our system. This year alone, 2008, American Electric Power added over 1,000 megawatts of wind to its system, not a megawatt of coal to its system.

So even though our history is a coal-based utility, we're not against renewables at all. I do believe that if States want to have more than the Federal standard they ought to be allowed to do that. If they'd like to have less, they ought to petition someone, some Federal agencies, to seek less than that. But no one should be able tnot to have renewables.

If you build the grid, as I said earlier on, you will get a rationalization of power production facilities. Renewables, when the sun is shining it'll get to market; when the wind is blowing, it'll get to market; when it isn't, clean coal will get to market, existing coal will get to market, and nuclear will get to market, hydro will get to market.

Again, the obligation here is to see to it that in the most cost-effective way we rationalize the power production and the energy delivery system of this country. Again, the time is ripe and the leadership is—this is impressive. I really believe I've been after this since 1988 and I really believe that its time is now.

Senator CORKER. What was the term you used again to describe not renewable, but—

Mr. MORRIS. Advanced energy.

Senator CORKER. Advanced energy. So maybe we can have an "AE" standards instead of an RES standard.

Yes, sir, Mr. Welch.

Mr. WELCH. I'd like to comment to that, too. One of the things that frustrates me—and of course, I'm only in the transmission business and I'm not on the production side—is when we start to talk about the benefits that are brought to the table, if you will, by transmission. I have not found a transmission project of any sort that fits into any one nice neat category.

For instance, we know that had we built a proposed line that would looked at 3 years ago the blackout of 2003 wouldn't have

happened. Yet, the way the system is paid for today is that the people in Michigan would have to pay for that line, and yet the 50 million customers that went out were across the spectrum.

Mike said all the generation that's available and yet it's captured, cannot get to a market. We will see a rationalization and a cost equalization of costs across the grid, as long as we realize that we're designing the grid and the grid will flow.

The renewable resources, like we look at in the Upper Midwest, while we are talking about renewable resources as though they are all high cost, they are not high cost compared to any technology, including coal-based generation on new to new, if you take it out of the Dakotas. That's what our studies have shown. It is cost competitive and actually costs less.

So if you're getting to the point where you're going to start to replace generation, it's time that we start to look at renewables, and we look at them in a cost-effective way. If we're going to add them, let's do it in a cost-effective way. So if you set a standard, let's be rational about it and set a standard so we can get the most cost effective things into the system the quickest and the easier.

Senator CORKER. So that would be a broader standard, is that correct?

Mr. WELCH. Absolutely. I think that the rationalization for the cost of it has to be on a very, very broad, regional basis, because those benefits flow regardless.

Senator CORKER. Those costs would be prior to all the production tax credits and everything and would be the true costs?

Mr. WELCH. When we did our study it was true cost, true cost to true cost. No tax incentives for the renewables and no penalty on the fossil side for carbon tax. Just plain, straight-up cost, and it included the cost of the transmission to get it to markets.

Mr. EDWARDS. Just one last comment, Senator. Let's don't lose sight. Renewable energy is just a part of the portfolio. As others have said, we need to have a mix of new generation, but the bulk transmission system, the overlay, will allow a lot of things to be accomplished, for wind energy to be integrated, for cheaper energy to be moved from various parts of the country.

So the bottom line is that our studies show that through the entire Eastern Interconnect, with the 20 percent renewable there was about a 1.7 to 1 ratio of benefit to cost. So we think that renewables integration is good for the consumer as long as it's done in a coordinated and well planned way, so that it's, say, part of a mix and not the sole answer to our questions.

Senator CORKER. But you wouldn't make the Southeast or some parts of the country, you wouldn't make them use wind. You would do it in a coordinated way to use the best assets we have all the way around the country, and not transfer wealth; correct?

Mr. EDWARDS. Yes, sir.

Mr. DETCHON. Senator, I think that the renewable energy standard is being considered because it's a national benefit to the country, as the witnesses have just pointed out, in terms of economic cost, in terms of our environmental benefits, etcetera. So you have some unique barriers in the way of long distance transmission of renewables. These projects tend to be much smaller than, for example, a 1,000 megawatt nuclear plant. So creating the backbone that

can bring North Dakota wind to market is a unique challenge, and I think that that's the reason why these special authorities are focused particularly on renewables.

Senator CORKER. I witnessed that in our chairman's State of New Mexico with the long runs out to what I saw were very sophisticated wind turbines, and certainly I understand that point and appreciate your bringing it up.

Mr. DICKENSON. Senator, also I'd like to comment. On the original question on allocation, many of our members in Large Public Power Council have already moved forward very aggressively to have renewable energy, and a lot of them in their own areas. For instance, the city of Austin in Texas already has 12 percent renewable based on wind. So those that have moved forward aggressively may not need to participate in large transmission lines or pay for large transmission lines to bring renewables in because they're already moving forward and doing that, so it would hit them twice.

I get a little concerned on, just because if you spread it over everybody it's a little amount of money, that when you do too many projects like that it ends up adding up to a lot of money. So I'm just concerned about that type of an allocation.

Senator CORKER. Thank you all.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Murkowski, do you have additional questions?

Senator MURKOWSKI. No, Mr. Chairman. A very, very good hearing. Thank you.

The CHAIRMAN. Thank you all very much. This was very useful testimony. We conclude our hearing.

[Whereupon, at 12:05 p.m., the hearing was adjourned.]

APPENDIXES

APPENDIX I

Responses to Additional Questions

RESPONSES OF JAMES A. DICKENSON TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. You indicate that there is significant difficulty in the West in getting federal approvals for siting on Federal lands. In 2005 we required agencies to create an expedited process for approval of corridors for energy facilities on Federal lands. Has this process relieved any of the difficulty? Is it working?

Answer. Section 368 of the Energy Policy Act of 2005 required agencies to designate energy corridors on federal lands and to expedite applications to construct or modify transmission and distribution facilities in such corridors. While federal actions have been taken to pre-identify corridors, there were a fairly limited number of corridors addressed in the Programmatic EIS (PEIS) that was finalized along with a concurrent amendment to resource management plans for federal lands. In addition, many intrastate and interstate projects that are underway or being contemplated are not addressed by the Western Energy Corridor process.

Unfortunately significant challenges remain related to receiving timely review and approval. The existing guidance documents for the development of environmental assessments (EA) and environmental impact statements (EIS) should contain defined timeframes for the completion of the processes on federal lands. After the guidelines are established, federal agencies must have adequately trained staff to complete the required work within those timeframes. For example, a federal agency is generally expected to complete an EA within 12 months. Our western members report that this process often takes 2 to 3 years. Similarly, while most expect that an EIS can be completed within 24 to 30 months, utilities in the west report that the EIS process often takes 3 to 4 years to accomplish. We believe that firm process deadlines, additional resources and focused leadership will help ensure schedules are met and improve the processes.

Ultimately, the most important criteria for completing siting and environmental processes in a timely and efficient manner is to have federal agency coordinators/project managers with sufficient direction, authority and skilled resources to handle major infrastructure projects. There is a need for improvements in staffing at the ground level (real estate specialists, biologists, cultural resource specialists, etc.). While entities seeking siting approval help to facilitate the process by funding the use of third party specialists, the work of the third parties still need to be reviewed by the federal staff. In addition, more direct involvement from high level policy and technical people will provide the needed support and direction to local offices to bring projects to completion.

Question 2. We have provided for a process to allow regional planning entities to propose a cost allocation plan, and for FERC to allocate costs at a sub-regional basis if that is necessary. Does this relieve some of your concern about interconnection-wide cost allocation?

Answer. The draft legislation circulated by Chairman Bingaman's staff is a meaningful improvement over proposals that would simply allocate costs to all load serving entities, without respect to the ability to use the facilities or the choice not to due to the availability of more economical alternatives to meeting environmental goals. However, it is still problematic because it provides that the Commission may allocate costs (in the absence of an acceptable RPE proposal) to all load-serving entities, or to all load-serving entities within a part of the Interconnection served by the high priority transmission projects, whether they use the new facilities or not.

As I indicated in my testimony (p. 3—5, 10), it would be terribly inequitable to assess the cost of a transmission build-out to customers that cannot make use of the facilities, or who elect not to because more cost effective options that do not rely on large new transmission are selected to meet their environmental mandates (like building local solar and demand side measures for instance). Further, I believe that allocating the cost of transmission on an interconnection-wide basis will provide an enormous inappropriate subsidy to one market segment (remote large scale renewable generation). When LSEs determine that access to remote renewables is the most cost effective way to meet their carbon or renewable targets, that will drive the construction of new transmission and ensure that a large investment in this technology choice is well spent.

The importance of these decisions is underscored by my concern that the estimates I have seen of the overall cost of a nation-wide transmission build-out of the type contemplated in the proposed legislation appear to be meaningfully understated. While the Joint Coordinated System Plan I reference in my testimony (p. 8) shows an estimated \$80 billion investment aimed at resolving congestion and meeting a 20% wind scenario, when all costs associated with integrating these facilities into the grid and attaching wind resources are added, there is reason to believe the cost may actually range between \$100 billion and \$200 billion for the Eastern Interconnection alone. Nationwide costs, including the Western Interconnection may range between \$135 billion and \$325 billion, equating to a monthly per customer cost of between \$14 and \$35. These numbers are gross estimates, but they suggest an order of magnitude that makes it clear to me that Congress should have reliable data on these costs before concluding that nation-wide cost allocation is a sensible approach.

I also believe that the proposal to create new planning entities charged with undertaking interconnection-wide planning and cost allocation filings, is unnecessary and may be counter-productive. As I noted in my testimony (p. 7—8), in Order No. 890,¹ FERC only recently directed the implementation of new, region-wide planning processes that call for an unprecedented level of regional coordination, transparency and federal oversight. Compliance filings by all utilities were accepted only months ago, and the planning processes these filings contemplate are just now underway. Certainly, it is to be expected that these processes, and FERC's oversight of them, will evolve to meet new renewable requirements. Adding a new planning bureaucracy to this mix, particularly at this time, is very likely to be time consuming and appears likely to delay rather than expedite transmission development.

RESPONSES OF JAMES A. DICKENSON TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. In your opinion, will the imposition of a new interconnection-wide planning process become a new “choke point” by pre-empting ongoing planning efforts or delaying projects that could go forward now?

Answer. Yes, as I indicate above in response to Chairman Bingaman's second question, I am quite concerned that adding a new level of planning bureaucracy will be counterproductive to efforts now underway.

Question 2. What is your position on the issue of siting? Can federal and state regulators make progress on a collaborative basis or is increased federal siting authority needed?

Answer. As I indicated in my filed testimony (pp. 5—7), I and LPPC believe that additional federal siting authority is called for in order to overcome the limited ability of individual states to address multistate transmission projects designed to meet regional needs. Having said that, I am also confident that such new authority can be undertaken in consultation with existing state siting authorities in a manner that capitalizes on existing expertise and ensures that states and local concerns are addressed in the siting process.

Question 3. As you know, so often energy issues are regional and not partisan. What is your opinion on the possible interconnection-wide allocation of transmission costs? Does such a widespread approach unfairly socialize costs across regions that may not be directly benefiting from the particular transmission line?

Answer. Yes it is unfair and economically inefficient. As I indicated above in response to Senator Bingaman's second question, I believe that cost socialization unfairly discriminates against those who cannot use the proposed facilities, and will discourage the development of what may be more economical alternatives for reducing greenhouse gas emissions, such as energy efficiency and local renewable re-

¹Preventing Undue Discrimination and Preference in Transmission Service, Order No. 890, 72 Fed. Reg. 12,266 (March 15, 2007), FERC Statutes and Regulations ¶ 31,241, order on reh'g, Order No. 890-A, 121 FERC ¶ 61,297 (2007).

sources. I am particularly concerned that my company's customers, located in Florida, will be called upon to provide large subsidies for the construction of transmission they will be unable to use. If Congress establishes environmental goals for our industry through implementation of an RES or carbon control measures, it should let utilities, state regulators, and regional transmission organizations determine how to meet those goals most effectively by making economic choices among the array of available options, without subsidy.

Question 4. You note that LPPC's Western members have experienced significant obstacles to the development of interstate renewable transmission projects from federal land management agencies. Please explain. Can you comment on Secretary Salazar's recent "Secretarial Order" calling for DOI to not only establish renewable energy zones on public lands, but also to handle the permitting and environmental review? Should FERC be given the coordinator role? Should we expedite environmental or judicial reviews?

Answer. The challenges have been related to receiving timely review and approval. The existing guidance documents for the development of environmental assessments (EA) and environmental impact statements (EIS) should contain defined timeframes for the completion of the processes on federal lands. After the guidelines are established, federal agencies must have adequately trained staff to complete the required work within those timeframes. For example, a federal agency is generally expected to complete an EA within 12 months. Our western members report that this process often takes 2 to 3 years. Similarly, while most expect that an EIS can be completed within 24 to 30 months, utilities in the west report that the EIS process often takes 3 to 4 years to accomplish. We believe that firm process deadlines, additional resources and focused leadership will help ensure schedules are met and improve the processes.

Ultimately, the most important criteria for completing siting and environmental processes in a timely and efficient manner is to have federal agency coordinators/project managers with sufficient direction, authority and skilled resources to handle major infrastructure projects. There is a need for improvements in staffing at the ground level (real estate specialists, biologists, cultural resource specialists, etc). While entities seeking siting approval help to facilitate the process by funding the use of third party specialists, the work of the third parties still need to be reviewed by the federal staff. In addition, more direct involvement from high level policy and technical people will provide the needed support and direction to local offices to bring projects to completion.

We are hopeful that Secretary Salazar's recent Order establishing the development of renewable energy as a priority for the Department of the Interior will help to coordinate federal efforts in this area. We are also encouraged by the Order's call to create joint, single point of contact offices to improve coordination and efficiency, and to expedite the permitting process. The identification of renewable energy zones by the Department of the Interior can lead to the identification of transmission corridors from these zones to load centers. We are pleased to see the Order's focus on identifying electric transmission corridors for renewable resources in cooperation with other state and federal agencies and its requirement to prioritize the permitting and environmental reviews for transmission rights-of-way. To the extent preliminary environmental review can be performed on these corridors, the siting process may be expedited for related transmission development. However, siting challenges exist for transmission development beyond transmission for renewable resources. In any case, we believe the challenges and delays ultimately relate to adequate project management and staffing levels as noted above.

RESPONSES OF GRAHAM EDWARDS TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. You all have undertaken an interesting exercise with your modeling efforts. Do you think that the kind of planning entities that we have envisioned in our draft allow for the kind of engineering expertise that you have applied to your program?

Answer. Yes. Your draft legislation contemplates a FERC-approved planning entity or entities that would plan for the entire interconnection. This planning entity could be an ISO/RTO or a combination of ISO/RTOs or utilities with independence, and experience and expertise in this area. In any event, the planning entity contemplated is supposed to work with others in the interconnection when preparing the plan. The Midwest ISO would cooperate with this entity and make its engineering expertise available to the planning entity.

Question 2. The Midwest ISO plans for transmission on a fairly large regional scale. Do you still find that you run into difficulties when you try to figure out how to coordinate with planning entities beyond your geographic scope?

Answer. Yes. In the Joint Coordinated System Plan (JCSP) process, we found that we could work with other planning entities in the eastern interconnection. The JCSP was able to complete its work in a timely manner and produce a conceptual plan. However, all entities in the eastern interconnection did not participate in the process. In order to produce a plan for the entire eastern interconnection, all entities must participate and provide data in order to produce a high quality plan.

RESPONSES OF GRAHAM EDWARDS TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. In your opinion, will the imposition of a new interconnection-wide planning process become a new “choke point” by pre-empting ongoing planning efforts or delaying projects that could go forward now?

Answer. No. We believe that existing planning processes can provide valuable input into the grid overlay planning process. Also, existing projects would be incorporated into any plan and should not be delayed. The planning for a grid overlay should not interfere with or delay current transmission planning processes. The grid overlay sits on top of the existing transmission network. The JCSP has shown that willing people working together can produce a plan in a timely manner. However, someone must be in charge of the process and everyone must participate in order to develop the best plan.

Question 2. What is your position on the issue of siting? Can federal and state regulators to make progress on a collaborative basis or is increased federal siting authority needed?

Answer. State regulators have valuable knowledge concerning State and local issues concerning siting. This extensive body of knowledge should be relied upon in making siting issues. State regulators should not be entirely preempted in the siting process. I believe that Federal and State entities can work together for the common good.

Question 3. As you know, so often energy issues are regional and not partisan. What is your opinion on the possible interconnection-wide allocation of transmission costs? Does such a widespread approach unfairly socialize costs across regions that may not be directly benefiting from the particular transmission line?

Answer. The draft legislation allows the planning entity first to propose a cost allocation methodology for Federal Energy Regulatory Commission (FERC) approval, and if an acceptable plan is not proposed, then the issue goes to the FERC. Allowing for the proposal of a cost allocation methodology permits the parties that will eventually pay for the system to create an acceptable method to allocate those costs. An open stakeholder process will allow these regional concerns to be heard. Also, please recall that one of the objectives for the JCSP was to provide the lowest cost energy to consumers. Thus, in theory, the entire interconnection would see a benefit, which is in addition to both the environmental benefits that would accrue and the fact that an overlay would produce a more robust transmission system that is less prone to blackouts.

Question 4. What is the future of the JCSP process? Are you advocating that the transmission identified in the JCSP be built?

Answer. The entities that participated in the JCSP are continuing their work looking at more scenarios using new data such as off shore wind data that was not available before and incorporating resources from Canada. In addition, the entities are considering formalizing the JCSP process and creating a separate entity, with its own charter, to continue the planning work begun in the JCSP.

Question 5. If Congress directed the designation of new planning entities, would MISO apply to be the planning entity for the Eastern Interconnection? Why or why not?

Answer. I do not know at this time if the Midwest ISO would apply to be the sole planner for the eastern interconnection. There are several considerations. First, we would have to look at the requirements actually placed on the planner by the final legislation. We would also have to discuss such an application with our board of directors and our stakeholders. Finally, we would have to discuss such an application with our partners in the JCSP process; there may be the potential for a joint application of entities that may or may not include the Midwest ISO. In any event, we would cooperate with and make our experience and expertise available to such a planning entity.

Question 6. Why hasn't there been interconnection-wide transmission planning before? How does this work internationally, with Canada and Mexico?

Answer. There hasn't been interconnection-wide planning before because there haven't been interconnection-wide questions before. Issues such as a national renewable portfolio standard and a price of carbon are now coming to the fore. To address big questions like these, a big solution is required. In addressing large questions like these, it is more efficient to look at the whole picture to produce a plan that can produce benefits to everyone and meet these big national goals. We have had good experience working with our Canadian neighbors. I assume that these planning issues could be coordinated with Canadian and Mexican entities. Of course, Canada and Mexico would have to site any lines in their countries.

RESPONSE OF GRAHAM EDWARDS TO QUESTION FROM SENATOR MENENDEZ

Question 1. Mr. Edwards, this proposal is designed to streamline the process of building new transmission lines, but I worry it will actually create a whole new bureaucratic process that could slow down development. The proposal creates a new interconnection wide planning entity to site all projects above a certain voltage. Examples of projects that would have to be sited by this central board include:

- In my state, installing a new transformer at the East Windsor substation
- In Michigan, replacing breakers at the Cook Power Plant substation
- In Indiana, upgrades at the Dumont substation near Fort Wayne;

How will a small board responsible for siting power lines over 30 states be able to effectively site lines in Michigan, Indiana, or in my state? Do we have to create a whole new bureaucracy in this case or couldn't there be a less bureaucratic means to accomplish this result?

Answer. In the draft legislation, my understanding is that the planning entity does not site the lines. The actual siting is left to the FERC. The planning entity would be designated to plan for an extra high voltage grid overlay. This planning function should not delay transmission projects that ISO/RTOs or utilities find are needed in their footprints and would be sited pursuant to existing law. These regional plans would be "rolled-up" and input into the grid overlay plan. There should be not a problem of an extra layer of bureaucracy slowing down needed transmission upgrades.

RESPONSES OF TONY CLARK TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. You suggest that the decision making for transmission should be regional and not federal. We have attempted to include the states at the most important level in our proposal, that is, in the planning process. In fact, the states could form the planning entity to be approved by FERC. Does this help to ensure that state resource plans and other concerns will be included and addressed in the planning process? Are there suggestions that you could make to make more sure that they are?

Answer. The proposed planning processes requires that a FERC approved regional planning entity consult with the affected States and build on planning undertaken by States, RTOs, ISOs, federal transmitting utilities, regional reliability entities, and other entities. Although this provides a valuable participatory role for the States, they are only one of many stakeholders at the table. Further, "consultation" is a weak term that does not guarantee that State concerns will be taken into account. It would be better to require the planning entities to work in coordination with the States and to have the States participate in selecting the regional planning entities. The process could better ensure that State concerns were represented if any FERC certificates of public convenience and necessity included any mitigation conditions recommended by the States. This process would be similar to the State certification process under the Clean Water Act §401 where States' conditions to a certification automatically become conditions on any federal permit that is issued under that section.

Question 2. I think that the cost allocation scheme, where the planning entity, with direct input from the states, proposes an initial that FERC has to approve if it meets certain criteria gives states a new and more potent role in these decisions. Do you believe that to be the case?

Answer. It is essential that cost allocation be determined prior to the certification of any transmission line. Although it is valuable for the planning entity, in consultation with the States, to have the first crack at setting a cost allocation scheme, no matter who undertakes the cost allocation, it will be challenging and contentious because it is difficult to identify and define the beneficiaries of a transmission line, and often times someone's gain comes at another's expense.

RESPONSE OF TONY CLARK TO QUESTION FROM SENATOR MURKOWSKI

Question 1. As you know, so often energy issues are regional and not partisan. What is your opinion on the possible interconnection-wide allocation of transmission costs? Does such a widespread approach unfairly socialize costs across regions that may not be directly benefiting from the particular transmission line?

Answer. In my own opinion, an interconnection-wide “postage stamp” allocation would be a straight forward and simple solution to a multitude of cost allocation problems that have proved increasingly difficult to solve. Perhaps we may one day get to such an allocation, but so far there has been resistance among stakeholders because of the cost shifts that would result. Those whose transmission rates would increase feel that they would pay for transmission they do not need nor benefit from.

However, there has been recognition that larger transmission lines tend to transmit electricity regionally. For example, the Midwest ISO’s Regional Expansion Criteria and Benefits Task Force negotiated cost allocation formulas for new transmission within the Midwest ISO that include a Midwest ISO-wide allocation of 20% of the costs for new transmission lines with voltages of 345 kV or higher. The feeling among the task force was that these larger lines provide some regional benefit and therefore some region-wide allocation was appropriate.

RESPONSES OF TONY CLARK TO QUESTIONS FROM SENATOR SHAHEEN

Question 1. How do we evaluate renewable energy projects, like North Dakota Wind, including the cost of transmission, against renewable alternatives closer to New England, like we have in New Hampshire?

Answer. For wind energy, there is a trade-off between the cost of installing fewer turbines and more transmission to bring energy from areas with better wind resources versus the cost of more turbines and less transmission to bring energy from local areas with lesser resources. Evaluation involves studying the alternatives to arrive at an estimated cost per kWh delivered for each alternative that can then be compared and evaluated against regional needs to determine which alternative or how much of each alternative to pursue. The difficulty comes in maximizing the value of the transmission build out needed to transmit large amounts of low-cost power from remote areas. There is currently such a transmission study in progress, referred to as the Joint Coordinated System Plan (JCSP). The New York ISO and ISO New England have recently withdrawn from that study process before it has been determined whether States such as New Hampshire can benefit from low-cost Midwestern energy.

Question 2. With regard to interconnection-wide planning, how do we ensure that local and smaller state concerns are represented?

Answer. Local officials and smaller States can best ensure that their concerns are represented by participating fully in regional and sub-regional planning processes, including the existing JCSP process, while continuing to work towards increased coordination between regions and across RTO borders. It is essential that the planning process build on existing State and local planning processes and that States and local governments have a place at the table during the planning process.

Many local concerns will arise specifically in the context of siting when the lines actually cross people’s property and affect people’s neighborhoods. The Commission should incorporate all reasonable mitigation measures and constraints recommended by the States in order to address these local concerns.

Question 3. As we look at national planning of transmission, to what degree should local planning (especially zones that are working, like New England) be included?

Answer. Planning should come more from the ground up rather than the top down. If an interconnection-wide planning process is implemented, it must build upon and not interfere with the effective plans currently generated within States and regions across the country. The MAPP Sub-regional Planning Groups and Midwest ISO Sub-regional Planning Meetings are examples of best practices for incorporating local planning into regional plans.

Perhaps effective planning entities such as ISO New England could be certified as regional planning entities. These regional plans could then be integrated into the larger interconnect wide plan. This iterative process may maintain the effective regional process while still ensuring that the regional plans take into consideration the whole interconnect.

RESPONSE OF TONY CLARK TO QUESTION FROM SENATOR SESSIONS

Question 1. I understand that the movement of electricity through power lines over long distances results in some loss of power. Would an improved grid and improved transmission lines reduce the amount lost? If so, how much? And would the savings be sufficient over time to pay for the cost?

Answer. All transmission of electricity results in some power being lost to line resistance. In general, improvements to the grid that reduce existing line loadings also reduce existing system line-losses. To what degree varies by project, but losses can have an impact in deciding what transmission facilities to build.

There is a trade-off between the capital costs of new transmission projects and the amount of resulting line losses. Generally, higher line voltages and larger conductor diameters equate to reduced line losses. Energy efficient transformers can further reduce losses. High voltage direct current (HVDC) transmission lines are more efficient than alternating current lines, but are more expensive and have limited applications. Studies are conducted during project design to optimize the trade-off between cost and efficiency so that total costs are minimized over the expected lifetime of a project.

It is very difficult to quantify an example that would produce a “typical” result. Each project is very specific and would have very different characteristics based on the grid in that region. As one example, here in our region, we are aware of a case in which a double circuit 345 kV line costing \$460 million could have an expected lifetime loss savings benefit of up to \$152 million. Yet again, I hasten to add this is but one example and may not be typical or able to be generalized.

RESPONSES OF REID DETCHON TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. The Energy Future Coalition has been engaged in quite an endeavor. Except for the cybersecurity recommendations, which we are going to try to address in our broader energy bill, do you think that our proposal is consistent with the principles that you have laid out?

Answer. The Energy Future Coalition and the stakeholder group we assembled in support of a National Clean Energy Smart Grid, especially our principal partner, the Center for American Progress, found a very broad consensus that the three most important issues needing attention were planning, siting and cost allocation. In each of those areas, the Majority Staff draft is generally consistent with our recommendations. The differences are related to choices about how to most effectively tackle these three key issues. For instance, we believe that giving states a special role in the consolidated FERC siting and certification process, as was done in S. 539 (adding § 404(g) to the Federal Power Act), strikes the right balance between providing an expedited regulatory process and empowering states on the local routing and mitigation issues on which they have special expertise.

The Coalition also sought to ensure that the transmission build-out serves the cause of promoting a transformation of our generation sector to renewable and other clean energy resources. In our deliberations, the need for federal legislation was driven principally by a desire to facilitate long-distance transmission of renewable energy, from areas of the country where it is most abundant to markets that could use it. Our environmental partners supported increased federal authority for siting transmission only if it enabled greater use of renewable energy; they concluded that an expedited process was needed because of the need to make a rapid transition to low-carbon energy systems.

Our approach was to limit interconnection to the transmission lines that are built with this new authority to energy generators with greenhouse gas emission rates no greater than that of a simple-cycle natural gas-fired combustion turbine—on the basis that gas generation may be needed, given the variability of renewable resources. The Majority Staff draft includes a number of provisions favoring renewable energy, but we remain concerned that the draft provides no safeguard against the interconnection of conventional coal-fired plants to these new transmission lines once they are constructed.

Question 2. Does the planning process that we have proposed give sufficient scope for involvement of stakeholders at the appropriate point in the process?

Answer. Yes, we believe that it does. The most extensive stakeholder engagement should occur during the interconnection-wide planning process, involving states, generation developers, transmission owners and developers, environmental groups, consumer groups, and labor.

RESPONSES OF REID DETCHON TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. In your opinion, will the imposition of a new interconnection-wide planning process become a new “choke point” by pre-empting ongoing planning efforts or delaying projects that could go forward now?

Answer. The intent of the interconnection-wide planning process is to allow for a consolidated evaluation of system needs within a strict time limit and thereby to streamline, not delay, approval of individual projects. In particular, the Energy Future Coalition stakeholder group did not want to duplicate utility or regional level planning, or slow infrastructure development already resulting from those planning efforts. Rather, the goal of interconnection-wide planning is to enable a broad perspective on what transmission infrastructure capability is needed to meet the Nation’s renewable energy goals, look at what grid infrastructure already exists and is under development, and then determine what more is needed to meet our goals. The Majority Staff draft is appropriately clear in requiring this planning process to build on—not supplant—planning undertaken by States, Federal transmitting utilities, regional transmission organizations, independent system operators, utilities, regional reliability entities, and other parties.

Question 2. What is your position on the issue of siting? Can federal and state regulators make progress on a collaborative basis or is increased federal siting authority needed?

Answer. Siting multi-state transmission facilities is a long and contentious process, often involving numerous state and local regulators and Federal lands agencies, each with the power to block an entire project. Certainly, progress is always possible, but recent experience indicates that consolidated siting authority is needed to expedite construction of a National Clean Energy Smart Grid.

The Coalition’s stakeholder group concluded that a consolidated Federal certification and siting process is needed in order to expedite the process, but that each affected state should have a special role in that process because of its special interest and expertise on local matters of routing and environmental mitigation. A critical element of the Coalition’s proposal directs FERC to accept specific siting recommendations from state natural resource agencies, provided those recommendations do not prevent the construction of a transmission resources identified in the interconnection-wide plan. This concept is incorporated in S. 539 (adding § 404(g) to the Federal Power Act).

Question 3. As you know, so often energy issues are regional and not partisan. What is your opinion on the possible interconnection-wide allocation of transmission costs? Does such a widespread approach unfairly socialize costs across regions that may not be directly benefiting from the particular transmission line?

Answer. In our view, the biggest risk with respect to cost allocation is that project-by-project administrative litigation about who benefits from a particular investment will threaten to stall development of the desperately needed transmission infrastructure. The interconnection-wide planning process will identify a package of projects that will benefit the whole interconnection. Moreover, the indirect benefits of renewable energy development are national in scope—reducing the risk to American security of excessive dependence on foreign sources of energy, creating new jobs for American workers and new business opportunities for U.S. firms, and providing public health and environmental benefits to the American people. For these reasons, the costs of developing a National Clean Energy Smart Grid should be allocated broadly.

Question 4. Your organization calls for any new power generation to adhere to some kind of greenhouse gas emissions standards before hooking up to the grid. I understand that, under your proposal, such a standard would allow single-turbine natural gas plants to connect. What about clean sources of energy that provide base-load power, such as nuclear or hydropower?

Answer. Our group specifically recommended that interconnection to the transmission facilities developed under this new regime should be limited to generators that have a greenhouse gas emission rate no higher than that of a simple cycle gas-fired generator. Clean resources such as nuclear energy and hydropower would clearly meet that standard.

Our environmental partners were concerned about the possibility that increased transmission capacity might increase the use of conventional coal-fired power plants instead of renewable resources and thus worsen global warming—an unacceptable outcome. For that reason, we recommended an emission rate cap—because the variability of renewable resources will require balancing from other power supplies, and natural gas generation in many cases will be the preferred choice. Hydropower would be an even more attractive balancing resource where it is available.

Question 5. Certain renewables, such as wind resources, may have a capacity factor of only 25-30%. Does it make sense as an economic matter to have a transmission facility that is only utilized 25-30% of the time? What are the reliability concerns with such low capacity factors?

Answer. New transmission lines built under this new authority will be planned for optimal utilization in order to minimize their cost to consumers. Drawing on wind resources from a broad geographic region will help reduce the variability of supply. It is further expected that other resources, such as hydropower and gas-fired generation, will be used to balance intermittent renewable resources. One important criterion in the planning process is assuring that transmission upgrades will maintain or enhance the reliability of the grid, and deployment of smart grid technologies will improve the technology platform for assuring reliable grid operation.

Question 6. Should we specifically require the new interconnection-wide planning agency or FERC to examine alternatives to long-distance transmission facilities, such as distributed renewable resources, energy efficiency and demand-side management?

Answer. Yes, planners should first assess the availability of demand-side resources and local distributed resources in order to determine how much additional supply is needed and in what areas. The Majority Staff draft is appropriately clear in requiring that the interconnection-wide plans take into consideration "existing and potential demand response and energy efficiency programs."

RESPONSES OF MICHAEL G. MORRIS TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. Our discussion draft, like an earlier proposal circulated by your company, cuts off federal jurisdiction at 345 kilovolts. We also provide that jurisdiction stems from the planning process. Are we missing opportunities to relieve congestion and reduce regional emissions if we do not go below that number, or is that a good level for the federal system to begin at?

Answer. AEP believes that 345-kV transmission is the appropriate floor for federal siting jurisdiction. The reason for this is that this class of facilities provides benefits that are regional/inter-regional in nature and can cross large geographic areas, including state boundaries. Generally speaking, lower voltage lines serve more local needs and as such are appropriate for siting to be conducted at the state level. As a practical matter, because these lower voltage lines serve local needs and are substantially shorter than 345 kV and higher voltage lines, most of these lower voltage projects will fall entirely within a single state. There is inherently a difficult balance in determining the exact line where jurisdiction between state and federal authorities should be drawn. Since EHV lines serve more regional needs, we believe it is appropriate for federal jurisdiction to apply to these facilities.

One exception to this bright line test could be for transmission facilities that are used to harness renewables. For facilities that are predominately used to serve as a collector system for renewable energy that then feed into an interstate EHV grid, we believe these lower-voltage feeder lines should be under federal jurisdiction.

Question 2. Do you think that the planning structure here works? Is it feasible to try to plan on an interconnection-wide basis?

Answer. We believe that interconnection-wide planning is the most efficient approach to planning the EHV interstate backbone grid. While regional planning may continue to be an efficient approach to planning the underlying lower voltage transmission system and ensuring consistency with the new EHV transmission, our experience has shown that cross-border issues (between RTOs or regions) related to project selection and cost allocation are significant obstacles to the approval and construction of the large scale, critical EHV projects. If as a nation we seek to make large scale changes in the diversity of our energy portfolio, we need a robust EHV backbone that will facilitate this fundamental shift and secure our country's energy future. Today's planning processes at the RTO level tend to be "reliability based", using new transmission as a solution of last resort rather than looking at transmission as a vehicle for advancing our national goals. Despite pressure from many stakeholders to minimize the issues stemming from the seams between the RTOs and other planning authorities, these issues still exist. We believe that an interconnection-wide planning process is feasible, necessary and can be achieved in a reasonable period of time. We support FERC's role in overseeing the implementation of an interconnection-wide planning process and believe that RTOs can play a significant role within the context of the interconnection-wide plan.

RESPONSES OF MICHAEL G. MORRIS TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. In your opinion, will the imposition of a new interconnection-wide planning process become a new “choke point” by pre-empting ongoing planning efforts or delaying projects that could go forward now?

Answer. Not if it is done correctly. To be successful, the interconnection wide planning process must be structured to avoid delays. FERC needs to establish time frames for action, opportunities for public input and clearly defined procedures to ensure the planning process moves expeditiously. We believe that adoption of a well-structured interconnection-wide planning process will ensure that the EHV interstate backbone grid is planned, engineered and constructed in a timely and efficient manner. First we believe that regional planning efforts which identify EHV needs based on regional objectives should continue in much the same way that they do today. To date these planning processes have been very effective in identifying local and regional reliability needs to address the need of the local and regional systems. Any new planning efforts should take maximum advantage of the knowledge base and expertise of RTOs and build upon the existing system, so long as it does not result in a deferral to regional planning efforts.

Our experience has shown that cross-border issues (between RTOs or regions) related to project selection and cost allocation are significant obstacles to the approval and construction of large scale, critical EHV projects that will serve as the backbone of our country’s energy future. Today, planning assumptions, criteria and cost allocation rules vary significantly among regions. This creates an enormous roadblock to developing optimal interconnection-wide transmission solutions. As we move forward, we believe that an interconnection-wide planning process for all EHV transmission could be efficiently implemented to complement today’s existing planning processes. RTOs would continue to support the needs of the systems under their planning authority and ensure the reliable integration of new EHV transmission that is developed pursuant to an interconnection wide plan. In order to ensure the timely development of needed EHV facilities, we believe it is important for FERC to be able to authorize individual multi-state projects while the interconnection-wide plan is under development, to ensure we are able to move quickly to get steal in the ground.

Question 2. What is your position on the issue of siting? Can federal and state regulators make progress on a collaborative basis or is increased federal siting authority needed?

Answer. If we are to fulfill our emerging national vision of a more secure, environmentally sound electric power supply system; we need a workable and timely federal process that ensures that we can build a transmission system to meet the needs of our energy future. For AEP, this means that the Federal Energy Regulatory Commission (FERC) should be able to authorize extra-high voltage transmission. With respect to line siting and determining where it is routed, FERC has substantial experience conveying parties through a comprehensive open process to establish a route with minimal impact to the environment and private landowners.

In the early days of the electric industry, transmission was built and planned locally to serve local needs—typically bringing power from the closest power plant to a community. It grew to broader uses, but remained fairly limited in geographic scope. Today, the transmission grid has evolved to serve far more people with far more power than was imagined possible when the technology was in its infancy. As transmission technology was evolving, the state regulatory commissions were the appropriate place for siting authority to reside. But as the grid has grown, both in geographic scope and in purpose, federal authority for this portion of the nation’s electric system makes more sense.

The challenge for state regulators is not a lack of competence to make these decisions. The challenge today is that the need for transmission is driven by national energy policy objectives with a goal to regionalize power supply, maximize the integration of renewables, and achieve regional efficiency and reliability objectives. States responsibilities traditionally have not extended to advancing national energy policy; as a consequence the tendency may be to reject larger projects in favor of smaller scale, more limited solutions. As a result, the need for federal jurisdiction goes hand in hand with a national electricity policy.

Question 3a. As you know, so often energy issues are regional and not partisan. What is your opinion on the possible interconnection-wide allocation of transmission costs?

Answer. AEP strongly supports allocating the cost of EHV transmission broadly given the nature of the benefit provided. The development of an interconnection-wide EHV overlay plan will by definition provide benefits to many regions, if not the entire interconnection. As such, we support spreading the costs of such an over-

lay throughout the interconnection for several reasons. It is important that benefits are not evaluated on a line-by-line basis. Rather, the benefits of the EHV overlay, in the aggregate, justify an interconnection-wide allocation. It is important to remember that the cost of transmission for delivered energy is small when compared to the cost of the energy commodity, and allocating these costs to the entire interconnection avoids contentious and vigorous attempts to shift and re-shift transmission costs among groups of customers.

Question 3b. Does such a widespread approach unfairly socialize costs across regions that may not be directly benefiting from the particular transmission line?

Answer. No, I don't believe it does. It is true that today many energy issues are regional in nature. What we are proposing is that interconnection wide plans be developed under a consistent set of planning assumptions, rules and criteria so that the planning process itself ensures that the overlay does not result in unfair socialization of costs. We believe that much of the regional energy issues, whether they be economic issues such as congestion, reliability issues, or a need to transport renewable energy to or from an area, have a common solution—an integrated, broadly planned EHV transmission grid that spans the nation. While all areas may not share the same issues, one solution addresses them all.

Whether addressing congestion issues in the Mid-Atlantic or Northeast, lack of renewable energy in the Southeast, or a need to move renewables to market from the Southwest or Northern Plains—the result is diversification in our generation portfolio, and improved flexibility, reliability and system efficiency. Much like the interstate highway system, we cannot predict today how the system will be used in the future. What we do know is that the system will provide opportunities for promoting national objectives through a robust national grid.

We had a perfect example of how one region can impact another on Aug. 14, 2003. When a tree faulted a transmission line in northeast Ohio, 50 million people in eight U.S. states and one Canadian province paid the price in the form of a blackout that lasted the better part of a week in some places—locations hundreds of miles away from the source of the problem. The blackout stopped at AEP's EHV system due to the nature of EHV transmission.

Today, our system is tightly integrated in some areas and loosely integrated, if at all, in others. While there is some reliance between regions, the lack of a robust EHV grid limits the support each region can give to another. By overlaying the existing system with a robust and reliable EHV overlay, we can not only strengthen what we have to ensure such problems don't happen again, but we can use the system to promote energy policies and ensure that we prosper together. Typically, the transmission component of an electric bill constitutes 10% or less of a retail consumer's bill. EHV transmission—at least at AEP—constitutes about 20% of our total transmission miles but provides benefits to the entire PJM region. Broad based cost support for EHV would add pennies to the average residential consumer's monthly bill. However, a narrower approach that attempts to identify specific beneficiaries for individual EHV projects inappropriately burdens those direct beneficiaries with the costs of societal benefits enumerated above and will continue to delay projects, as cost allocations decision are litigated and appealed.

Question 4. I understand that AEP supports allocating costs on an interconnection-wide basis. But what about for DC lines? With a DC line, which is essentially like a straw that takes power from Point A and delivers it to Point B, it's clear who the project beneficiaries are.

Answer. In our definition of EHV we include DC lines that operate at 400kV and above. Again, the application of cost allocation and federal siting for these facilities would depend on whether they are developed pursuant to an interconnection wide planning process. DC lines that are recommended as part of an interconnection-wide planning effort should be allocated on an interconnection-wide basis. These lines would typically be high-voltage/high-capacity lines that span significant distances or link non-compatible AC grids. While they would operate on a point-to-point basis, they serve to move bulk amounts of power that would otherwise tax the underlying transmission system. As such, they support the overall network. This could also be done using comparable AC lines, but the determination of using DC versus AC is part of the planning process that considers cost, efficiency, and overall system needs. Some DC lines are not designed to support the overall network, and those should be allocated to the beneficiary. The planning authority can make this determination.

Question 5. I understand that your company is evaluating the feasibility of building a multi-state, extra-high voltage transmission project across the Upper Midwest to support the development of renewable energy—consisting of about 1,000 miles of line, costing between \$5-10 billion, and taking approximately 10 years to complete the construction. If Congress adds an additional layer of planning, how will that im-

fact your project? Also, could AEP go forward without the costs being spread inter-connection-wide?

Answer. We believe that the development of an interstate EHV grid is vital to US energy independence. Any action taken by Congress to address planning associated with EHV backbone transmission infrastructure, rather than acting as an “additional layer,” should be designed to remove the roadblocks that are inherent in today’s regional planning processes to ensure that the EHV interstate backbone grid can be planned, engineered and constructed in a timely manner.

It would be very difficult for AEP, or any entity, to invest significant capital in a large scale EHV transmission infrastructure project without an approved cost allocation methodology. While we firmly believe that an interconnection-wide allocation is appropriate and is the most economically efficient approach to paying for transmission, there may be other solutions, such as an allocation of the project cost between existing RTOs with an approved method for each RTO to further allocate those costs within the respective region that may be acceptable. The critical nexus for being able to move forward with such a project and make significant investment is that there must be an approved methodology that ensures that the project costs will be recoverable from a defined customer base.

Question 6. If FERC has new authority for permitting transmission, how should it decide between competing developers?

Answer. First, Congress should grant FERC sufficient discretion to design a broad set of criteria, both quantitative and qualitative, to evaluate competing projects. FERC should apply these base criteria as a foundation for evaluating competing projects, but must also have a process for considering more subtle, qualitative factors such as efficiencies or economies of scale (e.g. one provider’s existing presence in a given region; limits on the availability of resources to a single provider; etc) which may factor into the selection of the optimal candidate. In essence, FERC must adopt and apply a set of defined, consistent criteria to properly evaluate projects, but must also have the latitude to consider other relevant, qualitative factors.

RESPONSES OF MICHAEL G. MORRIS TO QUESTIONS FROM SENATOR MENENDEZ

Question 1. Two years ago, you told investors that new transmission represented a \$9 billion opportunity for American Electric Power, and compared a potential 765 kV line from your Amos Coal Plant in West Virginia to suburban Middlesex County in New Jersey to a super highway capable of “5000 Mega Watts of improved transfer capability” between West Virginia and New Jersey. Mr. Morris, isn’t that 5000 megawatts of coal electricity? And aren’t you supportive of this proposal precisely because it will allow you to reach Eastern markets with electricity generated from coal?

Wouldn’t a significant build-out of transmission from the Midwest allow you to build new coal plants to take advantage of the new opportunity to export power from your home region? Can you rule that out?

Answer. Would the line we proposed in 2006 carry coal-generated electrons if it were in place today? Yes it probably would. Would it carry coal exclusively? No. Would a transmission line in the Southeast—where generation is typically natural gas or nuclear—carry coal-generated electrons? Yes, it probably would.

The PJM northeast regions operate increasingly as an integrated market. Power generated at any given time is largely based on the price of fuel and its availability. In today’s PJM market we are seeing production from coal plants being displaced by generation from natural gas plants. If natural gas prices were high we would see more coal generation. That is the nature of an open and competitive market, which has developed under FERC direction and guidance. It is important to remember, however, that the EHV lines currently under construction within the PJM region are much less ambitious than those to which you are referring. In addition, the line that AEP is participating in constructing is one that will not be completed until 2014. By that time the generation mix in the region is likely to be significantly different, driven by environmental regulatory requirements, economics, load consideration and the availability of new resources. So while it is possible that additional coal generation will be available, it is also very possible that it will not be. This is why it is critically important for new transmission investment, as a long-term investment in supplying future electricity needs from whatever sources that we as a nation choose to utilize.

Currently the AEP 765 system stands between some of the richest wind regions that our country has to offer and its most populated load centers. It would be painfully shortsighted if we were to sacrifice the opportunity of maximizing our ability to integrate renewables because of near term concerns that may or may not ever be realized. By extending the reach of the interstate EHV grid, we can extend the

reach of renewable integration. Because it will take years to complete construction of this interstate transmission grid, it is critically important that we start today so that we can evolve to meet the nation's changing needs.

Question 2. Would you support a policy requiring any new transmission line built with the power of federal eminent domain and expedited permitting to be limited only to the use of renewable energy? Yes or No? Why or Why Not?

Answer. No. As discussed above, AEP is a strong supporter of an efficient, robust interstate EHV grid that will enable the country to meet a series of national objectives. While "green transmission highways" for renewable resources only and transmission projects restricted to renewable generation are widely discussed, they are inefficient and limiting if not totally unworkable in practice. Transmission lines that are only used to harness renewable energy and are not tied to the development of an efficient and robust backbone system create unnecessary redundancy and result ultimately in less renewable energy being harnessed and the cost of energy being unnecessarily costly. Efficiently generated, cost effective electrical energy is fundamental to the economy of the country. We believe that as a nation, we can dramatically increase the availability of renewable energy, diversify our generation portfolio and reduce our carbon footprint through an efficient, robust interstate EHV grid. It is important to realize that what we build today will carry us into the next century. If the system is robust and efficient, it will allow us to integrate new generation technology that we cannot even begin to contemplate. The lines we are considering today are vital for the future of this nation's economy today and into the future.

RESPONSES OF JOSEPH L. WELCH TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. We have tried, in our draft, to provide for significant input from sub-regional planning entities like the one currently active in the upper midwest. Have we done a good enough job at this?

Answer. Yes.

Question 2. Do you think that the cost allocation scheme—allowing regional entities to propose a plan, but providing a FERC backstop—works?

Answer. While the proposed process is workable, it will result in delays to the construction of regional projects. Regional entities have had almost a decade to develop equitable cost allocation methodologies to facilitate transmission expansion and have failed. Providing an additional year will not likely break the log-jam of parochial interests that have stifled progress to date without doing anything to change the fundamental political dynamics. To the extent a backstop approach is adopted, clear guidance should be provided to FERC on broadly allocating costs for extra-high voltage (EHV) facilities.

RESPONSES OF JOSEPH L. WELCH TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. In your opinion, will the imposition of a new interconnection-wide planning process become a new "choke point" by pre-empting ongoing planning efforts or delaying projects that could go forward now?

Answer. No, it is a "choke point" now with no interconnection-wide or regional transmission plan. Before any interconnection-wide planning process is established, Congress should provide clear direction on a national energy vision that establishes guidance on issues such as efficiency standards and renewable portfolio standards. Prepared with that guidance, an entity focused on interconnection-wide plan that has the appropriate mandate and long-term regional focus will deliver this plan. Our approach of using ongoing planning organizations and efforts will enable the interconnection-wide plan.

Question 2. What is your position on the issue of siting? Can federal and state regulators to make progress on a collaborative basis or is increased federal siting authority needed?

Answer. Currently, transmission rates are regulated on a federal level by the FERC, but siting is regulated by individual states that naturally are focused on benefits to their respective state, not the region or the nation. For this reason, the building of significant regional transmission lines is virtually impossible. In many cases, transmission projects are delayed for years through cumbersome state siting processes. The FERC should be given a more significant role in transmission siting so that infrastructure development that is needed for the good of the entire country can go forward expeditiously.

Our preferred path would be to have FERC assume responsibility for issues a Certification of Need for projects that come through the new, robust planning process. Under this approach, states would continue to have authority to route project as

they are best informed on zoning, land use and other local concerns. Such an approach also avoids potential delays in creating the federal staff needed to undertake routing decisions across the country. There would need to be a reasonable federal back stop in should a state fail to assume its responsibility to route the project within one year.

Question 3. As you know, so often energy issues are regional and not partisan. What is your opinion on the possible interconnection-wide allocation of transmission costs? Does such a widespread approach unfairly socialize costs across regions that may not be directly benefiting from the particular transmission line?

Answer. In order to address the significant electric reliability challenges coupled with the energy needs of tomorrow that incorporate renewable resources, efficiency and demand response programs as well as the changing use of the grid overall, the nation needs an extra-high voltage (EHV) transmission overlay. This overlay would provide significant benefits in the form of higher levels of reliability, increased flexibility of the use of the grid and enhanced access to all generation forms including wind and other renewable resources.

The benefits of an EHV overlay can be quantified using reliability and economic metrics; however, the current system falls woefully short of incorporating all of the direct and indirect benefits of a regional EHV overlay. How do you measure the benefits of avoiding a repeat of the 2003 Blackout? How do you measure the benefits of reduced carbon emissions? How do you measure the benefits of indirect economic development caused by the creation of construction and maintenance jobs needed to support an EHV overlay? Any cost allocation method should look at both the direct and indirect benefits.

ITC is supports the concept that the costs of transmission facilities that comprise the EHV overlay and are developed through an new interconnection-wide planning process to facilitate the connection of renewable resources and provide a robust regional electric backbone be spread broadly to all end users in that interconnection. Regional transmission benefits the region, and as such, those costs should be allocated accordingly.

Question 4. You have proposed to build the Green Power Express project to bring renewable power from the upper Plains States to Chicago. What hurdles must you jump through under the current planning process for this project? What kind of time-line are we talking about here? Also, how important will it be for your company to receive incentive-based rates from FERC?

Answer. The issues with the current planning process are not so much hurdles as they are problems with the criteria applied to evaluate transmission projects and the corresponding cost allocation mechanisms. They are focused solely on short term reliability or economic benefits (looking at only a 10 year planning horizon), are often narrowly tailored in geographic terms, and do not recognize the need for forward-looking projects built primarily to support public policy, even though in the long term (the average transmission asset has a useful life of over 40 years), the same project will also provide reliability and economic benefits.

Further, the current planning results essentially provide two basic pieces of information; what impact the project will have on the rest of the transmission system and a benefit cost ratio based on adjusted project cost. Reductions in carbon and other emissions, support for state renewable energy requirements, reduced need for operating reserves, and impact on national security or energy independence through providing access to more diverse fuel sources, just to name a few, are not considered when evaluating the benefits of a project. The process typically takes about a year but the results fail to account for numerous other impacts of a project

Next, it is important to understand the integral relationship between planning and cost allocation. Once the planning results are available, a set of cost allocation criteria are applied. Cost allocation policies currently place the majority of the cost for any project strictly in the bills of the local customers and do not recognize the broad reaching benefits of projects like large, transmission backbone projects. In MISO, for example, a project that has no adverse impact on the system must have a benefit cost ratio of at least 3:1 in order to qualify for cost sharing. Even if this threshold is met showing that the benefits are three times greater than the costs, 80% of the total project costs are borne by the local utility customers and 20% will be shared across the region. Under this type of construct, local utilities will find it difficult to support important projects because their customers will have to bear so much of the cost which in turn works against the development of transmission that will support the nation's future energy needs.

Finally, significant incentives are not necessary to motivate the construction of regional transmission. For example, in ITC's recent 205 application for the Green Power Express, we requested a rate construct that included a return on equity that was commensurate with other Midwest ISO members and did not include incentives

that were above and beyond what were received by other members. The Green Power Express consists of 3,000 miles of high voltage transmission traversing 7 states, 20 utility service territories, with a cost of \$10-12 billion dollars. As such, a rate construct with a competitive return on equity provides the needed certainty needed to attract potential partners.

Question 5. As you know, the Stimulus bill provided brand new borrowing authority for the Western Area Power Administration (WAPA) in the amount of \$3.25 billion, to plan and construct transmission lines for renewable energy projects. The Reid bill would go even further by directing WAPA and Bonneville to construct a transmission line identified in the new planning process if no private financing materializes within three years.

What are your thoughts on the new WAPA borrowing authority in the Stimulus and the possible expansion in the Reid bill? What will such federal authority mean for private transmission efforts and existing regional grid planning?

Answer. Shareholder-owned utility transmission investment has been steadily increasing since 1999. ITC and other members of the Edison Electric Institute (“EEI”) are planning to invest more than \$30 billion in transmission facilities in the three-year period from 2008 and 2010. Since 2003, ITC alone has already invested more than \$1 billion in its transmission systems in an effort to improve electric reliability, reduce costly system inefficiencies and interconnect all forms of generation including wind and other renewable resources.

Despite the fact that WAPA has received an additional \$3.25 billion in borrowing authority in the recently-enacted American Recovery and Reinvestment Act, this amount of money will not be enough to build all the transmission that is needed to link remotely located renewable resources with load centers, particularly within the WAPA service territory. Accordingly, ITC is advocating that the PMAs use this federal funding to leverage private sector financing and private expertise to maximize results. Federal transmission policy should support—not supplant—development of interstate transmission facilities through private enterprise, which has the construction and financial capability to build interstate transmission facilities for which siting approvals and permits can be obtained. Through creative partnerships with private transmission companies that have the expertise and financial capability to build and finance high voltage transmission lines, WAPA will be able to leverage the funding provided and move us closer to the day when we have a robust, reliable, high voltage grid connecting renewable rich resource areas with high population centers.

To ensure the most efficient expenditure of limited taxpayer dollars, Congress should encourage WAPA to target its spending under the new ARRA borrowing authority on transmission projects that, but for this new funding, would not likely be constructed in a timely manner and to encourage WAPA to enter into partnerships to develop needed facilities. Specifically, we suggest WAPA should certify before committing funds to any project that: (1) no other entity is willing to participate in the financing, construction or ownership of the project in a timely manner; and (2) the project does not interfere with or duplicate an existing project being constructed by another transmission owner or operator. Legislative precedent exists for imposing similar preconditions on federal utility transmission projects to avoid duplication or preemption of private-sector infrastructure investment. The Energy Policy Act of 2005 contains language designed to avoid duplication of functions of existing or proposed transmission facilities by certain joint transmission projects in which WAPA was authorized to participate (Sec. 1222 of EPAct 2005).

In addition, any transmission expansion projects that WAPA plans under its new borrowing authority should be consistent with ongoing Western Electricity Coordinating Council (“WECC”) planning processes, which identify a number of projects already being developed or on the way. Notwithstanding the private-sector transmission investment numbers outlined in the charts attached, building interstate transmission lines continues to be challenging due to the need to obtain approvals from every state that a transmission line traverses. Building interstate lines, especially in the West, is further complicated by the difficulty of obtaining authority to build across federal lands. In addition to providing incremental borrowing authority for federal utility transmission construction, Congress should also address important siting and cost allocation issues that are frustrating the planning and construction of transmission lines. Congress should strengthen Federal Energy Regulatory Commission (“FERC”) siting authority for interstate transmission lines and transfer to FERC the lead agency authority for permitting projects that cross federal lands.

Question 6. Some consumers are concerned that giving FERC greater authority to site transmission and allocate its costs will result in more transmission than what is needed, and larger lines than are strictly necessary. How do we assure customers that the system they get is what they need?

Answer. Following a 30-year period of significant under investment, the country is not in a situation where too much transmission will be built anytime soon. Time and time again, study after study, is showing the exact opposite. The lack of a robust transmission grid is preventing the wide spread integration of a variety of different types of renewable, and other traditional forms of generation, making it all the more difficult to achieve goals of energy independence and the maximization of the efficient use of our resources. Through an interconnection-wide planning process that reflects a national energy vision and includes ample feedback from stakeholders, a determination of project need will be given, and this will provide the necessary check and balance to prevent overbuild. ITC believes that interconnection-wide planning, increased federal siting authority and regional cost allocation will go far to remove the obstacles to developing and implementing what customers want and need from our energy supply system.

Question 7. I understand that AEP supports allocating costs on an interconnection-wide basis. But what about for DC lines? With a DC line, which is essentially like a straw that takes power from Point A and delivers it to Point B, it's clear who the project beneficiaries are.

Answer. While it is true that with DC, it is relatively easy to determine the beneficiaries of a project, this solution is short-sighted and can drive sub-optimal regional planning. DC a good technology solution if used in the proper application; however, to some extent it has been applied inappropriately due to the lack of a cost allocation methodology.

As you say, DC is generally used to deliver energy from point A to point B; however, it does little to support the overall reliability of the grid. DC lines have little opportunity for intermediate on-ramps and off-ramps and therefore do not provide the benefits of a networked AC solution. A DC line's single purpose is to bring power from one location and therefore, it does not unload the underlying system through the reduction of system congestion or reduce losses, nor does it not provide network flexibility.

DC is only part of the solution; our nation needs an AC EHV transmission overlay that will serve as the electric infrastructure backbone. DC's limitations make it such that the cost allocation issue is easily answered; however, we should not implement sub-optimal solutions as a means to avoid addressing a tougher policy question. That being said, to the extent that DC is part of a regional solution, it may be eligible for a cost recovery approval process.

Question 8. If FERC has new authority for permitting transmission, how should it decide between competing developers?

Answer. Through in interconnection-wide planning process, the risk of having competing regional projects is mitigated. Once a project has been identified, incumbent transmission owners should have the right of first refusal, meaning the right to build the needed transmission within their respective service territories provided they are willing to make timely commitments to build the approved construction. However, right of first refusal without any limitation can impede needed development. ITC feels strongly that incumbent transmission owners should have a reasonable period of time during which to submit an application to construct and site new facilities.

However, to the extent an incumbent fails to act within that timeframe, the project should be open for other parties to undertake. To this end, FERC would be in the position of resolving any conflict arising from competing projects/developers. FERC should look at a variety of criteria to determine who is best suited to build a project including: incumbent participation, independence from the market, public power, the ability to maintain facilities going forward, total cost to build and maintain the assets and technical capability, etc.

RESPONSE OF JOSEPH L. WELCH TO QUESTION FROM SENATOR MENENDEZ

Question 1. As you know NJ is investing a great deal in solar, offshore wind, and energy conservation. Does it make economic sense for New Jersey to help pay for a giant transmission line to deliver wind from the Midwest? Or is it more efficient to develop our own green power closer to load?

From the standpoint of economic efficiency, don't we want generators to consider the true costs of a project when deciding where to build? If we hide transmission costs, doesn't that mean home-grown renewable projects would gain no advantage from the fact that their transmission costs are much lower? What is the economic logic behind that?

Answer. The answer to the energy issues we face is not one dimensional; the answer lies in many approaches to reduce carbon emissions, improve reliability and

efficiency, encourage conservation, reduce our dependence on foreign oil and create economic development here at home.

Where it is economical, local renewable energy should and will be developed, but the efficiency of the local renewable resources also must be considered. At one extreme, one could consider the construction of a local wind farm in an area with little to no consistent wind.

In the example of ITC's Green Power Express, we envision constructing approximately 3,000 miles of EHV transmission in a network formation. Once constructed, this network would not only significantly improve electric reliability and interconnect 12,000 MW of power from the wind abundant regions to be transported to the major population centers such as Chicago, Minneapolis, Detroit and points east, but it would do so in an economic manner as found in two independent studies.

The Brattle Group concluded that the Green Power Express would make wind power actually cost competitive with coal and other carbon-based generation sources. The CRA International study was able to determine that the construction costs to build the Green Power Express were literally offset by the economic benefits of connecting wind from this highly efficient wind region.

While it may appear intuitively obvious that building renewable resources closer to the load is more economic, the Green Power Express is one example of many where it makes more sense economically, technically and environmentally to focus on building the EHV overlay that would allow the most efficient and economic renewable resources to be interconnected where it makes most sense.

RESPONSES OF JOSEPH L. WELCH TO QUESTIONS FROM SENATOR STABENOW

Question 1. As soon as we see the types of costs that a new grid would cost—billions of dollars nationwide—we automatically have to ask ourselves what this means to households and businesses, and particularly our manufacturers. On one hand we can get more clean energy into use and additional jobs manufacturing and installing wind turbines and grid infrastructure for example. On the other hand we have to assure our constituents that this investment will not unreasonably increase their costs.

Can legislation promote the grid infrastructure we need and diffuse costs in a way that is de minimus over time?

Answer. To the extent that legislation can resolve the challenge of how to allocate costs for EHV transmission overlay infrastructure in a way that recognizes the broad benefits of regional transmission and allocates cost accordingly, then yes, legislation can indeed promote the necessary grid infrastructure in a cost effective manner. For example, significant levels of system congestion are literally costing customers hundreds of millions of dollars per year. In 2004 ITC completed the Jewell-Spokane project, which was a \$10 million effort that resulted in over \$90 million in reduced system congestion on an annual basis. This was a prime example where investment in transmission had a leveraging effect on the total cost of delivered energy. Further, it must be recognized that transmission only represents approximately seven percent of the end-use consumer's bill and can have a leveraging effect on the overall cost of delivered energy by providing reliable access to more economic sources of generation.

Question 2. Can transmission grid policy protect manufacturers from the potential price increases of a Renewable Energy Standard?

Answer. Renewable energy does not have to be uncompetitive in terms of cost to other existing forms of generation. In fact, according to an independent study by The Brattle Group of ITC's Green Power Express, with a robust grid in place, wind energy can actually become cost competitive with coal and other carbon-emitting forms of generation.

ITC believes that with the construction of an EHV overlay that is planned on an interconnection-wide basis, access to renewable resources that are not only environmentally-friendly but economic as well will be made possible. The Green Power Express helps to integrate the most abundant sources of wind generation in the country. Through the networked configuration of the Green Power Express, geographic diversity is realized, which provides both operating and economic benefits. Moving forward, the Green Power Express could potentially be later integrated with an EHV overlay in Michigan that would enhance Michigan's ability to integrate its own renewable resources found off-shore thereby allowing Michigan to enter the renewable energy market in a meaningful way. Without a regional grid in place, generation solutions may be constructed as a means to meet a mandated standard in a manner that is sub-optimal.

Further, the challenge before us is a national issue that requires a national solution. What will be the price to Michigan and the U.S. economically, environmentally

and from an energy independence standpoint if we continue to import oil and do not maximize the use of our existing efficient renewable resources available to use and distributed effectively through an EHV system. Energy policies should be developed on the national level rather than by taking a state-by-state approach. We will not be able to build the necessary grid infrastructure at the level needed with the existing policy barriers in place.

Question 3. I would like your comments on the job opportunities surrounding a new grid.

Who will design and make these systems? Is this an opportunity for more green jobs?

Answer. Yes, a new grid would certainly enable the creation of more green jobs. Without a robust regional grid, these green jobs will be challenged to materialize in a meaningful way, and further, any renewable energy that is integrated will not be done so in the most efficient and effective manner. To understand this, we must first consider how the grid should be planned and built.

ITC's experience as an independent transmission company has given us unique insight into the value of independence in transmission operations and planning. This independence should not be limited to the transmission owning entity but should be extended to mandatory regional planning by the regional transmission organizations (RTOs).

Once the regional plans are developed by independent entities, ITC believes that incumbent transmission owners should have the right of first refusal, meaning the right to build the needed transmission within their respective service territories provided they are willing to make timely commitments to build the approved construction.

However, to the extent an incumbent fails to act within that timeframe, the project should be open for other parties to undertake. To this end, FERC would be in the position of resolving any conflict arising from competing projects/developers. FERC should look at a variety of criteria to determine who is best suited to build a project including: incumbent participation, independence from the market, public power, the ability to maintain facilities going forward, total cost to build and maintain the assets and technical capability, etc. Once built, this regional grid should be independently operated, and ongoing maintenance should be done on an independent basis.

Implementing these policies would go a long way toward removing existing barriers to new transmission infrastructure. It is this same transmission infrastructure that will assist in the facilitation of wind and other renewable resources. If we consider ITC's Green Power Express, for example, this project includes the construction of 3,000 miles of EHV lines and stations that will serve to integrate 12,000 MW of power from the wind abundant regions of the U.S.

Consequently, we can expect that there will be a great opportunity for the creation of jobs to construct the Green Power Express as well as the many wind turbines that will be needed to generate the power. Once constructed, we can then anticipate more jobs to operate and maintain the Green Power Express and the wind farms. In fact, since opening its doors, ITC's capital and maintenance efforts have resulted in the creation of more than a thousand new jobs for Michigan alone. These are but a few examples of a regional transmission solution, and there are countless others including some very fine concepts to address the reliability needs and opportunities in Michigan.

In short, the construction of this needed infrastructure facilitated by the implementation of critically needed policy changes will indeed lead to the creation of more green jobs.

Question 4. There is a lot of focus is on harnessing major wind resources from the great plains and solar in the arid Southwest.

How can the wind and other renewable energy potential in Michigan benefit from major transmission projects such as the Green Power Express?

Answer. We should take best advantage of the most efficient resources that we have. In this instance, the best advantage would likely be to have renewable projects in places like Michigan complement renewable projects in other locales. In that way, we can take advantage of the geographic diversity and mitigate the risk of a local weather event suddenly and dramatically reducing renewable output while still taking advantage of the strongest wind resources available.

Question 5. How do we plan a system that can accommodate more expensive wind, or wind resources in Michigan's "thumb"?

Answer. As the company that owns the transmission system in Michigan's thumb region, ITC is well aware of the opportunity to integrate the wind from that region. Due to the intermittent nature of wind and other renewable resources, geographic diversity is one factor of consideration, and because Michigan's thumb region does

have an abundance of wind, it is reasonable to assume that Michigan wind will be a part of the regional generation portfolio. Through pumping and storage, wind from the Michigan thumb can become all the more economic. Further, Michigan has significant off-shore wind that is available, and we must begin working now to understand how that resource can be integrated into the grid in a reliable and economic manner.

ITC believes that we need a regional transmission EHV overlay that would provide the needed reliability and flexibility to interconnect local abundant renewable resources, such as those found in the Michigan thumb region, to the demand centers. A key component to making this happen would be to establish a national energy vision that answers important questions such as interconnection-wide planning, cost allocation and regional transmission siting.

Question 6. You are in the transmission business. ITC does business in multiple states. I assume this means you build transmission under a number of cost allocation methodologies.

Which cost allocation methodology works best, and how do we make that methodology agreeable to various stakeholders involved in the planning?

Answer. While often connected, the issues of regional planning and cost allocation are actually two very separate issues. In order to plan and develop optimal regional transmission that has the appropriate size and scope to address today and tomorrow's energy needs, interconnection-wide transmission planning is a must.

Once planned it becomes clear that regional transmission benefits the region, and as such, those costs should be allocated accordingly. The lack of a regional cost allocation mechanism is the primary barrier to the construction of regional transmission. Without understanding who will pay, it is virtually impossible to construct these needed regional facilities. Due to parochial interests, finding a cost allocation methodology that is agreeable to all stakeholders is also virtually impossible. Regional entities have had almost a decade to develop equitable cost allocation methodologies to facilitate transmission expansion and have failed. This is due in large part to the parochial interests of the stakeholders involved in the development of a cost allocation methodology. It is for this reason that Congress and the FERC must provide the policy vision and leadership on this issue so that we can break the logjam and implement and move forward in resolving the cost allocation issue.

ITC supports the concept that the costs of transmission facilities that comprise the EHV overlay and are developed through an new interconnection-wide planning process to facilitate the connection of renewable resources and provide a robust regional electric backbone be spread broadly to all end users in that interconnection. This is a method commonly known as the "postage stamp" allocation method.

RESPONSES OF JON WELLINGHOFF TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. You have made a number of recommendations as to how the Commission's authority should be administered. If you have been able to look at our discussion draft, how do you think it comports with those recommendations? How similar is it to the structure under the Natural Gas Act?

Answer. The draft legislation bears similarities to the provisions of the Natural Gas Act, especially sections 7 and 15, and the recommendations on energy infrastructure siting articulated in my testimony. The draft legislation clearly defines the tools and authorities available to the Commission for expediting the siting of "high-priority national transmission projects."

Designating FERC as the lead agency with exclusive authority for siting certain transmission facilities would establish a consistent review process and assign clear responsibility for making public interest determinations that are in the public convenience and necessity. The legislation also recognizes the importance of having FERC as the lead agency for environmental review, a fundamental part of the siting process. Having a lead agency with the duty to perform the environmental review and make the ultimate siting determination firmly establishes responsibility for ensuring that issues identified in the permit review process are considered in a timely manner. The lead agency would also develop the schedule for all related federal authorizations, thus bringing certainty and accountability into the overall siting process. Further, the lead agency would have clearly defined responsibilities for developing a single, comprehensive federal record upon which judicial review would be based. Also, the right to exercise eminent domain authority, which is used sparingly in the siting of natural gas facilities, is a necessary tool to guarantee that the greater public interest is served.

The draft legislation strikes a balance between federal and traditional state roles for siting transmission line projects. Exclusive state transmission siting authority

would be preserved for projects less than 345 kV (except renewable feeder lines). In addition, projects not accorded high-priority status would remain under exclusive state siting authority. For “high-priority national transmission projects,” states are provided with a venue to voice interests and concerns during interconnection-wide transmission planning and FERC’s transmission siting process.

Question 2. It seems to me that the most difficult thing to figure out here is how the planning structure should work. We have suggested, along with Senator Reid, that there should be a regional planning entity in each interconnection to undertake this role, that it should be approved by the Commission, and that the plan should be approved by the Commission. Further, that if such a body should not emerge, the Commission should undertake this role. Is it practical to suggest that the planning bodies should be interconnection-wide? Is it practical to suggest that FERC can undertake this role?

Answer. Transmission planning was historically done on a utility-by-utility basis and focused primarily on serving local electricity needs out of local generation. This is no longer adequate for the way the grid is used today and will be used in the future if we are to take full advantage of our Nation’s renewable energy potential. Our power supplies are often transmitted across multiple utility systems and, thus, transmission planning needs to look at the reliability and economic needs across a much larger area. To address this need, FERC has required public utilities subject to its jurisdiction to engage in regional transmission planning. Developing significant quantities of renewable resources will require the scope of transmission planning to be even broader, ideally looking at an entire interconnection. You have asked whether this is practical. While expanding regional planning efforts to encompass an entire interconnection will not be easy, it is the right target. FERC is capable of performing this role if called upon to do so, but it would be better to build on the planning efforts of existing regional institutions, in which states and other interested entities already provide significant input. It is vital that we combine local and regional planning efforts with a broader perspective of the kind of extra-high voltage overlay needed to make remote renewable resources located in one portion of the interconnection deliverable to population centers elsewhere in the interconnection.

Question 3. The Commission issued Order No. 890 to establish voluntary regional transmission planning in 2007. Is it working to accomplish the goals that we are trying to reach here?

Answer. In Order No. 890, the Commission directed all public utility transmission providers to develop a transmission planning process that, among other things, provides for coordination of interconnected systems to: (i) share system plans to ensure that they are simultaneously feasible and otherwise use consistent assumptions and data; and, (ii) identify system enhancements that could relieve congestion or integrate new resources. These processes are in tariffs on file with the Commission, and the transmission providers are required to comply with these tariffs. However, the Commission allowed the utilities flexibility in defining the scope of each planning process to reflect the integrated nature of the regional power grid and the particular reliability and resource issues affecting individual regions and sub-regions.

A number of regional and subregional transmission planning processes have been developed or enhanced in response to Order No. 890. For example, thirteen transmission providers in the Southeastern United States have formed the Southeast Inter-Regional Participation Process to coordinate on a regional level the evaluation of potential upgrades or other investments that could reduce congestion or integrate new resources or loads. Transmission providers in the West have formed ColumbiaGrid, WestConnect and Northern Tier Transmission Group to coordinate the development of transmission plans in western subregions. And transmission owners in California, the Midwest, and the Northeast continue to plan their systems on a coordinated basis through their participation in regional transmission organizations.

Although these planning processes have resulted in increased coordination among transmission providers within these regions, currently none are designed to produce an Interconnection-wide transmission plan. Similarly, cost allocation proposals tied to these planning processes currently do not include Interconnection-wide cost allocation mechanisms. In Order No. 890, the Commission directed transmission providers to identify a method for allocating costs for new projects that are not covered by existing cost allocation rules. In the initial round of compliance filings, most transmission providers did not address this issue completely and the Commission directed them to supplement their planning processes to identify with particularity the cost allocation rules for new projects. A second round of compliance filings addressing this issue (and others) is currently pending before the Commission and will be addressed in future orders.

Finally, Order No. 890 and the transmission planning processes implemented in response do not address the issue of siting, which is addressed in the proposed bills.

RESPONSE OF JON WELLINGHOFF TO QUESTION FROM SENATOR MURKOWSKI

Question 1. In the 2005 Energy Policy Act, Congress directed FERC to establish incentive-based rate treatments for transmission. However, you have not supported the use of these incentives to spur the construction of new transmission facilities. In your opinion, what role does incentive-based ratemaking have in this debate?

Answer. I have supported granting incentive-based rate treatments in many, though not all, cases in which they have been proposed since I joined the Commission. Incentive-based ratemaking is an important tool for the Commission to use in appropriate circumstances to spur construction of needed transmission facilities, including new transmission facilities that will carry substantial amounts of power from renewable energy resources.

In evaluating requests for an incentive return on equity (ROE) adder, the Commission should focus on encouraging investments beyond those projects that are required to meet a utility's service obligations or the minimum standard for good utility practice. In my view, incentive ROE adders should be targeted to non-routine investments that provide incremental benefits, such as those associated with new transmission construction needed to accelerate the integration of renewable energy resources into our Nation's energy portfolio, and benefits that result from the deployment of best available technologies that increase efficiency, enhance grid operations, and allow greater grid flexibility.

These considerations are consistent with the Commission's Order No. 679, which implements new section 219 of the Federal Power Act (created by section 1241 of the Energy Policy Act of 2005 and requiring a rule providing incentive-based rate treatments for transmission). They are also consistent with section 1223 of the Energy Policy Act of 2005, which requires the Commission to encourage, as appropriate, the deployment of advanced transmission technologies.

RESPONSES OF JON WELLINGHOFF TO QUESTIONS FROM SENATOR MENENDEZ

Question 1. Mr. Wellinghoff, I'm told that the Energy Committee proposal will allow more wind energy to be placed on the grid, but as I read it, the proposal is more likely to create a superhighway for Midwest coal electricity to reach eastern markets. Is there a requirement that transmission built as the result of this bill contain renewable electricity? On the first page of the bill this proposal says it applies to any transmission "at or above a voltage of 345 kilovolts." Doesn't that, by definition, mean there is no real renewable electricity requirement in the proposal?

Answer. At the outset, I should note that I do not know what is intended by each provision in the discussion draft and I do not wish to prejudge how the Commission might address any new responsibilities that might be given to it under new legislation. The Commission will need to interpret any new legislation in light of the language that is ultimately chosen and the legislative record.

With respect to your first question, the Energy Committee discussion draft defines high-priority national transmission projects to include three general categories of transmission and ancillary facilities: those that operate at or above a voltage of 345 kilovolts alternating current; those that operate at or above a voltage of 400 kilovolts direct current; and, renewable feeder lines that transmit electricity directly or indirectly to a transmission facility that operates at or above a voltage of 345 kilovolts alternating current or 400 kilovolts direct current. A renewable feeder line is defined as a transmission line operating at 100 kilovolts or greater that is identified in a high-priority national transmission plan or by the Commission as a facility to be developed substantially to facilitate collection or delivery to one or more load-serving entities or end-use customers of energy produced by certain identified renewable energy sources. The regional planning entities and the Commission are required to develop plans for the development and improvement of such renewable feeder lines. Thus, there appears to be a renewable energy requirement with respect to those lines. Moreover, in developing the plans, subparagraph (i)(5)(B) requires the regional planning entities and the Commission to be guided by the goal of maximizing the net benefits of the electricity system, taking into consideration "support for the development of new renewable generation capacity, including renewable generation located distant from load centers."

To the extent that concerns like those raised in your question remain, Congress can address this issue expressly in transmission legislation. For example, the legislation proposed by Senator Reid includes additional safeguards to ensure that new transmission lines serve clean renewable generation.

Question 2. I've heard significant concerns from the environmental community that the Energy Committee proposal does not help wind generation as much as it benefits coal generators. Please see the attached memo from the Sierra Club and explain why you disagree with their arguments. Also see an attached letter from 26 environmental groups listing their priorities for a transmission plan.* Does the proposal meet these principles?

Answer. I support many of the goals outlined in the attached memo from the Sierra Club, including an RES standard and limitations on carbon emissions. I also believe Congress should consider legislation to facilitate the transmission expansion needed to enable greater use of renewable resources. The immediate environmental benefits of using renewable resources should not be delayed pending further Congressional action to address these other important aspects regarding U.S. carbon policy.

I agree with many of the basic principles included in the attachment, including comprehensive super-regional planning, environmentally responsible siting, and more efficient use of existing infrastructure. I see the Energy Committee proposal as generally consistent with those principles. The legislation proposed by Senator Reid may adhere more closely to the principle of having safeguards to ensure that new transmission lines serve clean renewable generation.

Question 3a. Mr. Wellinghoff, the bill strikes Federal Power Act subsections 216(a) through (c), eliminating the provisions allowing the Department of Energy to designate National Interest Electric Transmission Corridors, and for the Federal Energy Regulatory Commission to issue construction permits for transmission projects in those corridors. Will the repeal of these provisions nullify existing designations of national corridors?

Answer. The Department of Energy's designations of National Interest Electric Transmission Corridors are currently under appeal. If the designations are upheld by the courts, my sense is that deletion of those provisions would not nullify the existing designations, because they would have been lawful when made. The significance of such a designation, however, would be unclear.

Question 3b. Will the repeal of these provisions eliminate FERC's authority to issue construction permits for projects in national corridors that are already being considered by state and local siting authorities?

Answer. My sense is that the repeal of those provisions would eliminate the Commission's authority to issue construction permits for projects in national corridors unless: (1) the projects in question otherwise met the requirements of the new legislation; and (2) the Commission had already issued a permit in a particular case.

Question 4. When a public utility proposes to build a new transmission line in NJ, it must undergo environmental reviews if the line is proposed to be built in an environmentally sensitive area. The proposed Energy Committee bill provides that the FERC or the Secretary of Interior will be the "lead agency" for coordinating environmental reviews, including NEPA reviews. What role is envisioned for the States to preserve their authority to conduct thorough and meaningful environmental reviews of transmission projects in environmentally sensitive areas deemed to be "high-priority national transmission projects"?

Answer. The designation of FERC as lead agency for "high-priority national transmission projects" would preserve a key role for the states in the environmental review process. State agencies would continue to be responsible for reviewing a proposed project to ensure compliance with state regulations, as well as any federal authority that has been delegated to the state (e.g., coastal zone consistency determinations).

As stated in my testimony, a typical FERC infrastructure proceeding allows and encourages participation of all stakeholders, including federal and state agencies. FERC attempts to actively involve all stakeholders in its National Environmental Policy Act (NEPA) review process to identify potential impacts and develop alternatives. FERC's pre-filing process begins the NEPA review and encourages the early identification and resolution of issues and concerns.

Under NEPA, coordination and cooperation among federal and state agencies is an important aspect of the environmental review process. While FERC as lead agency would have primary responsibility for preparing environmental documents, FERC encourages states to participate in the NEPA process by becoming "cooperating agencies." As a cooperating agency, a state would assist FERC in determining the scope of issues to be addressed in the NEPA process, identifying the significant issues related to the proposed project, and reviewing and providing comment on environmental documents. In addition, applicants seeking to construct transmission facilities are mandated by NEPA to consult with appropriate federal, regional, state,

*See Appendix II.

and local agencies during the planning stages of the proposed action to ensure that all potential environmental impacts are identified. These procedures are designed to preserve the rights of stakeholders—especially the states—in an infrastructure review process.

Question 5a. In creating plans for the development and improvement of high-priority national transmission projects under subparagraph (i)(5)(A), the regional planning entity for an Interconnection area would be required to undertake centralized Interconnection-wide transmission planning with respect to high-priority national transmission projects.

Will the responsibilities of the regional planning entity for the Interconnection overlap with those of the existing RTOs and ISOs? For example, a project does not become a “high-priority national transmission project” until after the regional planning entity incorporates it into a plan; does that mean that there can be two separate planning processes one after the other, with the RTO first planning a project, and the regional planning entity subsequently and separately planning a similar or identical project as a high-priority national project?

Answer. Similar to the legislation proposed by Senator Reid, the Energy Committee discussion draft requires the planning activities of the regional planning entities to build on the planning conducted by states and by existing organizations, such as RTOs and ISOs, utilities, and regional reliability entities. I believe that stakeholders participating in existing planning processes should continue to work with each other to develop the best transmission plan for each region; the interconnection-wide planning entity should harmonize those plans and, if necessary, overlay on those plans additional transmission projects necessary to meet the goals of the legislation. For example, there may be significant savings from building one large inter-regional line instead of multiple, lower voltage, intra-regional lines. Conversely, as large extra-high-voltage lines are considered as part of any interconnection-wide planning process, necessary transmission system upgrades to adjoining utility systems will need to be taken into consideration and those results will need to feed back into local and regional planning efforts. Planning at different levels must be coordinated adequately to ensure the best results.

Question 5b. To preserve the reliability of the existing transmission systems while integrating high-priority national transmission projects into those systems, additional improvements beyond the high-priority project itself are likely to be needed. Who will be responsible for planning those additional improvements? Will it be the regional planning entity for the entire Interconnection area, the regional transmission organization or independent system operator for each part of the Interconnection area affected by the high-priority project, or someone else?

Answer. The Energy Committee discussion draft appears to recognize that upgrades to the transmission system will be necessary to integrate new high-voltage transmission facilities into the grid. “Ancillary facilities and equipment necessary for the proper operation” are included within the definition of a high-priority national transmission project and, therefore, within the new authority given to regional planning entities and the Commission. This is similar to the bill introduced by Senator Reid, which includes network upgrades associated with underlying transmission networks among the facilities to be planned for by the regional planning entities. Again, transmission planning at the local, regional, and interconnection-wide level all start from the premise of preserving (or enhancing) the reliability of the existing system. There is a clear need to coordinate these efforts to account for additional improvements which may be necessary beyond any particular high-priority project.

Question 5c. Will it be the RTO/ISO or the regional planning entity that is held accountable for ensuring reliability?

Answer. Responsibility for compliance with the mandatory reliability standards approved by the Commission rests with the users, owners and operators of the bulk power system, as registered by the Commission-certified Electric Reliability Organization. Several of these standards relate to planning for the reliable operation of the transmission system. RTOs and ISOs are among the entities registered as responsible for meeting these standards. If regional planning entities are also registered as responsible for compliance with the planning standards, they would share that responsibility with RTOs, ISOs and others.

Question 6. Mr. Wellinghoff, under subparagraph (i)(2)(A), applicants seeking to become the regional planning entity must propose an open, inclusive, transparent, and nondiscriminatory planning process that includes consultation with affected states. However, nothing in the bill holds the regional planning entity responsible for satisfying those requirements when it actually undertakes the planning process. How will the regional planning entity be required to satisfy those requirements?

What will be the consequences if the regional planning entity fails to satisfy those requirements?

Answer. The legislation requires the Commission to act on applications to become a regional planning entity (RPE), and to determine whether the specific procedures contained in such applications comply with the statute. This includes the specific procedures needed to meet the requirement for consultation with affected states. The scope of the Commission's jurisdiction over an RPE is unclear under the legislation. If the RPE is jurisdictional to the Commission for purposes of complying with the procedures contained in an approved RPE application, and if the RPE failed to satisfy the requirements, then the Commission would have a range of enforcement mechanisms, including civil penalties, and would decide the appropriate enforcement response based on all of the relevant circumstances. It would be helpful if Congress made clear in any legislation enacted the scope of Commission authority over an RPE.

Question 7a. Under subparagraph (i)(5)(B), planning is required to take into consideration support for the development of new renewable generation capacity distant from load centers.

Why shouldn't planning take into account support for the development of new renewable generation capacity close to load centers—such as offshore wind generation capacity located within a few dozen miles of coastal load centers?

Answer. It should. Transmission planning conducted by each transmission provider should and already does take into account the integration of resources and loads on that transmission provider's system. Transmission planning to support the development of new renewable generation capacity should take into account both remote renewable generation located far away from load centers and renewable generation capacity close to load centers, such as offshore wind generation capacity located within close proximity to coastal load centers. The idea is to have a planning process that explores all renewable options—both remote and local. However, greater emphasis on facilitating regional and interregional planning is necessary for consideration of renewable generation located far away from load centers because planning for transmission that crosses the systems of multiple transmission owners is far more difficult to accomplish.

Question 7b. How can we ensure that "high-priority national transmission projects" include projects that link offshore wind generation capacity to coastal load centers?

Answer. It would be appropriate for Congress to provide direction to regional planning entities and the Commission regarding the importance of developing transmission facilities necessary to integrate renewable resources. With that direction, the Commission would be able to develop rules to ensure that plans include appropriate projects that link offshore wind generation capacity to coastal load centers.

Question 7c. Will long-distance transmission projects intended to support the development of new renewable generation capacity distant from load centers also be available to carry electricity from non-renewable projects that would increase pollutant emissions from regional power production? How can we ensure that transmission linking wind or solar resources to distant load centers do not also promote the expansion of high-emitting conventional generation?

Answer. It is unlikely that new transmission lines linking areas of the country that have significant renewable capacity will be used to carry significant fossil generation capacity. The capacity factor of most of the Nation's coal-fired generation, for example, is very high. This means that the coal-fired plants currently used to produce electricity cannot materially expand their production to take advantage of new transmission capacity. As such, I do not believe there would be a significant risk of increased pollutants as a result of such legislation. To the extent Congress remains concerned, however, it can address this issue expressly in transmission legislation. For example, the legislation proposed by Senator Reid includes additional safeguards to ensure that new transmission lines serve clean renewable generation.

Question 8. Mr. Wellinghoff, states have worked to expand demand response, energy efficiency, and clean local electric generation. Under (i)(5)(A)(2), the regional planning entity will develop plans that take these efforts into consideration. However, large transmission projects can send market signals that undermine these efforts—a problem that is exacerbated by the regional planning entity's lack of tools to support the states' efforts. How can we ensure that the Interconnection-wide planning of high-priority projects will not undermine states' local low-carbon solutions to energy challenges?

Answer. Local low-carbon efforts are certainly part of the solution. But the Nation also needs to facilitate transmission planning on an inter-regional basis to allow the addition of extra-high-voltage transmission needed to interconnect renewable generation located remotely from population centers. I do not see a conflict between

local low-carbon efforts and more distant renewables; both are critical to meeting our nation's energy needs and the increasing demand for clean, secure renewable resources. Moreover, local resources such as demand response are vital "dance partners" that will enable large amounts of energy from renewable energy resources to be integrated into the transmission system in a reliable and efficient manner. Thus, the development of extrahigh-voltage transmission to deliver energy from remotely located renewable generation will likely stimulate accelerated development of local demand response and make that demand response resource more valuable. It will be critical to coordinate local planning efforts, regional planning efforts, and inter-connection-wide planning efforts to ensure that all cost-effective solutions work in concert to optimize system efficiencies for the benefit of consumers.

Question 9. According to the Joint Coordinated System Plan (JCSP) put together by Midwest ISO, SPP, PJM, TVA, and MAPP, our transmission future might look something like the map below. They project this will cost at least \$80 billion. Do you believe such a transmission plan makes economic or environmental sense? Would transmission lines for wind actually bypass coal plants on their way east as this map seems to indicate?

Answer. The above Figure* refers to the "The 20% Wind Energy Scenario" studied by JCSP, which assumes that the Eastern Interconnection will meet 20 percent of its energy needs using wind generation by 2024. In this scenario, the bulk of the wind production capacity is assumed to be located in those areas with the highest quality (best annual capacity factor) wind resources. These resources are located in the western part of the Eastern Interconnection, i.e., the Texas Panhandle, Oklahoma, Kansas, Nebraska, North Dakota, South Dakota and Minnesota.

JCSP claims that this extra-high-voltage transmission network overlay of the existing interconnected power grid should achieve the following three objectives: (1) reduce the Nation's carbon footprint by facilitating the development and reliable integration of renewable and supporting resources to the power grid; (2) ensure and even improve system reliability and resiliency to withstand and/or contain severe contingencies due to deliberate threats or natural disasters to safeguard national security; and (3) increase system capabilities to ensure the supply and deliver ability of renewable resources while lowering dependency on non-US energy sources. The Commission has not performed the extensive analytical work needed to determine the economic or environmental impacts of any such overlay design. Additional research as to implementation of those objectives would be beneficial.

As to possible bypass of coal plants, the transmission lines shown by solid black lines (in the Figure above) that extend from the central plains to major load centers utilize high voltage DC (HVDC) technology. Two-terminal HVDC technology does not interconnect with the existing underlying AC transmission system on which the coal plants are located. As envisioned by JCSP, the power is collected from the generation resources located on the western end of the HVDC line and then transmitted to the load centers on the eastern end. However, the proposed JCSP design utilizes a multi-terminal HVDC technology that includes a mid-point tap to allow the load and resources in the middle to use the facilities. With a multi-terminal HVDC design, it is possible to collect power from other resources, such as wind resources in Michigan, as well as power from other generation such as coal plants. Again, however, it should be noted that the introduction of substantial additional energy on to such a grid system from existing coal-fired generators is unlikely given their current high capacity factors. Further, new coal-fired generation is unlikely to be constructed in the midst of existing uncertainty regarding carbon regulation and potential future carbon trading prices.

RESPONSE OF JON WELLINGHOFF TO QUESTION FROM SENATOR SESSIONS

Question 1. I understand that the movement of electricity through power lines over long distances results in some loss of power. Would an improved grid and improved transmission lines reduce the amount lost? If so, how much? And would the savings be sufficient over time to pay for the cost?

Answer. All transmission lines experience real power losses. Developing a more efficient transmission grid is likely to reduce those losses. The extent of the reductions would depend on several factors, such as the design of the transmission lines under examination, including their voltage and conductor type, and the distance over which those transmission lines would carry energy.

Rather than focus solely on changes in real power losses, it is useful in evaluating the benefits associated with an enhanced transmission grid to consider a broader metric: total savings that result from changes in system losses and the reduction

*Graphic has been retained in committee files.

in total system production costs. The calculation of those total savings also depends on several factors, such as the power flow pattern, the transmission configuration, the system load, the generators that are running, and the above-noted considerations related to real power losses. A transmission system planner must perform a series of transmission studies, including a production cost study, to quantify the system benefits associated with a proposed transmission system addition. Without performing these studies, it is not possible to accurately quantify the total benefits of an improved grid.

RESPONSES OF JON WELLINGHOFF TO QUESTIONS FROM SENATOR STABENOW

A group of regional transmission organizations released a plan (Joint Coordinated System Plan (JCSP) in 2008, which provides a view of new transmission necessary to interconnect generation resources. The plan illustrates approximate locations for new transmission facilities necessary to link wind resources in the western portion of the Eastern Interconnect to customers. Both American Electric Power (AEP) and ITC have proposed building Extra High Voltage (EHV) lines to accommodate wind. Both projects of AEP and ITC appear to lie within the conceptual framework of the transmission line recommended in the Report. The cost of such a major undertaking will have a significant impact in Michigan.

Question 1. How would competing projects, such as these—be selected for construction? Would the projects identified by the FERC-appointed Regional Planning Entity be subject to competitive bids—with those presenting the least cost bid—being selected to develop projects?

Answer. Historically, the incumbent public utility, municipal or cooperative transmission system, or power marketing administration would often undertake such construction—either individually or through some form of joint project. More recently, merchant transmission developers have demonstrated willingness to undertake the risk of building transmission projects without guarantee of cost recovery from any particular set of ratepayers. As a general matter, a formal competitive bidding process administered by a government agency has not been necessary with regard to selecting a particular project developer (whether incumbent utilities or merchant developers). Rather, competitive forces and input from entities with either or both of planning and siting authority over particular projects have been important to resolving situations where competing projects are proposed. The Regional Planning Entity and the corresponding rules of the planning process also could make important contributions to resolving such situations efficiently.

Question 2. Formula rates are currently granted by the FERC for transmission owners operating in the major RTOs. Formula rates offer the transmission owner just and reasonable cost recovery through annual rate adjustments that do not require FERC rate review. Would the cost of new transmission facilities built to interconnect renewable resources (estimated at \$80 billion), be recovered through formula rates or will there be a formal review and approval of costs and rates through a more traditional rate setting process by FERC? If not through a traditional rate setting process, what assurances will there be to local utilities bearing the cost—which the costs incurred in building a high voltage transmission system to interconnect renewable resources will be—prudently incurred?

Answer. Cost recovery for new transmission facilities to interconnect renewable resources could be recovered through a formula rate structure or through individual rate filings as individual transmission projects are built. The Commission's review of an initial formula rate (which can automatically adjust to reflect additional costs associated with a new project) is as rigorous as the rate review that occurs with regard to individual, project-specific rate filings. Both are "traditional" rate-setting mechanisms that fully protect customers. It would be the decision of the applicant whether it wished to propose a formula rate that could adjust automatically or a stated rate that would require a new filing each time additional transmission facilities are added. In either event, only prudently incurred costs would be recoverable through a FERC-jurisdictional transmission rate.

Question 3. Senator Reid's proposed legislation provides that the Regional Planning Entity (RPE) will solicit input from regional transmission organizations, independent system operators, States, generator owners, prospective developers and other interested parties. The proposed legislation also provides that the RPE may recover prudently incurred costs to carry out interconnect-wide planning studies from a Federal transmission surcharge that will be assessed to all load-serving entities. Should local utilities such as Michigan utilities Wisconsin Electric, Detroit Edison and Consumers' Energy be entitled to provide input to the planning process? If not, why not?

Answer. Yes.

Question 4. Section 404e of Senator Reid's proposed bill provides that the Commission may grant construction permits for service in an area already served by another transmission provider. This provision allows multiple entities that are involved in transmission to come into the same jurisdiction. If there are multiple entities interested in developing transmission, how will those conflicting desires be addressed? Will there be competitive bidding processes instituted by the Federal Government that will determine which entity will be selected to develop projects? If projects aren't selected via a competitive bidding process, which agency of the government will provide oversight to ensure projects are being built in a cost effective manner?

Answer. Please see my answer to your first and second questions, above.

RESPONSES OF JON WELLINGHOFF TO QUESTIONS FROM SENATOR SHAHEEN

Question 1. How do we evaluate renewable energy projects, like North Dakota Wind, including the cost of transmission, against renewable alternatives closer to New England, like we have in New Hampshire?

Answer. Developing local renewable energy and distributed resources is important as we expand our capacity to generate clean power. However, such development is not a substitute for developing the extra-high-voltage transmission infrastructure needed to bring renewable energy from remote areas where it can be produced most efficiently into our large metropolitan areas where most of this Nation's power is consumed. Both local renewable resources and more remote renewable resources will be necessary if this Nation is to reduce its carbon emissions and respond effectively to the challenge of climate change.

Consistent with those goals, transmission planning to support the development of new renewable generation capacity should take into account both remote renewable generation located far away from load centers and renewable generation capacity close to load centers. The idea is to have a planning process that explores all renewable options—both remote and local.

Question 2. With regard to interconnection-wide planning, how do we ensure that local and smaller state concerns are represented?

Answer. With regard to interconnection-wide planning, it is vitally important that local and state concerns are fully represented. There will be a need for close coordination between transmission plans originating at the local utility level, transmission plans developed at an RTO or ISO level, and ultimately any interconnection-wide planning efforts. Interconnection-wide planning will necessarily build upon the plans developed on a sub-regional basis. Moreover, there may be significant savings from building, for example, one large inter-regional line instead of multiple, lower voltage, intra-regional lines. Conversely, as large extra-high-voltage lines are considered as part of any interconnection-wide planning process, necessary transmission system upgrades to adjoining utility systems will need to be taken into consideration and those results will need to feed back into local and regional planning efforts. It will be critical to coordinate local planning efforts, regional planning efforts, and interconnection-wide planning efforts to ensure that all cost-effective solutions (including demand response and other local low-carbon efforts) work in concert to optimize system efficiencies for the benefit of consumers.

Question 3. As we look at national planning of transmission, to what degree should local planning (especially zones that are working, like New England) be included?

Answer. Please see my answer to your second question, above.

APPENDIX II

Additional Material Submitted for the Record

STATEMENT OF PAUL J. HIBBARD, CHAIRMAN, MASSACHUSETTS DEPARTMENT OF
PUBLIC UTILITIES, ON BEHALF OF THE COMMONWEALTH OF MASSACHUSETTS

Thank you for the opportunity to comment. We are heartened that Congress is taking up critical energy issues, with the goal of improving energy policy and instituting a greenhouse gas control regime. In particular, we support the move to a more rational policy governing the electricity sector, one that supports the development of renewable electricity while supplying ratepayers with reliable, fairly priced energy.

But we are concerned about current efforts to expand the transmission authority of the Federal Energy Regulatory Commission, as provided for in the draft legislation proposed by Senators Reid and Bingaman, and related efforts to rapidly deploy interconnection-wide transmission highways. In our view, these efforts are unwarranted from energy or environmental policy perspectives, strip states of authority over energy resource planning, and could diminish or eliminate benefits of competition in electricity markets.

At the outset, we need to recognize the appropriate level of jurisdiction that FERC does and should have over transmission in interstate commerce. The siting of transmission infrastructure is critical to supporting competitive markets and ensuring the safe and reliable operation of our interconnected transmission networks. FERC currently has, and should have, backstop authority for siting interstate transmission projects that are needed to meet federally enforceable reliability standards, or to address major transmission system bottlenecks. When it comes to challenges to system reliability or significant transmission system inefficiencies, the federal government needs to step in when states do not act in a reasonable timeframe.

But key to this authority is its limitation to projects needed to maintain bulk power system reliability. This is fundamentally different from what is proposed in both pieces of draft legislation, which would dramatically expand FERC's siting authority to include transmission that is not needed for reliability, but instead is only needed to interconnect new generating resources to the transmission network. While on its face this seems like a laudable goal, especially when linked to bringing distant renewables to market, the practical impact is likely to lead to costly and inefficient results. Federal decisions that serve to pick the generation that will be used to meet electricity demands on a national basis from among all possible sources will override the operation of competitive electricity markets, and squash state and regional efforts to promote demand response, energy efficiency and local renewable resource development.

In contrast, we believe that renewable resources steered to market should be those that are lowest cost, as determined by testing all options within a competitive market framework.

In the world of electricity, this means:

- The continuing evolution of FERC's oversight of wholesale electricity rates across the country in a way that increases reliance on regional competitive market structures to capture system efficiencies and fairly allocates risks and rewards among market participants and consumers. This includes expansion of short-and long-term markets for energy, capacity, transmission rights, and ancillary services;
- Meeting environmental policies through cap-and-trade emission control programs that rely on allowance trading to meet established annual emission caps through market-driven mechanisms that achieves lowest costs; and
- Meeting renewable policies through standards that place a minimum purchase requirement on load-serving entities and thereby establish a monetary value (through tradable renewable energy credits) in regional markets; this added

value improves the competitiveness and viability of emerging renewable resources within each state or region's competitive electricity market.

In every instance, this approach sets the requirement, leaving it to the creativity of the energy marketplace to produce the most efficient—and least cost—compliance path.

Our energy and climate challenges are pressing, but meeting those challenges does not mean we give up the ability to keep energy costs to a minimum. But this is exactly what might result from the proposed legislation.

One way to view this is in comparison to current markets. In New England, new resource developers of all types compete in a competitive capacity market to meet growing demand. The response has been overwhelming, with active and successful participation by demand response and renewable resources. Well over 10,000 megawatts of demand response and supply resources, including renewables, have responded to competitive market auctions. All of these resources compete to meet future demand (1) with full internalization of the cost of NO_x, SO₂, and CO₂ as a result of national and regional cap and trade programs—increasing the price offered by fossil-based resources, (2) with full internalization of the value of renewable resources through the issuance and trading of renewable energy credits generated by state renewable portfolio standards—decreasing the price offered by renewable resources, and (3) with full internalization of development costs, including the cost to transmit power reliably to load. In this way, evolution of our region's power system happens in a manner that meets our states' energy and environmental policy goals, but does so at delivered prices to ratepayers that are driven to their lowest possible levels by competition.

By contrast, the proposed legislation enables, and in effect requires, that FERC approve, site, and allocate the costs associated with transmission to connect generation, without consideration of what this means to the prices consumers pay at the end of the line. This provides a direct subsidy for distant resources only, on a discriminatory basis, thus eliminating the level playing field that exists in regional markets. This will increase electricity prices to consumers, and undercut demand response and local renewable resource alternatives. This is a bad outcome for consumers, and for meeting long-term environmental objectives alike.

In many respects, the transmission discussion nationally appears to be proceeding along the line that 1) since everyone accepts that we need transmission to provide the renewables that we need then 2) prima fascia reasoning is that it doesn't matter who pays for the transmission. Therefore we should charge transmission to everybody because we need it. This will unintentionally disfavor more expensive local renewables which are near load centers (even though their total all-in delivered cost might well be lower) because we will effectively give a free ride to the distant renewables since they won't have to bear the cost of their transmission investments in their delivered costs.

We recognize that support is building for transmission from wind projects in Texas and the Dakotas to load centers thousands of miles away. Bringing renewable energy to market from remote sources should certainly be one option for meeting our clean energy needs. But if we are to meet those needs in the most economic and responsible way, such resources must compete on a fair and equal basis with demand-side and renewable resource alternatives within each region—based on the price of power at the point of consumption, including all transmission and other development costs.

In that context, the proposed legislation is not simply about transmission siting, but something more. It will effectively strip states and regions of their resource planning functions, eliminate them as laboratories for the development of innovative low-carbon alternatives, seriously damage the function of competition in regional electricity markets—and, in so doing, drive up electricity prices unnecessarily.

The very best wind resource in our country—from the perspectives of resource size, distribution, capacity factor, reliability, proximity to population centers, and minimization of environmental impact—is located a short distance off the major load centers of the East Coast. Offshore wind turbine installation may currently cost more than on-shore wind development, but better wind resource economics, decreasing unit costs with increased development opportunities, and the absence of the need for cross-country transmission could make offshore wind competitive with remote wind farms. The higher cost of construction may well be more than offset by the markedly lower cost of transmission. In short, offshore wind should and must have that opportunity to compete on a delivered energy cost basis—and not be disadvantaged by transmission subsidies for other forms of renewable power generation.

We urge you to focus not on an expansion of FERC's authority over resource planning, or the buildout of a massive transmission system focused on one set of predetermined renewable generation resources, but rather on how to direct funding and assistance in a way that brings the best and most economic renewable resources to market, in a context of local resource availability and regional system planning.

This will lead to the most effective use of government research and development assistance dollars, preserve the competitive market foundation for electricity resource additions, minimize the cost of electricity to consumers, and leave in place an appropriate level of state and regional review of electricity infrastructure development.

Any bill related to regional planning and transmission development should at a minimum contain the following:

- Create new federal energy efficiency and renewable energy mandates on load serving entities that are simple, transparent and technology neutral—and capitalize on the more than a decade of successful direct experience by many states in developing strong efficiency and renewable mandates and markets;
- Consider new and additional market mechanisms such as regional procurements for renewable energy in the form of long term power purchase agreements—again, allowing all renewable generation interests to compete on the basis of all-in costs of delivered power to load centers;
- A requirement that regional system planners with load centers along the coasts specifically develop a plan within and across regions for establishing an offshore wind development transmission regime; a mandate to FERC to identify a transmission access and capacity rights policy for interconnection to major offshore transmission projects dedicated for offshore wind development; and, establish an expedited siting review for offshore lines in federal waters and their interconnection to coastal load centers.

Thank you for this opportunity to comment. I would be happy to follow up with the Committee in whatever manner is most helpful.

STATEMENT OF EDWARD N. KRAPELS, PRESIDENT OF ANBARIC TRANSMISSION LLC

Chairman Bingaman, Senator Murkowski, and members of the committee, I thank you for the opportunity to present testimony on the VERY important subject of our Nation's electric transmission infrastructure. My name is Edward N. Krapels and I am the President of Anbaric Transmission LLC, which is an incubator of electric transmission projects. I am a Principal of the Neptune Regional Transmission System and the Hudson Transmission Project. Neptune is a 660MW, high voltage direct current underwater transmission line which connects New Jersey and Long Island and was built on-schedule and on-budget between 2004 and 2007. Neptune, now run by my partner, Ed Stern, provides between 10 and 20 percent of the energy used on Long Island. Hudson Transmission, which connects New Jersey and Manhattan, is similar in size and scope, and is scheduled to go into construction this summer. Both Neptune and Hudson were selected in highly competitive procurement processes conducted by New York State Authorities. As an electric transmission developer entirely without any affiliation with a public utility company, we were not without our critics and skeptics who said there was no need for nor value in independent transmission providers. The success of Neptune and Hudson serves, however, as a compelling rejoinder to these skeptics and these two projects now serve as an ideal illustration of the feasibility and value of regulated competition in transmission development.

Anbaric is also leading the development of a number of other innovative projects in the United States. We believe we can efficiently develop several thousand megawatts of additional, renewables-enabling transmission lines and have them ready for construction by 2011. We have excellent relationships with financiers willing and eager to invest in transmission infrastructure. Capital availability—debt and equity—while challenging, is not a major constraint on our activities. We are ready, willing, and able to develop additional projects under careful regulation and under the strict disciplines of project finance, properly executed.

We also do not consider siting to be among the top challenges to the development of our kind of transmission. By and large, we take the difficulty of siting terrestrial, overhead lines as a given, and seek alternative ways to install our cables. As a result, we have focused on sub-sea, sub-river projects. Even under intense environmental scrutiny, the installation methods we use are minimally disruptive and—because we will typically seek to access renewables—present a strong and compelling net environmental benefit. We have not needed eminent domain in our projects, nor

have we sought to invoke the designation as a “National Interest Transmission Corridor” under the 2005 Energy Policy Act.

All that said, Mr. Chairman, our successful development efforts have not been without obstacles. The top challenges, and our proposed solutions, to building modern and environmentally responsive transmission, are as follows:

1. Out-dated planning objectives.—The regional organizations that conduct electric system planning do so with the single-minded purpose of meeting specified reliability criteria. Nowhere are they empowered, let alone mandated, to explicitly incorporate state and federal environmental policies to advance the construction, development, and integration of transmission to support new renewable energy generation resources. As a result, despite the best efforts to date by FERC to broaden the range of reasons for which system planners choose transmission projects, there have been no major “environmental projects” approved in the Eastern Intertie. Indeed, Anbaric and others have encountered this problem first hand in New England with our “Green Line” and competing projects. Despite an express finding by FERC in February 2007 that we were “independent and capable,” this regulated transmission line has been mired in an outdated planning process that does not properly assess the value of bringing new renewable resources into the grid. Similar proposals by other developers and utilities have been similarly thwarted by the “reliability-only” criteria used by regional planning processes to determine which transmission projects are needed. Today, Texas, with its Competitive Renewable Energy Zones, provides the best example of how to develop renewable resources as well as the transmission to support them in an effective and competitive manner. Texas’s “CREZ” approach opens up transmission development and has made Texas the leading area in our country for renewable energy development. We urge Congress to empower and direct FERC to require that regional transmission planning efforts explicitly include environmental policies and requirements and identify and incorporate access to renewable energy resources within approved regional plans.

2. Lack of inter-regional planning cooperation.—In our experience, most transmission planning can and should be done at the regional level. Regional planning organizations have attempted, and should be encouraged, to work cooperatively to identify and facilitate projects that meet inter-regional needs. At times, however, cooperation can, and will, break down, as regional organizations focus on their regional interests. When this occurs, FERC must be given the necessary tools to intervene in the national interest and remove the planning impediments to sensible, inter-regional projects. We urge Congress to empower FERC to approve inter-regional transmission projects on their merits when a lack of inter-regional cooperation or agreement becomes an obstacle to development.

3. Disagreement over cost allocation.—The inability of state governments to agree upon a fair and equitable allocation of transmission infrastructure expenses is impeding the development of needed and desirable projects. The interstate nature of our electric transmission grid makes it difficult, indeed impossible, to track with precision each beneficiary and the benefit they receive over time from the addition of new transmission infrastructure. The perfect has become the enemy of the good. Today, the need for a clear, national policy on transmission cost recovery has never been greater, now that our Nation is poised for a major build-out of transmission facilities to support a smart-grid concept and to deliver new supplies of renewable power to the customers that need them. We urge Congress to expressly empower and direct FERC to impose cost allocation solutions on ISO or RTO regions (and possibly across an entire interconnect) that allow the cost to be borne equally across a market area when the regions are unable to agree upon another cost allocation solution, and especially when those costs are associated with the delivery of new renewable resources.

4.—The need for competition in transmission. Independent transmission companies, like Anbaric and its competitors, have already demonstrated their ability to provide the cost-effective development, construction, and operation of new transmission facilities. We respect the obligations electric utilities have to build transmission under certain circumstances. The development of renewable and economically-oriented transmission, however, will benefit from competition from independents, who typically bring innovation and financial discipline to their proposed projects. Indeed, at a recent FERC hearing, we were encouraged when we heard one of the Nation’s foremost electric companies, Exelon, endorse the notion of a competitive process for the development of new transmission facilities.

ties to deliver renewable power. We believe competition in transmission is viable, valuable and should be the norm, not the exception. We urge Congress to expressly provide for the right of independent transmission providers to compete with incumbents and to make explicit the presumption of competition for the development of all new transmission resources.

In closing, let me thank the Committee once again. We hope that our views are helpful to your deliberations and we stand ready to assist the Committee in any way we can.

STATEMENT OF RHONE RESCH, PRESIDENT & CEO, SOLAR ENERGY INDUSTRIES ASSOCIATION

“We will build the roads and bridges, the electric grids and digital lines that feed our commerce and bind us together.”

PRESIDENT BARACK OBAMA,
JANUARY 20, 2009.

Mr. Chairman and Members of the Committee, Thank you for the opportunity to submit this written testimony on reforming the way in which electric transmission lines are planned, paid for, and sited in the United States. We are grateful that the Committee recognizes the important role the transmission grid plays in shaping our clean energy future.

I. INTRODUCTION

The Solar Energy Industries Association (SEIA) is the national trade association for the solar energy industry. Established in 1974, SEIA works to expand the use of solar technologies, strengthen research and development, remove market barriers and improve education and outreach for solar.

SEIA is collaborating with many other organizations committed to expanding access to and development of the grid. In particular, SEIA and the American Wind Energy Association (AWEA) recently released a white paper, *Green Power Superhighways: Building a Path to America’s Clean Energy Future*, and we recommend this reading to you.¹ We recognize and appreciate the ongoing work by our associates at AWEA; the Energy Foundation; the Energy Future Coalition; T. Boone Pickens and others involved in the Pickens Plan; the WIRES Group and Jim Hoecker; national environmental organizations—NRDC, the National Wildlife Federation, the Sierra Club, the Wilderness Society—and many others.

A. Transmission is Important to Solar Energy Development

SEIA is grateful for the proactive leadership Chairman Bingaman and Majority Leader Reid have brought to the issue of our out-dated transmission grid. We are happy to see that our longneglected electricity infrastructure will be a priority in the 111th Congress. While many think of solar energy as a distributed generation resource, deployment of utility-scale solar power plants is increasingly common. Last July this Committee held a field hearing in Albuquerque, New Mexico, on Concentrating Solar Power (CSP) technologies where this trend was discussed.

In addition to the CSP plants already operating in the Southwest, several announced projects intend to use photovoltaic (PV) arrays to generate hundreds of megawatts of electricity.² Regardless of the solar technology employed, sellers of wholesale electricity will invariably require access to the transmission grid. A study conducted by the Department of Energy for the Western Governors’ Association determined that the seven states in the Southwest (Arizona, California, Colorado, Nevada, New Mexico, Texas and Utah) have the combination of solar resources and available suitable land to generate up to 6,800 gigawatts (GW) of electricity.³ Compares this to today’s nameplate capacity for all electricity generation in the U.S.: 1,000 GW.⁴

President Obama is committed to producing 25 percent of U.S. energy from renewable sources by 2025. This will not be achieved without reinvesting in our national grid infrastructure. Investment in the transmission grid will stimulate economic development, reduce electricity costs for consumers, and improve grid reli-

¹ <http://www.seia.org/galleries/pdf/GreenPowerSuperhighways.pdf>

² See Utility-Scale Solar Projects List at Attachment 1. (Note: Attachment has been retained in committee files.)

³ “Analysis of Concentrating Solar Power Plant Siting Opportunities: Discussion Paper for WGA Central Station Solar Working Group,” M. Mehos, NREL, July 2005, Page 2.

⁴ <http://www.eia.doe.gov/cneaf/electricity/epa/epat2p2.html>

ability. Legislation introduced by Chairman Bingaman, Senator Reid, and others provides a solid framework for new transmission infrastructure that will allow vast quantities of solar power to be delivered to consumers across the country.

It should be noted that SEIA does not view transmission development as an alternative to energy efficiency measures, nor deployment of distributed generation technologies. Indeed, all of these strategies should be pursued to promote a clean energy economy in this country.

We need a dramatic shift in where and how transmission is planned and built. A robust electric transmission grid will allow limitless sources of renewable energy to power our homes, businesses, and communities. It will also cultivate economic development and new, good-paying jobs in the areas where power plants and transmission infrastructure are developed. Investment in the transmission grid will reduce costs to consumers, improve grid reliability, and link solar-rich regions to high-demand population centers.

B. Transmission Policy Reform is an Urgent Need

Our nation is in peril. We face the highest unemployment since 1981 and our President is pointing to renewable energy development as a driver for creating millions of new jobs. Construction and operation of utility-scale solar power plants will be responsible for creating tens of thousands of these jobs.

Moreover, provisions in the recent American Recovery and Reinvestment Act of 2009⁵ make available guaranteed loans for renewable energy and transmission projects and grants from the Treasury department for renewable energy development. Recipients of either program are required to commence construction of their project before September 30, 2011 (loan guarantees) or December 31, 2010 (grant program). Unless critical transmission reforms are put in place to enable the development of renewable energy generating resources, we will lose the opportunity to create tens of thousands of new, green-collar jobs from these projects.

The need for a more integrated and extensive transmission network is real. The U.S. is home to the greatest amount of renewable resources in the world, yet today renewable energy comprises less than 2% of our electricity generation. As we transition to a low-carbon energy future, renewable resources will provide the vast majority of our new generation. A recent report from the North American Electric Reliability Corporation (NERC), urges the electric industry to focus on solutions to integrating renewable resources. NERC CEO Rick Sergel added, “The need to reliably integrate renewable resources is no longer a question, it is a priority.”⁶ Unfortunately, policy barriers—not technological or economical barriers—are the primary reason why modernizing the grid has been, at best, slow going.

II. POLICIES REQUIRED FOR CREATING GREEN POWER SUPERHIGHWAYS

While SEIA continues to study the various legislative proposals put forth, we focus our testimony here on a three major principles that need to be carefully addressed in any transmission legislation: (1) interconnection-wide transmission planning; (2) interconnectionwide cost allocation; and (3) streamlined siting processes. Certain proposals suggest changes that would apply to all transmission built in the U.S. However, our recommended policy reforms are focused on only those facilities that are necessary for creating Green Power Superhighways. These superhighways would be designed with the specific goal of interconnecting renewable generation resources, while maintaining system reliability.

A. Interconnection-Wide Transmission Planning

A key to achieving our national clean energy goals is to effectively plan new transmission and existing grid upgrades, with the goal of connecting to the grid location-constrained renewable resources. Both the Western and Eastern interconnections should develop a comprehensive, regional transmission plan that identifies where new transmission lines, or increased capacity on existing lines, are necessary to connect renewable energy resources to the grid. Such plans should include both extra-high-voltage transmission lines and lower-voltage feeder lines that are necessary to facilitate the development of green power superhighways.

Planning these grid enhancements must focus on national goals while accommodating local and regional concerns. To that end, the planning process should be informed by governors, public utility commissions, and other regulatory bodies in the interconnection. These entities can provide expert insight and advice on how an

⁵ See Section 406—Temporary Loan Guarantee Program for Rapid Deployment of Certain Renewable Energy, Electric Power Transmission, and Biofuel Projects.

⁶ Keynote speech delivered by Rick Sergel to the Federal Energy Regulatory Commission, March 2, 2009, in Docket No. AD09-4-000.

interconnection-wide plan will help their states meet their environmental, energy, and economic development goals. In addition, the planning process should be open and transparent, allowing all affected stakeholders to express their views.

Reaching location-constrained renewable resources is the primary goal of this interconnectionwide transmission planning exercise. However, these plans should also promote reliability, reduce transmission congestion, and integrate other resources that are necessary to support the grid. Plans should expressly take into account established state and federal renewable energy requirements, as well as anticipated changes in generation and demand pattern shifts resulting from greenhouse gas emission policies and the commercialization of plug-in electric vehicles.

Creating transmission plans that are designed to safeguard sensitive lands and protect the environment is of great importance. To minimize environmental impact, plans should utilize existing transmission corridors whenever possible, and new lines should be designed to their optimal size.

B. Interconnection-Wide Cost Allocation

Just as the transmission grid should be planned to meet broad regional and national energy goals, so too should the costs of meeting these goals be shared on an interconnection-wide basis. Ratemaking and certainty of cost recovery should address one of the most important barriers to transmission development—the question of who should pay. The current process of assigning costs to specific users who volunteer to pay does not work; it only exacerbates the free rider problem where transmission grid users attempt to shift costs onto others. All users benefit from a reliable and robust transmission grid, pollution reductions, and greater access to low-cost renewable generation, and our regulatory policies must reflect these realities. Facilities identified in the interconnection-wide plan as necessary for the development of green power superhighways should be eligible for broad, regional cost allocation. Specifically, the Federal Energy Regulatory Commission (FERC) should allocate, based on electricity usage, the capital and operating costs of these transmission lines across all load-serving entities on an interconnection-wide basis.

C. Streamlined Siting Processes

Following the robust planning process, and guarantees of cost recovery, policies to ensure siting of transmission are necessary. Many a transmission line has been proposed and financed without ultimately being constructed and delivering electricity. To achieve dramatic increases in renewable electricity production, substantial reform of the transmission siting process is required. The most effective model for streamlined siting is the full authority given to FERC for siting interstate natural gas pipelines.

For green power superhighways, the facilities identified in the interconnection-wide plans would be subject to FERC approval for siting and permitting. Separate siting approval at the state level would not be required. FERC should act as the lead agency for purposes of coordinating all applicable federal authorizations and environmental reviews with other affected agencies. As is the case for natural gas pipeline and hydroelectric facility permitting, FERC would be required to consider siting constraints based on habitat protection, environmental considerations, and cultural site protections identified by state and federal agencies.

While the concept of federal siting authority for electric transmission has been controversial in the past, laws governing the siting of transmission date from an era when utilities were generally not interconnected and the modern network of interstate lines and multi-state interconnections did not exist. The need to connect location-constrained renewable generation resources to growing load centers requires a new regulatory approach and justifies giving FERC exclusive authority for siting green power superhighways.

III. CONCLUSION

The U.S. has enormous economic, energy, and climate challenges to face in the months and years to come. None can be solved without new, innovative ways of carrying renewable electricity across a robust transmission grid. If we want to improve our energy independence, tackle global warming, and expand our use of electricity for electric cars and other emerging technologies that make our lives better, then we can no longer wait. The time for Congress to act on this is now.

Again, thank you for allowing SEIA to submit this testimony. We look forward to working with the Committee to cultivate solar energy development in this country and spur investment in the infrastructure needed for green power superhighways.

STATEMENT OF DANIEL F. CARUSO, CHAIRMAN, CONNECTICUT SITING COUNCIL

Thank you for this opportunity to comment with respect to S. 539, the proposed Clean Renewable Energy and Economic Development Act. While I am supportive of the overall goals of this legislation, especially with respect to its efforts to spur the development of a robust transmission system that will bring renewable sources of energy to market, I am nevertheless troubled by certain aspects of the proposed bill. Specifically, I respectfully hope that you will reconsider the dramatic changes which would occur relative to jurisdiction involving the siting of electric transmission infrastructure.

A review of the measures related to the proposed shift in electric transmission siting authority demonstrates that the proposed changes will provide for both an unwarranted and unwise move from local decision making and citizen input.

Under Section 216 of the Federal Power Act (FPA), the Federal Energy Regulatory Commission (FERC) already has backstop authority for siting interstate transmission projects that are needed to meet federally enforceable reliability standards, or to address major transmission system bottlenecks. This is appropriate; few would argue that the federal government must be empowered to step in when states do not act in a reasonable timeframe in matters involving system reliability or significant transmission system inefficiencies.

The draft legislation proposed by Senator Bingaman, however, grants FERC exclusive siting authority for all "high priority national transmission projects," thereby usurping state authority to review, site and certificate projects within their jurisdiction, and most importantly preempts those voices of reason in all localities whose knowledge of their communities is invaluable.

States have extensive expertise in the siting and construction of electric transmission facilities. Mere consultation with the states on strictly local matters such as habitat protection, environmental considerations or cultural site protection is inadequate to address the true concerns of our communities and our citizens, especially when, as proposed, recommendations on these matters can be preempted by FERC to the detriment of the state's welfare.

Resource planning and availability has been traditionally and appropriately, a local matter. For a multitude of reasons, states are better equipped to address, and should retain, primary siting authority. Accordingly, I recommend that any expansion of FERC's jurisdiction be strictly limited to interstate transmission for the purpose of interconnecting new renewable energy generation where the state siting authority has rejected the transmission proposal, failed to act on it within eighteen months, or approved it with conditions that will frustrate the interconnection.

After all, experience demonstrates that our nation, economy, and ecology are best served when all stakeholders are accorded appropriate time, consideration, and respect. Such a collaborative system is more likely to produce results than lawsuits.

MEMORANDUM

TO: Energy and Natural Resources Committee Majority Staff
 FR: Carl Zichella and John Coequet, Sierra Club
 Date: March 12, 2009
 RE: Concerns regarding discussion draft

We are writing to express concern that the committee's discussion draft bill as currently formulated could result in substantial backsliding regarding Carbon Dioxide emissions reductions in both the Eastern and Western interconnections.

This bill, if enacted without a cap on carbon, a RES standard and other policy tools would facilitate increased carbon emissions from new coal interconnections in the western US and would allow expanded emissions from existing sources in the eastern interconnection. Improvements ostensibly made to facilitate renewable development could backfire and instead increase CO₂ emissions just as the nation takes needed actions to curtail them.

For example, recent projects proposed in Pennsylvania and Virginia billed as renewable lines would ultimately result in significant new or expanded remote coal generation. To ensure that new transmission moves the nation toward a clean renewable energy future, robust safeguards must be put in place to ensure that new lines are designed, sited, built, and operated to serve clean renewable electric generation while taking into account the considerable contributions that distributed generation, untapped energy efficiency and demand response can make for reducing the need for new facilities.

The proposed bill would prioritize general grid upgrades that create advantages for existing emitters to increase emissions. Safeguards such as provisions to limit

renewable lines to low carbon interconnections are needed, especially if the bill moves forward prior to a cap on carbon being adopted where meaningful price on carbon is established. This is especially true for the situation in the eastern interconnection where artificially low coal prices and economic dispatch rules would actually incentivize increased operations and emissions at existing coal facilities to take advantage of more lucrative electricity pricing in neighboring markets using capacity improvements to the grid justified as being needed to wheel renewable energy.

We and our colleagues are committed to working with you and the committee staff to address these issues and report energy and transmission bills the nation needs.

Thanks for your consideration. Attached is a letter many of us sent today to the Obama administration that details these concerns further.

ATTACHMENT

March 11, 2009.

CAROL BROWNER,
Assistant to the President for Energy and Climate Change, Executive Office of the President, Washington, DC.

DEAR MS. BROWNER: We support significant reforms in how electrical transmission lines in this country are planned, sited, built, and managed as part of a comprehensive effort to transition to a clean energy economy. The centerpiece of a national strategy must be an economy-wide cap on global warming pollution that results in rapid and dramatic emissions reductions. Additional, complementary measures must also be undertaken that promote deployment of renewable energy resources, energy efficiency measures, and environmentally-beneficial demand response policies. Meeting our country's energy needs with clean renewable energy will require significant investments that must be undertaken immediately, but these investments must not exacerbate global warming emissions or air pollution that harms human health and ecosystems.

In this context, we believe it imperative that legislation reforming federal electric transmission policy contain the following elements:

Coherence with Clean Energy Priorities

Transmission policy reform must result in new lines that serve clean renewable resources, rather than expanding the carbon-intensive power generation that currently accounts for more than 40 percent of U.S. greenhouse gas emissions and contributes to the continued deterioration of air quality in the country's most vulnerable communities. Piecemeal energy policy-especially electric transmission policy reform-in advance of a comprehensive national climate regime can have the real but unintended effect of facilitating more, not less, greenhouse gas pollution. For example, recent projects proposed in Pennsylvania and Virginia billed as renewable lines would ultimately result in significant new or expanded remote coal generation. To ensure that new transmission moves the nation toward a clean renewable energy future, robust safeguards must be put in place to ensure that new lines are designed, sited, built, and operated to serve clean renewable electric generation while taking into account the considerable contributions that distributed generation, untapped energy efficiency and demand response can make for reducing the need for new facilities.

Comprehensive Super-Regional Planning

Resource planning for the western and eastern interconnections is crucial to an economically and environmentally sound electric grid. The planning processes for our national grid must be fair, unbiased, science-based, broadly participatory, and transparent. In designing these processes, the traditional role of states, regional authorities and the federal government must be reappraised. Transmission is only one piece of our clean energy future; energy efficiency, demand response, energy storage, and distributed generation technologies are all resources that must be considered along with traditional central power stations that require interstate transmission. These alternative resources must be evaluated as part of a region-wide integrated resource plan, evaluated and weighed equally with new generation in making a determination of need. New transmission lines should only be built if they are truly needed, and demand for low-carbon generation cannot be satisfied otherwise. In particular, broad deployment of small-scale renewable and low carbon distributed generation is a critical component to reducing carbon emissions, as it decreases the need for expensive new transmission lines by facilitating energy production and consumption in the same location and reduce line loadings on existing facilities.

Environmentally Responsible Siting

Some of the richest renewable energy resources are far from major population centers. Under the current transmission planning process, some state and regional siting decisions have missed opportunities to cooperatively identify zones and corridors for development of renewable resources that protect unique and sensitive natural systems, wildlife habitats, and cultural resources, as well as national park units and other protected public lands. Future transmission siting must use the best practices developed via processes such as California's Renewable Energy Transmission Initiative and similar protocols. These efforts apply screening criteria to prioritize areas for development based on their suitability, and ensure that critical habitat, environmentally and culturally sensitive lands, or protected areas are excluded. Such an approach benefits all parties by clearly delineating which areas of most potential for renewable energy generation and transmission have the least conflicts, and are therefore less likely to result in conflict or litigation, an outcome that all parties would prefer to avoid. It is also imperative that the social and ecological impacts of transmission lines be assessed in full compliance with our nation's environmental laws-including the National Environmental Policy Act-and must provide the public with ample opportunities for meaningful involvement. Regional, state, and federal wildlife, lands, and resource agencies must be full partners in future transmission planning processes.

Smarter Use of Existing Infrastructure

Before building any new transmission, we need to make every effort to improve efficiency to negate the need for new supply, and also to better utilize existing transmission infrastructure. With this in mind, we believe foremost that the nation needs to pass additional energy conservation measures and implement more efficient technologies at all levels of supply, delivery, and end-use. Future energy demand cannot be met without ambitious efficiency gains in our buildings, appliances, industries, and transportation. We need to provide incentives for deployment of energy storage and innovative smart grid technologies. Much cost-effective and carbon-free demand reduction and conservation potential remains untapped in these areas. We must also be sure to maximize the use of the existing power grid by way of voltage and service upgrades and by making use of existing transmission infrastructure and other rights-of-way including existing pipelines, roads, and rails. Damages to private and public values from development of existing and new rights of way should be minimized and appropriately addressed.

With these principles in mind, we fully support and promote the deployment of clean, renewable energy across the nation and the new transmission infrastructure that will be necessary for much of that power to access electricity markets. However, although new transmission is an important and perhaps imperative option, it must be carried out properly in order to ensure that we do not overlook other superior energy opportunities, sacrifice our nation's precious lands and wildlife, or undermine critical efforts to rid the nation of dangerous dirty air and global warming pollution.

Thank you for your time, and we look forward to discussing these ideas with you further.

Sincerely,

Appalachian Mountain Club; Biodiversity Conservation Alliance; Center for Native Ecosystems; Earthjustice; Energy Conservation Council of Pennsylvania; Environmental Defense Fund; League of Conservation Voters; National Audubon Society; National Parks Conservation Association; National Wildlife Federation; Natural Resources Defense Council; Nevada Conservation League; Nevada Wilderness Project; Oregon Natural Desert Association; Pennsylvania Land Trust Association; Piedmont Environmental Council; San Luis Valley Ecosystem Council; Sierra Club; Southern Alliance for Clean Energy; Southern Environmental Law Center; Southern Utah Wilderness Alliance; Southwest Environmental Center; Union of Concerned Scientists; Western Resource Advocates; Western Environmental Law Center; The Wilderness Society.