

ELECTRICITY INFRASTRUCTURE

HEARING
BEFORE THE
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
ONE HUNDRED SEVENTH CONGRESS

SECOND SESSION

TO CONDUCT OVERSIGHT TO EXAMINE ISSUES RELATED TO THE NEED
FOR, AND BARRIERS TO, DEVELOPMENT OF ELECTRICITY INFRA-
STRUCTURE

JULY 24, 2002



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ELECTRICITY INFRASTRUCTURE

WEDNESDAY, JULY 24, 2002

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

The committee met, pursuant to notice, at 3:02 p.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. The hearing will come to order.

Recent news stories have portrayed an energy industry in dire straits. Yesterday, stock values of energy trading companies continued to drop and analysts have projected serious shortages in the near future because of the market reaction to the news of the past few months, also because of a reluctance to invest in energy companies and in energy infrastructure.

This hearing is to look into these circumstances, to learn what we can about our energy infrastructure needs, and also whether the necessary investment is likely to be made in order to fill those needs. We hope to hear recommendations as to what the government and particularly the Congress can do to help in the situation.

We will hear from Chairman Pat Wood of the Federal Energy Regulatory Commission reporting on a series of technical conferences that the Commission conducted around the country on energy infrastructure needs.

We will also hear from the vice president of the North American Electric Reliability Council, David Nevius reporting on NERC'S 2002 summer assessment.

The second panel is made up of two energy industry analysts, a representative of a major utility, and a consumer advocate. This panel will discuss the investment climate and make recommendations for government action on those fronts.

Let me see if Senator Kyl has an opening statement he would like to make before we begin with our witnesses.

[The prepared statements of Senators Burns and Cantwell follow:]

PREPARED STATEMENT OF HON. CONRAD BURNS, U.S. SENATOR FROM MONTANA

I don't believe I am overstating the facts when I say that continued growth of America's economy depends on more and better electricity transmission. As this country grows, so do our energy needs, and to some extent, so does the generation of electricity. While many generation projects have been put on hold this year, there

has been a promising increase in generation—mainly natural gas fired. As we provide more certainty to the market, it is my hope those projects will continue.

The problem lies in the fact that you could increase generation by 10,000 megawatts a year, but without a way to move it to market, that generation capacity is practically worthless. Imagine if the United States had no transportation system to move our agricultural goods to market. Without an interstate highway system, or railroads, or barges, the world's most productive farmers could not get their product to market. People might starve, or at the very least, much more of their paycheck would go toward groceries, because they would be very expensive.

The same thing is true for the energy industry. We have the resources to create energy, and while there are some difficult barriers to siting and development, we manage to produce electricity pretty well. But without improving our transmission capability, this country's economy is going to slowly starve.

In my home State of Montana, we have tremendous generation capacity. We have vast natural resources of coal, and natural gas, and hydropower, and we are wisely developing those resources to provide low cost power to Montanans and to other consumers. The problem is that there are a few traffic jams on the "Interstate for electricity".

We will hear many reasons for this situation from our witnesses today, and many suggestions of how to correct the problem. I would say that part of this responsibility rests squarely on the shoulders of Congress, at least in the case of the Bonneville Power Administration.

When power from Montana is exported to the West, it moves over Bonneville Power Administration lines. At a point on the Washington-Idaho border called West of Hatwai, there is a huge bottleneck in the system which reduces the reliability of the system and makes it much harder to transport electricity from where it's generated in Montana and Idaho, and get it to the population centers of the West Coast.

I have talked with BPA Administrator Steve Wright many times about this issue, and he is well aware of the problem and willing to work on it. However, BPA—which is by law a self-financed agency—needs permission from Congress to increase its borrowing authority for the investment. My colleagues from the Northwest and I have worked on this issue with the Administration and with the Energy Committee, and I want to bring to your attention the seriousness of this problem. Before we talk RTO, or deregulation, or anything else, we need to be able to move electricity around. That is not physically possible right now, and it is a major consideration in this debate. We will be addressing this issue in the conference of the Energy bill, and possibly in the appropriations season, so I ask all of you to keep it in mind.

Another concern in the West and throughout this country is siting of both generation and transmission facilities. I especially want to make sure that our public lands agencies are not hindering the movement of electricity. There need to be corridors for future development identified, and the process for siting should be streamlined. We need to use common sense here—it should not cost ratepayers years—or millions of dollars in planning and process—to add one more string of wire to an already existing line. Public lands should be used for public benefit, and when the highest and best use of the land is for energy development or transmission, then that's what we need to do.

Thank you, Mr. Chairman. I look forward to the testimony of the witnesses.

PREPARED STATEMENT OF HON. MARIA CANTWELL, U.S. SENATOR FROM WASHINGTON

Thank you, Mr. Chairman, for holding this important hearing on issues related to the development of energy infrastructure. I also want to welcome FERC Chairman Wood here today. I know you will be testifying, in part, about what you learned about western infrastructure issues last November, when you, Commissioner Brownell, and members of the FERC staff visited my home state of Washington. I can tell you that we in the Northwest are proud of our history and we are always pleased to be able to bend the Commission's collective ear and educate about the unique nature of our energy system.

In reviewing FERC's western market infrastructure assessment and your testimony here today, it's clear that there are areas where we likely disagree. As you well know, many in my region are very concerned about the issue of standard market design and what it could mean in terms of the Commission's intentions regarding a regional transmission organization (RTO).

As my colleagues from the Northwest and I have said on numerous occasions, we believe that our region must be allowed to set ground rules appropriate for the

unique characteristics of our electricity grid. While a consensus has not yet formed on an RTO filing among our stakeholders, the Northwest delegation is united in our belief that there are a number of criteria an RTO must meet to be successful in our region. Some of those prerequisites include:

- No forced movement towards a single, West-wide RTO;
- An eight- to ten-year company transition period to minimize costs among current users;
- A pricing plan that limits cost shifts and protects existing users of the system;
- No impact on the Bonneville Power Administration's cost-based power rates (that is, BPA's power business line should not be subject to FERC authority simply because BPA participates in an RTO.)
- And an independent, credible cost-benefit study that shows sustainable net benefits to consumers in every affected state.

That said, Mr. Chairman, I can say that there are also many areas where agreement exists. For example, I believe FERC's conclusion that the West must make significant investments in energy infrastructure to meet the growing needs of our 21st Century economy is directly on point. While we are currently mired in a painful recession, there is no doubt in my mind that the Northwest economy will rebound—and when it does, our region will again be among the fastest growing in the nation thanks to the diversity of our economy, our natural resources and the presence of a highly skilled workforce that will sow the seeds for the next waves of innovation. In order to make this a reality, however—and as the devastating effects of the western power crisis have demonstrated—a stable, reliable and efficient supply of energy is absolutely crucial.

For those reasons, I absolutely agree with a number of FERC's recommendations for improving our Western infrastructure. There is no doubt in my mind about the benefits of promoting demand response programs to encourage conservation and peak load reduction; encouraging the diversity of generation to reduce our reliance on hydropower and, soon, natural gas; promoting the use of distributed generation; establishing and enforcing reliability standards; and making significant new investments in transmission infrastructure. So indeed, I look forward to your testimony here today.

But I also want to touch on an issue that remains at the forefront of the minds of many in my state. As I mentioned—and as we have discussed many times—the Western power crisis has taken a devastating toll on the economy of Washington state. And the citizens of my state need to know when they can expect relief from the exorbitant power costs they will continue to pay for years to come, unless FERC uses its authority to remedy the price gouging that occurred during the height of the crisis. Even though wholesale costs returned to more normal realms after FERC finally acted to cap prices throughout the West, many of our utilities will continue to pay outrageous rates for up to eight years under long-term contracts they signed during the worst of the crisis. These costs surpass a billion dollars for Northwest utilities, and our economy will continue to suffer mightily—unless FERC steps in.

Mr. Chairman, it's been more than a year since FERC finally did mitigate prices in the West and began to investigate the “just and reasonableness” of rates in my state. And to date, all we have to show for it is a slew of administrative processes—which, to consumers in my state, simply seem like new ways to protect those who conspired to take money out of their pockets in the first place.

I assure my colleagues that the Northwest's focus on this issue will not relent until FERC resolves our claims one way or another.

And, Mr. Chairman, I would be remiss if I didn't suggest that—to the people of Washington state—FERC appears to be a latter-day Nero, a federal agency that fiddled while our economy burned to the ground. I submit that this isn't a particularly fruitful state of affairs, given the many difficult issues we have to work together to solve in the coming years.

So I look forward to the testimony here today, and hearing from our witnesses on these issues.

STATEMENT OF HON. JON KYL, U.S. SENATOR FROM ARIZONA

Senator KYL. Thank you, Mr. Chairman.

Just two brief comments: The first is I know there will be some testimony, and Mr. Wood and I have visited a little bit about the need to expand our capacity for transmission in the Western United States.

And while I support that, I also made it clear and I reiterate today, that they need to protect the local customers of the utility who have already bought and paid for a system to deliver power to themselves. Their rights should not be diminished as a result of making that transmission facility accessible to others; that where there is a so-called native load, it needs to be served first and foremost by the utility that built it, and not to have to pay for the right to get on a system that they have already paid for as a result of the rates that they have paid for power over the years.

Secondly, I note that while neither the House nor Senate conference bill in the energy conference committee deals with the subject of Federal eminent domain, there is increasing concern on the part of people in the West that the problem within the domain is not the need to grant Federal condemnation authority; it is to remove the ability of the Federal land owners in the Western United States from stopping projects that have the support of the local decision makers with respect to transmission rights of way.

So if we are going to talk about eminent domain, I think the first subject that has to be talked about is all of the panoply of laws that make it possible for people to stop or to require relocation of sites that are agreed to by the local people who have the decision making authority in the States. But because there is a Federal nexus, because of the amount of Federal ownership, there is a requirement for some kind of Federal sign-off, or at least an opportunity for people who want to stop it to cause mischief using the Federal laws that exist.

I share the commissioner's goals here of increasing our capabilities here. And I think the way we do it, it matters a great deal to the people who are on the ground, so to speak.

The CHAIRMAN. Well, thank you very much.

Senator Thomas, did you have any opening comment before we start hearing from our witnesses?

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

Senator THOMAS. Yes, Mr. Chairman. I am pleased you are having this hearing. We, of course, are working very hard on this in the energy bill, seeking to do something.

In my State of Wyoming, we have real problems with transportation. We have lots of opportunities for generation, and we need to get it to the market and those kinds of things.

I just think we really need to come to grips with how we are going to do something with a national transmission grid and the RTOs off that. And I think you know we have talked about it a long time. And I understand that the uncertainty of it as we sort of not know exactly where we are going, particularly with generators and so on. But really we have to start to get right to the core of it and do some things. So I am glad we are having this hearing.

The CHAIRMAN. Well, thank you very much.

Senator Feinstein, did you have any comment before we start with the witnesses?

Senator FEINSTEIN. No, thank you very much, Mr. Chairman.

The CHAIRMAN. Well, let us turn to our two witnesses.

Chairman Wood, thank you for being here. I noticed from the news that you have been busy with several items in recent weeks and months, and we are anxious to hear about those and particularly as they relate to the energy infrastructure needs that you see in the country and how we are going to meet those needs. So go right ahead.

**STATEMENT OF PATRICK WOOD III, CHAIRMAN,
FEDERAL ENERGY REGULATORY COMMISSION**

Mr. WOOD. Thank you, Mr. Chairman, Senators. I appreciate your having this conference today. In prior testimonies before the committee, my colleagues and I have visited about the strong need to have customer protection through vigilant market oversight and also the need to have important and balanced rules of the marketplace. Those are two of the three legs of really the three-legged stool that FERC's strategic plan is about.

But the first leg—and honestly of the three, the first in time as well—is the sufficiency of a robust energy infrastructure. And I am, again, pleased that that is the focus of the committee's effort today, because quite frankly it is the focus of well over half of the FTEs that you all have allocated to our agency to do the nation's work on energy regulation are focused on the efforts of sufficient and safe and robust, environmentally responsible energy infrastructure. We have had in that regard a number of conferences, three to date, with two more planned so that we complete our run around the country, to really go out into the regions of the country, talk to utilities there, talk with customers there, co-ops, big and small players, financial investors, State regulators, State government officials, to talk to those people on their home turf about the needs that exist on energy infrastructure.

Our first of these was in November in Seattle, where we talked about needs across the western part of the grid from really Arizona up to British Columbia. And that was the first of our efforts.

And the work that we did there was recently updated to underline the decisions that the committee made last week to continue further mitigation of market power out in the West due to the lack of sufficient investment in infrastructure.

My testimony on page four—there are a couple of maps. I think I will mention the one in light of, I believe, Mr. Thomas's comments about the need to get, for example, generation out of Wyoming. On page five of my testimony, in figure two, there is a map of the Western grid. It is showing the different constraints that exist on that grid, and you will notice one in Western Wyoming, Path 19, that is constrained and is, in fact, trapping a significant amount of Rocky Mountain generation from getting into the western part of the grid.

There are constraints throughout the grid, as you can see. The lack of investment in transmission was an issue that came up in the West. But quite frankly, it came up in the Northeast when we met in December—I believe—I'm sorry, at the end of January in New York, and came up again when we met last month in Orlando to discuss issues in the Southeast.

The recurring theme that we are seeing is, yes, powerplants are getting built. And I think that has been a phenomenon that has

really dropped off a lot in the past few weeks and months with the dramatic escalation of the cost of credit in this industry. But the under-investment in transmission grid was a recurring theme across the country.

The secondary effect of infrastructure that we studied as well, and heard a lot about, was the sufficiency of the natural gas transportation grid.

An increasing amount of fuel—an increasing amount of power is being generated by natural gas. It has a lot of environmental attributes. It is a domestic fuel. There are a lot of positive things about natural gas.

But one of the most important things about it is that it really only exists on certain parts of the Continent and needs to get to the markets, which are generally distant from where the production zones are. And the need to stay ahead of that curve on construction has generally been met over the past decade. But I do fear that with certainly the type of headlines like we saw in today's Journal, "Amid Collapsing Power Market, Energy Companies Are Reeling," there is a significant overlap on the natural gas side.

This is not just a power—electric power issue. It also spills over into the natural gas side.

I asked staff this morning to tell me who the top companies on the natural gas side were for pipelines. The first is El Paso Natural Gas. The second is Williams. The third is Duke. The fourth is NiSource. The fifth is Kender-Morgan. And the sixth is Enron. Not all the companies on that list are what you would call in trouble, but more than half of them are.

And so for it to depend on that list to be the golden arrow on the natural gas side to make sure we have sufficient natural gas, the recent credit-worthiness issues that have been raised about a number of these companies really do bring us to a very critical point on the future of infrastructure investments in this country.

What can we do about it? I know your committee, Senator Bingaman, always looks for good answers. One of the things that FERC is trying to do is to give some certainty about the rules of the road for the power industry much as it did with the gas industry a decade ago, trying to put the balance out there, getting good infrastructure with sufficient protection of customers so that a balanced and reasonable price for power and a sufficient reliable supply of power results from that.

We are planning on proposing next week a rule to incorporate the best practices of power markets across the world and adopt those as a standard for the power markets here in the United States so that we can move forward with some consistency and some tangible benefits for customers from a power market that to date has not produced those.

It is very important certainly in the ongoing work of our Commission and in our collegian work with other commissions to continue to monitor these markets. I think as we had discussed at prior hearings, it is important to have a vigilant market cop looking over the industries here to make sure that rules are obeyed and followed.

And the Commission, as you referred to in your opening statement, Mr. Chairman, is busy with investigating a number of issues

related to power and gas markets, particularly in the West, where we have had two years ago now sufficient disruptions in gas and power supplies.

So the Commission is moving forward on a number of fronts. I appreciate and recognize that the Congress is also moving forward in looking at a number of legislative issues. And I think the commission and my colleagues and I have weighed in on that when we have been asked.

And I am encouraged by the efforts of a number of you on the conference committee to pursue and wrap up that bill. I do think some certainty from both the regulatory side and from the legislative side will help a lot in bringing the energy markets back to some sort of equilibrium, because they are clearly not there today.

And with no further ado, I will stop and look forward to your questions.

The CHAIRMAN. Well, thank you very much.

[The prepared statement of Mr. Wood follows:]

PREPARED STATEMENT OF PATRICK WOOD III, CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION

Thank you for the invitation to speak to you today about the nation's energy infrastructure. My colleagues on the Federal Energy Regulatory Commission and I share this Committee's concern over the adequacy of America's energy infrastructure. It has been proven repeatedly that without enough power plants, transmission lines, fuel supplies and customer demand response, electricity becomes less reliable and wholesale prices become more costly and more volatile. Dependable, affordable, competitive wholesale energy markets rest on a three-part foundation: adequate infrastructure, sound market rules, and vigilant oversight of the marketplace. Weakness in any one element can hurt markets, hurt American energy customers, and ultimately impact the entire U.S. economy. FERC is working hard to set clear rules that promote all three goals.

Today I will address several issues. First, I will review how electric infrastructure affects wholesale electric markets and offer some examples drawn from the Commission's regional infrastructure studies and conferences. Second, I will talk about the steady growth in the nation's natural gas pipelines as a significant success, reflecting both the solid competition in the natural gas commodity market and sensible economic regulation of the pipeline industry. This is the model we hope to emulate, in part, with our Standard Market Design initiative in electricity. Third, I will look at the importance of technology and innovation to improve the quality of today's infrastructure and leverage it into the future. Last, I will talk about FERC's strategic plan and the resources we have committed to promoting infrastructure adequacy.

INFRASTRUCTURE AND WHOLESALE ELECTRIC MARKETS

It has long been understood that without adequate electric infrastructure, grid reliability becomes compromised and costs rise. In decades past, this was less of a problem than it is today, because state regulators ordered utilities to build more power plants and transmission lines to connect the plants to the customers and acted to assure cost recovery for those investments. Reserve margins generally exceeded twenty percent, reliability was good, and utilities rarely balked at making new infrastructure investments.

President Bush's National Energy Plan offered numerous recommendations addressing the nation's energy infrastructure. Consistent with the Plan, the Department of Energy recently issued the National Transmission Grid Study, which does an excellent job of explaining the vital role of the transmission grid and the consequences of our national failure to invest in it. Today's 150,000 mile high-voltage transmission system was originally built by integrated utilities to deliver electricity from large, remote power plants to their customers; the grid was then expanded and interconnected among utilities and regions to improve reliability by sharing excess generation.

But the situation is very different today. For the past decade, most of the new generation in the country has been built by independent merchant generators rather than by vertically integrated utilities. As it became harder to site new transmission lines and returns on investment appeared to be more dependable in other sectors,

investment in new transmission fell behind the pace of economic growth and electric load growth. Although the economy grew by 40% between 1989 and 2000, during that same period electric demand grew by 29% while transmission mileage increased by only 11%.

As Americans' energy demands have grown, the high-voltage grid has become increasingly congested, increasing costs across the board for most customers. Across the country, transmission constraints limit the amount of electricity that can flow from one region into another. Most constraints raise prices—for instance, constraints cost California electricity customers \$222 million for congestion alone between September 1999 and December 2000. In other cases inside southwest Connecticut, in New York City and Long Island, on the Wisconsin-Upper Michigan Peninsula, and elsewhere—transmission constraints limit electricity imports to such a degree that it can become a daily challenge for the local utility to keep the lights on when temperatures peak and raise demand, or when local generators fail inside the electrically isolated “load pocket”.

Figure 1* shows some of the major transmission constraints in the Eastern Interconnect, the degree to which each is congested, and the direction of the flow. Many of these constraints occur within broad regional markets, limiting the ability to deliver power from one sub-region into another—for instance, there are large concentrations of generation in Maine seeking to export into the Boston and central New England market. Similarly, many generators concentrated in the lower South and Midwest are trying to sell into Florida.

DOE and FERC have concluded that the lack of a strong, nation-wide transmission system is limiting effective competition, raising costs to all electric customers, and risking reliability in many areas. We must begin working to relieve these transmission bottlenecks, pursuing broad regional interests and needs. DOE's National Transmission Grid Study recommends the creation of multi-state planning entities with a long-term time frame and inclusive process to identify needed transmission, generation, and efficiency improvements that will benefit entire regions. FERC will be considering such a process in our Standard Market Design proposal, due out at the end of July. The National Governors Association recently issued a thoughtful report calling for regional planning for energy infrastructure. I strongly endorse its recommendations. Cooperation and mutual support between states and governments at every level will be essential if we are to solve these pressing infrastructure challenges.

But neither FERC nor DOE can solve the siting problems that impede most new transmission construction. Most citizens oppose the siting of new transmission lines close to their communities, and their opposition can delay or kill a new line. Since citizen opposition will not change, we can only deal with this challenge by: motivating state regulators to use their siting authority in a more aggressive yet cooperative fashion; using energy efficiency, load management, distributed generation and demand response to limit the number of new lines needed; and using new transmission technologies such as FACTS (Flexible Alternating Current Transmission System) and advanced conductors that can transmit more energy through a given cable to maximize the grid assets already in place. FERC fully endorses the DOE Grid Study's thoughtful recommendations on transmission planning and siting.

A healthy grid needs not only new transmission, but also new generation sited in locations that are beneficial to the grid as a whole. To date, generators have built wherever they can build most cost-effectively, which tends to be at locations which combine access to available transmission, available gas pipelines, cooling water, and welcoming communities. Although traditionally the interconnection of new generation has been negotiated on a case-specific basis between each new generator and its host utility, FERC recently began working to develop a standardized interconnection contract and process to assure that every new generator is treated fairly, consistently and promptly. This rule, and the policies pertaining to how we pay for new interconnections and grid expansions, are now under consideration and out for public comment. These policies should be decided by the end of the year and should add further clarity and certainty to the investment climate.

REGIONAL INFRASTRUCTURE CONFERENCES

Over the past year, FERC has held three regional conferences to conduct in-depth studies of the broad conditions of the area's energy infrastructure, and to understand the issues in each region. These conferences have featured fact-filled presentations on the state of each region's energy infrastructure (electric power plants, fuel sources, hydro facilities, gas pipelines, electric transmission system, and other rel-

* Figures 1 through 4 and Attachments A and B have been retained in committee files.

evant information), demographic and energy load forecasts, and panels of experts talking about specific issues. Each conference has enjoyed strong attendance from state energy regulators as well as industry members and concerned citizens, enabling wide-ranging discussions about key regional concerns. The presentation materials for these conferences are available from FERC's website (see Attachment A). We will be holding the Midwest conference this fall in Chicago and going to the Southwest in early 2003.

The first conference, in Seattle on November 2, 2001, studied the Western states; the data developed then was updated last week to lay a foundation for our Western electric markets orders. The Western states are highly interdependent for their electricity and gas supplies, and have only a 10% reserve margin for electricity. While electric load has been growing at over 3% per year in the region, the Western states face slow growth in generation due to the "tabling" or cancellation of over 40,000 megawatts (MW) of planned power plants (California alone accounts for over half of this number). California and the Pacific Northwest are highly dependent upon hydro-electric generation, which is in turn dependent upon yearly rain and snow levels; the extended drought years from 1999 through 2001 dropped hydro-generation availability by 40%. California imports on average 20% of its electricity each year, and imports 85% of its gas to generate over 50% of its electricity in plants that are old, unreliable, expensive and inefficient. But while new interstate gas pipelines are being built across the West, little or no bulk transmission has been built to span the long distances between generators and customers, or to deliver more inexpensive electricity between sub-regions. The net result is that the inefficiencies and shortages in the California electricity market drive up prices across all other Western states, while the lack of new transmission and demand response means that congestion costs are increasing and reliability is decreasing in many areas. For this reason, the Commission deemed it necessary to continue a tighter market mitigation regime than exists in other established wholesale electric markets.

Figure 2 shows how transmission constraints hamper the free flow of electricity and cause price differentials between constrained sub-regions of the Western Interconnection. Note how the bottleneck at the California-Oregon border effectively keeps most cheap hydro-power bottled up in the Northwest, where prices stay low (recently at \$18/MWh), and limits flow south into California; how the limited flow along Path 66 pushes electricity prices to \$65/MWh north of the Path 15 constraint and \$68/MWh south of that constraint (although in other seasons the price differential is reversed and higher to the north than the south); and how coal- and gas-fired generation in Arizona and New Mexico is bottled up east of the Path 49 constraint. These constraints impede competition between generators and fuels and raise prices for customers inside the constrained areas (also called load pockets).

Looking ahead, we see several significant problems relating to Western infrastructure. This summer, there are very tight reserve margins in California and in the Arizona-Nevada-New Mexico areas. If either area experiences high generation outage rates (as is possible in California, with an aged fleet of fossil units) or loses much import capability (as happened recently on the Bonneville Power Administration system and in Arizona near Palo Verde due to fires near high-voltage transmission lines), they could face reliability problems. Over the long term, new infrastructure is not being funded because there is little confidence that new facilities will be profitable. Most infrastructure is built after funding is assured through the acquisition of long-term contracts with credit-worthy partners; yet with so many of the utilities in the West either bankrupt or in junk bond status (see Figure 3), few infrastructure investors are willing to risk investments in the West. Additionally, it is hard to build in the West because so much of the land is owned by either federal agencies or Native American tribes; it can be a challenging and lengthy process to route a transmission line across these lands. With population growing significantly in the Southwest and Northwest, once-excess electricity and natural gas in those regions will become unavailable to export to California—which will exacerbate shortages in the near future. And last, with the entire region so dependent upon hydroelectricity, it remains highly vulnerable to droughts. The financial consequences of such shortages could again ripple across the entire West.

In the Northeast, there are two main infrastructure stories. The first is the difficulty of siting new transmission and gas pipelines in densely populated areas. Although the Northeast, like every other region, has a growing population with a large appetite for gas and electricity, few want to live near transmission lines, power plants or gas pipelines. Thus it is hard to site new power plants next to the load centers where customers live (as is needed inside New York City, Long Island, and southwest Connecticut), or to route new gas pipelines (as with Millennium into the New York City area) or transmission lines (into southwest Connecticut or across the

Long Island Sound) into these dense urban areas. It is also difficult to motivate the people in one state to live next to, much less pay for, lines which will benefit their neighbors but not themselves. As long as these obstacles persist, the costs of doing nothing will mount—FERC estimates that current levels of transmission constraints into southwest Connecticut, southeast Pennsylvania and eastern New York are costing electric customers as much as \$1 billion extra per year in energy costs.

A second, more positive trend is the development of several proposed merchant (non-utility) electric transmission lines, for-profit businesses which propose to build new high-voltage transmission lines to connect loads with energy sources. These include the Neptune Regional Transmission project (which will bring 4,800 MW from Nova Scotia, New Brunswick and Maine to Boston and New York City), the TransEnergie Cross Sound project (which would move 330 MW between New Haven, CT and Long Island, NY), and the TransEnergie Lake Erie project (which would transmit 975 MW from Ontario across Lake Erie to either Ohio or western Pennsylvania). I strongly support the development of for-profit transmission. FERC is working to assure that independent transmission companies have a clear opportunity to earn appropriate rewards for the investment risks these projects pose.

While the Northeast is dominated by aggressive competition between wholesale generators, with retail competition in most states, the Southeast is characterized by large, vertically integrated utilities under traditional cost-of-service regulation, with extensive generation portfolios and limited opportunities for independent generators. Electric demand in the region is expected to grow by 20 to 30 percent over the next decade, primarily fueled by natural gas, even as gas production in the Gulf of Mexico declines. The grid in the Southeast was designed to move generation from plants to nearby loads, so it is inadequate to serve the needs of the competitive wholesale market, which seeks to move low cost generation in bulk from the Midwest and central south into Florida and the Mid-Atlantic states. And absent a liquid power market, incumbent transmission companies have tended to act in ways that favor their own generation and impede power flows for independent generators.

The central question to be resolved in the Southeast is, who should pay for the new transmission facilities that are desperately needed for the region as a whole? Much of the demand for generation (and thus the beneficiaries of new bulk transmission lines) comes from neighboring states, but the new power plants are being built in more central states. Although the residents of Mississippi, Alabama and Louisiana are benefiting from the investment dollars, jobs and tax benefits of these power plants, they are reluctant to pay for any new transmission lines that may be needed to enable these plants to reach their intended interstate markets. Similarly, utility customers in Florida and other power-hungry states don't want to pay to build new power lines outside their utilities' service territories, even though they want the energy those lines will deliver. Without regional planning and some wide-ranging balancing and reallocation of the costs and benefits of this needed infrastructure, overall delivered energy costs will continue to rise and competition between regions and efficient plants will be stifled. I am hopeful that state participation and cooperation can help solve this difficult problem.

Although it has become a cliché in the past six months, it is worth repeating that the energy sector has been hard-hit by the collapse of Enron, investigations by FERC and others into energy trading problems, and recent business accounting improprieties. Many of the energy companies that were planning to make significant infrastructure investments only a year ago have since cancelled their plans or sold off assets to improve their financial profile. Others would like to go ahead but cannot find credit-worthy customers to back their plans with solid contracts. Thus, a strong economy and a strong dose of confidence and stability in the nation's energy markets will be needed before the perceived level of infrastructure risk improves and major new energy investments begin.

GAS PIPELINES AS A REGULATORY SUCCESS STORY

America's gas pipeline system has the capacity to carry over 105 billion cubic feet of natural gas per day from Canada, Mexico, the Gulf of Mexico, and domestic producers across the nation to local distributors and end users. (See Figure 4) It consists of over 180,000 miles of high strength steel pipe, with regularly spaced compressor stations to boost the pressure of the gas inside the pipe and keep it moving. The pipeline system is supported by underground storage caverns, which hold about 20 percent of the gas consumed each winter to assure reliable delivery when needed.

The gas pipeline system has been steadily expanded over the years. Today there are over 60 major pipeline projects proposed by private investors, funded on the strength of long-term contracts and other commitments for gas. These projects will build another 5,600 miles of pipeline at a combined investment cost of over \$9.8 bil-

lion, to transport another 20 billion cubic feet of gas per day (a 20% increase over current levels). Additional liquefied natural gas import facilities are also planned for near-term investment, to supplement the nation's aging gas production fields with new supply sources. Amid these expansion plans, however, several large projects (including the Independence line that was sponsored by Williams, El Paso, and National Fuel and Williams' Western Frontier project) have recently been cancelled due to softness in the short-term market and some financing problems.

There are several reasons why expansion of the gas pipeline system has been more successful than expansion of the electric high-voltage system. First, on the gas side there is a relatively small number of large interstate pipelines, so each player must take a broad, multi-state view and has both control of and accountability for the full geographic span. These companies can secure siting, eminent domain, cost recovery and rates approvals at FERC. In contrast, electric transmission companies tend to have a smaller footprint, so they have little motivation to participate in a multi-state, region-wide project that benefits customers outside their home turf. In addition, electric utilities face regulation both at FERC and by state regulators, who may be reluctant to approve rates for projects without significant local benefit.

Second, the criteria for pipeline approval and cost recovery at FERC have been clear and stable for a decade, so pipeline investors face a relatively clear and certain regulatory environment (other than the siting risks). On the electric side, the transition to competition varies by state and FERC's progress toward Regional Transmission Organizations, Standard Market Design and rate recovery are just now becoming clear. Last, when FERC issues a certificate to approve a gas pipeline that authority includes the right of eminent domain if necessary to acquire pieces of the pipeline route. FERC environmental and routing approval is lengthy, but swifter than the multi-state review required for major electric lines.

I believe that Standard Market Design and standard interconnection rules for new generation will do for electric infrastructure what gas rules have done over the past decade stabilize the rules for all market participants, create certainty so that the road to market success becomes clear and predictable and risks are easier to identify and evaluate, and establish meaningful incentives for new construction with clear path to cost recovery.

Another infrastructure issue related to natural gas is the fact that although the nation's power plant portfolio is relatively diverse today, over 95% of the new power plants coming on-line in the nationwide are gas-fueled. Gas demand to serve power plants is so great—even with recent plant cancellations—that almost all of the demand for new pipeline capacity is to serve electric generators. Pipelines into the Northeast, Southwest and California are already fully subscribed, and new pipelines are becoming fully utilized as soon as they come on-line. This high level of pipeline utilization, and the competition between bulk customers and regions for available capacity, is raising significant gas allocation and service reliability issues up and down the pipelines. At the same time, production from a number of the nation's premier gas production areas is flattening, especially in the Gulf of Mexico, Permian Basin, and elsewhere, so it is likely that new gas sources and routes will be needed over the long run.

TECHNOLOGY LEVERAGES INFRASTRUCTURE

There are a number of ways that new technologies will allow us to leverage our existing electricity infrastructure system in innovative ways. Some of these include strategies to better use the existing grid, through energy efficiency, distributed generation, and demand response; transmission enhancements such as grid optimization through better data collection, enhanced power device monitoring, and advanced conductors; and using new technologies to use the grid in different ways, including advanced power electronics, high voltage direct current lines, and new cables such as high temperature superconducting cables.

Energy efficiency includes classic energy conservation and load management. Energy conservation devices such as compact fluorescent light bulbs and high-efficiency appliances and windows reduce total energy use across the board. Load management reduces peak loads, either by eliminating or reducing the activity (as by cycling residential air conditioners on and off during peak use hours) or by moving the activity to off-peak hours. Energy efficiency is an essential way to leverage existing transmission assets because it allows customers to get more results from each MWh consumed—for instance, the combination of passive solar architecture with insulated building shells and windows, a “cool roof” (low heat-absorbing), and efficient appliances and plug loads inside a home or office building significantly reduces the energy used to keep its occupants cool and effective during summer peak hours. Thus the building consumes much less electricity during peak hours and uses less

of the limited assets of the local generation and transmission system. This reduces total energy use, lowers summer air pollution, and improves urban reliability within the load pocket often at lower net cost than adding new generation or transmission.

Demand response is a crucial element for efficient grid use, as well as an effective deterrent to the exercise of supplier market power. Demand response moves a step beyond energy efficiency, to empower customers to change their energy consumption in response to energy prices over time. Most retail customers see flat, “after-the-fact” electric prices that give little hint of the underlying cost of energy production; they don’t reflect scarcity, as when total demand outstrips supply and purchasers compete for the limited power available, or the higher production costs that occur when more inefficient (and costly) power plants are brought on-line. Most customers have a sense of when a product or service costs too much, and many would be willing to use less electricity when it costs more. Demand response programs give customers this opportunity, using technologies ranging from real-time pricing with “smart meters”, to time of use rates with interval meters, or classic interruptible and curtailable programs which reward customers for sudden power reductions. Such programs allow grid managers to leverage existing grid assets by reducing peak loads and thus improve the ability of a constrained grid to serve more customers reliably. Demand response, energy efficiency and distributed generation programs can be targeted within constrained load pockets to relieve strains on the grid and delay asset exhaustion—this is being done in New York City, Southwest Connecticut, Chicago, and elsewhere.

Distributed generation (small generators using renewable or fossil fuels) can be used close to load centers to improve grid reliability while reducing the need for new transmission and reducing transmission line losses (the need for additional generation to replace energy lost due to resistance along the lines). Distributed generation includes solar photovoltaics (as on home rooftops), small wind generators (as at farms and oilfields), combined heat and power (once called cogeneration, used at office buildings and industrial sites), diesel- or natural gas-fired reciprocating engines (as for hospital and industrial emergency generators), and newer technologies such as fuel cells, microturbines, and flywheels (technically a form of energy storage). These are often installed by customers who wish to improve site reliability, reduce or stabilize energy costs, reduce environmental impact, or gain greater independence from the grid. Used in urban areas and at transmission substations, distributed generation can improve local voltage stability, reduce the need for imports into the urban area, expand the capability of local substations, and reduce net emissions from power generation.

It is also possible to enhance the operation of existing grid assets. One way to do this is to collect better data on the condition of the grid in real-time, using direct system voltage and flow sensors and dynamic power device monitors to better measure system operating conditions. This allows operators to manage the system less conservatively without sacrificing reliability, and run the system closer to its true capabilities. Improvements in system optimization modeling are giving grid managers a more sophisticated and wide-scale understanding of grid conditions and interactions, so they can use transmission and generation dispatch more effectively and reliably. And recent improvements in the materials used to make transmission conductors (high voltage cables) are improving the voltage carrying capacity of the wire, so it can be used under higher temperatures and often at lighter weights. These conductors can be used to replace existing wires in a strained transmission system, so the same right-of-way and towers can support greater throughput after reconductoring. Although these cables are not inexpensive, they are an attractive way to get more energy into constrained urban areas that face opposition to new transmission lines.

It is worth noting that once Regional Transmission Organizations are in place, they will have the analytical tools and regional scope to operate the transmission grid and generation resources more effectively than is currently possible for smaller utilities and ISOs. RTOs will also be charged with facilitating the integration of demand response into wholesale markets, as a way to balance against generator market power. RTOs will be the coordinators and facilitators for a very open regional power planning process, which should encompass not only which new transmission lines are needed, but also how to use energy efficiency, demand response, distributed generation and smarter generation siting to better manage existing and future grid assets for economy and reliability.

Last, there are a number of new technologies that offer opportunities to change the way engineers design and use the grid. These include high temperature superconducting cables, high-voltage direct current lines (HVDC, which can link asynchronous systems and perform long distance transmission with low losses), and flexible alternating current transmission system devices (FACTS, which is a set of

power electronics technologies that allow rapid, precise control of grid flows and eliminate loop flows). Many of these technologies, and others, are not fully commercial yet, but they offer great promise. Unfortunately, it will take some time before this promise is realized, because the energy industry today faces so much business and regulatory risk that its members are hesitant to take on increased technology risks as well.

DOE's National Transmission Grid Study offers a good overview of these technology options and opportunities, as does extensive work by the Electric Power Research Institute and other sources. Both sources note that if we wish to reap the benefits of such technologies in the future, we must continue to support and fund research and development efforts in the present.

INFRASTRUCTURE IN FERC'S STRATEGIC PLAN

In September, 2001, the Commission adopted a strategic plan to support the vision of reliable energy markets. But it is impossible to achieve that goal without a sound energy infrastructure. Thus, the first of the three substantive challenges in FERC's strategic plan (see Attachment B) is to "Promote a secure, high-quality, environmentally-responsible energy infrastructure through consistent policies."

Agency objectives and major activities under this goal include:

1.1 Remove roadblocks impeding market investment—processing gas pipeline certificate applications and hydroelectric dam license applications, handling gas and hydro compliance matters, preparing the electric standard interconnection rule, and preparing for and conducting the regional infrastructure conferences; work with Council on Environmental Quality and other agencies to strengthen inter-agency coordination and shorten processing timelines;

1.2 Provide clarity of cost recovery to infrastructure investors—process rate filings from gas and oil pipelines, and consider innovative rate proposals from electric transmission entities;

1.3 Proactively address landowner, safety and environmental concerns—dam safety program, including inspections of 2,058 dam safety inspections, LNG reliability inspections, respond to landowner inquiries, conduct environmental analyses for new gas and hydro projects, incorporate reasonable environmental and safety provisions into new licenses, collaborate with stakeholders and conduct gas outreach activities;

1.4 Stimulate use of new technology—become familiar with new technologies and their uses, ensure that rules enable the use of new technologies;

1.5 Promote measures which improve the security and reliability of energy infrastructure—improve security at dams and pipelines, process applications for security-related cost recovery, protect critical energy infrastructure information, develop standards for electric industry cyber-security, and coordinate with other agencies and stakeholders to better understand infrastructure security issues and work proactively to reduce energy infrastructure vulnerability.

For fiscal year 2002, FERC has committed over half of our approximately 1,150 full-time employees to these infrastructure activities. In sum, I believe that an adequate energy infrastructure is critical for the economic success of our nation. Infrastructure investments bring disproportionately high returns for society—new pipelines and transmission lines lower delivered energy costs by reducing congestion and improving competition and commerce between regions. Better infrastructure lowers costs by lowering supplier market power. It improves energy reliability and security. And thanks to the promise of new technologies and smarter operations, we may be able to get better grid operations without a bigger, more intrusive footprint on our physical environment. I urge your continued attention to this important, yet under-appreciated, problem.

The CHAIRMAN. Mr. Nevius, why don't we hear from you on behalf of the North American Electric Reliability Council? And then we will have some questions.

STATEMENT OF DAVID R. NEVIUS, VICE PRESIDENT, NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Mr. NEVIUS. Thank you. Thank you, Mr. Chairman, members of the committee, fellow witnesses, not only Chairman Wood but others that will follow, and guests, good afternoon.

NERC is very pleased to have this opportunity to appear today and address some of the barriers to expansion of our Nation's electricity supply and delivery systems. These barriers must be removed if we are to maintain the reliability of our electric supply and to reap the benefits of competitive electricity markets.

While there are issues and uncertainty surrounding the development of electricity supply, namely generation, the lack of expansion in the Nation's electricity transmission systems is by far the more serious concern. If the current trends continue, it will seriously restrict the choices we have available to us for meeting the growing demands for electricity in the country.

First, let me tell you where we are today. And this is based on our 2002 summer assessment. The high voltage electric transmission systems that serve North America are expected to perform reliably this summer.

However, transmission congestion is expected. And that is going to require the use, in some cases, of congestion management tools or the implementation of what is known as NERC's transmission loading relief procedures to avoid violating the system operating security limits, the physical limits of transmission lines and transformers.

Already this summer some firm power transfers from the Southwest to the Midwest have had to be curtailed on several occasions due to these limits.

Looking ahead, with electric demand growth, new generation additions, and the increasing number of electricity transactions, that is going to continue outstrip the proposed expansion of our transmission systems in many areas of North America.

Chairman Wood has already documented in his testimony how much transmission expansion has lagged behind the developments in other areas of the electricity industry. Unless the barriers are removed, few new lines and other reinforcements will be made, and electricity transactions in many parts of North America will become increasingly limited.

The transmission dollars are being spent today, some of which are quite significant. Later, you will hear from Mr. Landrieu in his prepared remarks where he cites \$600 to \$700 million worth of planned transmission investments over the next five years in the PJM area alone.

PJM may be the exception in this regard as other areas, the only significant transmission investments are those used to connect new generation or large customers to the grid, not to build lines that will strengthen the overall grid's ability to move power from one part of the country to another.

This means there will be increasingly—we will increasingly experience limits on our ability to move power around and that commercial transactions that could displace higher priced generation in some areas will not occur.

It could also mean that some areas experiencing temporary generation shortages may not be able to import all the power that they could otherwise from other areas.

To address this growing concern regarding the lack of transmission development, NERC's planning committee in October 2000

established a task force to analyze the issues and obstacles that are impacting the planning and expansion of transmission systems.

Now, their report, which I have noted in my testimony, "Transmission Expansion Issues and Recommendations," was approved by our board of trustees in February of this year. It presents recommendations to reduce or eliminate many of these obstacles.

In my prepared remarks, I cited a few of the report's recommendations, and I commend the full report to the consideration not only of the committee but of others who are dealing with these issues.

NERC is also participating in the transmission grid solutions subcommittee of the Secretary of Energy's Electricity Advisory Board to provide recommendations to the board and the Secretary on how to improve the physical and financial State of our Nation's transmission infrastructure.

The subcommittee's work, which is still in progress, is organized around a review of the National Transmission Grid Study recommendations

I would be remiss if I did not acknowledge this committee and the full Senate for the major step they took to ensure the reliable operation of the North American bulk power system when it adopted H.R. 4 back in April.

H.R. 4, as you all know, authorizes the creation of an industry-based North America wide electric reliability organization to develop and enforce reliability standards.

Special thanks to Senator Thomas for his leadership on this issue and to Mr. Ward, who is representing NASUCA for his organization's continuing support for this important legislation.

Just before I close, I would like to take off my NERC hat for a minute and offer a personal observation as someone that has been in the transmission planning business and has participated in a number of the studies that have been done over the years addressing the barriers to transmission development. Some of these studies date back to the mid-eighties.

In my opinion, we do not have a shortage of good analysis of the barriers or a shortage of good recommendations that can eliminate many of those barriers. I would note in this regard the excellent recommendation of the National Governors Association study on barriers to the development of transmission. But the study I am referring to is one done in 1987.

And the current study that was just released early last week, I believe, repeats some of the same recommendations. But not many of them have been followed through on.

I guess I would also note that some work that the Keystone Policy Dialog Group did on model State siting and certification codes. Some of the more recent recommendations that appear in the NGA report and others repeat some of the same points that were made back in 1987 and subsequently.

My point is here that we have to do more than just develop the recommendations and leave them on the bookshelf to collect dust. Hopefully the work that FERC will do through its standard market design initiative and DOE's follow on initiatives to the national grid study will be able to pick up on some of these recommendations and move them forward.

In conclusion and with NERC hat back on we commend the committee for attending to this critical issue of enhancing our electricity supply and delivery infrastructure.

I would note that in Mr. Makovich's prepared remarks the solutions to transmission investment gridlock are not simple, because transmission systems are not simple. We have to pursue a portfolio of approaches and actions to address this complex array of technical, regulatory, and public policy issues if we are to make the necessary improvements.

Operating around these limitations and forgoing economic opportunities because we cannot find a way to expand our transmission system is not a sound or responsible strategy. Our nation's citizens and its businesses deserve a robust electricity supply and delivery system that allows us to realize our full potential. Thank you very much.

[The prepared statement of Mr. Nevius follows:]

PREPARED STATEMENT OF DAVID R. NEVIUS, VICE PRESIDENT, NORTH AMERICAN
ELECTRIC RELIABILITY COUNCIL

SUMMARY

The North American Electric Reliability Council (NERC)¹ believes that barriers to the development of the Nation's electricity supply and delivery infrastructure must be addressed if we are to maintain the reliability of our electric supply and reap the benefits of competitive electricity markets. The expansion of the Nation's electricity transmission infrastructure, in particular, has lagged far behind, which seriously restricts the available choices for meeting the growing demand for electricity.

In the near term, transmission congestion is expected to continue. Demand growth, new generation additions, and the increasing number of energy transactions continue to outstrip the proposed expansion of transmission systems. Unless regulators authorize cost recovery mechanisms that encourage investment in needed transmission facilities and address obstacles to the siting of new lines, few new transmission facilities and needed reinforcements will be constructed. Absent new transmission facilities, electricity transactions in many parts of North America will become increasingly limited.

The outlook for generation supply is more positive, but there are still many uncertainties. Recent events have caused some project developers to cancel or delay planned new generating facilities. Fortunately, most of the affected projects were planned for service beyond the next few years, so generation supply in the near term is expected to be adequate.

In the longer term, generation adequacy is more difficult to assess. Generation developers are challenged to obtain suitable interconnection and transmission access agreements, the necessary siting and environmental permits, financial backing, and a dependable, cost-effective fuel supply and price. Political and regulatory actions, such as wholesale power price caps and state mandated moratoriums on the construction of new generating facilities within their borders, could also influence the amount of new generation built over the next ten years in some areas. Further, the lack of new transmission construction can hinder the ability of plant developers to get their power to market. Finally, because the majority of new generating capacity additions are being driven by market signals, rather than established capacity margin targets, margins will likely fluctuate from year to year and area to area, similar to normal business cycles experienced in other industries. NERC is tracking this issue closely and will continue to address it in NERC's annual 10-year Reliability Assessment reports.

¹ NERC is a not-for-profit organization formed after the Northeast blackout in 1965 to promote the reliability of the bulk electric systems that serve North America. It works with all segments of the electric industry as well as customers to "keep the lights on" by developing and encouraging compliance with rules for the reliable operation of these systems. NERC comprises ten Regional Reliability Councils that account for virtually all the electricity supplied in the United States, Canada, and a portion of Baja California Norte, Mexico.

NERC'S 2002 SUMMER ASSESSMENT

Generating resources are expected to be adequate to meet projected demand for electricity in North America this summer. However, southwestern Connecticut and southern Nevada are areas of concern. Transmission limitations into southwestern Connecticut and tight capacity margins in southern Nevada make these areas particularly susceptible to reliability problems associated with delays in the installation of new resources, lower than expected generating unit availability, or extreme weather.

Even in areas where resources are expected to be adequate, unanticipated equipment problems and extreme weather can combine to produce demands that temporarily exceed available generation and transmission capacity, as we have already seen in several areas this summer.

Significant amounts of new generating resources have been added in several Regions since last summer and projected capacity margins have likewise increased, especially in the Midwest, Southwest, and Texas. Despite recent announcements that planned new generating plants will be delayed or canceled, those previously planned to be in-service this summer are still on schedule and are expected to be available to serve peak demand.

The peak demand for electricity in the U.S. is projected to be about 2½ percent higher than last summer. However, last summer's demand was below forecast, so the projected increase indicates essentially no real growth in peak demand. This situation is primarily the result of the slowdown in the North American economy. The historical average annual demand growth for the last ten years has been about 2½ percent.

The North American transmission systems are expected to perform reliably this summer. However, transmission congestion is expected, which will require the use of congestion management tools or the implementation of NERC transmission loading relief (TLR) procedures to avoid violating operating security limits. Already this summer, firm power transfers from the Southwest to the Midwest have had to be curtailed on several occasions.

TRANSMISSION EXPANSION LAGS

Over the last 10 years, circuit-miles of high voltage transmission lines (230 kv and above) increased at only 0.75 percent per year. Over the next 10 years transmission owners are projecting that circuit miles of high voltage transmission will increase at a rate of less than 0.5 percent per year. Stated another way, in North America 10 years ago we had a little less than 200,000 circuit-miles of high voltage transmission lines. Right now we have about 200,000 miles of lines. And 10 years from now we are projecting that we will have just a little more than 200,000 circuit-miles of high-voltage transmission lines.

Transmission dollars are being spent today, some of which are quite significant. However, these transmission expenditures are primarily used to connect new generation or large customers to the grid, not to build new lines to strengthen the grid's ability to move large blocks of power from one part of the country to another. That lack of transmission expansion means that we will increasingly experience limits on our ability to move power around the country and that commercial transactions that could displace higher priced generation won't occur. It will also mean that areas experiencing temporary generation shortages may not be able to import power from other areas in emergencies.

ADDRESSING THE IMPEDIMENTS TO TRANSMISSION EXPANSION

The reliable operation of the interconnected transmission systems in the near term is highly dependent upon coordination and proper actions by transmission system operators. In the longer term, the reliability of these systems will also be highly dependent upon the location of new generation resources and the addition of new transmission facilities.

We clearly need to remove the impediments and disincentives to expansion of the transmission grid. With few major transmission facilities and reinforcements identified for construction over the next several years, transmission congestion is expected to increase and electricity transactions will likely continue to be curtailed.

To address this growing concern, the NERC Planning Committee, in October 2000, established a task force to analyze the issues and obstacles that are impacting the planning and expansion of transmission systems. Their report, "Transmission

Expansion: Issues and Recommendations,”² approved by the NERC Board in February 2002, presents recommendations to reduce or eliminate these obstacles to the expansion or reinforcement of the transmission systems. Particular emphasis is placed on the recommendations where NERC can play a significant role in achieving these objectives.

Some of the recommendations addressed to others that appear in the report are:

- Transmission owners responsible for the reliability of the interconnected transmission systems should periodically review and document their future transmission corridor requirements with appropriate regulatory bodies.
- Major transmission projects, where possible, should be planned with appropriate margin to provide capacity to meet system needs beyond the current or near-term system requirements. Such margins may provide the flexibility required to maintain reliability during maintenance and construction outages, and may also help conserve and make optimal use of difficult to obtain right-of-way corridors. These transmission margins could be achieved, for example, by using larger conductors, providing space for additional circuits on structures (e.g., double circuit structures) or on the right of way, and employing tower designs readily adaptable to higher voltage operation.
- Formal coordination procedures among neighboring Regions, systems, and other entities should be developed by the regional transmission organizations (RTOs) and regional reliability organizations to avoid case-by-case resolution of the planning and expansion of the transmission systems. The coordination process should integrate the planning of generation facilities with transmission.
- Consistent with FERC Order 2000, regulators should authorize cost recovery mechanisms that encourage investment in needed transmission facilities. Further, where regional transmission projects are involved, regional cost recovery mechanisms need to be developed.
- The transmission system planning process must encourage greater regulatory and stakeholder participation. This participation must occur early in the planning process as opposed to waiting until the certification or licensing phase.
- Even though transmission expansion may not be required for several years into the future, the certification or licensing process should allow for the identification and acquisition of critical rights-of-way or corridors for transmission projects as early as possible. Transmission providers should be permitted to acquire and recover costs for future use corridors.
- Regulatory agencies should be adequately staffed or engage outside consultants, as needed, to implement the siting process in a timely fashion. Siting laws should permit the applicant entities to fund such consultants.

In addition to this NERC study, the Secretary of Energy’s Electricity Advisory Board in April 2002 approved the formation of the Subcommittee on Transmission Grid Solutions to provide recommendations to the Board and the Secretary of Energy on how to improve the physical and financial state of our nation’s transmission infrastructure. The Subcommittee’s work, which is still in progress, is organized around a review of the National Transmission Grid Study and will focus on the most important policy recommendations contained in that report.

Also, the National Governors’ Association recently released a report of its Task Force on Electricity Infrastructure titled, “Interstate Strategies for Transmission Planning and Expansion.” The Task Force’s Gubernatorial Steering Committee is co-chaired by Governors Engler (Michigan) and Patton (Kentucky).

The Committee should consider in its deliberations the findings and recommendations from these and other studies on removing impediments to the expansion of our electricity infrastructure.

SECURING THE GRID

Another critical aspect of our electricity infrastructure, especially in light of recent world events, is its ability to avoid disruption by physical or cyber threats. NERC, as the Information Sharing and Analysis Center (ISAC) for the electricity sector, works with federal, state, provincial and local organizations, and its Regions to monitor the activities under way to protect the physical and cyber security of the North America’s electricity systems. NERC will continue to coordinate security alerts throughout the industry to protect the infrastructure of the electric systems.

In addition, NERC has prepared an Approach to Action and Business Cases for Action that define the need for vigilance in securing critical assets, and developed

² [ftp://www.nerc.com/pub/sys/all—updl/docs/archives/TransmExpansion—BOTapprvd—022002.pdf](http://www.nerc.com/pub/sys/all—updl/docs/archives/TransmExpansion—BOTapprvd—022002.pdf)

“Security Guidelines for the Electricity Sector” that suggest “best practices” for protecting critical facilities against a “spectrum of threats.”

RELIABILITY—THE FOUNDATION OF A SOUND AND SECURE ELECTRICITY
INFRASTRUCTURE

The Senate took a major step to ensure the reliable operation of the North American bulk power system when it adopted H.R. 4 on April 25, 2002. H.R. 4 authorizes the creation of an industry-based, North America-wide electric reliability organization, or ERO, to develop and enforce the standards needed to protect the reliability of the electric grid.

In approving this bill, the Senate has clearly indicated that we need to get on with the job of creating an electric reliability organization that will have the ability to set and enforce mandatory reliability standards throughout North America. Congress has been debating reliability issues for the past several years, and with the passage of this bill, we are strongly encouraged that it will finish the job this year.

The Senate’s reliability provisions provide for FERC oversight in the United States, ensure the full and equal participation of Canada and Mexico, and protect the important roles of the states and regions in supporting the reliability of the interconnected North American electric grid. FERC oversight also ensures that the new ERO will operate efficiently and fairly.

CONCLUSION

NERC commends the Committee for attending to the critical issue of enhancing our electricity supply and delivery infrastructure. There is no one action that will solve the challenges we face. Instead, we must pursue a portfolio of actions. We are not likely to achieve everything we would wish for out of any of them, but taken together, the portfolio approach provides the strongest opportunity for us to make the improvements we need.

First and foremost, we need legislation authorizing development of an ERO to set and enforce mandatory reliability rules for all users of the bulk power system. This will promote and maintain the reliable operation of the bulk power system that we do have. Further, we need to expand demand-side measures and develop additional generation (both central station and distributed). Finally, we need to expand the transmission grid, by both building new lines and exploiting new technologies to get more capacity out of the existing grid and carry more energy over existing rights-of-way.

Operating around limitations and foregoing economic opportunities because we can’t find a way to expand our energy infrastructure is a not a sound or responsible strategy. Our nation, its citizens, and its businesses deserve a robust electricity supply system that allows us to realize our full potential. Thank you.

The CHAIRMAN. Well, thank you both for your testimony. Let me start with a few questions and then defer to Senator Murkowski.

There is a statement in your testimony, Chairman Wood, that is or seems quite optimistic, I would say. It is on page nine. You say, “I believe the standard market design and standard interconnection rules for new generation”—these are—this is the set of rules you are coming out with next week you indicated, I believe.

Mr. WOOD. The first part, yes, sir.

The CHAIRMAN. The first part, yes. You say that you believe those will do for “electric infrastructure what gas rules have done over the past decade—stabilize the rules for all market participants, create certainty so that the road to market success becomes clear and predictable and risks are easier to identify and evaluate, and establish meaningful incentives for new construction with clear path to cost recovery.”

That is a fairly ambitious accomplishment if you can do that. I do not know if you are in a position to give us any more insight.

I guess the two aspects of this issue of obtaining adequate transmission infrastructure that occur to me are how do we build in reasonable assurance for companies that they can in fact recover their costs if they invest in additional infrastructure?

And secondly, how do we ensure that there is adequate reserve capacity built in or a reserve margin built in, so that you do not get the situation which at least some people thought we had in California, which was that all the incentives were for them to not build any more than was absolutely necessary, to just build what they were sure would be used. And some people, at least at the time, were arguing that that is part of the problem we encountered.

So if you have any thoughts on that, I would be anxious to hear them.

Mr. WOOD. Well, since the second one is easier to answer than the first, I will take it.

The adequacy of the reserve margin for years in the regulated era, the States or the local power councils that fell under NERC's jurisdiction set minimum standards of, say for example, as we had in Texas: 15 percent over and above your peak August usage, you should have under contract or under some sort of agreement that was relatively dependable.

I mean, they kind of varied from State to State. But there was a—basically a requirement that you overbuy by 15 percent so that—and everybody had the same obligation big and small, so that there was no free riders.

In the California—in the early days of the California and, in fact, currently still, restructuring the State did not continue that obligation. And, in fact, by its over-reliance on the spot market, there was not really a strong signal to anybody either through an overt regulatory means like we used to have or through any sort of contractual means to build ahead of the curve. And so when it got hot and hydro went down, there was, in fact, as you laid out, a dearth of sufficient infrastructure.

In the new world, there are two ways of dealing with it. A, trust the market; or B, put in an obligation on the part of every load serving entity, whether that be in a retail open State or a retail closed State, to have that same insurance requirement that we have always had under the regulated era and then enforce that.

So in other words, if it is 12 percent or 15 percent extra that is necessary, then have that be done. There are different ways to do it, and quite frankly that is one of the—the items that is still very much being discussed up and down our hallway at FERC, how to do that in a way that really does not recreate some of the problems of the Old World. And I think we can get there.

But a resource adequacy requirement, I think you can expect that FERC will make sure that that is part of the new world. It may be necessary only in the transition for the first 5 years or so. And then when the markets are sufficiently robust and deep, then that may not be needed. But I think certainly for the front end, I would have to admit that that would be needed. And I do support that concept.

As to how to assure reasonable recovery to infrastructure investors, that is easier to guarantee on the regulated side, i.e., the pipeline and the transmission line side than it is on the competitive side, which is the gas production, the powerplants in particular.

We are seeing some more at-risk transmission projects come to bear. I think the most important way that—the most important

thing missing from the picture today that would be needed to ensure a reasonable recovery of investment in the competitive part, i.e., the gas production and power production segment would be some steady and relatively dependable rules of the road.

And there are no standard rules of the road now. You have got some rules here in PJM and I think Dave pointed out that you are seeing investment done there.

You have got other rules in other parts of the country that are more or less amorphous. And so an investor looks at that and says, "Gosh, that is kind of a risk. I do not believe I will take it."

I think we can, by having clear rules, reduce what we call regulatory risk quite a bit. And I do hope that that is what we can achieve by the proposed rule making that FERC will put out for comment next week and by the already released proposed rule making on hooking up of new powerplants and the standard inter-connection process that that would have.

The CHAIRMAN. All right, my time is about up. Instead of launching into another line of questioning, let me go ahead and defer to Senator Murkowski.

I know we have several Senators waiting here to ask questions. Senator MURKOWSKI. Thank you very much, Senator Bingaman.

I think we are all concerned about the long-term picture. We recognize that Rome was not built in a day. And you do not get transmission lines built in a day, and you do not get powerplants built in a day. And we are not building them this day. And you and I both know it.

And while your remarks have been somewhat satisfying, the facts still remain that we do not have the confidence in the regulatory authorities for some kind of assurance of consistency. We also have a situation where there is uncertainty in the marketplace, just as a consequence of the herd mentality which exists in every investment consideration.

But, if we look at the situation now, we do not have the luxury of time eternal. We have got to meet the energy needs of tomorrow by making the investments today. And the investments are simply not being made.

It is a bleak picture. In the West, we have got tens of thousands of megawatts of powerplants that have been delayed. Some have been cancelled.

I am told reserves are about 10 percent, compared to some States that are a little better off. Texas has got about 30 percent. California needs new transmission import power, but insolvent utilities, cannot build. They cannot get the financial commitments. The Government is stepping in to extend Path 15, which is a responsible alternative.

East coast utilities certainly point out the problem. Complicated with the financial meltdown, as I indicated, regulatory uncertainty left a cloud.

California is still blaming industry for problems the State created trying to duck responsibility. But that is just politically astute as long as you can spin it.

FERC has been, I think, a part of the problem. And I think it is appropriate that the Honorable Mr. Wood reflect on that. FERC

has launched a number of restructuring initiatives that seem to be consistently changing.

And, you know, one of the things that industry wants in the assurance is some degree of certainty. Some of the initiatives such as the affiliated—the affiliate conduct rule making proposed major structural changes without adequate consideration of the impact on the investment of the operations.

Some of its investigations have had doubt on the sanctity of a power supply contract in the Western United States. I think FERC needs to finish its investigations and swiftly pursue those who are in violation of law and prosecute, but lift the cloud over those that have been performing within the law so that they have the assurance that whatever FERC's evaluation, review has been concluded.

A financially weakened industry is not going to make the investments for generation for transmission and pipelines that are necessary to meet future needs.

And the July 23 *New York Times*, "Bloomberg Sees Need for More Power Plants in New York," indicating the city was in desperate need of more powerplants. They had a damaged power supply, a fire, and so forth.

But they indicate without the explosion, problems generating enough electricity still exist. Several new plants have been approved for construction, but power generation companies have had hard times attracting financial commitments. And power marketing competitive realities dictate discouraging power markets and power companies from investing.

And that would be substantiating with further reviews, Senator Bingaman, on the status of the public service commission within New York. So it looks like you could predict which way the train is heading.

We have identified the need, but we are not getting the combination of the regulatory authorities and the investment community together so that the investments can be made.

I would like both your reactions as to whether or not you feel that this thing can be turned around in time. Or are we already so far behind from the standpoint of financing and building that we are facing another crisis in this country that is going to be promulgated probably by a combination of either an accident in one area and/or a realization that we are just going to continue to increase our power utilization in contrast with bringing on new line reserves to take care of the increasing demand?

Because, if you agree—and we all seem to agree that the need is increasing—we are not building them, and we are not financing them and the regulatory oversight is not moving in an expeditious manner, are we not heading for the inevitability? Where is the light at the end of the tunnel, or do we even have a tunnel?

Mr. WOOD. Oh, we are in a tunnel. I would say certainly we are in a tunnel.

Senator MURKOWSKI. Is the other end open?

Mr. WOOD. It is open.

Senator MURKOWSKI. Is the train coming this way?

Mr. WOOD. I think it is the sunshine shining through, but I think it is a long tunnel. And I do think it is important to understand that a lot of the expectations that underpin the future for a number

of investors in new powerplants assumed a less robust market and higher prices than have actually come to bear.

I think it is important to remember that there has actually been a lot of powerplant construction across the country in the last 3 to 4 years. Not everywhere—as I am sure Senator Feinstein knows—but by and large, there has been a substantial amount of construction of powerplants.

And that surplus of powerplants has put significant downward pressure on future prices. I think a lot of the expectations of investors in the current companies that are building powerplants was that there would be a shortage in 2003 and 2004, and that the forward prices of power were going to be substantially higher than they are looking to be today.

Of course, a big part of that is due to the general economic slowdown in the country and the commensurate reduction of growth and power usage. But with an extra bubble, as we saw in the gas industry after gas got opened up in the Eighties and Nineties, if there is a big bubble there, the prices do stay down.

While that benefits customers, it does not help those who want to invest in the future. So as to some of the cause of the current, I guess, deflation of the power market investors, that certainly ought to be considered.

I think some of the other factors that Senator Murkowski, you laid out, are valid and guilty as charged. I think we were rushing to try to get some certainty back into the industry by resolving these unanswered questions and trying to, at least from our angle and I think the States are moving in the same direction, trying to get some certainty and streamlining to the overall regulatory process so that it is clear how an investor would get his money back if he built a powerplant or drilled for gas or laid pipe or built a power line.

Going forward, I think the answer that I gave Senator Bingaman's first question is going to be an important part of the puzzle, that there is a requirement for a company that serves power customers today to have a contract for 3 years from now as sufficient excess of power.

I mean, the buy now for your needs 3 years from now is that steady method that got us the sufficient power supply across the country for the last 100 years. And I think a version of that has got to continue in the future to make sure particularly as the country catches back up to the power supply, and the bubble, in effect, pops, that we are building ahead of that bubble for the next time around.

That would put us in the—and I think David may have better data—but in the 2004, probably, time frame, 2005 time frame is when you do see the construction curve and the demand curve getting back close again. And we have got to make sure we are back on track.

I think getting back on track by the end of this year is certainly an imperative to make sure that that works.

Senator MURKOWSKI. Well, my time is up, but I do not know whether Mr. Nevius has any comment on that, Senator Bingaman, but it would seem to me that if you are going to require an excess capacity as a condition of your approval in the hopes that it will

be utilized in 2 or 3 years, you are putting quite a burden on the companies and the financial community, because they are not going to be able to amortize that additional third until it actually comes on line.

You are going to have to put in the capacity, have the investment, but are you going to allow them a higher rate of return to pick up what they would ordinarily amortize under a regular utilization? And only the stronger companies are going to be able to afford to have that financing capacity.

And I would hope that your standard marketing design rule making, which you are coming down with very soon, which I understand has some criticism because some folks do not feel there has been enough public input in it, will help address some of these problems. But, you know, we have an oversight responsibility here.

You have an obligation to perform and, frankly, I would rather have the oversight responsibility than the performance mandate.

The CHAIRMAN. Mr. Nevius, did you have a comment before we go to other questions?

Mr. NEVIUS. Just very briefly. I think Chairman Wood is right. We have a few years here in most parts of the country to get things set right.

Some of the cancellations of plants that Senator Murkowski referred to actually were plants planned several—for several years into the future. And most of the plants planned that come in in the next year or so have not been affected. I say most.

Again, this is not uniform around the country. The other thing is that I think, on a positive note, folks are putting more and more attention on the demand side. And I know in several of the testimonies that were submitted for this hearing, folks emphasized putting attention on the demand side of the equation as another way to help address either temporary shortages or longer term shortages.

So I am not sure it is quite as bleak at the moment, but things could get worse if the issues are not addressed soon.

The CHAIRMAN. Senator Feinstein.

Senator FEINSTEIN. Thanks very much, Mr. Chairman.

Mr. Wood, it is my understanding that as of yesterday, the major energy companies and the energy sector had lost about 86 percent of its value and \$220 billion of capital in about a year's period of time.

When you said that you felt that one of the most important things that needs to be forthcoming are stable rules of the road, I just want to say I could not agree with you more. That plus transparency in every aspect of trading and dealing in this economy, or in this energy sector.

I think one of the things that I have found is that this sector just increasingly loses credibility with people, and the absence of transparency has become so significant as they look at it.

I wanted to ask you if you have heard something that I just got off the Internet, and that is that some kind of an agreement had been made to provide traders an incentive to move business away from Enron online; that a company could gain a greater share of the intercontinental exchange's ownership if it boosted trades for

profit on the exchange; and that some kind of an arrangement was made between a number of companies.

Insiders apparently say that wash trades would not be included, but others say that the volume would be a measurement, therefore creating an incentive to do wash trades. Do you know anything about this?

Mr. WOOD. Not specifically, Senator. As you know, in our investigation we are looking at the online trading platforms, which ICE is one.

Senator FEINSTEIN. If I might, I would like to give this to you then.

The second thing I wanted to ask is when do you expect to be able to issue your report on market manipulation in California and the Western energy markets?

Mr. WOOD. As I promised you and the members of the committee in January, we would like to get, and we plan to have in your hands, an interim report on where we are this summer. I hope to have that in the next couple of weeks completed.

The staff is, as you can imagine, deep into depositions and working with our outside consultants and experts on analyzing what, I believe, is now our millionth page of data in the market investigation.

But we will have an interim report on what we have learned and what we are looking at so that you can get a sense of the breadth of the review.

Senator FEINSTEIN. When would that be?

Mr. WOOD. In the next 2 weeks.

Senator FEINSTEIN. In the next 2 weeks.

Mr. WOOD. Yes, ma'am.

Senator FEINSTEIN. In the market mitigation order you issued last week to address the California and Western energy markets beginning October 1, you pointed out that prices have rarely reached the \$92 price cap, and that for the most part, the California market is now generally working. As you know, much of the planned additional generation is not coming online for one reason or another.

In addition to the credit issue, which you mentioned, what other signals are there that are—that is a detriment to adding needed generation, particularly in California?

Mr. WOOD. Well, credit certainly is a big one. In my testimony on one of the maps there, we did a map of all the pipelines and all the power companies on page six. And I hope we got you a color copy, because it says who is at junk status, who is on credit watch, and who is stable in the Western grid.

And we looked at pipelines and power companies, not to mention all the traders who are not on here. And it was a colorful map in the wrong way.

The credit-worthiness certainly is a key issue, Senator Feinstein, for not only construction of new powerplants, but the power lines and the gas pipelines to get the power to the system. And I would say that is certainly an important one.

California proposed, and we largely accepted, a number of definitely good rule changes to bring the rules that the California mar-

ket has in line with the ones that have worked pretty well here on the East Coast for the past 5 or 6 years.

That is an important indicator, but new pipeline capacity, we did approve of a huge, doubling of the current pipeline last week. It was our fastest approval ever to bring gas right into the middle of the State, about 800 million cubic feet per day, which is a little over 15 percent of the total coming in there. So that increasing of gas capacity is important. But, you know, if it is going to a plant that is not built—

Senator FEINSTEIN. Right.

Mr. WOOD. I mean, you need both.

Senator FEINSTEIN. Right.

Mr. WOOD. You need the gas and the plant itself.

Senator FEINSTEIN. Right.

Mr. WOOD. But the two are needed. I think certainly, with all due respect, maybe a little bit friendlier investment climate there from the local officials would be a lot more helpful for people looking where to put capital.

They are building okay in Arizona and Nevada and in Oregon, but they are not as inclined to go inside—

Senator FEINSTEIN. Well, if you could give me any of the specifics of that—

Mr. WOOD. Thank you.

Senator FEINSTEIN [continuing]. I will do a little hammering out on the coast.

But let me just say one quick thing. As I have watched this in the last 2 years from a FERC that was basically a non-regulatory body that let sort of anything happen to see a new FERC under your leadership, I must tell you I think is the single most important thing that can restore credibility to the investor as well as to the community.

And the fact that you are such a straight shooter and that you are taking this commission in a new direction, I think is extraordinary, is important. And I think long-term, the Nation is going to be much better off for it. So I just want to say thank you for everything that you have been doing. And I know it is tough.

Mr. WOOD. Well, you are kind, and I should note that I have got some good colleagues to work with. It is not a one-man show. Thank you.

The CHAIRMAN. Senator Kyl.

Senator KYL. Thank you, Mr. Chairman.

I especially appreciate, Chairman Wood, the last comment you made. And maybe, let me throw you a knuckle ball to see if you can hit that out of the park as well here.

Several of us asked the question in a little different way, but it all has to do with a comment you made earlier about trying to provide some degree of certainty so that the investors will have a sense that they can get in.

FERC was holding hearings on refunds in California—I think those are done—potential modifications of contracts in California, Nevada, and elsewhere in the West and imposing price caps and broad refund provisions on market-based rate transactions in the West, possibly elsewhere in the country, I'm not sure.

Will this actually help investors make decisions if they think that negotiated contracts might be broken or market prices retroactively lowered? In other words, do you have any concern that the cumulative impact of these FERC's actions will actually deter development of additional needed generation in the West as opposed to helping the situation?

Mr. WOOD. I would definitely say that they do not help the situation. I wish I had come to a different state of facts than existed when we came a year ago. But the price caps, the contract hearings, and the refunds, all that did emanate from a set of facts in late 2000, early 2001 that, I think, evinced a broken market or one that was pretty close to being broken that impacted not just Californians, but people across the West.

So I would love to have never been down that path, Senator Kyl, and quite frankly, a big part of our standard rule making that we are putting out next week is to make sure we never do go down that path again, but have clear rules up front that tell people up front what their expectations are on both the customer and the supplier side.

Senator KYL. Thank you. And by the way, Mr. Nevius, if you want to add anything to any of these, just feel free to jump in. I will ask the chairman another question.

It has to do with the RTOs. You have certainly encouraged the development of regional transmission organizations, RTOs, to facilitate the competitive power and energy markets. And I am curious both as to your evaluation of the status of the RTO development around the country, number one.

And secondly, a little bit of a curve ball, not a knuckle ball, this time, there has been some delay, I am told, especially in the West connect RTO for the Southwest. I think it has been pending since October of, yes, 2001. And I am just curious if you could comment a little bit about how you can accelerate that process and what the status of it is.

Mr. WOOD. This afternoon, we posted an agenda for our meeting a week from today. And on that meeting is the filing of the West connect RTO, along with that of RTO West and another group out there, Transconnect, which is a subset of RTO West. So it is on our docket for this as we speak.

We are working on the orders on those issues. The assessment of RTO is more broadly, I think, in the last year, it certainly has taken an interesting set of turns. But again, I think most people in the industry, kind of regardless of their feelings about certain specific issues, do recognize it's time to get there, to get on to a new level.

I have to say I think the standard market design on rule making is probably the most open and consultative rule making process that I have ever seen or been involved in, at either the State or the Federal level. And plenty of people have weighed in with their feelings on a number of very important market design issues in the last year.

That open process, I think, has allowed us all to get closer together and understand issues such as the native load issue that you and I have talked about before, Senator Kyl, a number of issues related to the role of hydro-power in the broader markets to

market mitigation, a lot of the whole host of issues that the committee and the commission have had a dialogue on for the last couple of year really have come to fruit here.

And I think alongside that, certainly is a realization that the infrastructure to make that happen, whether you call that an RTO or something else, really has got to be part of the puzzle. We cannot kind of keep having three or four different agencies responsible for something and, in fact, never have anything get done. That is what got us in trouble, I think, 2 years ago.

So I do sense that just the open process that certainly the committee has facilitated with your frequent hearings and, I think the commission has done with an open and public process out there has allowed a lot of people that were not talking to each other to start talking to each other.

Senator KYL. One of the concerns obviously in the West are the number of the public power entities that are not at least directly subject to the FERC jurisdiction, but it is important that they be included in this process as well.

You and I have talked about that. Will FERC recognize that it has to be flexible enough to, in its RTO policies and market designs, to permit the public power entities that need to be a part of this to participate in the RTOs and have a voice in how they are set up.

With due recognition, by the way, of differences between some of the Western and Eastern kinds of issues?

Mr. WOOD. That is correct. Yes, sir, we do.

Senator KYL. I thank you. And I thank you for the good meeting we had a few weeks ago in which we went over a lot of these subjects.

Mr. WOOD. Thank you, Senator.

Senator KYL. I appreciate that.

Mr. Nevius, are you happy with all that?

[Laughter.]

Mr. NEVIUS. Yes, I am.

Senator KYL. Okay.

Mr. NEVIUS. I would second what the Chairman said as far as RTOs. They are going to be an important element. From a reliability standpoint, they are going to be the entity that carries out and makes sure that the reliability of the grid is there, as well as the market—operating a fair market.

The CHAIRMAN. Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman.

And Mr. Wood, good to see you here. I have a general question about the transmission issue as it particularly relates to the Northwest. And I think you know of our unique situation there with BPA and how important it is in the arena of transmission. And so I just wanted to make sure I understood whether FERC supported the additional \$1.3 billion in borrowing authority for us to improve and upgrade that transmission, which is so important for us in moving forward to meet our growing energy demand.

Mr. WOOD. And would have loved even more, but I think from my discussions with Mr. Wright at BPA, certainly \$1.3 billion can get a lot done. And I am 100 percent behind that.

Senator CANTWELL. Good. Well, we hope we can call on you if we have ever need—

Mr. WOOD. We have weighed in. I would be glad to.

Senator CANTWELL [continuing]. If we ever need anything through the budget office, to make sure that they get that point.

You know, last time we had a chance to talk, we obviously talked about the situation in the West. And obviously some of my colleagues have brought that up, and specifically I asked you last time about whether you thought that the Enron schemes had represented market manipulation, and you said, "Yes"; and whether you thought that manipulated markets could have been just and reasonable. And you said, "No."

And then we got into this point where you said, "Well, we have got to make sure the contracts that were signed with Enron during that period were signed before the FERC price cap was in place."

So I just wanted to see where you were in that process. I mean, in our understanding, all of those contracts in the Northwest, which I think, you know, are over a billion dollars of contracts, were all signed prior to the price cap. Basically most of them were signed from January to May of 2001, so prior to your mitigation efforts.

So I just want to reiterate how critical it is for FERC to deal with this issue and get a response to the Northwest's needs and see where you are in that process relating to unjust and unreasonable long-term contracts.

Mr. WOOD. My understanding, Senator, is that since you and I visited at the last hearing those have been—I think those may have been referred to hearing about the time we last talked.

And I understand from reviewing our dockets before I came over here that those, in fact, are—a number of those already are before judges. There is discovery going on. The parties on both sides are—have, in fact, there is an appeal I had to deal with last night from one party that—on discovery.

I get to deal with the discovery appeals. I guess that is why they pay me the chairman's salary. I get to do those. But there is a discovery appeal that I rejected from a party that did not want one of the Washington PUDs doing discovery on their records. And the judge said they should do discovery, and I agreed.

So I think we are pretty well into those hearings as we speak and are before one of our independent judges. And they will write a decision, I assume, in the next short period of time and get those back to the commission for—

Senator CANTWELL. And is the standard that they are going to use "unjust and unreasonable?"

Mr. WOOD. I think it depends on whether there is a Mobile-Sierra clause in there, and I think you and I talked about that last time. And the court, in fact, just 10 days ago reminded us that there is a difference in a Mobile-Sierra clause—those are two cases from the fifties or sixties—

Senator CANTWELL. Where utilities wanted to come in and actually increase their rates after you had already approved them.

Mr. WOOD. Right. So that neither party will come in under either 205 or 206 to either increase or decrease the rates that they have negotiated. And that is what a Mobile-Sierra clause is.

I believe some of the contracts out there may have had that provision in there. We sent all that to the hearing.

Senator CANTWELL. Did not FERC just recently issue an order, which dealt with utility reporting requirements that said that the standard for market-based rates and contracts should be the unjust and unreasonable standard?

Mr. WOOD. And that is the standard under 205. And if a party wants to agree that it should be a different standard, they can do so.

Senator CANTWELL. I think you understand our concern in the Northwest, but let me make sure I am clear. We do not want to be held to a different standard than California. Our markets are linked. We have had the same problem.

We obviously want to see unjust and unreasonable as the standard used to review these contracts. I do not see anywhere in the Federal Power Act where it says that you should use a higher standard, the public interest standard, on these contracts in reviewing them. Is that FERC's intent?

Mr. WOOD. The Supreme Court has—and, again, the D.C. Circuit last week reaffirmed that. So I mean we do and have lived in a world where there—

Senator CANTWELL. On rates that you had already approved, unlike market-based rates? This—those are—

Mr. WOOD. Correct. These are a little different under market-based rates. That is fair.

Senator CANTWELL. I think they are very different under market-based rates.

I believe that FERC is becoming more hands-off, looking less at what and how to protect the consumers and assuming that the market is going to do it. And now when there is a problem, instead of using the Federal Power Act standard on unjust and unreasonable, saying, "Oh, we will use a higher standard of whether it meets the public interests to void those contracts," FERC is basically moving farther and farther away from protecting consumers.

Mr. WOOD. Well, I would not characterize the current FERC as being in that mode, Senator Cantwell. I think—however, we do have the law to deal with. And the law exists out there. The Supreme Court has interpreted that people can agree to bind themselves to a higher standard. And that would be the public standard.

Senator CANTWELL. And who is agreeing—

Mr. WOOD. Well, a buyer and a seller.

Senator CANTWELL. Who is agreeing to binding—

Mr. WOOD. A buyer and a seller that sign a contract.

Senator CANTWELL. I do not think that any of those PUDs or the BPA is agreeing to that higher standard.

Mr. WOOD. Okay. Well, then in that case, it would not be in the contract so you would have a just and reasonable standard, just like we do for—

Senator CANTWELL. So FERC will use that standard when it comes to the Northwest?

Mr. WOOD. If, in fact, those parties did not agree to be judged by a different standard, that is correct.

Senator CANTWELL. Okay. That is a very important point, so I appreciate that if that is the case you will use the Federal Power

Act standard because it is critical to the Northwest in having some relief from these long-term contracts.

You know, I am sure the committee has probably heard this over and over, but we have utilities that have had an 85 percent rate increase in Washington. BPA is considering another 11 percent for October of this year.

These contracts are anywhere from 5- to 8-year contracts. The Northwest is not going to see relief unless FERC acts. So I appreciate it very much.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Thomas.

Senator THOMAS. Thank you.

Senator THOMAS. Well, Mr. Chairman, it is interesting that it sounds from this discussion like FERC is the key to all of energy. On the other hand, you go on the floor and we get great debates that it ought to be more to the State and less to FERC.

How do you kind of deal with that division of authority?

Mr. WOOD. Well, as a former State regulator, I kind of have to internalize that schizophrenia myself. You know, you read the Constitution that did that delicate balance and how the Senate was set up and how the House was set up to recognize State and Federal balance.

And I think 230 years later we are still living that. It works. Whether it is the neatest of all ways to, yes, it would be—some things might be a lot easier if there were FERC and nobody else. But, you know, some of the decisions we make might be wrong and not be checked by anything other than a court.

Senator THOMAS. Yes. What—

Mr. WOOD. So I think, in a perfect world, it probably is not too bad from where we are right now.

Senator THOMAS. Well, pretty clearly the FERC is in the interstate movement—

Mr. WOOD. Yes, sir.

Senator THOMAS [continuing]. And the distribution and the intrastate ought to be pretty much up to the States. And if I understand it correctly, that is why we are organizing NTOs, is to get—or RTOs, is so that the multi-States can deal with these problems that many of the States are going to you to resolve.

Mr. WOOD. And without having to really federalize every problem, just empower significantly large regions such as the west to do the same thing.

Senator THOMAS. Now, Mr. Nevius, there are issues different—we talk about the difference in the West and so on. How much difference is there in your view in the transmission system in the West as opposed to the east and so on?

Mr. NEVIUS. Well, from a technical engineering perspective, there are a few differences, but not as many as some might think. There are longer lines, generation and load is separated often by greater distances.

They do encounter some different technical problems, but there are parts of the East that do as well.

So I do not think it is—from a physical transmission system standpoint, the differences are not that great. In terms of a regulatory standpoint, there are a lot of differences.

As someone pointed out earlier, a lot of the land on which transmission lines we built are governed by Federal agencies in the West. And that is not quite as much the case in the East.

Senator THOMAS. Western Governors make a big point that there is a huge difference between the West and the rest of the country.

Mr. NEVIUS. From a technical transmission standpoint?

Senator THOMAS. Just from every standpoint.

Mr. NEVIUS. From every standpoint. Well, I can speak to the technical standpoint, and it is not a huge difference.

Senator THOMAS. Yes. Mr. Chairman, I understand FERC will soon issue a standard market design. How long—will there—is that going to be short in terms of its input from the public, or will you lay it out there where there is time for people to participate? What is the time frame on that?

Mr. WOOD. We plan to put it out, Senator Thomas, on next Wednesday. And instead of the 30-day comment cycle, we are talking about 75, holding probably a series of six to eight workshops to follow up.

We started in last October with—we had ten workshops in one week, two a day for a week. And we did that again in February. And we have had probably a series of—they have been all commissioner-led workshops.

We even had one last week on computer software. So it has been a process where we got a lot of input going into the rule. And then, of course, as is required under the Administrative Procedures Act, there will be a lot of input after the rule.

Senator THOMAS. Oh.

Mr. WOOD. Now that it is all pulled together in one piece, people will have the chance to look at it and give us their comment and hopefully work out any problems that may pop up.

Senator THOMAS. No one has seen it yet. And so it is going to take some time to get—

Mr. WOOD. Yes.

Senator THOMAS. In a general simplified way, in terms of a nationwide transmission grid, how do you see that? Do you see sort of a Federal in-State grid off—with the RTOs off of that and so on? Is that generally the direction you all are going?

Mr. WOOD. I think really it is a little more evolutionary than that. I think it has taken the grid that has gotten us where we have gotten today, recognizing that it is regional in nature, not just one State or one utility, but does cover a number of States. And there is not one national.

I think as a practical matter, there are at least three regions—the three independent NERC regions, the East, the West, and the ERCOT. But probably within the East, because of it being so large and populated, you could subdivide that a couple of regions.

So there may be, you know, five natural energy markets in North America, including our friends from Canada and some from Northern Mexico, as well, pretty tied to our grid.

So it is not quite analogous to the interstate highway system. It still ultimately is regional. And so the evolution from what we have

got today to where we are going would be more investment upgrade in that—in increasing the reach of each of those regional—

Senator THOMAS. It looks like if you are going to do something of that kind, you are going to have to have an interstate grid that is probably owned by a third party in which everyone has access everyone pays. And you cannot just be going off in all directions on something like that. And it seems like we need a vision of where we are going to be in ten years.

Mr. WOOD. Oh, I can lay that for you. I think you pretty much articulated it; independently owned transmission as administered by somebody that does not have a pony in the generation business or in the customer business, but is into making transmission happen in probably three to five regional markets in the country, you would probably have ideally three to five regional transmission companies that span very large markets.

Senator THOMAS. You were talking a lot about gas and, of course, if we are going to have market generators, why, you could be maybe moving more electricity than you are gas.

Gas is trying to move the generation in small plants to the market where it is still more efficient to do it in a larger plant and move the electricity perhaps. So I hope we can get a kind of a vision of where we are going to go and begin to move in that direction. Thank you very much.

Mr. WOOD. Thank you, Mr. Thomas.

The CHAIRMAN. Well, let me thank both witnesses very much. I think it has been useful testimony and we appreciate it. And we will follow up and we will look with interest at the standard market design you come out with next week.

Mr. WOOD. And we would be glad to come and brief the committee or staff or either on that, Senator Bingaman.

The CHAIRMAN. I think we will probably ask you to come back in September once the Congress reconvenes to have a hearing on that, at least one hearing.

Mr. WOOD. Right. Thank you.

The CHAIRMAN. Thank you very much.

Let me call the second panel.

[Pause.]

The CHAIRMAN. We have four witnesses: Ms. Carol Coale, senior analyst with Prudential; Dr. Lawrence Makovich with Cambridge Energy Research Associates; Mr. Pete Landrieu, the Public Service Enterprise Group; and Mr. Stephen Ward from the State of Maine, the public advocate there.

[Pause.]

The CHAIRMAN. All right. Why do we not just start on our left and move to the right?

Ms. Coale, why don't you go ahead? And give us 5 minutes, if you can, give us 5 minutes of summary of your testimony. All of your statements will be included in the record as if read, but if you could make the main points that you think we need to understand.

Let me also just advise that in about ten minutes here, I am going to have to run off to do a statement at a conference in the Armed Services Committee, and I will be right back after that. Senator Thomas will preside.

But, Ms. Coale, go right ahead.

**STATEMENT OF M. CAROL COALE, SENIOR VICE PRESIDENT,
PRUDENTIAL FINANCIAL, HOUSTON, TX**

Ms. COALE. Thank you, Senator, and thanks for inviting me to speak at this hearing today. I am going to try to get straight to the point because a lot of the issues this morning, or early this afternoon have already been addressed that I would like to address as well.

But I understand that you are concerned about how the transmission grid is going to be paid for, and what the barriers are there, and how we are going to improve the infrastructures. And just some of my key messages are: Obviously, the logical constructors of the transmission grid are publicly traded companies. And the destruction of capital has been extreme.

Dianne, or Senator Feinstein cited some numbers about the destruction in stock performance and destruction of capital. I would like to single out just a few names and compare it with the market. Williams is down 95 percent today. El Paso is down 75 percent. Now this is not today. This is year to date. Dynegy is down 95 percent. Duke down 50 percent, and they are a logical builder of the infrastructure. And the S&P is down about 30 percent.

So relative to market, these stocks have been severely punished. The reasons, of course, are pretty obvious. The rating agencies have been on their backs. There has been deterioration of energy trading books which I will address in a minute; renewed regulatory concerns; sham trading practices; loss of management credibility. But the question remains: Who is going to build the infrastructure?

And one other concern that you should have is how to improve the infrastructure, and should the regulators and Congress be protecting the infrastructure that is there with their actions?

I am advocating that we allow the companies to do their jobs. We do not want to prevent them from doing their jobs with the actions at the Government level. And lack of capital should be a concern of the regulators in the Government as well. I am not advocating rogue business practices, but I need to remind the regulators in the Government that there is nothing wrong with investing capital and earning a positive return on that invested capital. That is what the premise of capitalism is based on.

And unless the Government wants to take over the system, it currently is in the hands of publicly traded companies, and there is some obligation on behalf of the regulators and the government to protect those companies.

Let me just run through a few items that we think should be addressed that are affecting the stocks that may not have been addressed earlier, and then a few recommendations as well.

We believe that the regulators need to prioritize their agenda in a more market friendly way. For example, Wall Street is not as concerned about standard market design as they are about resolving the ongoing FERC investigations in the West on market manipulation. We would rather see that moved to the forefront instead of to the back.

The market hates uncertainty. Rating agencies, in my opinion, are overreacting. They have shifted their posture several times this year. They are downgrading the credit of the publicly traded stocks faster than they can get their restructuring initiatives completed or

even in place. And we think that there should be some oversight there as well. The threat of re-regulation, whether you are considering it or not, has discouraged infrastructure development. That was addressed earlier this morning, or earlier this afternoon.

But it is very key every time the FERC goes into a closed-door meeting, that the stock reaction is negative among the publicly traded energy merchant companies. I mean, they are very keyed into what is going on up here on the Hill, and just the threat of any re-regulation initiative sends the stocks plummeting. In my opinion, re-regulation is not the answer. We are in favor of some oversight as long as it is rational, but again, you know, re-regulation depresses the capital markets.

Also, I would like to address the adverse regulatory and political bias towards the energy marketing traders and the business in general. It is not necessarily an evil business. We believe it is viable. Although much maligned, the basic premise of energy trading was to bring buyers and sellers to the market, hedge that price while they were exposed, and create efficiencies on a transmission grid. And I would argue, Senator, that without some sort of a merchant or marketing business, that the transmission grid will not be efficient.

So I am going to close my comments there. Thank you for your attention.

The CHAIRMAN. Thank you very much.

[The prepared statement of Ms. Coale follows:]

STATEMENT OF M. CAROL COALE, SENIOR VICE PRESIDENT, PRUDENTIAL FINANCIAL,
HOUSTON, TX

Thank you for the invitation to speak to you today about the nation's energy infrastructure. There is a clear need for additional electricity transmission capacity in certain regions of the U.S., but the lack of cohesiveness in developing new infrastructure has created both surplus and deficit power supply situations. However, rather than cite the obvious benefits and roadblocks to expanding the electric transmission grid, I would like to call attention to the devastation of the financial health of the power companies, which are the logical builders of generation and transmission capacity.

ACCESS TO CAPITAL HAS BEEN IMPAIRED, AND GROWTH CAPITAL BUDGETS
HAVE BEEN CUT

The capital markets are in shambles, and the decline in stock price performance among the power merchants and electric utilities, in particular, has been swift and extreme. A combination of growing liquidity concerns, heightened scrutiny by the credit rating agencies, deterioration of energy trading books, renewed regulatory concerns, revelations of sham trading practices and loss of management credibility has been eroding investor confidence over the past nine months. As investors flee from the market, the companies have lost access to capital from external funding in the equity market. The degradation of credit among the utilities and merchants has limited the use of debt funding. In an effort to shore up their liquidity strength, many companies are scaling back their investments in capital projects. Most of these projects were proposed infrastructure expansions that are likely to be postponed indefinitely. Without the available traditional financial resources and discretionary growth capital spending, we question whether the utilities/merchants will be able to pay for the needed electric transmission capacity in this country.

The stock market hates uncertainty. The current political and regulatory environment regarding the power and energy merchant business is far from certain. For example, it is still unknown whether the federal government and/or regulators will mandate refunds of profits earned by the power merchants during the energy crisis in the West in 2000-2001. It is uncertain when the ongoing investigations by the FERC into the western power markets or the SEC investigations into round-trip gas and power trades will be resolved. As headline news in the media tends to draw

the attention of the regulators, the stock market is over-reacting to news stories, even if the information is dated or erroneous.

The media should be monitored or controlled. Lately, it appears that the media has more influence on the stock market than equity research analysts have had. In this regard, the media has taken on the role of an investment advisor, and we believe that reporters and editors should be required to carry qualifications such as NASD broker license registration. This would put the reporters under scrutiny by the SEC, and would improve accountability and accuracy of reporting.

Regulatory oversight of rating agencies is needed. Over corrective measures taken by the credit rating agencies are largely to blame for the horrendous stock performance in the power and energy merchant sector. The ratings agencies, to avoid regulation of their own business, have taken on a policing role toward the merchants. Recently, the agencies have hit many of the merchants with numerous and successive credit ratings downgrades before balance sheet restructuring initiatives are complete. The risk of further ratings downgrades has not only impaired the energy trading business but has also jeopardized the liquidity of the parent companies. Several energy merchants have succumbed under the rating agency mandates to either downsizing, spin off, or joint-venture their trading operations or face the risk of losing investment-grade rating status, but delays in these initiatives has further spooked the market.

The threat of re-regulation has discouraged infrastructure development. The energy crisis in the West was not simply caused by market manipulation by a few misguided energy merchants. It is clear that the California situation was brought on by flaws in the initial deregulation framework and was aggravated by the lack of natural gas and electric transmission and generation capacity. Regulation and quick fixes by the local and federal government did not and have not resolved the lack of generation and transmission capacity in that region, and in our view, have had the effect of discouraging future investment. If the government is involved at all, we believe it should establish incentives to encourage the expansion of the electric and gas grid rather than establish price controls and limit the profits of the companies that are the logical architects of an expansion.

Re-regulation can cause markets inefficiencies. The establishment of price caps on electricity not only discourages the development of new power facilities but may also allow for certain companies to take advantage of or "game" the system. One could argue that the restrictive price caps in California that were in place during 2000-2001 created enormous inefficiencies because the sales price of power was capped but the cost to generate that power was not. However, the profit margin for power generators narrowed significantly in mid-2001, and since then, some margins have fallen into the red. No power developer in his right mind would build new generation in such an uneconomic environment, and existing generators were forced to sell power at a loss. As the power markets were unencumbered by price caps in neighboring states, opportunistic companies exported power out of California, which further exacerbated the supply situation. Certain companies with less ethical standards gamed the system by withholding the exported capacity until emergency stages were declared, and resold that capacity back to California at inflated, uncapped prices. While we believe the rules of wholesale power sales and punishment for violation of those rules should be clarified.

Re-regulation scares Wall Street investors. Each time the government threatens to proposed re-regulation of the electric and/or energy trading markets the stock performance of the utilities/merchants has tumbled. In my view, the market has gone to far down the deregulation road to return to the way it was. While we agree that the energy traders behaved like a group of undisciplined kindergarten children when the teacher left the room, we believe a standard set of rules and guidelines, rather than regulation.

Adverse regulatory and political bias toward energy trading likely to destroy what we believe is a viable business. Though much maligned, we believe energy trading is still a viable business. At the very least, marketers create liquidity and provide financial products and services. However, we believe that the current credit, legislative, and political climate is destroying many energy trading companies and making others shy away from the business altogether. This course of events may turn out to be a long-term detriment to the nation's energy markets. Energy trading companies that are willing to risk their capital to earn a profit will be needed to maximize the value of infrastructure investments. Even if the nation's electrical transmission grid becomes better connected and generation capacity is optimized, sophisticated traders with the ability to perform arbitrages and risk management services will be key to an efficient market place where consumers win.

We are concerned that if the energy merchant sector is totally decimated, there will be the unanswered question of who will build the power plants and trans-

mission grid. Although an efficient market would allow new companies to emerge from consolidation and substitution, this could take years. The need for expanded generation and transmission capacity is sooner than later.

We have, therefore, suggested the following actions by the federal government to help restore investor confidence in the power sector and consumer confidence in the deregulated energy grid.

- Expedition of ongoing SEC, FERC and U.S. Attorney investigations should be encouraged.
- Address and resolve pending issues such as power refunds and market power in the West expeditiously and judiciously.
- Adopt standardized pricing mechanisms in both the wholesale spot power and transmission capacity markets, off of which regional basis differentials can be marked, and clarify the rules of energy trading in the wholesale markets.
- Create incentives to encourage investment in the electric and gas infrastructure. This may attract non-traditional players that may have better access to capital.
- Avoid price controls such as price caps and allow the free markets to develop; lessons can be learned from mistakes and inefficiencies.
- Rational regulatory oversight rather than new or renewed regulation would help stabilize both energy markets and stock markets while allowing the free markets to develop.
- Concentrate on integrating the electric transmission grid between the states and regions. One problem with electricity deregulation is that the market is still inefficient and the grid structure is regional; deregulated European markets have been more efficient because of an integrated cross-country electricity grid.

The CHAIRMAN. Dr. Makovich.

STATEMENT OF LAWRENCE J. MAKOVICH, Ph.D., SENIOR DIRECTOR OF NORTH AMERICAN ENERGY GROUP, CAMBRIDGE ENERGY RESEARCH ASSOCIATES (CERA), CAMBRIDGE, MA

Dr. MAKOVICH. Thank you.

The American electric power industry is at a critical juncture. The current energy bills and the pending Federal Energy Regulatory Commission rulings will help define the investment climate of the power business in the years to come.

Now, a positive investment climate is essential for success in power deregulation because the electric power business is one of the most capital-intensive businesses in the U.S. economy. Electric infrastructure accounts for 8 percent of all U.S. business fixed assets. So issues relating to the need for and barriers to development of electric infrastructure are central policy concerns because generation transmission and distribution systems are critical infrastructure to all sectors of the U.S. economy.

Now, the current investment climate for electric power infrastructure is negative. The U.S. electric power industry is over 5 years into a muddled move from comprehensive regulation to the market. Today, only one third of electric generation infrastructure is unregulated. Less than half of the retail power customers can choose electric suppliers. And wholesale power markets remain ill-defined with no standards for rules and institutions. Such conditions do not foster desired investment patterns.

The transmission and distribution sectors suffer from under-investment while the power generation sector is in the throes of a costly boom-and-bust cycle. Government policy is one of several factors responsible for this current negative investment climate.

The U.S. electric transmission infrastructure suffers from under-investment. The real investment in transmission did not turn up

in response to record amounts of new generation supply additions in the past several years. As a result, congestion and inefficiency are increasing in most regional transmission networks.

A gridlock plagues most transmission investment decisions because incentives are misaligned. Alignment is a challenge because of network economics. An investment anywhere in an alternating current electric grid can affect power flows everywhere in the grid. When CERA completed our transmission sector study 2 years ago, we identified significant transmission investment opportunities in which the benefits far outweighed the costs. Yet these investments clearly were not being undertaken because no one faced the full costs and benefits of these AC network investments and was in a position to pursue these opportunities profitably.

The U.S. Department of Energy's National Transmission Grid Study finds a similar result. Transmission investment is currently insufficient and the resulting inefficiency imposes considerable costs to the U.S. economy. The DOE study lists over 50 recommendations, clear evidence that solutions to transmission investment gridlock is not simple because transmission networks are complex and the solutions are complex as well.

Many of the actions needed to break this gridlock in transmission infrastructure investment require congressional action. There is a need to establish limited eminent domain authority at the Federal Energy Regulatory Commission to facilitate investment in these multi-State grids. We need to create authority for reliability standards across regional transmission grids connecting the diverse set of electric market participants. And we need to change laws to ensure publicly-owned transmission infrastructure can fully participate in these regional transmission organizations.

Now government action is also needed to improve the investment climate in electric generation infrastructure. Power deregulation began over 5 years ago without any consensus on how to set up a workable power market. Consequently, many different power market designs were tried, often with little regard to investment issues. As a result, flawed markets arose and created distorted price signals. What has followed is a strong boom-and-bust cycle in power generation infrastructure investment.

This cycle has caused the merchant electric generating companies to lose over two-thirds of their equity value in the past year and a half. Today, an investment retrenchment is roaring through the power industry. Cancellations and postponements of powerplants under development in the United States have topped 82,000 megawatts since the start of just this year.

And the leading region for development reversals is the West, a power system that has recently shown signs of supply-and-demand tightness again.

Today, some regional power markets that still need additional supply are relying on companies at the brink of bankruptcy to deliver generation infrastructure needed to maintain reliability in the years to come. In other cases, regional power markets have very costly overbuilds of generation that have to be worked off.

Now timely investment price signals and efficient investment patterns are important criteria to judge the success of power industry restructuring. The FERC stands at a critical juncture. Its pend-

ing ruling on standard market design will shape the future investment climate and likely determine the success or failure of power deregulation.

CERA's new study, "Energy Restructuring at a Crossroads: Creating Workable Competitive Markets," recommends several necessary things to be done. I am just going to highlight some of the recommendations here relating to investments.

Senator THOMAS [presiding]. Try and wind up as soon as you can.

Dr. MAKOVICH. Okay. It is critical that FERC aligns the markets with the grids when they set these RTOs up. It is important that they set up capacity markets. When we talk about reserves, that is not surplus capacity. That is necessary capacity to make these markets work.

We need to recognize that we cannot just rely on locational marginal pricing in transmission to create investment. We need to plan these transmission systems at the network level. We need to make sure that siting and permitting targets are set and that these targets are met.

And finally, we need to minimize distortions of market signals, doing away with wholesale price caps, retail price freezes. Both of these are having a negative impact on investment in this sector.

Senator THOMAS. Okay. Thank you very much.

[The prepared statement of Dr. Makovich follows:]

PREPARED STATEMENT OF LAWRENCE J. MAKOVICH, PH.D., SENIOR DIRECTOR OF NORTH AMERICAN ENERGY GROUP, CAMBRIDGE ENERGY RESEARCH ASSOCIATES (CERA), CAMBRIDGE, MA

ISSUES RELATING TO THE NEED FOR, AND BARRIERS TO, DEVELOPMENT OF ELECTRICITY INFRASTRUCTURE

The American electric power industry is at a critical juncture. The current proposed energy legislation and pending Federal Energy Regulatory Commission rulings will help define the investment climate of the power business in the years to come. A positive investment climate is essential for the success of power deregulation because the electric power industry is one of the most capital intensive sectors in the economy—electric infrastructure accounts for eight percent of business fixed assets. Issues relating to the need for, and the barriers to, development of electricity infrastructure are central policy concerns because generation, transmission and distribution systems are critical infrastructure to all sectors of the U.S. economy.

THE CURRENT INVESTMENT CLIMATE FOR POWER INFRASTRUCTURE IS NEGATIVE

The current investment climate for electric power infrastructure is negative. The U.S. electric industry is over five years into a muddled move from comprehensive regulation to the market. Today, only one third of electric generation infrastructure is unregulated, less than half of the retail power customers can choose electric suppliers and wholesale power markets remain ill-defined with no standards for rules and institutions. Such conditions do not foster desired investment patterns. The transmission and distribution sectors suffer from under-investment while the power generation sector is in the throes of a costly boom and bust cycle. Government policy is one of several factors responsible for the current negative investment climate.

The U.S. electric transmission infrastructure suffers from under-investment. Real investment in transmission infrastructure did not turn up in response to record amounts of new supply additions in the past several years. As a result, congestion and inefficiency are increasing in most regional transmission networks. A gridlock plagues most transmission investment decisions because incentives are misaligned. Alignment is a challenge because of network economics—an investment anywhere in an alternating current electric grid can affect power flows everywhere in the grid. When Cambridge Energy Research Associates completed our transmission sector study two years ago we identified significant transmission investment opportunities

in which the benefits of investment far outweighed the costs.¹ Yet these investments clearly were not being undertaken because no one faced the full costs and benefits of AC network investments and was in a position to pursue these opportunities profitably. The U.S. Department of Energy's *National Transmission Grid Study* finds a similar result transmission investment is currently insufficient and the resulting inefficiency imposes considerable costs to the economy. The DOE study lists over 50 recommendations clear evidence that solutions to transmission investment gridlock are not simple because transmission networks are complex, and the solutions are complex as well. Many of the actions needed to redress gridlock in transmission infrastructure investment require Congressional action to:

- Establish limited eminent domain authority at the Federal Energy Regulatory Commission to facilitate investment in existing multi-state grids.
- Create authority to set mandatory reliability standards across regional transmission grids connecting diverse sets of electric market participants.
- Change laws to ensure publicly-owned transmission infrastructure can fully participate in regional transmission organizations.

Government action is also needed to improve the investment climate in electric generation infrastructure. Power deregulation began over five years ago without any consensus on how to set up a workable competitive power market. Consequently, many different power markets designs were tried—often with little regard to investment issues. As a result, flawed markets arose and created distorted price signals. What followed was a strong boom and bust cycle in power generation infrastructure investment. This cycle caused merchant electric generating companies to lose over two-thirds of their equity value over the past year and a half.² Today, an investment retrenchment is roaring through the power industry. Cancellations and postponements of power plants under development in the United States have topped 81,921 megawatts since the start of the year—close to one third of proposed development. The leading region for development reversals is the West—a power system that has recently shown signs of supply and demand tightness again. Today some regional power markets that still need additional supply are relying on companies at the brink of bankruptcy to deliver the generation infrastructure needed to maintain reliability in the years to come. In most other cases, regional power markets have costly overbuilds of generation infrastructure to work off.

Timely investment price signals and an efficient investment pattern are important criteria to judge the success of power industry restructuring. The Federal Energy Regulatory Commission stands at a critical juncture—its pending ruling on standard market design will shape the future investment climate and is likely to determine the success or failure of U.S. power industry deregulation. CERA's new study, *Energy Restructuring at a Crossroads: Creating Workable Competitive Power Markets*, recommends a series of actions needed to create workable power markets and a positive investment climate in the power sector.³ These twelve recommendations are:

- Define the bounds of the wholesale power markets. The Federal Energy Regulatory Commission (FERC) needs to align the market boundaries with the physical grids.
- Define wholesale power markets to achieve critical mass. The number of consumers and producers in a wholesale market must be sufficient to ensure rivalry, and these rival players must make up the lion's share of the power system.
- Expand the regional transmission organization (RTO) mission to tightly integrate system operations and market operations. Each RTO must be a multi-objective institution, facilitating the market and coordinating the power system under the management of a strong, independent executive.
- Create regional wholesale spot power markets. Workable spot power markets do not emerge themselves. The FERC should require each RTO to set up spot markets within each wholesale region.
- Create capacity markets. A capacity market is the best mechanism to keep energy price volatility at a politically tolerable level while promoting economically efficient price signals for investment.

¹“High Tension: The Future of Power Transmission in North American,” Cambridge Energy Research Associates, Cambridge, MA, June 2000.

²<ftp://www.nerc.com/pub/sys/all—updl/docs/archives/TransmExpansion—BOTapprvd—022002.pdf>

³“Energy Restructuring at a Crossroads: Creating Workable Competitive Power Markets,” Cambridge Energy Research Associates, Cambridge, MA, April 2000.

- Adopt pricing mechanisms to manage transmission congestion. Transmission systems are complex and require complex pricing mechanisms, particularly to provide price signals to manage congestion. The FERC should encourage RTO's to move toward locational marginal pricing, accompanied by a system of financial or firm transmission rights. These pricing mechanisms are a necessary but not a sufficient action to stimulate desired transmission investment.
- Stimulate appropriate transmission system planning and investment. Transmission planning must be done at the grid level to accurately assess the system wide trade-offs of costs and benefits required to develop an optimal transmission investment plan. Merchant transmission investment is part of this solution but not sufficient on its own to deliver desired transmission investment patterns.
- Ensure market transparency through information disclosure. Transparency is a key feature of a well-functioning market. Consistent obligations should be imposed for reporting market information across all multilateral marketplaces. Limited surveillance and/or regulatory reporting requirements should be put in place, with the FERC responsible for the cash market and the Commodities Future Trading Commission responsible for electronic derivative marketplaces.
- Rationalize energy infrastructure and development. States in conjunction with the RTO, must set siting and permitting targets in line with the infrastructure development needs and demonstrate that those targets are being met on an annual basis.
- Coordinate wholesale and retail transactions. Retail markets should be opened as quickly as possible once wholesale markets are functioning, but in phases to reduce stress on the system. State regulators should be encouraged to achieve some consistency in retail regulation.
- Minimize distortions of market price signals. Wholesale price caps should be phased out and retail rate freezes should be thawed to reconnect wholesale and retail prices. Regulatory objectives should be kept independent of market prices and whenever possible made transparent on consumers bills.
- Connect demand to the market. Demand responsiveness is a necessary component of a competitive workable wholesale market to encourage price stability and efficient allocation of resources.

CONCLUSION

Under-investment in transmission and distribution infrastructure and a costly boom and bust cycle in power generation investments are a direct result of the prolonged, muddled transition from comprehensive regulation to competitive markets in the U.S. power sector. Government policy is needed to align incentives for transmission and distribution investment and to establish standardized market designs that enable workable competitive power markets. Such policies can deliver desired electricity infrastructure investment patterns. Time is of the essence, the power infrastructure is too important to the U.S. economy to allow barriers to investment to cause continued deterioration in power systems operations.

Senator THOMAS. Mr. Landrieu.

STATEMENT OF PETE LANDRIEU, VICE PRESIDENT, ELECTRIC TRANSMISSION FOR PUBLIC SERVICE ELECTRIC AND GAS COMPANY, NEWARK, NJ

Mr. LANDRIEU. Thank you very much for inviting me and for holding this hearing on infrastructure issues.

I come from a utility that is in the Mid-Atlantic PJM arena. And it is at a slightly different point than many of my brethren in that, about 7 years ago, I had the pleasure, I think, to lead the group that redesigned or designed the PJM ISO, which had existed for roughly 70 years and had been started to address this area of large regional transmission as opposed to the more traditional value proposition that has gotten transmission built over the years, which is to move favorable generation to someone's load. And transmission has been sort of the enabler to allow that to happen. And that is what got it built.

In most vertically integrated utilities, transmission is but 10 percent financially of the beast, generation being maybe 60, the distribution 30, but the transmission is important in that it enabled the other two pieces to work together.

With open access in 1996, that transmission was no longer able to be used in that way, and that value proposition that got it built over all these years evaporated. That is one of the reasons you do not see transmission being built much anymore in the past few years.

Another reason is many of us, my utility and others certainly in the Mid-Atlantic area, are under some sort of State retail rate cap which means that to the extent you invest in transmission, you have no path to recovery. Now those things will expire in time and that may be less of a problem, but at the moment, it is a disincentive for somebody to put money into something when they cannot recover it.

And finally, there currently, in most areas of the country, are not what I would call regional planning processes in place and working. That is one of the things that is a goal of FERC and their RTO formation. It is one of the things that their RTOs will do, and it is something that, because we got a somewhat early start on it at PJM, we have in place.

And there is a new value proposition that replaces that old one that disappeared, and that is really with the properly designed markets. And if those markets include creatable financial property rights for those who invest in transmission, you can see people come and want to invest. And we are seeing that right now in PJM.

So the good news from my experience at PJM is that FERC is on the right path because we have had a good 5 years of experience with our market up and running. And we are seeing that investment in generation is coming. We are seeing investment in transmission, and we are seeing merchant transmission projects emerge because you have the right market giving the proper pricing signals, and you have the property rights that go to those who invest in transmission.

Just to give an example of some of these investments: We currently have \$200 million worth of transmission under construction in PJM for reliability improvement purposes. We have another \$400 million-plus approximately to interconnect new generation that is coming online.

And we have 3,000 megawatts of merchant transmission projects; that is, people who are willing to invest on their own nickel without a guaranteed return, but in areas where they think that the pricing signals will make it a favorable investment. And those, we have four projects connecting into the PJM grid.

We have connected 3,900 megawatts of new generation in the past 3 years, and we are looking at that, really, 328 folks have come forward with projects they wanted to do. Now in the recent months, many of those have withdrawn, 138, so we are left with 190 active. But that 190 active still represents 3,800 megawatts of new generation that are coming, and they are coming because we have the proper pricing signals and the tradeable transmission rights.

I will take your questions.

Senator THOMAS. All right. Thank you, sir.
[The prepared statement of Mr. Landrieu follows:]

PREPARED STATEMENT OF PETE LANDRIEU, VICE PRESIDENT, ELECTRIC
TRANSMISSION FOR PUBLIC SERVICE ELECTRIC AND GAS COMPANY, NEWARK, NJ

Good afternoon. I am Pete Landrieu, Vice President—Electric Transmission for Public Service Electric and Gas Company, and chairman of the mid-Atlantic area electric reliability council. In 1995, I chaired the group that turned PJM into an Independent System Operator.

I want to thank you for the opportunity to testify today. This committee is to be commended for holding this hearing and for giving infrastructure issues the in-depth consideration they deserve.

Our nation's electric transmission infrastructure is a vital national resource. The investments made in transmission facilities over the last century are as important as any in making possible our country's economic growth and prosperity. In the century ahead, it will be absolutely essential to ensure that our nation has a robust, reliable transmission infrastructure fully capable of serving the long-term needs of the American people.

PSE&G is the largest electric and gas utility in New Jersey and one of the largest in the nation. We own approximately 1,400 miles of transmission lines in New Jersey. We are a founding member of the Pennsylvania-New Jersey-Maryland Interconnection, which operates one of North America's largest power grids and serves more than 25 million people in New Jersey, Pennsylvania, Maryland, Delaware, Virginia, West Virginia, Ohio and the District of Columbia.

Our New Jersey utility is part of PSEG, a diversified energy company with \$25 billion in assets. PSEG also owns PSEG Power, one of the largest electric generation companies in the eastern United States, as well as other U.S. and international energy facilities and investments. Our company, which will be marking its 100th anniversary next year, takes pride in its long, continuing tradition of providing safe, reliable and affordable energy. We actively support competitive markets, clean energy and sustainable development in the U.S. and around the world.

Let me begin by summarizing my testimony here today.

First, there is increasing concern that investment in transmission infrastructure has not kept pace with growing market demand.

Second, infrastructure needs are best met through market-based solutions that is, by attracting private investment, encouraging competition and innovation, and allowing the market to work. Efficient markets require proper price signals—so that market participants can make the appropriate investment decisions. PJM's locational marginal pricing, which I'll discuss in more detail later in this testimony, is an example of how the market can send the right price signals to attract investment.

Third, the good news is that FERC is on the right path with its Regional Transmission Organizations (RTOs) and standard market design initiatives. Getting these large regional markets up and running quickly with the right rules is really the key to progress nationwide. In fact, there is considerable evidence that where RTOs with a good market design are already in place, new electric infrastructure is being built.

The challenges facing our country in the area of transmission infrastructure investment have been documented in the Department of Energy's recent National Transmission Grid Study and through a wide array of research. For several years, the industry has been transitioning from the old, centralized, highly regulated public utility regime to a much more market-driven, competitive and open industry. Transmission must now support large transactions of power on behalf of many wholesalers and other market participants over long distances even though it was not originally designed for this purpose.

The restructuring of the electric industry has fostered the development of a competitive wholesale generation sector, but investment in transmission facilities has not kept pace with need in many areas of the country. Recovery of transmission costs used to be assured through bundled retail rates, but that is no longer the case in many markets today. Investments in transmission also face a higher risk profile because of competition from supply side and demand side alternatives, as well as the political hurdles to siting new transmission lines.

Our company strongly believes that market-based solutions are the key to meeting the infrastructure needs and challenges I've just mentioned. Allowing free market competition functioning through proper price signals and financial property rights without subsidies, distortions or price controls—provides the surest means to attract private capital and spur innovation. Alternative solutions—including trans-

mission, generation and demand-side options—should be allowed to compete on an equal basis within a price-responsive and market-oriented framework.

As I said, the good news is that the key elements of this framework are being advanced by the Federal Energy Regulatory Commission (FERC) through its present initiatives to establish large, independent Regional Transmission Organizations (known as RTOs) and a standard market design. FERC needs to be able to continue down this path.

A standard market design across the country will allow each RTO to utilize the same method to schedule and price energy and transmission. In that way, transactions can easily take place between any wholesale participants under a uniform set of rules and business procedures. Markets need a reasonable degree of certainty to function well, and uniform rules are indispensable to providing that certainty.

Of course, proper pricing signals and financial property rights for those who invest in transmission support competition. The market itself should determine the optimal mix of competing transmission, generation and demand-side solutions. We believe that a standard market design, where transmission congestion is factored into the price of power, will send a more precise signal about where new infrastructure is needed. Tradable property rights, in the form of financial transmission rights, make this “locational marginal pricing” system work.

The reality is that even though PSE&G is a transmission owner, our company recognizes that there isn’t just one way to meet infrastructure needs. There are circumstances when building new generation at the right location is the best solution. In other cases, new transmission, or demand-side solutions like real-time pricing, will best serve the public’s needs. An RTO’s planning process should provide a safety net for instances when the market does not address reliability needs. In cases where transmission enhancements are required for reliability but aren’t being adequately addressed by the market, these investments should be financed through rate-based rates of return commensurate with the risk profile of the investment.

The RTO transmission planning process should evaluate transmission expansion, new generation, demand-side programs, and new technologies. Demand-side, transmission, and supply-side solutions should have economic symmetry in order to prevent any seller, buyer or asset owner from gaining an unfair strategic or competitive advantage. Creating this level playing field is the only way that we can assure that consumers actually get the benefits of robust competition.

As in any market, cost must be weighed against potential benefits in evaluating investment options. For example, the cost of eliminating all congestion would greatly exceed the savings realized. The law of diminishing returns applies, and a point is eventually reached where generation or demand-side options are less expensive for the ultimate consumer than additional transmission enhancements to eliminate further congestion.

Openness to various approaches and innovative options has already proven successful in PJM. Through its market design, proper price signals and a governance structure independent of any market participant, PJM has fostered an environment in which substantial amounts of new infrastructure both generation and transmission are being built.

Reliability within PJM is now stronger than it’s ever been. At the same time, the planning process for new infrastructure is open to all interested parties. Locational marginal pricing combined with tradable financial transmission rights allows generators and marketers to compete with transmission and demand-side solutions to capture economic value.

Even in this time of transition and uncertainty, this planning process is working well. PJM has approved over \$200 million in new transmission projects for reliability to be constructed over the next five years. An additional \$400 to \$500 million in transmission investment is linked to the construction of new generation expected to be built in the PJM region during the same period. Four large merchant transmission projects aggregating over 3,000 MW have been proposed to connect to PJM markets. Additional merchant projects aggregating about 4,000 MW have been proposed elsewhere in the Northeast where Locational Marginal Pricing are in effect or being planned. The market signals from locational prices, together with the award to the projects’ owners of tradable financial property rights to capture the investment value, are driving this new investment in transmission.

It is worth taking a moment to raise the issue of transmission siting. Even with the proper price signals and regional markets, it can still be difficult to build new interstate transmission lines if a state or a local community is opposed. Whether to grant federal eminent domain for transmission siting as already exists for natural gas is a thorny issue, and I know you have grappled with it here in Congress. From our perspective, some kind of RTO-led regional planning process, including signifi-

cant state input, with FERC as a backstop, would be a helpful step in ensuring we have a national grid to meet our country's needs.

Along similar lines, to ensure the development of a national transmission grid, it's important to have all transmission subject to FERC jurisdiction. Since electricity does not recognize different ownerships or geography, it is the electrical topology of the transmission system that is important and all significant portions of the nation's transmission system need to be under FERC jurisdiction. We are pleased at the steps the Senate electricity title takes toward achieving this goal.

In conclusion, adequate transmission investment will occur when the right price signals are sent to investors. Regional transmission organizations with a market-based approach to infrastructure development are critical to that endeavor, as is FERC jurisdiction over major transmission facilities, and a cooperative approach to building support for transmission additions. If we can get those elements in place, we will be a long way toward ensuring that the rest of the country benefits from the kind of infrastructure investment we're seeing now in PJM.

Thank you. I'd be pleased to answer any questions.

Senator THOMAS. Mr. Ward.

**STATEMENT OF STEPHEN WARD, PUBLIC ADVOCATE,
STATE OF MAINE**

Mr. WARD. Thank you very much. I am Stephen Ward, and I have served since 1986 as Maine's public advocate for utility consumers. I am also president of NASUCA, the National Association of State Utility Consumer Advocates. It is an organization with members in 40 States and the District of Columbia.

NASUCA is keenly interested in the issues associated with wholesale competition and, with an adequate transmission infrastructure, has adapted a series of resolutions which are identified in my testimony.

Senator THOMAS. Let me interrupt so I can understand a little better. Are you part of the same region as PJM?

Mr. WARD. I am from the State of Maine, and I represent Maine consumers. PJM is a different control area and it is a different independent system operator arrangement.

Senator THOMAS. Okay.

Mr. WARD. Maine is part of what is called ISO New England, the Independent System Operator, New England. But it is a very similar kind of power grid, and it is developed in a very similar way.

Senator THOMAS. It is not an RTO where you are both in the same section. All right. Thank you.

Mr. WARD. There have been times when it has been discussed that the two regions would join, but that is—

Senator THOMAS. That is why I was a little confused.

Mr. WARD. I just want to focus on four topics that have been highlighted in a study the Department of Energy put out in May. "The Grid Study" is what it is referred to as. And the topics also have come up here today on the part of previous panelists.

One of the key points that I need to make is: NASUCA's membership is very concerned that wholesale electric markets really do need effective oversight to function properly, and market monitoring units within PJM, or ISO New England, New York ISO, the California ISO need to be—to function effectively with adequate resources and adequate management attention. And likewise, FERC needs to have adequate resources to provide oversight in wholesale markets. It is only in the presence of a vigorous and adequately funded fully authorized oversight role that we avoid abuses in wholesale markets.

This actually is one of the observations that DOE made, the Department of Energy, in their grid study, and it is an observation that NASUCA is in full support of. Federal legislation should make compliance with reliability standards mandatory. That grid study points out that power utilities can no longer rely on the historic system of voluntary compliance. What we really need is a national mandatory system to ensure that the nation's interconnected transmission systems operate properly. And I believe that the previous speaker made a similar point.

Providing a clear statutory mandate to both NERC, North America Electric Reliability Council, and to FERC is, I think, critical to consumers. Keeping the lights on, no matter what, is a task that really needs, in our opinion, an additional grant of authority to both FERC and to North America Electric Reliability Council.

A second recommendation in the Department of Energy's grid study was one that Chairman Wood made reference to in his testimony today. It is also one that NASUCA's members fully agree with. That is to increase the rule of a voluntary load reductions and energy efficiency on the part of users of the transmission system. DOE's grid study correctly points out that without meaningful participation by the demand side, today's market is, at best, half a market. NASUCA has adopted resolutions provide support for that proposition.

I do have some concern about mandatory requirements for special meterings so that the price swings associated with wholesale markets are passed on directly to residential retail customers, but I think there are any number of improvements in demand response that are entirely appropriate for wholesale customers and large business customers.

I do strongly disagree with one of the recommendations made in DOE's study and it has also come up here, which is that we need special incentives, super returns, that we need to abandon traditional cost-based rate of return regulation in order to ensure there is adequate transmission investments. In our view, in many parts of the country, there has been adequate transmission investment, and we are not experiencing generation scarcity in terms of getting generation to the market.

I think it is too soon to talk about dismantling FERC's traditional cost-to-service system. And there is little virtue in throwing ratepayers dollars at incentives when less costly alternatives are available such as demand response, such as targeted upgrades, things that fall short of major transmission line proposals.

Finally, the last point I wanted to make is a point referred to earlier today by Mr. Makovich, which is the use of eminent domain. Even a limited use of eminent domain as proposed by the Department of Energy, I think, creates real problems for the States and for agencies like my own that represent the interests of retail consumers.

I do not think that eminent domain will simplify the siting process. I think it will make collaboration in the regions between State and Federal authorities that much more difficult and that much more contentious.

Thank you for the opportunity of making those four points.
Senator THOMAS. All right. Well, thank you.

[The prepared statement of Mr. Ward follows:]

PREPARED STATEMENT OF STEPHEN WARD, PUBLIC ADVOCATE, STATE OF MAINE

Chairman Bingaman, distinguished members of the Committee on Energy and Natural Resources: I am Stephen Ward and have served since 1986 as Maine's Public Advocate representing utility consumers before Maine's Public Utilities Commission, before FERC, the FCC and the courts. I also have served since March of 2000 as President of NASUCA, the National Association of State Utility Consumer Advocates. NASUCA consists of organizations charged by statute with the representation of utility consumers and currently has members in 40 states and the District of Columbia. I also serve as an appointed member of NERC's Market Interface Committee and as a member of one of the North American Energy Standards Board's divisions.

It is an honor and a privilege to appear on this distinguished panel and I thank you for the extending this invitation to NASUCA and its 43 member offices for whom I am testifying today. Since July of last year when I testified on behalf of NASUCA before this Committee, NASUCA's representatives offered written comment at FERC on numerous occasions in proceedings related to wholesale electricity markets and have participated in four FERC Roundtable discussions. We are very happy to be invited once more to provide the consumer's perspective at these hearings, as I will attempt to do again today.

My last appearance before this Committee was to discuss a White Paper on electricity legislation which Chairman Bingaman had circulated for comment, prior to any action in the Senate on electric restructuring and reliability issues. This appearance is triggered by the release in May of the Department of Energy's "National Transmission Grid Study," as well as recent developments at the Federal Energy Regulatory Commission (FERC) pertaining to the formation of Regional Transmission Organizations (RTO).

I should state at the outset that NASUCA, for whom I currently serve as President, has adopted a number of resolutions that are directly relevant to today's topic. I will summarize pertinent aspects of these resolutions shortly. However, in many other instances NASUCA has not yet adopted, as an organization, any specific view on proposals made in the DOE Grid Study or now pending before FERC or the Congress. In such cases, I will note the absence of a NASUCA position and will speak solely in my capacity as Maine's advocate for utility consumers.

In a series of resolutions in recent years NASUCA has strongly endorsed a vigorous federal role in providing oversight and enforcement, as necessary, in wholesale electric markets. These resolutions included the following statements:

1. "1998-07": "NASUCA supports federal legislation that would clarify FERC authority to review the reliability requirements imposed by NERC (or any successor national organization) and to ensure that such requirements are adopted and implemented in a manner that benefits all consumers;"

2. "1999-11": "NASUCA calls for federal and state legislative or regulatory bodies as appropriate to . . . ensure appropriate regulatory oversight over all procedures, tariffs, rules, requirements and procedures employed or enacted by the RTO or related entity;"

3. "1999-11": "NASUCA calls for federal and state legislative or regulatory bodies as appropriate to . . . require all RTO's and related entities to enforce compliance with reliability rules and protocols promulgated by the North American Electric Reliability Council or any duly authorized successor operator(s) by all members, customers, users and owners of transmission;"

4. "1999-11": "The National Association of State Utility Consumers Advocates (NASUCA) calls for all ISOs and RTOs, as well as any other entities charged with or assuming the operational control of a regional portion of the transmission grid, to possess the following minimum characteristics:

- it must be independent from market participants;
- it must serve a region of sufficient scope and configuration to perform effectively and support efficient and non-discriminatory power markets;
- it must have operational responsibility for all transmission facilities under its control; and
- it must have authority for maintaining the short-term reliability of the grid;"

5. "2001-01": "NASUCA urges the FERC to use the powers vested in it by Congress and assure just and reasonable rates by ordering cost-based price regulation and/or other appropriate means of mitigation in any wholesale market where rates are not demonstrably and reliably just and reasonable; and that the

FERC should use the powers vested in it by Congress to act to identify revenues secured as a result of the exercise of market power and in violation of the FPA and order that these revenues be refunded to customers.”

Several themes emerge from these resolutions that are particularly germane to today’s hearing. In fulfilling their statutory obligation to represent retail consumers in each of their states, NASUCA’s membership is very concerned that wholesale electric markets may function at times without effective oversight—neither from the Market Monitoring Units of existing RTO’s nor as a result of effective federal regulation at FERC. It is only in the presence of a vigorous, adequately-funded and fully authorized oversight role that abuses in wholesale markets can be controlled. Similarly, it is only when FERC possesses plenary authority over the operation of the transmission system and over the activities of transmission users and owners that consumers can have confidence that bulk power markets are workably competitive.

These observations tie easily to one of the findings of the DOE Grid Study with which NASUCA is in full support: federal legislation should make compliance with reliability standards mandatory. As the Grid Study points out at page 47, the power utility “can no longer rely on the historic system of voluntary compliance with rules to ensure the reliability of the nation’s interconnected transmission systems because of the competition among firms in today’s marketplace.” Providing a clear statutory mandate to both NERC and FERC to specify and enforce, respectively, the reliable operations of the grid is critical to consumers, and a key recommendation of DOE’s Grid Study. Keeping the lights on—no matter what—is a task that really needs an additional grant of authority to FERC and NERC. Other federal requirements such as the Paperwork Reduction Act—are a much lower priority, in our opinion.

A second recommendation in the Grid Study with which NASUCA’s members fully concur is to increase the role of voluntary load reduction and energy efficiency on the part of users of the transmission system. The Grid Study correctly observes at page 41 that “without meaningful participation by the demand side, today’s market is, at best, half a market.” NASUCA shares this view and adopted last month its most recent resolution on RTO functions (“2002-3”) which emphasizes the benefits to all customers when a demand response by customers is available to reduce peak-hour prices. Speaking for myself, I diverge, however, from the Grid Study’s claim on page 42 that, “real-time pricing is essential for allowing customers to determine how much power they wish to use based on the actual price of electricity at any point in time.” To the extent this claim is made for large business customers with a sophisticated knowledge of power markets and a tolerance for price volatility, I do not disagree. I strongly disagree that residential customers, particularly those on fixed incomes, can be expected to welcome the volatility that exposure to wholesale market swings will bring to household budgets.

The DOE Grid Study makes a recommendation in another area with which I also must strongly disagree. At page 32, the Report claims that traditional cost-based regulation of transmission investment is inconsistent with market-based approaches and is less attractive to investors than performance-based regulation (PBR). This is undoubtedly true but it opens the door to needless increases in rates for customers. NASUCA is interested in promoting the least costly solution to transmission bottlenecks, be it a demand-response initiative, a capacity upgrade or a new line project targeted to the congested side of a bottleneck. The risk in promoting incentives for all transmission investment is that much more expensive projects will become financially attractive to the detriment of less costly approaches. In our view it is too soon to dismantle FERC’s basic cost-of-service ratemaking structure in favor of PBR approaches for regulating non-merchant, utility-owned transmission plant. We do not take exception to the notion of merchant transmission going forward with an enhanced opportunity for returns on investment, since ratepayers are categorically exempted from paying these costs. But we see little virtue in throwing ratepayer dollars at incentives and other inducements for transmission construction when other approaches are as workable and less costly.

Finally, there is a fourth area to which I must take exception on my own behalf that received emphasis in DOE’s Grid Study. That report endorses a limited use of eminent domain by FERC for transmission line siting in cases where a transmission bottleneck otherwise would remain in place. Even this limited exercise of eminent domain by the federal government raises troubling issues, it seems to me, in the context of state siting authority for transmission upgrades. I believe this proposal will only complicate—and not simplify—the siting process. I think FERC’s ability to rely on eminent domain “as a last resort” actually could weaken its willingness to explore fully collaborative siting processes with state and local authorities. The ability to overcome parochial objections to a new transmission infrastructure, even if

they are well-founded, with eminent domain will, over time, prove irresistible, to federal transmission regulators in my opinion.

Thank you again for the opportunity of testifying today on behalf of the nation's electricity consumers. When it comes to retail competition in markets as small as those serving my home state of Maine, it is clear that getting the bugs out of the wholesale market and the interstate transmission grid is an absolutely necessary first step. There can be no workable competition at the retail level unless regulators and legislators are vigilant and determined in strengthening competition at the wholesale level. You are to be congratulated for making such an effort today.

Senator THOMAS. I thank all of you. I appreciate it very much.

Maybe just a quick question and then we will wind up here: Carol, if you can, you talked about perhaps too many regulations from FERC. What specifically would you feel uncomfortable with?

Ms. COALE. Well, the specific one that I was worried about was actually coming out of the Senate, but it was re-regulation of the energy trading business. And in our view, we do not feel that every player in that industry is a bad seed. I mean, there is obviously a few that have misbehaved in the classroom, but there are also those who are actually having that business stripped away from them because of the actions of others. And I am not sure that they are being treated judiciously.

My criticism of the FERC has been, as I mentioned earlier, the prioritizing of their actions, but also the delays. I would like to specifically mention El Paso's gas market power case in California. I mean, it has been re-opened three times—or it has been before the FERC three times. It has been re-opened twice. Every time the words "FERC," "California," "energy," and "El Paso" flash across my screen at the office, the stock goes down. And that could even actually be good news, but it is just the market is waiting for some action, and that—

Senator THOMAS. How much of that is involved with the electric's behavior, and how much is involved with all of the activities that are going on in all the other corporations? There is a strife in this country about corporations.

Ms. COALE. Well, I cannot—

Senator THOMAS. I do not think it is focused particularly on the electric movement of wholesale power?

Ms. COALE. As I mentioned, the performance of the electric companies have been dramatically worse in the rest of the country, and maybe you could attribute it to a few rogue players in this business, but it is clear that the power sector has under-performed relative to the rest of the group.

Now someone has got to build the grid. You are asking, or you are looking for infrastructure expansion, and there is no capital. I mean, the market has stripped the capital away from these companies. There is no equity. People are not buying the stocks of these companies. There is no secondary offering market for equities today. There is no debt capital. And the companies are cutting their growth budgets. Publicly announced cuts have been in Williams and Dynegy.

Senator THOMAS. Well, okay. But this, what you are saying, has only happened in the last 6 or 8 months.

Ms. COALE. That is correct.

Senator THOMAS. The idea of transmission slowdown has been going on for quite a long time. You mentioned a lot about no invest-

ment. The fact is, other than California, things have been going fairly well.

Ms. COALE. In my opinion, the transmission grid probably should have been built before deregulation was even considered. That is one reason why maybe the gas market behaved as efficiently as it did, is because the grid was already up and running and a spot market was developed in a more organized way. But I do admit that the PJM has appeared to have operated efficiently.

I am very much opposed to regulating price. I am opposed to price caps. I think that the opportunistic and somewhat maybe misguided companies in the West took price caps and used it to their advantage to gain the system. Had it not been for price caps, maybe those opportunities and those missteps may not have occurred.

We are not in favor of contract abrogation. That was discussed earlier today. But as I recall, when those contracts were being negotiated, the price of power was above the negotiated contract price and actually, the power companies did not want to enter into those contracts. And today, they are being accused of manipulating the market, when indeed, they were taking cuts as it appeared at that point in time on the market price of power.

Senator THOMAS. Had it not been for California, much of this would not be the case, I think. And so, in any event—all right.

Dr. Makovich, you talked about the bust and the boom. Do you think that has been the bust and the boom all over the country in power and power generation?

Dr. MAKOVICH. Yes. If you look at the data, we added more powerplants in this country last year than we have ever added in the history of this industry, and we are likely to top it this year, along with this record amount of retrenchment.

And the problem with the investment cycle that we have seen is: We built too much. We built in the wrong places. We lack fuel diversity. And it is probably the wrong technologies. Now other than that, it looks like everything is okay.

[Laughter.]

Senator THOMAS. Good. That really makes you feel comfortable.

[Laughter.]

Dr. MAKOVICH. And so the repercussions here we have seen on these companies is more than just a general stock market move. These companies move down way ahead of this general market decline. They have moved down far more, and a lot of it was launched because these markets were so ill defined. We allowed the herd mentality and a couple of other things to come into play here. And we have had a very costly overbuild in some places, and we are still worried about being short in others.

Senator THOMAS. So you are very much in favor of controls, controls over all of the business.

Dr. MAKOVICH. Well, the controls that we are talking about here are well structured markets that give timely price signals that will create not only—

Senator THOMAS. How do you structure that?

Dr. MAKOVICH. Well, it is—

Senator THOMAS. What can FERC do to structure what you are talking about?

Dr. MAKOVICH. One of the most important things, and something that is the root cause of California, is this whole question of the capacity market. We need another commodity here that pays for the capacity to be there to meet peak demand.

Senator THOMAS. Well, it would also help if California was willing to build some supply—

Dr. MAKOVICH. That is right. And the siting and permitting regs—

Senator THOMAS [continuing]. Rather than expecting it to come from somewhere else.

Dr. MAKOVICH. That is right. So you have to make it possible, and you have to make it profitable, and the investment will follow.

Senator THOMAS. I guess I am a little troubled, but we have seen—you all seem to be making out for a national problem what happened in California. And I must tell you, I do not think that is necessarily the case. You have to deal with California's problem, but show me where those kinds of things have happened anywhere else.

Dr. MAKOVICH. Well, downstate New York is another good example. The same kind of siting and permitting problems that prevented people from building powerplants in California have put downstate New York in the same kind of tenuous position.

Senator THOMAS. I thought PJM was doing pretty well.

Dr. MAKOVICH. This is the New York Power Pool. PJM is separate from downstate New York.

Senator THOMAS. Where do you live, for heaven's sake?

[Laughter.]

Senator THOMAS. Nobody claims you.

[Laughter.]

Mr. LANDRIEU. Now, I live in New Jersey, and PJM started out as three utilities in Pennsylvania, New Jersey, and Maryland which is where the initials came from.

Senator THOMAS. I see. Okay.

Mr. LANDRIEU. And it has grown over the years, and is still growing. But the key thing that has been demonstrated by having the proper market prices and price signals is that we get the generation that comes in and wants to invest, and it comes to where it should come because the pricing signals incent generation to go to where generation is needed. That is the way the locational pricing works.

And it sort of complements the physics of the electric system. You have prices that really are married to the physics of the electric system; so the pricing gets the infrastructure built in the right places in a manner that enhances and complements reliability. It is pretty neat.

Senator THOMAS. Some of us live in places where we are happy to generate. We just need a way to get it to the markets. But if you have to take the fuel to generate somewhere first, that makes it more difficult. So I do not think there is a lack of willingness to generate electricity if we have a way to deliver it to the markets. And so that is one of the things, obviously.

You have indicated, I think, you are kind of interested in price caps, is that right, or price controls?

Mr. LANDRIEU. No, I am really for and we have in PJM, a system that I think is quite similar to where the path that FERC is heading down with their standard market design. So that is not really price controls, although we do have a \$1,000 price cap, but that is hardly ever approached.

Senator THOMAS. I see.

Mr. WARD. What was I going to say? Oh, oversight, you wanted oversight clear down to the retail distribution customer, as I understand.

Mr. WARD. Not in the case of FERC's role. FERC is responsible for the oversight of wholesale markets and, in my opinion, has done a good job of setting up a market monitoring section within FERC now.

Market monitoring and investigation has required that the RTOs to get formed, like PJM, like ISO New England, like New York, have a market monitoring function that is very attentive to possible gaining of the markets, market abuses in terms of bidding behavior by players in the market.

Senator THOMAS. So distribution intrastate you would leave to the States.

Mr. WARD. Absolutely. That is right. That is a State responsibility, and States like mine in Maine where 40 percent now of the energy comes from competitive markets to retail customers, that is a legitimate State interest to keep an eye on how that retail market develops.

Senator THOMAS. Sure. It is sort of interesting. Most of you are interested in more FERC activity. And while we are putting together our energy bill, the western governors were very strong in their wanting less FERC and letting the States through the RTOs and others do more.

Is there a great deal of difference between your operation and out in the West?

Mr. LANDRIEU. I do not think there is that much difference in mode of operation. There is a difference, as Mr. Nevius pointed out, in geography, and distance between generation, and load that makes minor technical issues.

Senator THOMAS. Yes, but that does not have much to do with standards and oversight.

Mr. LANDRIEU. No. But what you have in the West is a different history of contracts and what-not, whereas as I said, we have had the sharing of transmission and generation in parts of the East for over 70 years. So there is a—I think part of what we are facing here in different parts of the country is sort of cultural development along a market learning curve.

Senator THOMAS. Okay. Would you like to come out and help me with my landowners on eminent domain, Mr. Ward?

Mr. WARD. I can appreciate that any advice that I might give you would probably be advice that would not have too much value.

[Laughter.]

Senator THOMAS. It is a tough issue obviously.

Mr. WARD. It is.

Senator THOMAS. If you are going to build interstate grid, why, you are going to have to have some authority to do that. There is no question.

Well, thank all of you very much. I appreciate it. And the chairman has returned, and he may have some comments.

Otherwise, we are through, sir.

The CHAIRMAN [presiding]. Well, all right. Well, thank you very much. I apologize again for having to duck out for attending that conference.

Let me just ask a general question. And I will have to review your testimony and maybe each of you have already addressed this. But let me start with Dr. Makovich and see if he has a comment.

Do you really think that this standard market design rule that is coming out is going to do all the things that—or holds the promise of doing all the things that Chairman Wood talked about, of really providing stability and clear direction to the companies that are trying to do business in this area?

Dr. MAKOVICH. Well, the opportunity is certainly there. The lesson is: The rules matter a lot in this business. The discussion that we have had on this panel I think illustrates a very important point, what Pete has been saying. If the regional power markets in this country were organized to look a lot more like the way PJM is organized, their kinds of rules, their kinds of institutions, we would have far, far fewer problems than we have had.

And the hope here is that the standard market design will take the lessons from power markets that are working well, that have not been in the headlines with a lot of crises, and apply those lessons elsewhere.

The CHAIRMAN. And the thought is, as I understand it, is that that will not only provide greater assurance to customers, consumers, that the power will be there and reliable and all of that, but that it will also provide greater assurance to investors, that they can make the necessary investments and plan to get their capital back, and some kind of decent rate of return.

Dr. MAKOVICH. That is right. The kind of capacity, or the rules that create the capacity market in PJM, the kind of locational marginal pricing, and the property rights on the transmission side create a whole set of signals and timely signals that will greatly enhance the investment patterns that we are seeing in the power business.

The CHAIRMAN. Does anybody else have a comment on that?

Yes, Ms. Coale.

Ms. COALE. Thank you. Coming from Wall Street, I can tell you that standard market design is not something that is going to restore confidence in the capital markets.

What is going to restore confidence in the capital markets is expediting the ongoing investigations and clarifying what the penalties are going to be if there are any, including refunds, or affiliate abuses, instead of having indefinite time frames and uncertain sort of, you know, penalties for violating the rules.

I think that Wall Street, to restore capital, needs clarity on defining the rules that exist today in addition to standardizing the rules of tomorrow. But as a priority over the past issues, I think that possibly we would advise the FERC to rethink which should come first.

The CHAIRMAN. Okay.

Yes, Mr. Ward.

Mr. WARD. I just wanted to say, I feel very strongly that FERC is on the right track. And it has a responsibility, not merely to look at a catastrophe that took place in California in the past, but also to set the rules that permit investment to take place over the long run.

And I think standard market design is exactly that. It is following the lead of PJM, and trying to establish consistent and clear and workable rules that have been road-tested essentially.

FERC also has done a very good job over the last year of conducting round-table discussions. It is absolutely unprecedented at FERC, where people with strong disagreements have sat down together for four hours, eight hours at a time with all the FERC commissioners present, fighting out disagreements about how you create a workable wholesale market for electricity.

So I think FERC is not responsible, or today's FERC is not responsible for some catastrophes that took place three years ago, two years ago. I think they are on the right track right now.

The CHAIRMAN. All right.

Mr. Landrieu, did you have a comment?

Mr. LANDRIEU. Just that these things fall in an order, and the first, which Chairman Wood mentioned, is that the transmission system is a regional system with regional attributes which, therefore, means you need regional organizations to help plan it, to run the markets, and do all the things if you are going to have an open and competitive market.

Just having the organization is not enough. You need to have the proper pricing signals built into the rules for that market, because we have seen in California what having the organization with the wrong pricing rules results in. And we have been fortunate enough in the case of the PJM ISO to see a different set of rules produce workable results. And we have seen those workable rules attract investment in transmission, in merchant transmission and in generation so that the infrastructure is occurring.

So it is the regional organizations with the right rules and tradeable property rights that bring the investment. And certainly, the sooner we have the certainty, the better off we are going to be because the investment community may not care about, you know, the ins and outs of how some of the ISO rules work, but the certainty of being able to make investments in a stable market under accepted rules that you can count on through the life of an investment I think is important.

The CHAIRMAN. Well, all right.

Thank you all very much. I think this is very useful, and we appreciate the testimony. And we will undoubtedly do more of this in the future.

The hearing is adjourned.

[Whereupon, at 4:49 p.m., the hearing was adjourned.]

APPENDIXES

APPENDIX I

Responses to Additional Questions

FEDERAL ENERGY REGULATORY COMMISSION,
Washington, DC, August 30, 2002.

Hon. JEFF BINGAMAN,
Chairman, Committee on Energy and Natural Resources, U.S. Senate, Washington,
DC.

Re: Follow-up Questions on the Electricity Infrastructure Hearing, July 24, 2002

DEAR MR. CHAIRMAN: I appreciated the opportunity to testify before your Committee at its July 24, 2002 hearing.

Subsequent to this hearing, you asked that I provide additional information for the record in response to written questions by Senators Cantwell and Landrieu. My answers to those questions are enclosed. If you need additional information, please do not hesitate to let me know.

Best regards,

PAT WOOD, III
Chairman

[Enclosures]

RESPONSES TO QUESTIONS FROM SENATOR CANTWELL

Question. Isn't it true that all of the forward contracts that are the subject of FPA section 206 complaint cases now pending before the Commission are so-called "market based rate" contracts that have not been previously approved by FERC?

Answer. The majority of the forward contracts being challenged in the complaints currently pending before the Commission were entered into pursuant to the seller's market-based rate authority. A seller is authorized to make sales of power at market based rates upon the Commission's finding that the seller lacks or has mitigated market power. Consequently, a seller that has been granted market-based rate authority may enter into power sales contracts without first seeking Commission authorization of the provisions of an individual contract. The Commission is not required specifically to review each agreement since the Commission, when it grants umbrella market-based rate authorization, pre-determines that rates under future contracts entered into pursuant to the market-based rate authorization will be just and reasonable.

Question. Isn't it true that FERC has never before applied the Mobile-Sierra standard to a case involving "market-based rate" contracts? Would application in these cases be completely without precedent?

Answer. The Commission was presented with the issue for the first time when it decided the standard of review that applies in determining whether changes are permitted to the forward contracts for sale of energy in bilateral markets in California and the West entered into pursuant to previously-granted market-based rate authority. Consistent with the United States Supreme Court case law, the Commission held that a party unilaterally proposing changes to a rate must meet the standard contained in the relevant contract(s). Because some of the contracts at issue in the California and West proceedings were not clear on their face, the Commission set for hearing the issue of whether the parties to these contracts intended to apply the Mobile-Sierra "public interest" standard or the "just and reasonable" standard.

Question. On April 25, 2002, FERC issued Order No. 2001, which clarified that market-based rate contracts did not have to be filed with FERC for approval. In

footnote 30 of that Order the Commission also stated: “Any provisions in agreements that purport to bind the Commission to a standard other than the just and reasonable standard of FPA section 206, and that are not explicitly ruled upon and accepted by the Commission, will not be binding on the Commission.” I read this to mean that, if a contract has not previously been approved by the Commission, FERC is required to apply no standard other than the “just and reasonable” standard of the Federal Power Act, should it have cause to review the contract at a later date. Don’t you agree that the language of the footnote means that the Mobile-Sierra doctrine can’t apply to market-based rate contracts that have not been previously approved by the Commission? If not, what did FERC mean by footnote 30?

Answer. On rehearing, the Commission recently vacated footnote 30 of Order No. 2001.¹ To address the issue of the applicable standard of review for market-based rate contracts for wholesale sales of electric energy by public utilities more comprehensively, on August 1, 2002, the Commission issued a proposed Policy Statement.² This Policy Statement proposes precise language that parties would be required to include in their electric power sales contracts if they intend that the Commission apply the “public interest” standard of review to a market-based rate contract. The Policy Statement is expected to limit, as much as possible, disputes regarding the applicable standard of review for market-based rate contracts.

Question. Isn’t it true that the difference between contracts previously approved by FERC and market-based rate contracts is that in the former case, FERC has already found the contract’s terms to be just and reasonable (as is required by the Federal Power Act); where in the latter case, FERC is merely presuming the contract to be just and reasonable—unless later proven otherwise? Isn’t this the only way to reconcile Congress’ clear intent in the Federal Power Act—that a contract be “just and reasonable”—and the courts’ views that, in limited circumstances, a contract can only be modified pursuant to a higher burden of proof, or the Mobile-Sierra public interest standard?

Answer. The specific prices, terms and conditions of service agreed to by willing sellers and buyers in market-based contracts are not required to be filed with the Commission when these contracts are entered into pursuant to market-based rate tariffs already approved by, and on file with, the Commission.³ Because the tariffs are authorized only after the Commission has made findings that the sellers under such tariffs lack or have mitigated market power, the prices, terms and conditions of contracts pursuant to market-based tariffs are presumed to fall within a zone of reasonableness.⁴ However, parties to a market-based contract may challenge its terms pursuant to section 206 of the FPA.⁵ The Proposed Policy Statement discussed above proposes specific language which parties must include in their contracts if they intend the “public interest” standard of review to apply in a section 206 proceeding.

Question. As we have previously discussed—and because of the interconnected nature of the Northwest and California markets, not to mention the way they are structured—many of my constituents are served by utilities that are facing the very real possibility that they could be ordered to pay refunds for sales of power they made into the California ISO and PX. In that case, FERC has already established it will use the “just and reasonable” standard. I find this difficult to reconcile with the Commission’s suggestion that it could use the more rigorous “public interest” standard for consumers in my state and other states in the West that were harmed by a dysfunctional forward market. Can you commit to ensuring a regionally equitable solution to the numerous complaints now pending before the Commission?

Answer. Under the FPA, the Commission is charged with the duty to ensure that the rates, terms and conditions of service are just and reasonable and not unduly discriminatory or otherwise unlawful. In performing this function, the Commission can on its own motion or on the complaint of a third party investigate existing rates, and alter them prospectively, if it finds that such rates are no longer just and rea-

¹ See Revised Public Utility Filing Requirements, Order No. 2001, 67 Fed. Reg. 31,043 (May 2002), FERC Stats. & Regs. ¶31,127 (2002), order on reh’g, Order 2001-A, 100 FERC ¶61,074, at 61,285 (2002).

² Standard of Review for Proposed Changes to Market-Based Rate Contracts for Wholesale Sales of Electric Energy by Public Utilities, 100 FERC ¶61,145 (2002).

³ See Revised Public Utility Filing Requirements, Order No. 2001, 67 Fed. Reg. 31,043 (2002), FERC Stats. & Regs. ¶31,127, at 30,135-140 (2002), order on reh’g, Order 2001-A, 100 FERC ¶61,074, at 61,285 (2002) (although contracts are not filed, detailed information about each transaction is reported to the Commission).

⁴ See, e.g., *State of California v. British Columbia Power Exchange Corporation, et. al.*, 99 FERC ¶61,247 (2002), reh’g—pending (prior review consists of “analysis to assure that the seller lacks or has mitigated market power so that its prices will fall within a zone of reasonableness”).

⁵ 16 U.S.C. § 824e (1994).

sonable. On August 23, 2000, the Commission instituted formal hearing proceedings under section 206 of the FPA to investigate the justness and reasonableness of the rates for energy and ancillary services of public utility sellers into the ISO and PX spot markets.⁶ Transactions in these markets are not arranged by contract and, thus, do not trigger the Mobile-Sierra “public interest” standard.

The FPA section 206 complaints you describe challenge transactions governed by the rates, terms and conditions of individual bilateral contracts. The FPA provides that contracts between individual parties can be used to set rates.⁷ In such contracts, selling utilities may agree to voluntarily restrict some or all of their freedom to change the contract rates, customers may agree to restrict their right to request the Commission to change the rate, and sometimes the parties to the contract may attempt to restrict not only themselves but also the Commission from changing the contract rate under the “just and reasonable” standard. Certain courts have required the Commission to use the “public interest” standard to effect a change to a contract rate. The Commission did not have sufficient record evidence to determine which standard of review to apply to the complaints in question. Accordingly, it established evidentiary hearings to interpret the relevant contract terms and to ascertain the intent of the parties at the time the contracts in question were signed in order to determine which standard of review to apply, i.e., the “just and reasonable standard” or a stricter “public interest” standard.

RESPONSE TO QUESTION FROM SENATOR LANDRIEU

Question. Mr. Wood, on April 24, 2002, FERC released a press release (Docket No. RM02-1-000) stating that “generators would pay the full cost of sole-use direct assignment facilities, and initially pay for any additional network facilities that would be needed as a result of their interconnection request. The generator(s) would later receive compensation for network costs, plus interest, through credits once transmission service begins.” Does this mean that the same incentive structure will be used to boost transmission capacity enhancement?

Answer. The press release issued on April 24, 2002 describes the Commission’s proposed rule on Standardization of Generator Interconnection Agreements and Procedures.⁸ There, the Commission proposed to continue its current pricing policy with regard to network upgrades, i.e., the “rolled in” pricing, where all users pay an administratively determined share of new facilities. The rationale for the policy has been that the transmission grid is a single piece of equipment such that the system expansions are used by and benefit all users due to the integrated nature of the grid. We requested comment on whether there are other pricing proposals that would be appropriate. We are currently reviewing extensive comments on this issue.

More recently, we have proposed to allocate the cost of transmission expansions based primarily on participant funding. On July 31, 2002, we issued another proposed rule, Remedying Undue Discrimination through Open Access Transmission Service and Standard Electricity Market Design⁹ that also addresses the Commission’s interconnection pricing policy. In the proposed rule, we state that participant funding may be appropriate for a transmission expansion where the proposed transmission facilities are included in a regional planning process which is conducted by an independent entity, whether it is a regional transmission organization, an independent transmission system operator or another such entity. In the absence of an independent entity conducting the regional planning process, we propose to apply a default pricing policy that rolls in on a regionwide basis all high voltage network upgrades of 138 kV and above. Since lower voltage, sub-regional transmission needs are less likely to benefit the whole region, the cost of network facilities below 138 kV could be more appropriately allocated to a sub-region where the transmission facilities will be located. Our goal is to allocate costs to the region that benefits from the expansion, which may not be the same as the region in which the expansion facilities are located. We seek comment on whether this pricing proposal is appropriate to meet our goal of expediting needed infrastructure investment or whether another method would be more effective. Further, to facilitate the siting of regional expansions, we would look favorably upon states working together to identify bene-

⁶*San Diego Gas & Electric Co. v. Seller of Energy and Ancillary Serv., et. al.*, 92 FERC ¶61,172 (2000), order on reh’g, *San Diego Gas & Electric Co. v. Seller of Energy and Ancillary Serv., et. al.*, 96 FERC ¶61,120 (2001).

⁷See, e.g., 16 U.S.C. 824d(d) and 824e(a).

⁸Standardization of Generator Interconnection Agreements and Procedures, 67 Fed. Reg. 22,249 (May 2002), FERC Stats. & Regs. ¶32,560 (2002).

⁹Remedying Undue Discrimination through Open Access Transmission Service and Standard Electricity Market Design, 100 FERC ¶61,138 (2002), available on <<http://www.ferc.gov/Electric/RTO/Mrkt-Strct-comments/discussion—paper.htm>>.

ficiaries of expansion projects and make recommendations on pricing proposals, provided that such proposals are consistent with the Federal Power Act. We expect to issue a final rule after careful consideration of all comments.

APPENDIX II

Additional Material Submitted for the Record

STATEMENT OF JAMES AVERY, SENIOR VICE PRESIDENT, SAN DIEGO GAS & ELECTRIC

My name is Jim Avery, Senior Vice President of San Diego Gas & Electric (SDG&E). I am responsible for managing all aspects of electric transmission for SDG&E, a distribution utility that provides service to 3 million customers through 1.3 million electric meters and 775,000 natural gas meters in San Diego and southern Orange counties. SDG&E is a California Public Utilities Commission (CPUC)-regulated public utility, and a subsidiary of Sempra Energy, a San Diego-based Fortune 500 energy services holding company. I appreciate the opportunity to provide a statement for the record as part of the Committee's oversight of the Department of Energy's National Transmission Grid Study and related issues. In that context, we would like to share our experience with recent impediments to the timely completion of much needed transmission infrastructure in Southern California.

We applaud the Department's declaration that "identifying and eliminating major transmission bottlenecks is vital to our national interest." California has only recently been able to emerge from a severe energy crisis that included rolling blackouts, spiraling prices, and threatened the State's economic future and well being. Although the crisis was caused by many factors, a lack of transmission and an insufficient supply of electricity was identified as a leading contributor. In fact, this was widely recognized by the members of the Senate Energy Committee and the House Energy and Commerce Committee during hearings on the California energy crisis in early 2001.

The Department study specifically declares that California "transmission upgrades remain an important element of a comprehensive, long-term solution to California's electric system." Constraints on electricity production and transmission in California continue to create uncertainties in the marketplace. As you know, however, transmission facilities can be incredibly hard to complete, no matter how great the need for the facility. The successful completion of these facilities requires the cooperation of all involved federal and state agencies.

The Department study highlights the special role of the federal government in certain infrastructure plans. As the Department recommends in their study, "DOE believes that federal agencies that manage federal lands and natural resources should support regional transmission siting agreements." The Department recommends that "to help address transmission bottlenecks, the federal government should continue to improve coordination among federal agencies . . . Federal agencies should support regional planning efforts by identifying and evaluating potential transmission corridors across federal lands." The Department also declares that the "federal government has a special responsibility to ensure that siting and permitting on federal lands is not needlessly delayed. Federal regulators should actively support and defer to these state and regional siting and permitting processes."

Ironically, our experience in California has been that the actions of the federal government itself are undercutting the development of infrastructure that the state has identified as critical.

SDG&E's recent experience with its proposed Valley Rainbow project is a prime example of the difficulties involved in actually siting a major new needed transmission line, and of the impact of federal actions on this effort. Currently, the fate of the line is at a critical stage where it is important that the Congress and the Administration work with SDG&E and not take action which would block the proposed route for the Valley Rainbow project unless and until the Congress also identifies an alternative route for the project. In the case of the Valley Rainbow transmission line, because of the problems encountered to date in siting the line due to federal actions, SDG&E is interested in exploring potential routes over federal land that are not currently available. SDG&E cannot pursue these potential routes without the active support of the Congress and the Administration.

BACKGROUND AND NEED FOR THE VALLEY RAINBOW INTERCONNECT
TRANSMISSION PROJECT

SDG&E is currently involved in the siting and licensing of its Valley Rainbow Interconnect project, a proposed 500 kilovolt (kV) electric transmission line that would connect the existing Valley substation in Riverside County to a new substation approximately 31 miles south in the community of Rainbow in San Diego County, and serve more than 700,000 single family homes and businesses in Southern California. The greater San Diego area is among the most vulnerable to electricity supply interruptions because it has only two connections to the California and western transmission grids, and these connections were designed and built when the region was half its current population. The Valley Rainbow project will provide an important new link between the growing San Diego market and the rest of the State.

The federally-regulated California Independent System Operator (ISO), which has responsibility for managing and planning the California transmission grid, has concluded that a major new transmission line needs to be built to address serious electrical reliability deficiencies in the southern California region, and has directed SDG&E to proceed with it. I have attached the ISO's most recent letter of support from September 2001. Likewise, the California Energy Commission (CEC) in its recent report entitled 2002-2012 *Energy Outlook Report* (February 2002), has identified the San Diego region as one of the most vulnerable in the State of California for future power outages.

The business community in the greater San Diego region also recognizes the importance of the Valley Rainbow Interconnect project. In a November 2001 letter (attached for the record),* the San Diego Regional Chamber of Commerce, the San Diego Regional Economic Development Corporation, and the San Diego-Imperial Counties Labor Council agreed that the proposed transmission line is "critical to helping to solve the long-term energy demands of the San Diego region" and would "help maintain a strong regional economy and job base for many years to come."

SELECTION OF A RIGHT-OF-WAY CORRIDOR FOR THE VALLEY RAINBOW PROJECT

In response to the direction from the California ISO, SDG&E studied more than 80 different routing links and hundreds of miles of alternatives to determine the corridors for its Valley Rainbow project that would have the least impact on the residents, businesses and environment in Riverside and San Diego counties. Because of the existing land uses, and the topography of the region, the route options ultimately provide only three potential corridors in the southern region of Riverside County. The first of these potential routes, identified as the preferred route, is located on the southern and eastern boundary of the Pechanga Indian Reservation. This route would have the least impact on the environment and communities of Southwest Riverside County. SDG&E initially sought Tribal approval to site the Valley Rainbow line over the preferred route along the southern and eastern edge of the Pechanga Reservation. Numerous meetings were held with the Pechanga Tribal Chairman and the Tribal Council, and with many other members of the Pechanga Tribe. Unfortunately, SDG&E's efforts to negotiate a right-of-way for the preferred route was unsuccessful, and the Tribal Council passed a resolution opposing the proposed siting of the Valley Rainbow Interconnect line along the preferred route.

Because of the Tribe's opposition, SDG&E focused its attention on the second route through the privately owned Boseker Ranch, adjacent to the Reservation. In March 2001, SDG&E filed an application with the CPUC for approval of the Valley Rainbow line and the Boseker route. In May 2001, shortly after SDG&E indicated that it would be proceeding with the Boseker route for the Valley Rainbow project, the Pechanga Tribe purchased the property, renamed it the Great Oak Ranch and applied to the Bureau of Indian Affairs (BIA) to take that land into trust.

When the Company learned that this private property had changed hands, we continued our dialogue with the Pechanga Tribe, meeting with Tribal officials again to discuss potential alternatives, and making a formal offer for an easement over the Great Oak property. Shortly thereafter, we were informed that the Tribe opposed the siting of the Valley Rainbow Interconnect on the Great Oak property, much as it had previously opposed a transmission corridor on Reservation lands.

If those two routes are foreclosed by action by the BIA and the opposition of the Tribe, then there is only one route available to serve the citizens of Southern California. The third route, situated west of Interstate 15, has been recognized as prob-

*The letters have been retained in committee files.

lematic because it would traverse environmentally sensitive areas and, in addition, would enter populated areas, triggering the need to remove businesses and homes in one of the fastest growing areas in the nation.

SDG&E'S INTEREST IN REACHING A NEGOTIATED RESOLUTION OF THE
RIGHT-OF-WAY ISSUE

During the summer and fall of 2001, the Tribe sponsored an Interior appropriations rider that would have overridden statutory authorities and mandated that the Great Oak Ranch be taken into trust without undergoing the required review, thereby blocking the proposed use of a narrow corridor on the property for the Valley Rainbow transmission line. That rider was removed by the House-Senate Conference Committee. A subsequent effort by the Tribe to sponsor another rider to the Defense appropriations bill did not advance. The Tribe has since pursued federal legislation in both the House of Representatives (H.R. 3476) and the Senate (S. 2711) that would act to limit the Company's ability to exercise its state-delegated right of eminent domain over the property. Throughout these efforts, SDG&E has continued to emphasize that the Company does not oppose the Tribe's request to take additional land into trust, so long as the State's legitimate needs for a narrow transmission corridor are accommodated.

Earlier this year, the Interior Department agreed to seek a negotiated resolution of this matter, and arranged for face-to-face negotiations among the parties in a meeting that was scheduled to take place in southern California on March 20, 2002. Regrettably, a few days before the March 20 negotiating session, the Interior Department abruptly cancelled the meeting, and the very next day, on March 21, 2002, the Bureau of Indian Affairs (BIA) regional office in Sacramento, California released a Notice of Decision to accept the Great Oak Ranch in trust for the Pechanga Indians without any reservation of a transmission corridor for the Valley Rainbow project, and without any effort to seek a negotiated resolution of the issue. The BIA action could have the practical effect of blocking indefinitely SDG&E's construction of the Valley Rainbow Interconnect, because the Company cannot condemn the land once it is taken into trust by the United States. Yet the BIA decision completely ignored the energy implications of their action. SDG&E has appealed BIA's decision, and believes that the decision should, and will, be reversed on appeal.

The Company, however, continues to prefer that the corridor issue be addressed through a negotiated resolution. While the land in trust process should not be used inappropriately to block this needed project, SDG&E does not oppose the Tribe's request to take the Great Oak Ranch property into trust, so long as a right-of-way corridor is identified and set aside for public use at the same time. In this spirit, the Representatives of Congress from the affected areas met with the Tribe and with SDG&E to seek a compromise on the legislation H.R. 3476, then pending before the House Resources Committee. The compromise that was struck was that the legislation could advance out of committee, but proceed no further until Congress authorizes an alternative route for the transmission line through near by federal land. This compromise addressed the desire of the Tribe to take their land into trust, with no transmission corridor, but only if it was replaced with an alternative corridor that will preserve the state's ability to keep the lights on for the 3 million people south of the Reservation.

Thus, the compromise would require and provide a mechanism to utilize other federal lands in the immediate area administered by the U.S. Department of Agriculture, Forest Service and/or the Bureau of Land Management that are not currently available for another corridor for the Valley Rainbow project. Federal action on the land into trust decision, ignoring the energy implications, have triggered the problem. Congressional leadership and the cooperation of these federal agencies is critical to implementing the compromise and helping to ensure continued electric reliability in Southern California.

CONCLUSION

In summary, there are always numerous difficulties encountered in the siting of new, needed transmission lines. However, in this case, we should not, through a federal land-into-trust action, foreclose the proposed transmission corridor for the Valley Rainbow transmission line without identifying an alternative route. SDG&E renews its request to Congress, and to the Secretaries of the Interior and Agriculture, to help it negotiate a resolution of the existing conflict in a manner that will meet Tribal needs, while also addressing the state's needs for a new right-of-way for the installation of the Valley Rainbow Interconnect transmission project.

STATEMENT OF ROBERT JACK, CHAIRMAN, INTERNATIONAL UTILITY STRUCTURES, INC.

Mr. Chairman and Members of the Committee: Thank you for the opportunity to submit testimony regarding issues relating to the need for, and barriers to, development of electricity infrastructure. My name is Robert Jack, and I am Chairman of International Utility Structures Inc. (IUSI). My company is a major supplier of electric distribution and transmission steel poles from our manufacturing facilities in Kansas and France. Our company has a strong interest in these issues before your Committee and would like to offer our comments regarding the transmission expansion needs to meet the load growth, the maintenance of a highly reliable transmission system, an a possible approach for future financing regarding construction of transmission infrastructure and some general comments regarding the Department of Energy National Grid Study that was recently released.

TRANSMISSION EXPANSION

There has been an abundance of reports and analysis with respect to transmission expansion. I would like to add ours. Based on interviews, meetings, and review of many of these reports, we commissioned a report in early 2001 for our own business planning purposes, that indicated the United States was on track for the development of 290,000 megawatts of generating capacity added in the period 2000 through 2004, which is an increase of 25 percent to 30 percent in total generating capacity. The disturbing part of our study was that there wasn't a corresponding increase in transmission to go with the additional generating capacity. The events since that time have caused us to reevaluate that information, but have not fundamentally caused us to change course for planning purposes.

In addition, the North American Electric Reliability Council (NERC) who I understand will be providing testimony to your Committee, indicated in their October 2000 Assessment Report the addition of 8,445 miles of transmission facilities 230kV and above, which is only an increase of 4.2 percent. The report indicates new proposed gas-fired generation will be added directly to the existing transmission facilities near the gas pipelines and local load centers. We agree with this assessment. We have not found the interest in building new lines, outside of those to solve bottleneck problems such as the Path 15 in California, to move power from one region of the country to another. The interest has been in connecting new generation facilities to the existing grid, which has us concerned because there is no surplus capacity in the transmission system.

TRANSMISSION RELIABILITY

One of the principle reasons that my company wanted to provide a statement for this hearing was to convey the results of a report that we commissioned last year regarding the aging of the existing transmission grid and the need for additional transmission facilitates to meet the annual load growth. The report, "North American Transmission Line Assessment 2000-2009", which I would like to submit for your record,* was startling with regard to the aging of the system. Of the approximately 592,000 circuit miles of transmission lines 51kV and above, it appears that about 473,000 circuit miles are on wood poles. Although we need further study and analysis of these numbers, based on our understanding and knowledge of the transmission grid, we believe that over 375,000 circuit miles of the existing transmission lines are on wood poles that are over 40 years old. To maintain the high level of reliability that people in North America have come to expect there is going to be a tremendous need for "rebuilt" and "replacements".

What is troubling about these figures is the amount of money that is currently not being spent in this area. In the 1980's the Western Area Power Administration (WAPA) estimated they needed a replacement and additions program of \$100 million dollars per year to maintain their system reliability standards. Due to cost containment programs and potential rate impacts, the replacement program was reduced to the current level of about \$20 million per year. It is quite clear that the current program is inadequate for their 16,000 plus mile transmission program, let alone the efforts regarding replacement for the other 350,000 plus miles of transmission lines that are part of the grid.

FINANCING MECHANISMS

The level of investment required to achieve the DOE estimated grid capacity levels needed to support U.S. economic growth over the next 20 years is massive. Total investment in transmission and requisite downstream distribution infrastructure

*The report has been retained in committee files.

will probably exceed \$200 billion over that time frame. It is furthermore unreasonable to expect that the U.S. treasury and/or U.S. industry should be capable and/or willing to source all of this capital, given the extensive requirements by the government to fund critically needed projects such as homeland security and industry's future need to fund industrial and technologic expansion.

Consequently, I strongly urge that the government encourage foreign investment in this most critically needed infrastructure expansion and be flexible and open to perhaps new alternative investment vehicles. These alternatives may not only be more attractive to foreign investors but may also give them the economic stimulus to provide funds and a rate which is lower than the current cost of capital the utility industry is having to pay internally.

NATIONAL TRANSMISSION GRID STUDY

As someone from the private sector, I greatly appreciated the efforts of the Administration to pull together a report last year on a National Energy Policy. The recommendations regarding the national grid were timely and necessary if we are to have a reliable system. The subsequent report, National Transmission Grid Study by the Department of Energy provides valuable documentation regarding the urgent need to modernize the system and have a reliable one at the same time. Just as people in this country turn on a water faucet and expect good, clean water to come out, they also expect the lights or the computer to come on when they flip the switch. In both instances they also expect an affordable product as well.

I believe it is important that consideration be given to the recommendation from the study that an office of Electric Transmission and Distribution be created at DOE. One of the important elements of the office would be to "support the Power Marketing Administrations' efforts to eliminate transmission bottlenecks, introduce new technologies that increase the reliability and efficiency of the transmission system, and help ensure that best practices are shared". By DOE having such an office—a focal point for people, companies in the private sector, the public sector and abroad—to bring new ideas and approaches to problems on such a major issue given the role that it plays in the economy of the United States, helps solidify a level of confidence that economically sound solutions can be found to address these issues.

CONCLUSION

Thank you again for the opportunity to provide testimony. I commend the Committee for focusing on this important issue. I know you are also engaged in developing new, broad ranging energy legislation and look hopefully to final action by this Congress. I cannot emphasize enough my concern regarding the need to focus on the aging of the existing transmission infrastructure and the accompanying reliability issues. Expansion of the system is also necessary if we are going to service the economic growth that is occurring and going to continue in the future. If the Committee members or staff would like a more detailed briefing on our report, I would welcome the opportunity.

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