

BLACKOUT 2003: HOW DID IT HAPPEN AND WHY?

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BLACKOUT 2003: HOW DID IT HAPPEN AND WHY?

WEDNESDAY, SEPTEMBER 3, 2003

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The committee met, pursuant to notice, at 10:10 a.m., in room 2123, Rayburn House Office Building, Hon. W.J. "Billy" Tauzin (chairman) presiding.

Members present: Representatives Tauzin, Barton, Upton, Stearns, Gillmor, Greenwood, Cox, Burr, Whitfield, Norwood, Shimkus, Blunt, Radanovich, Bass, Pitts, Walden, Terry, Ferguson, Rogers, Issa, Otter, Dingell, Markey, Hall, Pallone, Brown, Gordon, Deutsch, Rush, Eshoo, Stupak, Engel, Wynn, Green, McCarthy, Strickland, DeGette, Capps, Doyle, Allen, Davis, Schakowsky, and Solis.

Staff present: Jason Bentley, majority counsel; Sean Cunningham, majority counsel; Mark Menezes, majority counsel; Robert Meyers, majority counsel; Peter Kielty, legislative clerk; Sue Sheridan, minority counsel; and Bruce Harris, minority counsel.

Chairman TAUZIN. I want to thank our guests for attending today. I think we still have empty seats if folks want to get comfortable.

Today we begin a series of 2 days of hearings. We have three panels today, extensive panels tomorrow. So I would invite everyone to get as comfortable as you can and ask everyone to give each other the courtesy of your attention as we go through a very hectic schedule for the next 2 days.

Let me welcome my colleagues back to the grist mill. I am sorry we have to come together to examine such a tragic event in our Nation's history as the huge Northeast blackout, but obviously it is a critical time for us to review what happened in that event so that we can make sure in the conference on energy that we make all the right decisions to hopefully prevent this in the future.

Let me again welcome our colleagues and guests and also extend a special welcome to Secretary Abraham, our colleague from his former Senate days, and Mr. McSlarrow, who is accompanying him today in an effort to help us understand what did occur in the Northeast blackout.

The Chair recognizes himself for an opening statement.

On August 14, we were painfully reminded of the importance of electricity in our day-to-day lives. The scenes of the blackout were everywhere: people milling around the streets, sleeping on the steps of train stations, productivity shut down. Routine activities

like getting home from work, going to the grocery store, picking up children from day care suddenly became heroic tasks.

I think it was even worse than we thought. I talked to people who were caught in the New York airport who told me that it was bad enough sleeping in an airport at 130 degrees with no electricity and no cooling, but what was even worse was the commodes wouldn't flush because they are all electrically flushed today. What was worse for folks in New York trying to get home was when they found out they couldn't use the keys to get in their apartments because now they are electronically operated.

It became apparent to so many people caught in that awful situation—my friend John Dingell in Michigan—how difficult life is when this utility that we have come to expect to be available to us whenever we need it, which is become more and more important in our lives, is not available. A healthy, secure, productive society simply can't afford to live in the conditions like those of August 14. In some areas the—and in the days that followed, it was an absolute mess on our hands. The economy and our way of life demand affordable, reliable electricity.

The purpose of our hearing today is to determine what happened and why. I realize there have been a lot of attempts to politically spin this event and create partisan arguments about who may or may not be responsible for it here or there or anywhere else. I hope we avoid that today. I am not terribly interested in that. I hope you aren't either. I think the American public wants us to examine what happened, why and what we can do to make sure it doesn't happen again.

By all accounts, it was an otherwise average summer day. Temperatures were not excessively high. Demand for electricity was not unusually high. Power supplies in the Northeast that day should have been adequate. But in a matter of minutes an estimated 50 million people were suddenly left without power, with 62,000 megawatts of consumer load in the dark.

So what went wrong? Why were we subjected to the single largest blackout in the Nation's history? We are going to find out from witnesses today a lot of different perspectives and hopefully eventually find out what happened and why.

As we gain a better understanding, several things have become evident to us. Congress obviously needs to enact as part of a comprehensive energy bill legislation to modernize the Nation's electric infrastructure.

To all opponents of electricity legislation, I hate to say I told you so, but, well, I told you so. February 15, 2001, more than 2½ years ago, at an electricity hearing on the lessons learned from California, I sat on this dais and said the following, "If you are focusing today on California, tomorrow we will be focusing on New York, we will be focusing on Chicago, on Boston, on places we are told the energy grids are too weak; and blackouts and brownouts are likely this summer because of bottlenecks in those grids." And my colleagues, who may not always agree on the need of electricity legislation, may want to move it on a separate track.

Let me read the rest of that statement: "We will be focusing later on fuel supply problems the likes of which we saw in Chicago and Milwaukee last year." That was in the year 2000, when fuel sup-

plies were short, energy spikes, gasoline prices hit consumers; and angry consumers wanted to know why, what was going on, what was wrong with our supply situation in America. In other words, modernizing our Nation's electric transmission grid is pointless if we don't have the fuel to power the electric power plants, if we don't modernize the Nation's energy efficiency and conservation laws at the same time.

Providing reliable electricity is only one component of the Nation's future energy needs. So I hope today we can better understand what happened on August 14, we can understand the scope, the severity of the incident. Local blackouts from ice storms and downed power lines will be a reality for years to come, but we shouldn't have to worry about high voltage interstate transmission lines blacking out large regions of the country. That is unacceptable, and we need to make sure it doesn't happen again.

Before I yield, let me ask unanimous consent the committee proceed in accordance with the rule 4(e). Is there any objection? Without objection, so ordered.

The Chair strongly encourages members to waive their opening statements if they can so we can get to question the witnesses as soon as we can, and without objection all members' written opening statements will be made a part of the record.

It is now my pleasure to recognize one of the victims of the blackout from Michigan, our dear friend, the ranking Democrat of our committee, Mr. Dingell.

Mr. DINGELL. Mr. Chairman, I thank you; and I commend you for holding these hearings.

The blackout of 2003, as you have observed, did have devastating consequences on many Americans; and the people in my district had substantial suffering to report. It was bad up there. It was not a mere inconvenience. Nearly every aspect of the lives of the people of my district were disrupted. Factories were closed, the economy suffered, and jobs were lost. To those of us in Michigan, it was particularly distressing. We had little control over a matter that appears to have begun outside our State.

That said, the residents of Michigan have a lot to be proud of. Citizens, public officials, local businesses, local power companies, police, firefighters and public safety as well as municipal and State government all pulled together to get us through this crisis.

We must now begin the process of learning what went wrong and how to prevent future widespread blackouts. That should be our first priority.

My own view is that the Congress should take immediate action to enact transmission reliability provisions that are contained in both the House and Senate's comprehensive energy bills. The staff on this side and the members have suggested that this should be one of the things done in last year's energy conference. A number of these very controversial issues are contained in these bills, things which have unfortunately made it difficult for early enactment of an overall energy bill.

While I will note that you, Mr. Chairman, and Mr. Domenici are committed to bringing to a conclusion the conference in a prompt fashion, the making of energy policy tends to defy the best inten-

tions and timetables and we have had some 8 years in which we have made massive efforts without success in these matters.

The goal of pursuing the energy conference with full vigor is not at odds with my suggestion that the Congress separate and pass consensus reliability provisions now. The reliability bill may not provide the full answer to all the challenges in the energy area which we confront, but there is broad consensus that it is a necessary part of the response and one which requires, I think, early attention. By all rights, this should be a bill for the suspension calendar.

As the investigations proceed, we may learn more about the remedies than may be possible to include them in a comprehensive energy bill in which we now work. To that end, I will be introducing reliability provisions of the energy bill as a separate piece of legislation; and I urge my colleagues on this committee, including you, Mr. Chairman, to join me in ensuring that the bill is moved to the suspension calendar so it can be speedily considered.

I am pleased that the Department of Energy moved promptly to initiate an investigation into the causes of the outages and actions necessary to prevent future blackouts, but I do have some reservations about this undertaking. It appears that the U.S.-Canada task force will involve participation by the North American Electric Reliability Council, NERC, and the Federal Energy Regulatory Commission, FERC. Certainly these two entities have expertise, data and personnel that will assist in such inquiry, but I am concerned that their involvement in the task force should not preclude them from conducting their own independent investigations and reaching their own conclusions under the authorities and responsibilities which they have. Indeed, under the Federal Power Act, FERC has the clear authority and arguably an obligation to conduct its own investigation and it is essential that it function as the independent regulatory agency that the Congress intended it to be.

I thank you, Mr. Chairman, and my colleagues for your attention. I look forward to hearing from our witnesses, and I welcome Secretary Abraham to the committee.

Chairman TAUZIN. I thank my friend; and the Chair is pleased to recognize for an opening statement the majority whip of the House of Representatives, Mr. Blunt, for an opening statement.

Mr. BLUNT. Thank you, Mr. Chairman; and thank you for holding this hearing. I will file an opening statement, although I want to make a couple of comments.

One, as I look at the agenda today I certainly don't know how it happened. I may not know how it happened after I carefully study all the testimony because of the complexity of the issue here, but you put together a tremendous set of panels today, starting with Secretary Abraham. I so appreciate his great leadership as the Secretary of Energy; and I am hopeful that later this year he is able to begin the implementation of a new energy policy.

Because I do think I have some sense of why it happened, and why it happened is the failure to have an energy policy for a decade. President Bush has called on this Congress over the last 2 years to move forward with an energy policy. I think we can't expect to see the investment and commitment we need to have in power generation and power transmission unless we create some

sense of certainty about what the system is going to look like for the next 15 to 20 to 25 years. Once we create that certainty, to a great extent this problem will take care of itself, but 10 years of no energy policy has created problems on both coasts now and throughout the middle of the country.

Having a policy in my view is actually more important at this point than what the policy says. I hope we can work for the best policy, but we need to get this job done and done now.

I am extremely optimistic that the topic of this hearing today is the event that will force this Congress to move toward a consistent energy policy. I am extremely hopeful that we do that in the very near future and look forward to the evidence that you and our committee will uncover in the next couple of days about this important issue.

Chairman TAUZIN. I thank the majority whip, and the Chair is now pleased to recognize our friend from the State of Massachusetts, the ranking member of the Telecommunications Subcommittee, Mr. Markey.

Mr. MARKEY. Thank you, Mr. Chairman.

While I understand it may take some time to determine all of the changes in electric utility industry policies and practices in Federal utility regulations that might be needed to prevent a repetition of the events of August 14, it is not unreasonable for the American people to expect our Nation's energy regulators to explain what caused the blackout to occur in the first place and how it spread so quickly.

Unfortunately, from what I can see in the prepared testimony submitted to the committee by the Department of Energy and the Federal Energy Regulatory Commission, the Bush Administration remains in the dark about the causes of the blackout. At the same time, the Bush Administration continues to press for the immediate adoption of an energy bill that contains language that would make sweeping deregulatory changes in electricity law and launch a wide-range assault on our environment in the name of increasing gas and oil production.

The administration is essentially saying that these radical proposals are needed to prevent the recurrence of an event whose causes they say remain unknown. But if we don't know what caused the blackout in the first place, how can we know whether the proposed cure is worse than the disease? That is like a doctor telling he had no idea what caused you to black out but would like to see you in the morning for brain surgery. When you hear that, you know it is time to get a second opinion.

That is why I support Congressman Dingell's proposal to move a narrowly focused bill enacting electricity reliability standards now. But when we solve the problems that occurred 2 weeks ago, then we can add those additional resolutions to the final package in a separate bill.

Oil is for cars and trucks, not for air conditioners, refrigerators, ovens or light bulbs. Only about 3 percent of the oil our Nation consumes is used for electricity. What stopped working during the blackout? Our lights, our cooling, our refrigerators and our ovens. Our cars and SUVs ran just fine.

It is ridiculous to use the blackout as an argument for drilling in the Arctic Refuge and other pristine public lands and exposes those who make the argument as desperate for an outcome driven by ideology, not facts. The only relationship between the electricity blackout and gasoline is that several refineries shut down temporarily, which the oil industry used as an excuse to raise the price of gasoline to record-breaking levels Nationwide over the labor day weekend. I don't think that was justified, but at least the relationship is clear.

Electricity doesn't depend on reliable oil. Oil depends on reliable electricity. That is why we should stop searching in Alaska for solutions to the blackout. The problem is not in Alaska. It is in Ohio. The solutions won't be found above the Arctic circle but below Lake Erie.

I don't think we should be satisfied with the we-will-get-back-to-you-later response that I see in the prepared statement submitted by the administration to the committee yesterday. This \$7 to \$10 billion hit to the economy could happen again tomorrow.

The American people have a right to know what caused the blackout and who should be held accountable for the resulting inconvenience and economic disruption. We have a right to know what first energy, AEP and other utility companies did or did not do on August 14—whether their actions or omissions caused the blackout to occur or to spread, what their neighboring utilities did or failed to do in response and what new safeguards there are and should be adopting to prevent a recurrence.

I look forward to hearing the testimony.

Chairman TAUZIN. I thank the gentleman for his statement, and I remind all members that six refineries went down which were operating at the time that were operating at 95 percent capacity. There was a huge effect on refinery production during the blackout.

The Chair is pleased to recognize the chairman of the Telecommunications Subcommittee, the gentleman also from Michigan who also was a victim in this blackout, Mr. Upton.

Mr. UPTON. Thank you, Mr. Chairman. We were a victim, and I am pleased that our colleagues in the Senate have finally acted to pass an energy bill. Now, as Congress comes back after Labor Day, our first order of business is to in fact pass a comprehensive energy bill. Congress by many pundits' expectations is to adjourn in a little bit more than a month. Last month's blackout impacted 50 million Americans and had ramifications that we are still feeling with high gas prices and productivity losses, and those are still rippling through our economy today. But I have to tell you it could have been worse.

I represent southwest Michigan. We had one of our coal-fired plants, the Campbell plant in Grand Haven, Michigan, go off line. Just south, I have two nuclear plants in my congressional district. One of them, in fact, did experience irregularities. This particular plant provides 18 percent of the power for consumers' energy. I am led to believe that they were—had the full right to in fact shut that plant down because of the irregularities that were in the system. The finger was actually poised at the button to shut down that nuclear plant, like the Fermi plant that was closed on the other side of the State. And had that plant closed down it would have likely

had again a rippling effect right around Lake Michigan, probably closing the Cook nuclear plant which had one of its reactors out already for maintenance, but in fact it easily could have included Chicago and the greater Midwest. We came within minutes, maybe even seconds of having a more dramatic impact because of this blackout.

We have a responsibility in this committee to iron out the differences between the two energy bills that have passed in the House and the Senate so we can avoid another rippling domino effect that will certainly affect tens of millions of Americans. That responsibility starts today, and I hope we can work together to pass a comprehensive energy bill, and I yield back the balance of my time.

Chairman TAUZIN. I thank my friend.

The Chair is pleased to recognize the gentleman from New Jersey, Mr. Pallone, for an opening statement.

Mr. PALLONE. Thank you, Mr. Chairman.

While we have discussed electricity policies for years in this committee, today we clearly have been forced into a position where inaction is unacceptable. Comprehensive electricity policy should not be held hostage for another month in the voluminous energy bill that will shortly go to conference, nor should a comprehensive solution be crafted solely by conferees behind closed doors, which is too often the case here. We need to act on implementing the necessary changes in this area immediately and without connection to controversial issues that—clearly partisan—are likely to reign in the conference.

Comprehensive electricity legislation should involve several key provisions. First, we need to call for mandatory regional transmission organization participation. Currently the voluntary nature of RTOs allows shifting participation in the organization on a day-to-day basis. Yet RTOs operate most efficiently and cost effectively when they can count on particular membership. The blackout demonstrated the need for a flexible transmission system that can adjust to the needs of its consumers on a second-by-second basis, and RTOs can meet this need.

RTOs also necessitate a regional transmission planning process, a process that incorporates a broad range of stakeholders toward a single goal of reliable energy supplies; and this approach should lead to vast improvements in reliability.

Mr. Chairman, this brings me to another crucial component of electricity policy, the need for mandatory and uniform reliability standards for electric grid performance. In 1997, this committee held a hearing on reliability. At that time, I noted that voluntary reliability in a deregulated market could create the potential for passing the buck should a problem in the system arise. While the DOE investigates the blackout to determine the cause of the system failure, I encourage this committee to finally address and implement mandatory reliability standards. Clearly, market forces alone cannot preserve reliability of the system. Furthermore, it is unfair to customers who expect a reliable supply of electricity not to require industry participants to meet Federal reliability standards that will ensure the customer's needs.

Finally, I hope we can move forward toward the approval of FERC's rule on standard market design. Although outstanding questions regarding technical issues remain, I trust that these issues will be addressed prior to the final rulemaking and we will come to the other side of this with improved opportunities for competition that benefits electricity consumers.

There are additional issues that remain an important part of the electricity debate, including the use of smart grid technologies that have the potential to bring us into the 21st century as well as a serious commitment toward the development of renewable energy sources, energy efficiency and distributed energy sources. However there is an immediate need to address the gaping holes that were left in electricity policy that we have ignored since the Energy Policy Act of 1992; and these gaps should be filled by specific determinations regarding RTO participation, grid performance requirements and standard wholesale power market design.

Thank you, Mr. Chairman.

Chairman TAUZIN. Thank the gentleman.

The Chair recognizes the gentleman from Pennsylvania, the Chair of our Oversight and Investigations Subcommittee, Mr. Greenwood.

The gentleman passes.

The Chair will move on to Mr. Cox from California for an opening statement.

Mr. COX. I thank the chairman—

Chairman TAUZIN. I should point out to the audience Mr. Cox serves another important role as chairman of the Select Committee on Homeland Security. And, Chairman Cox, I understand you will be holding some hearings or investigations as to the homeland security response aspects of the blackout, and I want to thank you for that effort.

The Chair recognizes Mr. Cox.

Mr. COX. Thank you, Mr. Chairman.

I want to thank you for convening these 2 days of hearings. I hope they will work in tandem with tomorrow's hearings on the Homeland Security Committee, where we will focus on the vulnerability of our Nation's power supply and distribution system to deliberate attack as well as the catastrophic secondary effects.

We still don't know exactly how and why the blackout of 2003 occurred, although today we expect to learn a bit more. I think that we will have to await the conclusion of ongoing investigations before we have answers that will satisfy not just politicians and regulators but also the electrical engineers who are responsible for constructing a system that will work. What we do know and what we have learned as a result of the events of last month is that the denial of electrical service for an extended period of time causes a dangerous ripple effect of death and destruction across virtually all of our Nation's civic and economic sectors.

In the 21st century, America is more dependent upon electricity than ever before in our Nation's history. In the computer era, information systems and electronic controls dominate every aspect of our economic life and the public's health and safety. Lack of power can lead to significant fatalities and wreak tremendous havoc on our economy. This is certainly a desirable outcome to—and hence

a goal of—our terrorist enemies as well as an accident that can occur, as we saw last month.

The economic implications of a blackout are thus even greater than they might seem at first glance. It didn't take even 4 days before the vultures started circling—in this case trial lawyers rather than terrorists. On August 18th the first lawsuit was filed, a class action lawsuit in Ohio on behalf of all persons and entities residing in the United States who lost electrical power during the blackout. We are still investigating the causes of these events, but profiteers are lining up to make sure that they get theirs.

The threat to the Nation is more complex than might appear on the surface. Together, the Energy and Commerce Committee and the Homeland Security Committee must determine accurately how vulnerable our power system is to attack and sustain denial and what steps we can take to reduce that vulnerability and mitigate the potential damage through contingency planning.

We have an extraordinary 2 days, Mr. Chairman, during which we will learn a great deal; and I look forward to moving the energy legislation in this Congress which I strongly believe is connected fundamentally to these issues.

I would merely add to what the chairman mentioned a moment ago. That is, that all of our electric power systems, save for nuclear and hydro, operate on sources of energy that are not included in the electricity title of the energy legislation; and we have got to take a look at the entire picture. Simply put, in the 21st century we are using so much power for computers and new electric technology that the system that we have built is going to break down unless we invest.

Thank you, Mr. Chairman.

Chairman TAUZIN. I thank my friend.

I should also remind the members that as this investigation goes forward, as our committee and Mr. Cox's committee goes forward, we also have a task force at work looking at the natural gas crisis that we also predicted is going to occur very soon because of the shortage of natural gas to power plants and to operate the chemical industry in our country. I had meetings in my district over the break on that subject, and there are some pretty serious problems there.

I also want to comment before we move on to Ms. Eshoo, I hope you all had the same sense I had watching the citizens of New York walking the streets and the eerie reminder of 9/11; and I want to encourage Mr. Cox in examining how exactly the Nation responded to this crisis because I think it teaches us a lot of lessons about how we can better prepare ourselves for hopefully something we don't have to see again but could happen again, some other strike against our country.

The Chair is pleased to welcome and recognize the gentlewoman from California, Ms. Eshoo, for an opening statement.

Ms. ESHOO. Thank you, Mr. Chairman, for holding this important public inquiry into the Northeast blackout of August 14.

The joint U.S.-Canadian inquiry that got off the ground on August 19 is reportedly making progress, but the investigators are still churning through data. Before the committee draws conclu-

sions and makes sweeping policy decisions, I think we have the responsibility to know the results of that inquiry.

Unfortunately, in the absence of fact, theories and rumors are ruling the day. A few energy companies have developed time lines and theories to put themselves in the best light and put the blame on others. Everyone is denying responsibility. The House leadership has brought out the familiar theories that were advanced during the California energy crisis: blaming environmental rules, consumer protection laws, transmission constraints and the law of supply and demand.

Back in 2001, these theories were the justification for passing the highly flawed national energy policy which did nothing to solve the price gouging and market manipulation that I and other members of Western States asked for help in stopping. When we began learning the facts about the California crisis after the release in May, 2002, of internal Enron numbers that detailed how the market was manipulated, the silence was deafening on the part of the administration and the House leadership. Our calls for hearings were completely ignored. The facts were too inconvenient. Now this blackout, the Northeast blackout, like the western energy crisis, is serving as justification for passing a national energy policy that has little to do with the underlying causes of the power outage.

We have to know the facts. The Bush Administration, known for its coziness with oil and energy interests, has to stretch itself to move to the public interest. So I not only look forward to hearing the testimony today, but also hope that this committee, where the policy responsibility lies squarely with the Energy and Commerce Committee, will come up with a policy that directs itself toward the real issues and not to paper over and to force through a national energy policy that really does not fit with the facts.

Thank you, Mr. Chairman.

Chairman TAUZIN. The Chair thanks the gentlelady; and the Chair is pleased to recognize the gentleman, Mr. Whitfield, for an opening statement.

Mr. WHITFIELD. Mr. Chairman, thank you very much; and I want to thank those people attending from all three panels today. Secretary Abraham, we are glad you are here, and we will have local and State officials as well as those people from the various commissions that regulate the utilities.

The blackout that swept across much of the Northeastern United States and parts of Eastern Canada we know can happen again almost at any time because the 150,000 miles of transmission lines are simply not adequate. The load growth has been more than 60 percent in the last 20 years, and yet the high voltage transmission lines have increased by only 20 percent during that time.

Now some people seem to think that moving quickly on a stand-alone reliability piece of legislation is the best way to proceed. That may be true, but I think everyone understands that isn't going to be easy either because of the complex issues involved here.

We have a myriad of competing interests. We have low-cost States that are very much concerned about having to pay to upgrade transmission lines in other parts of the country. We have concerns about some strong environmental States who don't want

coal plants built in their area, but they want to import electricity produced by coal from other areas of the country.

We also know that power was available east of California during the energy crisis in California in 2000 and 2001, but there were simply not adequate transmission lines to get that power out there. We know that the power traders could not have manipulated the markets if there had been adequate transmission lines into California.

So all of us want to address this issue and do everything that we possibly can to solve it, but I think it is naive for any of us to think that it is going to be very easy to do. And while I certainly would be willing to work with those wanting to move a stand-alone reliability legislation, I don't think that is going to be easy either. It is going to be complex, and I am delighted you are having this hearing today.

Chairman TAUZIN. Would the gentleman yield for a second?

I want to point out to all my friends who are listening on this side, as you know, the other Chamber was not even able to pass a new bill and gave up trying to pass a new bill. They ended up by unanimous consent adopting the bill of last Congress so at least we could go to conference and try to work this out.

The good news, of course, is that, in the conference, reliability provisions are already in the mix. So whether we have a separate stand-alone bill or not, it is before the House and the Senate. And the gentleman is right. We at least have a chance in the conference to complete that work. We ought not to miss that chance.

I thank the gentleman for yielding.

The Chair recognizes the gentleman from Florida, Mr. Deutsch, for an opening statement.

Mr. DEUTSCH. Thank you, Mr. Chairman.

I think all of us in our own life experience know that things happen that we don't plan for but that create opportunities. And how we respond to those changes and challenges defines us as individuals, but I think this challenge will define us in many ways as a country as well. Others have spoken to this, but I think it is important to focus that there is really this consensus point that exists in terms of what we need to do with the electric grid in the United States of America.

I think each of us understands that it is our job to fight for what we believe in but also to represent our constituents and the entire country, and we need to take politics out of many of these decision-making processes, which is exactly what the country needs for us to do. For that reason, I think the focus really is and we will be judged on our ability to really support and pass separate legislation to specifically deal with the grid issue, which there is a consensus both from the Democrats and the Republicans outside of the body of the entire bill. I think America is focused, and America is watching, and I believe we are up to that challenge.

I also want to mention another issue which is hopefully this will be really an opportunity and view this as an opportunity for us collectively as a Congress and the country to really take the energy bill and—not in the bill itself but maybe in other legislation in this Congress a step further. We are still at a point where effectively the largest tax in the history of the world continues to take place

because of the power of OPEC over ourselves and other oil-consuming nations, and there needs to be a concerted effort.

If we acknowledge that the greatest challenge facing our country is the threat of terrorists having weapons of mass destruction, which I believe there is a consensus on, and the greatest challenge of our country is our macroeconomy, which we can't defend ourselves unless our macroeconomy is strong, then our inability to address what is in fact the greatest threat to both our economy and our security, which is the threat of OPEC's power over us and the inability not just of this administration but really of the prior administration as well to challenge, that is really a question that I hope that this Congress and this country uses this opportunity, uses this crisis to change.

Mr. Secretary, as you probably are aware, your department supported a conference on this, actually, this past week in Israel, which I heard about. I have read some of the documents presented there, and I hope it is something we can address in a larger setting.

Chairman TAUZIN. The Chair thanks the gentleman for his statement and recognizes the gentleman from Illinois, Mr. Shimkus, for an opening statement.

Mr. SHIMKUS. I apologize for taking the 5 minutes.

We have New Yorkers here, and I want to send word to them—I know Mr. Engel and Mr. Towns—I think the Nation was really impressed by the way the folks of New York City handled the blackout in a calm demeanor. There were some great stories out of that. I think the folks in the Midwest were really pleased and honored by that response.

I do also want you to know that most people in my district understand that I serve on this committee, and so right afterwards I got a lot of questions where are you at, what have you done and how soon can you get something moved. And I said, well, we are at a great time because we passed a bill both in the House and the Senate, and we are moving the conference. These hearings are designed for us to get the final bits of information that we can go and insert them into a national energy plan.

So what do we have in there? Well, we have the repeal of PUHCA, which could bring more capital to expand the transmission grid. We have accelerated depreciation from 20 to 15 years for electric transmission assets. We need in the bill—Congress—we need to be stepped up and ensure that the expansion of the grid is not slowed down by State regulators. So that is empowering the FERC on siting.

The reliability issues have been addressed, and that is part of the bill.

I am a big proponent of standard market design. Whether that gets part of the final part or not I am not sure, but I do think that is important if you are going to have a national transmission system, a national grid.

We have a critical moment in time to move this bill. The public expects us to have success. We need to get our two final FERC commissioners at least up for a vote on the Senate floor. They have been delayed. How can you have the FERC fully vent out a problem when you only have three of the five seats filled?

So if you have some of the highest natural gas prices that we have seen in a long time—and I am on the Natural Gas Task Force and we had hearings. We had no industry producing—only one industry in this country producing fertilizer, and that is a farmer-owned co-op. And if you have some of the highest gas prices that you seen in years and you have 50 million people without power, if you can't move a national energy plan bill now in this environment, my fear is we will never do it. The time is ripe.

Thank you for coming.

Chairman TAUZIN. Just yield, the CF industries in my district laid off a bunch of workers again as they are shutting down more production at the chemical plants, fertilizer plants and basic building blocks of fertilizer because of the high price of natural gas. This is more than just a electricity problems.

I thank the gentleman.

The Chair now recognizes another gentleman from Michigan who also experienced a blackout, Mr. Stupak, for an opening statement.

Mr. STUPAK. Mr. Chairman, I will pass, but we didn't experience blackouts because I come from the best part of Michigan.

Mr. SHIMKUS. You don't have power up there.

Chairman TAUZIN. The Chair thanks the gentleman for passing and understands his pride in his district.

The Chair recognizes the gentlelady from California, Mrs. Capps, for an opening statement.

Mrs. CAPPS. Thank you, Mr. Chairman; and thank you to Secretary Abraham for testifying today.

I have a great deal of sympathy for the 50 million citizens who lost power last month. As many here remember, millions of businesses and families in California faced rolling blackouts a couple of years ago. These rolling blackouts inconvenienced millions and cost businesses billions, and the impacts are still being felt today. California was robbed of \$9 billion by energy companies that illegally drove up electricity and natural gas prices. I am relieved that the long-term implications in the blackouts in the Midwest, Northeast and Canada will not be so dire.

I wish to make a couple of points this morning. First, there is an eerie similarity in the reactions to the blackouts and to California's situation. California's troubles were used as an excuse to push through an energy bill that really had very little to do with the problems in California, and the same is happening today.

Two-and-a-half years ago charges were made that the energy crisis was because California hadn't built enough power plants to meet growing demand or the Endangered Species Act was delaying new construction or the Clean Air Act was shutting down existing plants. And of course it wasn't any of these things. It was Enron, El Paso Natural Gas and other energy companies exploiting a badly written law and ripping off California. FERC's subsequent investigations have uncovered the market manipulation in case after case after case.

The congressional response at the time, however, was to push through a bill which had nothing to do with what caused California's problems. The bill subsidized energy companies, opened more public lands to drilling and a host of industry goodies.

Today we are not exactly sure what happened last month, but we are pretty sure it wasn't about the need to drill in the wildlife refuge or with big ethanol mandates or with more subsidies for nuclear power. And yet, like 2 years ago, the call goes out again for passage of a controversial energy bill, most of which has nothing to do with the issue at hand, the reliability of the electricity grid.

So I agree with Mr. Dingell's call for quick passage of the energy bill's bipartisan reliability standards. These provisions have been agreed to by all parties for a number of years now. We know we need to make these changes, and we are pretty sure they factored into the blackouts. So I hope we won't let them get bogged down in the bill's other more controversial measures.

In addition, I would like to bring to the members' attention an observation. The day after the blackout, political leaders in the affected areas made public calls for everyone to conserve energy to make sure the system wasn't overloaded when the lights came back on. It was a very smart call. People will pull together to conserve energy consumption if they are called upon, and conservation does work. In California, consumers cut consumption by 10 percent 2 years ago, and it helped to stop our energy crisis. But we should be making every effort to conserve energy every day, not just when there is a crisis; and yet the energy bill takes only baby steps to make sure air conditioners, buildings and cars are as efficient as possible. This committee even voted down some sensible conservation amendments.

As the bill moves through conference, we should revisit the conservation measures and do more, much more. The blackout showed us again the instinct in our fellow Americans to do the right thing. We in Congress need to show some leadership on this issue, and the country will respond.

Thank you. I yield back.

Chairman TAUZIN. I thank the gentlelady.

The Chair is now pleased to recognize the gentleman from Georgia, Mr. Norwood, for an opening statement.

Mr. NORWOOD. I will file an opening statement but just have a couple of remarks.

Thank you, sir, for having this very important hearing; and I thank Secretary Abraham for being here and for your leadership in energy matters.

As bad as everything was for the Northeast during the blackout, and I won't reiterate, everybody knows how terrible it is to be without electricity in the 21st century, as bad as you know all of that was, there was a real possibility here, a real potential here that Congress might actually do what it should do and pass a comprehensive energy bill. I think the House has done a pretty good job and has fought it out real well, and I hope the other body now will get serious about producing a comprehensive energy bill, not simply about electricity, although that is the subject today. The other parts of energy required by this country need to be dealt with, too; and let us hope that the Senate will finally wake up and come to conference and let us get serious about it.

Mr. Secretary, I know the task force is working hard; and it is very important in my opinion for us to have a clear understanding of exactly what caused this blackout for two reasons. When we un-

derstand that, we may be able to put things in legislation that would prevent it in the future.

But, second, until we hear from your task force, for some people it will be an excuse for us not to move forward on a comprehensive energy bill; and I encourage you and the Canadian members and U.S. Members of this task force to act with some haste and get us that information as soon as you can so that at the end of this first year of this Congress we won't be sitting there saying, well, we can't bring a bill up because we don't know what the cause of this issue was. So it clearly is pretty important that you folks act as quickly as you can; and, Mr. Chairman, I look forward to a conference so that we can come up with a comprehensive energy bill, not just an electricity title, although it is vital to our subject, too.

Chairman TAUZIN. I thank my friend; and I want to, for purposes of information, inform the audience that while we have not had official appointment of conferees on the energy bill with the Senate, staffs of House and Senate have been talking and isolating areas of agreements and disagreements and we have made a lot of progress during the month of August. We are going to move as fast as we can as soon as the Speaker makes the announcement of the conferees.

I thank the gentleman.

The Chair now recognizes the gentleman from Florida, Mr. Davis, for an opening statement.

Mr. DAVIS. Thank you, Mr. Chairman. I will waive my time.

Chairman TAUZIN. The gentleman waives; and the Chair recognizes the gentelady from California, Ms. Solis, for an opening statement.

Ms. SOLIS. Thank you, Mr. Chairman.

I would like to thank the Secretary for being here.

As a Californian, I understand the importance of trying to make sure that we address our energy issues. I am not going to read through my statement but just point out that we need to address this energy shortage and there are some elements that I think we should consider.

In my opinion, something that we should have kept in both the House and Senate energy bills was the protection of consumers, specifically consumer protection under the PUHCA law as it is stated to provide some kind of reliability and accountability to consumers. California went through a devastating crisis, and we are hopeful that this kind of language will be kept in whatever bill comes before the conference committee.

As someone who has looked at how we can better systematically improve our conservation efforts in California, we know what it means to roll up our sleeves and conserve. We have done it. We were also victimized by unscrupulous businesses like Enron and others that came in and gouged the system.

We still need FERC to come in and do some work, some heavy lifting for Californians, because many of our small businesses and in particular, minority businesses went under because of the increase in electricity bills that they were faced with and we have yet to see any remedy. When we talk about reforming this reliability plan for energy usage, we should look at renewables and conserva-

tion and above all protection for consumers, and I would leave it at that.

Chairman TAUZIN. The Chair thanks the gentlelady; and the Chair recognizes another member from the State of Michigan, Mr. Rogers.

Mr. ROGERS. Thank you, Mr. Chairman. I have a written statement for the record.

Mr. Secretary, I just wanted to welcome you here today. As I am sure you can see, the political funny season has begun, and whatever action that you are to take or have taken is exactly wrong. I want to thank you for taking a thoughtful approach to what you have done and resisting the temptation to ready, shoot, aim.

I am looking forward to your testimony. If we are going to respond in a manner that is consistent with what consumers want, need and should have, we have got to know the facts. The investigation that you have undertaken in your testimony today has shed a lot of light here, and thank you for the work did you have done so far.

Chairman TAUZIN. The Chair thanks the gentleman and recognizes the gentlelady, Ms. McCarthy, for an opening statement.

Ms. MCCARTHY. I thank you, Mr. Chairman, and Ranking Member Dingell for holding this hearing to discuss the causes of the massive power failure that affected parts of the U.S. Midwest, eastern seaboard and Eastern Canada. During this hearing it is imperative that we address reliability issues, energy efficiency as well as problems related to the transmission grid.

I look forward to hearing from you, Mr. Secretary, and from our panel of expert witnesses today and tomorrow. The 2003 blackout shut down cities, airports, trains, subways, businesses, disrupted hospitals and dramatically changed the lives of millions of people who were unable to lead their daily routines. It is apparent from these events that our electricity grid needs to be modernized and upgraded in order to meet our growing power demands.

We also need to reevaluate the reliability requirements on utility companies and ensure that provisions in our PUHCA law remain so that unfair pricing does not occur in the future. It is highly critical that we also invest in a reliable, affordable and cleaner energy system that increases conservation and efficiency. Giving power companies more authority to upgrade their facilities while allowing them to override environmental regulations should not be the way we lead our Nation.

I am pleased that the legislation under consideration includes Federal penalties if companies fail to detect and isolate problems or, if they do not know, notify neighboring power systems of problems in order to avert future events such as we experienced. We can aggressively reduce demand by employing energy efficient technologies and encouraging sound conservation measures as an essential component of our energy policy. Utilizing more kinds of energy sources and using smaller, more distributive installations for peaking power will reduce the impact of system failures. Renewable energy sources, including wind, biomass and solar, lend themselves to these smaller energy generation installations.

We as a Nation need to invest in more energy efficiencies since this is the fastest, cheapest and cleanest way to reduce the strain

on our electrical system so it will save consumers money, reduce pollution and the need to ship power from region to region.

Mr. Chairman, our strategy to address energy policy can produce a reliable supply of diverse fuels that minimize greenhouse gases and secure our leadership in energy technology to benefit our consumers and to export around the world.

It is imperative that we invest in alternative fuels and reduce carbon emissions when considering a national energy proposal. We can do much more with the energy sources we already have by pursuing energy efficiency in our buildings, appliances, office equipment and industrial equipment and processes.

Energy efficiency helps keep the money in our economy for productive purposes. It lessens the strain on electricity generation and transmission systems, while helping to reduce the impact of system failures and future blackouts.

Thank you. And I look forward to working with my colleagues to address these critical issues. I thank every one of the panelists today for sharing their expertise in these matters. I yield back.

Chairman TAUZIN. The Chair thanks the gentlelady. I recognize the gentleman from Oregon, Mr. Walden, for an opening statement.

Mr. WALDEN. Thank you very much, Mr. Chairman. Well, here we are again with another crisis that hopefully will prompt Congress to act. But I am disturbed by some of the comments from my colleagues on the other side of the aisle today, that just because we had a blackout means we shouldn't deal with the natural gas crisis that the Chairman of the Federal Reserve told us is upon us, or that we shouldn't deal with the gasoline problem that I will tell you, my constituents in Oregon are objecting to \$2.09 gas.

There are a lot of issues that need to be dealt with on a comprehensive plan as put forth by this administration and this Secretary and by this committee, that I think we ought to get ahead of the problem rather than wait until the crisis forces Congress to act.

And, Mr. Chairman, I commend you for your efforts, especially as it relates to the Pacific Northwest. You see, 7 years and 4 days before the upper part of our country in the Northeast suffered a blackout Bonneville Power Administration suffered a blackout. You know what they found there? Overloaded lines, sagging lines into brush, problems that eventually they figured out how to resolve.

But from 1987 until this summer no new transmission lines were constructed. Why? In large part because of a lack of financial resources. Mr. Chairman, I want to thank you and I want to thank the Bush Administration and Secretary Abraham for working with us in the Northwest to secure \$700 million in new bonding authority for the Bonneville Power Administration.

As a result, this summer, new construction began in multiple locations to address the problem of adequate transmission and reliability standards for the future, and I think it is important to point out that the head of the Bonneville Power Administration, Steve Wright, said in an opinion piece of August 15, he really summed it up, and I think this says it all: We need to make the reliability standards for market participants mandatory and we need to enhance our electricity infrastructure. That is pretty much it. The rest is trying to sort out what happened in a matter of minutes or

seconds, a matter of milliseconds in some cases with date stamps that don't add up, depending upon which computer they are on.

It is going to take a lot of work. And Bonneville is putting forth a rule guru in the industry, Bill Middlestead, to help in this bi-country investigation.

So, Mr. Secretary, I commend you for undertaking this effort to try and figure out what went wrong, and further for continuing to push forward on a comprehensive energy reform plan that includes conservation and includes our ability to get electricity where we need it, that includes trying to develop additional national gas resources, gasoline and oil resources, and clean coal technology.

So, Mr. Chairman, I thank you for your help with bonding authority. I hope that we can move forward with the additional authority Bonneville says it needs to stay ahead of the curve as we move forward. Thank you.

Chairman TAUZIN. I thank the gentleman for his kind words. And the Chair yields to the gentleman from Tennessee, Mr. Gordon, for an opening statement.

Mr. GORDON. Thank you, Mr. Chairman. Honoring your earlier request, I will make my formal remarks part of the record, and just quickly say that as important as this issue is a bad bill is worse than no bill. We have got a unique opportunity we need to get right.

Chairman TAUZIN. Thank the gentleman. And the Chair recognizes the gentleman from North Carolina, the vice chairman of our committee, Mr. Burr, for an opening statement.

Mr. BURR. I thank the Chair. I welcome all Members back, and I especially welcome the Secretary back, who is a dear friend of this committee.

Mr. Chairman, it is not difficult if we are looking for an answer to the question of what happened. Many Members of Congress got on the talk shows days and weeks after the blackout, and they suggested that they knew what happened. They were very specific in a wide range of reasons as to why a blackout happened in the Northeast.

The unfortunate thing is that as we are challenged to write good policy that leads us into the next decade with an honest energy blueprint we have got to understand what really happened. We have got to understand where we really want to go. We have got to understand what our real needs are. And to do that, I think it is important that we stop and take a deep breath and that we spend more time listening over the next 2 days than we do talking as members of this committee.

I want to take this opportunity to applaud Mr. Wynn and others who have consistently, as we have talked about the need for energy policy and electricity legislation, never let us forget that the transmission grid deserves and requires a tremendous upgrade for us to go into the future.

At the end of the day, regardless of what we find the reasons to be for the blackout, this has been a preview of potentially what could happen if we don't make the investments for our future and for the future needs of the infrastructure in this country.

Mr. Chairman, I want to urge you and whoever are in fact the conferees at the time to fight in conference for the language that

we need to make sure that the transmission grid is upgraded, that it is not forgotten, and I want to encourage you to remember that to accomplish this we have to have the confidence of the financial markets that there is a return that is predictable for them to finance what could be an asset outlay as large as what the current value of our transmission grid is.

Mr. Chairman, I thank you for this hearing. Mr. Secretary, again, we thank you for your insight. I yield back.

Chairman TAUZIN. Thank the gentleman for those comments. They are absolutely valid. And the Chair recognizes the gentleman he just referred to, our friend from Maryland, Mr. Wynn, for an opening statement.

Mr. WYNN. Thank you very much, Mr. Chairman. Let me begin by thanking you for moving expeditiously and aggressively in addressing this issue. Mr. Secretary, welcome, we look forward to your testimony.

I would like to note that this hearing is not taking place in isolation; we have a product on the table—an energy bill. And I think that this committee should be a driving force to make sure that the conferees meet quickly to address the issues. If the desire is for a comprehensive bill, lets move forward and conclude this business before we go home.

If we reach a conclusion that we cannot in fact do that, we ought to move forward on those areas of consensus. I think reliability is such an area as indicated by our ranking member, Mr. Dingell.

I have had the pleasure of working with Mr. Burr on the issue of reliability over several years, and we think we have a product in the form of H.R. 1370 that would have addressed some of the concerns that we are talking about here today. The bottom line is that our electricity grid, transmission grid is not up to snuff. It is outdated, overburdened, and should be addressed with mandatory reliability standards. Our legislation does that. It provides for the establishment of an electric reliability organization with the Federal Energy Regulatory Commission providing oversight.

This would facilitate the development and enforcement of mandatory reliability rules and standards that are binding on all electric companies and market participants. These standards would include technical standards relating to the maintenance and operation of electrical systems, performance standards for electrical systems and preparedness standards. Critically, we need preparedness standards related to the ability of those managing the electrical system to respond to anomalies or unexpected events in the grid.

What we need is a system in place today that would provide the Federal Government with the authority and tools to sanction companies that don't comply with reliability standards. Another area of concern as Mr. Burr mentioned, is a lack of investment in the transmission system. Our bill would require the FERC to adopt transmission rules to promote capital investment. That is what we need in the system to improve the operation and allow for returns to investors reflecting the financial, operational and other risks inherent in transmission investment.

And, finally, our legislation would address the issue of siting. We need to expedite siting. H.R. 1370 would give the FERC the ability to site transmission if State or local governments aren't able to do

so. This is a serious problem. We are all talking about it now, but the problem has existed for some time. We need to take the responsibility to act, either comprehensively and address all of our issues in energy needs or to address those issues that we can agree on and make sure we do something before we go home. I hope we will be able to do that.

Thank you very much, Mr. Chairman.

Chairman TAUZIN. I thank my friend. The Chair is now pleased to welcome the gentleman, the former lieutenant Governor of the great State of Idaho, Mr. Otter.

Mr. OTTER. Thank you, Mr. Chairman. It is well known that the United States must maintain an abundant and reliable supply of energy to keep our economic recovery on track.

We saw earlier this month in the Northeast what can happen when energy supplies are disrupted. The potential cost is enormous, both in economic and in human terms. I am pleased that the chairman is holding this hearing today to look into exactly what happened in the Northeast and why it happened. Were we truly the architects of our own disaster?

We also need to determine what can be done to prevent this type of disruption from happening in the future. However; as we move forward, we need to be careful not to rush to a one national, one size fits all approach in response to what happened in the Northeast. While there is obviously need to improve transmission across the country, any proposal to do so must take into account regional differences.

I believe we need to work to remove unnecessary bureaucratic impediments to site transmission, as well as electrical generation. We need to streamline State and Federal siting processes and look into the NIMBY, not in my back yard, problem. I also believe we need more investment in the electrical industry, and should make sure that Congress is giving the right signals to encourage such investment.

With that, Mr. Chairman, I yield back my time.

Chairman TAUZIN. I thank the gentleman. The Chair recognizes the gentleman from New York, Mr. Engel. And I too want to again, Eliot, on behalf of the entire Nation express our admiration to the folks in New York for the way that they handled yet another enormous crisis.

I recognize my friend, Mr. Engel, for an opening statement.

Mr. ENGEL. I thank the chairman for his kind words, and I thank Mr. Shimkus as well. We may see, as a result of what happened with the blackout that comes this May the census in New York may increase a great deal and that perhaps we can get back some of the Congressional districts we have been losing to reapportionment as a result.

Chairman TAUZIN. Wasn't that the effect of the last blackout? Wasn't there a huge baby boom in New York?

Mr. ENGEL. Well, it did. In 1965 and 1977 we saw that happening. So, but seriously, Mr. Chairman, thank you.

I am obviously, as every one else, but particularly as a New Yorker, outraged by the blackout. We were told that this couldn't happen. When we suffered in New York through the blackouts of 1965 and then 1977, we were told that after that happened steps

were taken to ensure that it could never happen again. And yet it did. I am glad we are holding hearings, because I want to know what happened. We all want to know what happened. There are many issues to be discussed.

Did deregulation play a role? What are other reasons that this blackout happened? What disturbs me though, and I hope this doesn't happen, is that I don't want, and I have heard some rumblings of it today, I don't want this blackout to be used to have a bill or to push a bill that has already been put forward.

And, for instance, we have a bill that we passed in this Congress, which many of us have great difficulties with it. There is drilling in the Alaska wilderness. There is an energy bill that I believe is so tilted toward the industry and against renewable energy sources and conservation and sound energy policies that sometimes you have to wonder if no bill might be better than that bill. What troubles me with the administration is that the administration seems to believe, and I think the energy bill reflects it, that the solution to our energy problems is production, more oil, more gas, more power, drill in the Alaska wilderness. That will take care of all of our problems. But that won't.

That is not the problem that caused the blackout, which cost the people and businesses of New York about \$1 billion. By all accounts, it looks like this is a problem about transmission, the infrastructure of a national grid that was designed with 1950's technology and is being used in the 21st industry. We need to upgrade that grid.

But I want to also use this to highlight a lot of differences that I and many others on this side of the aisle have with the Bush Administration about energy and about their energy policies, and my fear is that the administration will rush to use this blackout as a way to rubber stamp what I think are misguided energy policies. I want to talk about some of them.

The unilateral withdrawal from the Kyoto protocol, the development of energy policies in secret, and refusal to provide documentation of these meetings contrary to Congress's request, the weakening of Clean Air Act regulations that will allow power plants in the Midwest to foul and pollute the air of New York.

Also, most egregious, in light of September 11, the recent revelation by EPA's Inspector General that states that the White House and National Security Council forced EPA to lie about the air quality in New York City just after September 11 to cook the books to make it look better.

Of course, my favorite, the decision by FEMA and the NRC to approve the evacuation plan for Indian Point Nuclear Power Plant without certification from the State of New York or the local Counties of Westchester, Rockland, Orange and Putnam. So much for State and local control.

Again, I hope that what happened is not used by the administration and others that support the administration's policies as a way of trying to ram through what I think are wrong policies.

I want to ensure that the public gets the true facts, not facts that may be scrubbed to ensure its compatibility with administration doctrine. You know, when I was growing up, Mr. Chairman, we all

watched the show Dragnet. And Detective Joe Friday used to say: The facts, ma'am, just the facts.

Well, I want to know the facts. I want to know what happened with this blackout. Frankly, I want to know what is happening with energy policies throughout the country. Gas prices are jumping in leaps and bounds. Every week you turn around and the price of gasoline has gone up 10 or 15 cents a gallon. I want to know if there is some kind of collusion because I cannot believe that there is any other reason for gas prices to increase so quickly.

So I want to say that we need investigations so we know what truly happened, so we find out what truly happened. I want to make sure that when it comes to investigating energy policies in this country that the administration doesn't take the view of these three monkeys, hear no evil, see no evil, and speak no evil.

I look forward to the testimony today.

Chairman TAUZIN. I thank the gentleman. The Chair would want to point out in light of his comments, however, that while there were many Democrats who voted against the energy policy bill that was adopted by the House that has gone to conference, there were well over 40 Democrats who voted for it. It had very much of a bipartisan element in that regard. And there was no attempt to ram it through. I just want to caution my friend that we are trying our best to get consensus where we can and will continue to do so.

The Chair is now pleased to recognize Mr. Total Recall, the gentleman from California, Mr. Issa, for an opening statement. Darrell, before you give your opening statement, I want to point out that the gentleman sitting in the front out there, in the first row on the right, third seat, remarkably reminds us of Gray Davis. I was a little concerned that Gray Davis had shown up today to face off with you.

But the Chair is now pleased to—thank you for letting me do this, but the Chair welcomes the gentleman from California, Mr. Issa, for an opening statement.

Mr. ISSA. Thank you, Mr. Chairman. I am sure that Governor Davis is busy doing the work of the people in California today.

But oddly enough focusing on California may be appropriate for my 3 minutes of time with the indulgence of the Secretary. It is interesting that when you look at this issue for 24 hours a day, 7 days a week, year after year after year, that we don't have more blackouts. Though I don't want to reduce the importance of this committee investigating and understanding what the cause of this massive blackout was, which may have cost the American people billions of dollars of lost revenue, I think it is also important that we not use this event as a platform from which to move or not move every agenda, particularly from my colleagues on the other side of the aisle from California, a State in which NIMBYism has been taken to the highest possible level, a State that, with all due respect to those who said we have taken care of our energy crisis, what we did is we exported our jobs. We have higher unemployment than we had when the energy crisis first happened in the West, and I think it is the result of logical and pragmatic thinking on behalf of the businesses of California. They have left California and taken with them their high paying jobs and their energy consumption.

California, for the first time in decades, or in over a decade, is a net exporter of people. We are losing jobs. We have higher than national average unemployment. And all of that is legitimately the result of a lack of affordable and reliable energy in addition to some other well publicized problems.

So as we review what happened when the lights went out on the East Coast I don't think we should haphazardly try to confuse the two. California's problems have to do with an unwillingness to produce new sources of reliable energy. We are a net importing region and one that has a problem that if and/or when our jobs ever return the problems of energy shortage will return.

So, Mr. Secretary, I look forward to this committee understanding better what did happen when the lights went out in the East, and hopefully there will be no more references to somehow linking California's inability to fix California's problems to a national issue. With that I yield back, Mr. Chairman.

Chairman TAUZIN. The gentleman yields back. I think we have four or five other Members who are going to give opening statements, Mr. Secretary. Then we will take a 5-minute break for you and for anyone else who may need a little break before we take your testimony.

Next the Chair is pleased to recognize the gentleman from Pennsylvania, Mr. Doyle, for an opening statement.

Mr. DOYLE. I want to thank you, Mr. Chairman, for calling this hearing today. Clearly the blackout earlier this summer has rightfully attracted a great deal of attention and concern, and the issues involved here are complex. And while I suspect that we are unlikely to reach any definite answers through this set of hearings, largely because it is simply too soon to know all of the answers and those conducting the ongoing investigations need time to continue their work, these hearings I hope will still be productive, if for no other reason than they raise the level of awareness of the issues and help to find the questions we need to answer.

Thankfully my district in Pittsburgh and in fact most of Pennsylvania was spared from the direct repercussions of the blackout. But just because our lights stayed on this time, that does not mean that will always be the case. I think it behooves us all to work together to address the problems that arose on a national basis. I have said many times in the past that it is imperative that we strive to create effective cooperative regional approaches to the transmission of electricity.

The RTO that we operate under in Pennsylvania has largely been a success story in this regard, and I believe it provides an effective model for the rest of the country. One danger as I see it is that the lesson we take from this blackout becomes that deregulation is too dangerous and that we should rely on the status quo in many regions as the safest course.

In my view, nothing can be further from the truth. We need to continue to modernize and update our systems, adopt uniform reliability standards, and continue to create large RTOs as this will be the most effective way to oversee the transmission of power and comes closest to recognizing that these are not issues that stop at State boundaries.

Protecting local interests or States rights in this case will not lead to effectively modernizing the whole system. If this blackout causes us to regress from a more standard national approach, that will be a true step backwards and the lingering effects of the blackout will prove even more damaging than they have already been.

I want to also mention another issue that I have been involved in for quite some time, and that is promoting the utilization of distributed generation. When we look at the long-term approaches to addressing the problems that ironically enough this blackout brought to light, it is imperative that aggressive utilization and implementation of distributed generation technology and continued support for R&D work on this important—be an important part of our mix.

Distributed generation technologies like fuel cells, micro turbines and the like are providing reliable and secure power throughout the Nation, and we need to promote their use, so that at least our critical facilities like hospitals, police stations, our military installations are guaranteed safe reliable power, even in the case of blackouts like the one we recently endured.

The current issue of the Economist made a case for DG quite clear when they wrote: A system with more distributed generation would be more robust than today's grid. They continued that by speculating that the safest place in New York during the blackout may have been the middle of Central Park. Why? Because the police station in the park uses fuel cells. While the rest of the city was in darkness, super clean micro power plants carried on unaffected. New York's finest had all of the power and light they needed. To me, that is a clear example of the importance of distributed generation, and why I think we must focus on its widespread utilization as an integral part of our long-term efforts to address issues raised by this devastating blackout.

Mr. Chairman, I thank you and yield back my time.

Chairman TAUZIN. I thank the gentleman for his statement. And the Chair recognizes the gentleman from Florida, Mr. Stearns, for an opening statement.

Mr. STEARNS. Good morning. And, Mr. Chairman, let me commend you for your leadership and your expeditious manner in having this hearing, and of course our witnesses for their patience through these opening statements.

I think the American people should realize, of course, that we have this hearing to find out what happened. We also have the joint U.S.-Canadian task force, the North America Electrical Rural Council, and the affected utilities themselves are all trying to analyze what is a tremendous amount of data to try and understand exactly what happened.

The good news, even though we had these many States that lost electricity, there was no huge amount of damage, so that in short order the States came back. We all know we avoided a catastrophe, because if it had gone on for 2 or 3 days, possibly there would have been severe damage in our infrastructure as well as what would happen to the food and to the water.

I think many of my Members have mentioned we should pass our comprehensive energy bill, H.R. 6. We have a companion on the Senate side. We are hoping that this is a way for the public to

focus on the need for a comprehensive energy plan which our bill H.R. 6 encompasses. We encourage investment. We provide incentives. It is not all about one thing, but it is a lot about many things, including trying to preserve energy and be more efficient with it.

I would offer a word of caution, Mr. Chairman, that we need to look at this event in its totality. There were no shut-outs in the southern part of the country. We note that the regional differences that exist in this country have to be taken into account when looking to increase the number of independent organizations, such as the RTOs and the ISOs, whatever the next three-letter acronym may be as a result of our discussion.

Throughout the Southeast, and I am from Florida, there has been lots of talk about our energy systems. But we were successful, and our States continue to work effectively in planning, I believe in coordinating and maintaining effective reliability measures. So I want to put that in the record.

So I welcome the witnesses, and again I commend you, Mr. Chairman, for this hearing, and I yield back.

Chairman TAUZIN. The Chairman thanks the gentleman, and yields now to the gentleman from Maine, Mr. Allen, for an opening statement.

Mr. ALLEN. Thank you, Mr. Chairman. I will waive an opening and submit my statement for the record.

Chairman TAUZIN. I thank the gentleman, and the Chair recognizes Ms. Schakowsky for an opening statement.

Ms. SCHAKOWSKY. Thank you, Mr. Chairman. And welcome, Mr. Secretary. I am really pleased that the committee is taking the time to investigate the August 14 power outage that left millions of Americans and Canadians without electricity.

I was in Israel watching on CNN late at night as the news broke and city after city was announced, and I think like so many people my first thought was to wonder if terrorism was the cause. And the relief, on finding that in this instance it was not terrorism, was tempered by knowing that in a country as technologically advanced as the United States we have an electric grid that is outdated and vulnerable to such drastic disruptions, whatever the cause, and so that was a returning sense of vulnerability and alarm.

And while it is essential that we find out exactly what happened in a deliberative way, and that is what your task force is doing, it is also true that many, like Mr. Wynn, have been advocating for years that necessary fixes for the grid have to be made, but those fixes have been derailed.

The blackout demonstrated to all of us that we can't delay any longer fixing the deficiencies in the U.S. Power grid. We can't allow for such roadblocks to prevent progress in the future. And in my view, we absolutely can't hold an agreement on the power grid hostage on behalf of an unsound and unwarranted desire by some to open up the Alaska wilderness for drilling, an anti-environmental move that would do nothing to prevent future blackouts.

I support Mr. Dingell's wise suggestion that we move quickly to enforce reliability standards. Reliance on voluntary standards, the market and industry self-regulation will simply not suffice. Particularly given the poor state of the current U.S. Economy, we can't af-

ford a repeat of the disruption to commerce and personal lives that came along with the blackout.

We must work in a constructive bipartisan way to find solutions to the problems that caused the blackout. We need to move quickly and can't allow for extraneous issues or an irrational reliance on the market. Our constituents deserve better, and they deserve a guarantee that their government is acting to prevent future problems.

My constituents have a few major questions: What are we doing to protect them? When will they see the results? So since we know the market alone won't work, what mechanisms are we going to employ to ensure our constituents that their State isn't next?

And if it turns out that blackout was due to the behavior of industry actors, what are we prepared to do in response? These are questions that I hope over time we will get answers to and I hope we will continue these hearings. And I hope that at some point consumer experts will also be invited to present testimony. Thank you.

Chairman TAUZIN. Thank the gentlelady from Illinois. The Chair is pleased to recognize the gentleman from New Jersey, Mr. Ferguson, for an opening statement.

Mr. FERGUSON. Thank you, Mr. Chairman. And I appreciate the ranking member and Secretary and others for making today possible. We are going to obviously talk today about the events of August 14, which resulted in 50 million people being inconvenienced, businesses being hurt, and our Nation's security being put at risk, to name a few items. But it is also important to identify not only what went wrong, but what went right that day.

I say that to highlight the good work Mr. Doyle was talking about before by PJM. By shutting down the power and by protecting the grid, PJM helped to contain the blackout and kept the lights on in most of my home State of New Jersey and in many other areas which otherwise would have been affected.

While today nobody has identified the exact cause of the blackout, we do know that a disturbance within the system resulted in a cascade that crippled the energy grid. Cascades happen very quickly. They don't recognize State boundaries or international boundaries, as we found out. They also don't identify ownership of transmission lines.

When a cascade occurs, communication over a wide network is vital. As a result of having a cohesive regional system in place, our State of New Jersey and PJM were able to help contain the blackout and assist our neighbors in New York during their time of need.

I point this out because during the energy bill debate we had a healthy conversation about the need for RTOs, and their importance was highlighted again during the blackout last month. The blackout also taught us about the need for a comprehensive national energy policy, which as my friend from New York was talking about, all of the different energy questions he has, I would only suggest that if we had a rational national energy policy for the past decade, a lot of those questions would probably be a lot to answer these days.

H.R. 6, which we have passed earlier this area, would take steps to correct a lot of these problems. It would require FERC to take

a hard look at its policies regarding transmission rates and to set them high enough to get lines built. Our bill would also reform the siting of new transmission lines by giving States a year to act on an application for a new transmission line to be built. If the States failed to act, the DOE could step in and work with States to site lines that are deemed critical.

All of these reforms are vital to modernize our grid, to credit investment incentives in our electricity industry and to reform transmission siting rules to reform the not in my backyard attitudes that are currently stopping lines from being built.

I also believe we need to go one step further to recognize the important role that RTOs can play in a deregulated system. RTOs can help avoid another massive blackout by providing the oversight needed to guarantee reliability while also providing consumers with the lowest possible rate due to the purchasing power of a regional entity.

Mr. Chairman, I look forward to the rest of this hearing and I yield back.

Chairman TAUZIN. I thank the gentleman, and thank you for reminding everyone that it was back in April when all of those reforms were passed by the House, much prior to this blackout, and all of them are going to be relevant as we go to conference. I thank the gentleman and I recognize the gentleman also from Illinois, my friend Mr. Rush, for an opening statement.

Mr. RUSH. Thank you, Mr. Chairman. Mr. Chairman, I want to commend you for holding these hearings, and I want to welcome the Secretary, Secretary Abrahams to this hearing. Mr. Chairman, I will try to be as brief as possible. I know that we have a busy time ahead of us.

I caution this committee to not allow this hearing to deteriorate into a finger-pointing game with a lot of political posturing before we can know exactly what happened with the blackout and why it happened. Unfortunately, Mr. Chairman, I believe today's hearings will only highlight the fact that members of this committee, my esteemed colleagues on this committee, significantly disagree on major issues concerning energy regulation, electricity regulation.

No doubt, after learning why transmission lines failed in the Midwest, and subsequently causing cascading failures to the North and in the East, we will continue to fervently disagree over how to appropriately legislate on this matter.

However, there is also much we do agree on in this committee and in this Congress. In this regard, I want to voice my support for Ranking Member Dingell's belief that we should immediately pass a separate reliability bill that would at least partially address the blackout issues before us today.

Mr. Chairman, there is no guarantee that this Congress will present to the President a comprehensive energy bill in the near future. Not only is there significant disagreement over the bill's electricity title, but there is significant disagreement over energy matters unrelated to the blackout.

If we in Congress are serious about protecting Americans from future blackouts as quickly as possible, we should immediately pass a noncontroversial reliability bill with provisions that already enjoy broad-based support.

We can address the other more contentious matters in the energy bill as time permits. Mr. Chairman, I believe that it is indeed important for us that we do provide for some type of a regulatory certainty so that we can send the right kind of signals to those investors who would have to invest their hard earned dollars into trying to upgrade our systems.

Mr. Chairman, I am concerned because I don't know—no one has addressed, and no one has touched on the matter of how much we are going to upgrade the grids, upgrade our distribution system, and how much are the American people going to be asked to put up for this? Is it the \$50 billion that the President is talking about? If that is the case, then who is going to pay for it? Will the rate payers pay for it? Will the taxpayers pay for it, or will the companies themselves pay for this upgrade?

Mr. Chairman, you know, not too long ago in my city we had a large blackout, over a hundred thousand Chicagoans were without electricity during one of our hottest moments in the summer, during the July heat wave, and I am absolutely committed to doing all that I can, to make sure, as I know you are, to make sure that my constituents and your constituents don't have to experience this again. No one in this country should have to go through this type of experience, this type of traumatic occurrences and this type of financial sacrifices that they have been forced to make.

And we should support Mr. Dingell's initiative in this regard, and this is the responsible thing for us to do as a Congress. And, Mr. Chairman, I look forward to the testimony. I look forward to the questions. And I look forward to give and take and to the deliberative discussions that we are going to engage in today.

And, Mr. Chairman, I am absolutely focused on the issue of if—if we decide that there is going to have to be, which I believe there is going to have to be an upgrade in our grid, upgrade in our system, then I want to know who is going to pay for it.

Chairman TAUZIN. The Chair thanks the gentleman. The Chair reminds the gentleman that 2½ years ago when I predicted that we would be looking at New York very soon, I also included Chicago. Chicago has many of the similar problems as we examined them in the grids. I thank the gentleman for his intense interest because his great city obviously and his State is at risk here, too. I thank him for most of all his opening comment, that we ought not be politically spinning this thing, we ought to find out what happened and then we can debate how to solve it.

The Chair is pleased now to welcome and recognize Mr. Pitts from Pennsylvania for an opening statement.

Mr. PITTS. Thank you, Mr. Chairman. Welcome, Mr. Secretary. I will submit my entire statement for the record. Just let me say that I am hopeful that the hearing will examine why the blackout occurred and how future blackouts can be prevented.

Unfortunately, some politicians have chosen not to discuss solutions to our energy problems, but instead blame all of our problems on deregulation and on the President's energy plan. I know from my own experience in serving in the Pennsylvania legislature back in the 1990's, when we passed the deregulation legislation there, that if done in the proper way deregulation can be successful, as

it has been in Pennsylvania. And I look forward to hearing the testimony today. Thank you, Mr. Chairman.

Chairman TAUZIN. And the Chair is pleased, I think, to recognize the last member of our committee for an opening statement, the gentleman from Ohio, a State dramatically affected, and by some who indicate where the problem may have started, Mr. Strickland.

Mr. STRICKLAND. Now, we promised that we weren't going to point fingers today. Thank you, Mr. Chairman. I appreciate your work to put together these hearings regarding the August 14 blackout.

I recognize that we do not have all or even many of the answers to questions about what exactly caused the lights to go out on that Thursday afternoon. But it is imperative that we begin to sort through the information that we do have.

I do look forward today, and I would particularly like to welcome Ohio's Governor Robert "Bob" Taft, who will be testifying later today, and someone that I admire greatly, Alan Schriber, who is the Chairman of Ohio's Public Utility Commission.

On August 14, major cities were affected, including communities in northern Ohio. In fact not only did the lights go out in Cleveland, Ohio, but the city's water system experienced failures, and tens of thousands in the area were without safe drinking water. There is also no question but that the loss of electricity resulted in very harmful economic consequences.

As Governor Taft's testimony will point out, quote, one major Ohio company lost steel-making capacity for more than a week. Rather than place blame before we have the full information, or use the August blackout as a reason to advance a larger energy agenda that is not without controversy. We should react to what we do know and move forward where there is much consensus. I am hopeful that we can pass legislation swiftly to address necessary changes in the regulation of our transmission grid.

We need to make it abundantly clear who has responsibility for regulating our transmission grid, and assign that regulatory body the necessary authority to enforce strong and appropriate reliability standards.

I think we can find common ground on the electricity reliability language that has been debated in this committee many times over the past several years. I urge the chairman to lead us, and I know he will, in the work necessary to pass legislation to improve reliability of our transmission system and to prevent future blackouts.

In closing, I would just say that now is not the time to hold electricity reliability legislation hostage to a larger energy bill that has numerous controversial provisions in it. Instead, I would underscore the need to focus immediately on legislation that will help to keep the lights on, protect public health and safety, and avoid economic setbacks.

And, Mr. Chairman, I yield back the remainder of my time.

Chairman TAUZIN. I thank the gentleman. I thank him for his words of confidence both in the Chair and the committee.

For the record, let me, before we take a break, and I know you are anxious for one, Mr. Secretary, let me mention two individuals who are not here today who deserve an awful lot of credit for advancing so many of these hearings and so much of the information

that we have used in order to pass the energy legislation that is now in conference, which includes so much of these electricity provisions: Chairman Barton of the Energy Subcommittee, who is attending an energy conference as we speak in Colorado, and his ranking member, Mr. Boucher, who have worked as a great team. I think they have held over 12 hearings leading up to the passage of the energy bill on the electricity title alone.

So I want everyone to know that this committee, and its subcommittee, has been diligent in trying to find that consensus on this issue long before this crisis struck the Northeast. I want to thank the gentleman for his statement of confidence in the ongoing work we will have to do.

Mr. Secretary, we will now take a 5-minute break. We will come back and hear your testimony, and go through a round of questions, and then later on this afternoon we will have the Governors coming in. So the Chair declares a 5-minute recess.

[Additional statements submitted for the record follows:]

PREPARED STATEMENT OF HON. PAUL GILLMOR, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF OHIO

I thank the Chairman for the opportunity to learn more about last month's electricity blackout, the largest in U.S. history. This hearing is timely, both because of the events of August 14 and because of the major energy legislation we now have pending in a conference committee.

August 14 was an event waiting to happen. If it had not happened then, it likely would have occurred soon thereafter in another place because of developments in the electricity marketplace in recent years. Electricity use and generation has been growing much faster than transmission capacity. We are putting more and more power into a system which is less and less able to carry it reliably.

I would like to extend a special welcome to the Honorable Bob Taft, Governor of my home state of Ohio, and fellow Buckeye Alan Schriber, Chairman of the Public Utilities Commission of Ohio. I look forward to hearing their testimony later this afternoon regarding the blackout's affects on Ohio and the nation's human and economic health.

While the exact cause of the blackout remains unclear, again, we do know that over the last several years, power companies have rushed to build new, de-regulated generation without the necessary expansion of the country's more-regulated transmission grid, where the Federal Energy Regulatory Commission (FERC) requires that those owning the lines sell access at a wholesale price. Yet, even if there were sufficient transmission capacity, it is difficult to predict whether such investment in new lines would have prevented the blackout as preliminary investigations point to the possibility of a series of human and mechanical errors.

With future blackouts projected as the demand for power increases and transmission capacity remains stagnant, we in Congress must now focus on setting electricity reliability standards, while at the same time encouraging the expansion and modernization of the nation's power grid.

As we further delve into what happened on August 14, we must also soon consider reconciling the differences between the House and Senate versions of the energy bill. Both measures contain provisions designed to speed approval of building lines on federal lands, and in the case of H.R. 6, includes additional language giving transmission companies more incentives for new investment. We must have a relentless commitment to producing a meaningful, comprehensive energy package aimed at conservation, alleviating the burden of energy prices on consumers, decreasing our country's dependency on foreign oil, and increasing electricity grid reliability. Furthermore, it is my hope that 50 million Americans without power, and no more, will be enough momentum to help put our energy bill into practice.

I look forward to hearing from the well-balanced panels of witnesses over the next two days and yield back the remainder of my time.

PREPARED STATEMENT OF HON. VITO J. FOSSELLA, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF NEW YORK

An old Billy Joel song starts out, "I've seen the lights go out on Broadway." While many felt such a scenario was a thing of the past, it again became a reality on August 14th. Before New Yorkers could say Piano Man, they abruptly experienced the largest blackout in U.S. history. Many were forced to crawl out of the subway and sleep on streets as this country's biggest city worked to get public transportation and traffic communications back up and running. Although many steps have been taken to enhance reliability since the blackouts of 65 and 77, August 14th proved one thing definitively: our nation still has a long way to go in improving its system of delivering affordable, reliable electricity to Americans.

Congress took great strides towards expanding markets and the availability of low cost power with the Energy Policy Act of 1992. By allowing wholesale generators greater access to the grid, this bill opened the door for consumer choice and the benefits of lower prices through embracing the free market. However, there is still work to be done. While the market for power generation is ripening, businesses continue to face obstacles in developing the transmission capacity necessary to bring this power to consumers. This year, our Committee has tried to eliminate regulatory red tape for consumers. The House passed energy bill once again paves the way for improving our energy markets by repealing ancient, burdensome regulations, such as the Public Utility Holding Company Act, and providing incentives for investment in transmission. The bill also recognizes electricity markets are interstate in nature. It provides the federal government with increased authority over the siting of interstate transmission lines and creates mandatory national reliability standards. These policies maintain states rights, while simultaneously recognizing electrons don't stop at political or state boundaries.

In debating energy legislation, we must also examine ongoing efforts of federal agencies. One such initiative is the Federal Energy Regulatory Commission's Wholesale Market Platform. This proposed rulemaking promotes reliable energy markets by encouraging the formation of Regional Transmission Organizations, or RTOs. Such independent grid operators provide greater price transparency and more efficient flow of power to consumers. As FERC Chairman Pat Wood recently noted, "the cascading nature of this blackout offers an object lesson of how the electricity grid requires regional coordination and planning." This is exactly the approach Congress should look to support by allowing FERC to continue developing its proposed rule. Independent oversight of the transmission grid is the most effective way to bring about the necessary policy coordination and needed investment to ensure future reliability. We must work vigorously to advance such policies as we move into the energy conference.

PREPARED STATEMENT OF HON. GEORGE RADANOVICH, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF CALIFORNIA

Thank you Mr. Chairman for holding this hearing, and I applaud your efforts to identify the cause of the worst blackout in the nation's history and the steps needed to prevent similar events in the future.

Our nation's health, safety, and economic well-being are tied to the reliable, affordable supply and delivery of electric power. Appropriate action must be taken to ensure that the system is reliable, efficient, and receives the kind of investment that is needed to maintain its service without compromising long-term failure.

This blackout illustrates the fact that electricity is a regional commodity that doesn't respect state boundaries. Until we start thinking and planning regionally, and using new technology to build a more modernized grid, our nation will continue to be vulnerable to massive blackouts.

The days are numbered for those who used the blackouts in California as a reason to stall market reforms and attack deregulation. As energy demand increased, we properly opened up the wholesale electricity market to greater competition. The right balance is not easy to achieve, but it is not impossible to craft energy regulation that will cut prices, improve choices and ensure a secure supply.

Utilities and their customers have been painfully reminded by the meltdown in electricity markets that electricity is not just another commodity, but is instead an essential service for all consumers. Our nation has recognized the importance of a reliable transmission grid to investors, customers and the citizens of the U.S. Our country needs legislation that will promote reliability in our wholesale power markets. This will be achieved by working closely with FERC and the states to accommodate regional needs, state authority and other relevant concerns.

Deregulation must not mean no regulation. Nor can it mean an inept regulator who arbitrarily intervenes in private decisions like Gray Davis. He not only helped freeze retail prices while making utilities pay volatile wholesale prices, but he also discouraged them from hedging the resultant risk through futures contracts.

In the end, I hope we can work together to forge bipartisan legislation on a fair and effective national energy policy—one that protects consumers from the horrific consequences of a massive blackout.

Thank you, Mr. Chairman, for holding this hearing today. I look forward to the witnesses' testimony.

PREPARED STATEMENT OF HON. DIANA DEGETTE, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF COLORADO

Mr. Chairman, I thank you for holding these timely hearings. The testimony we will hear over the course of the next two days presents us, as Members of the Energy and Commerce Committee, with an excellent opportunity to gather the information we need to fulfill our duty to craft our nation's energy policy. I hope we all avail ourselves of the opportunity to listen to the experts, learn what they currently know about the outage and identify areas where our knowledge is lacking.

I would like to begin by echoing the call of our esteemed Democratic leader, Ranking Member Dingell. I believe that we should empower the North American Electric Reliability Council (NERC) to mandate and enforce federal reliability standards. This measure is sensible, enjoys bipartisan support, and is relatively non-controversial.

But I urge caution in adopting more sweeping changes that are far more controversial. This includes a push for more deregulation and greater federal control over power-line siting. Public catastrophes do not warrant action that ultimately leads to public debacle. Many of the early responses to this crisis are guilty of overreach. I voted against H.R. 6 when our committee considered it earlier this year for what I believe are solid and serious policy considerations.

The editorial pages of Denver's newspapers have raised similar concerns. I read from a Rocky Mountain News editorial dated August 20th. "We need an energy bill that spurs economic growth and helps ensure affordable and reliable energy supplies for Americans. What we don't need is a special-interest banquet that picks the pockets of taxpayers."

I agree with their call for an energy bill that increases affordability and reliability. In my view, we must also reduce consumption and use energy more wisely. Conservation must be a part of this policy. New technology, identified by the Energy Star label, could reduce wasted energy by up to 75 percent. These changes, while small on an individual basis, can have enormous impacts in overall energy consumption.

During our earlier consideration of H.R. 6, I offered an amendment that would have made Congress follow the same energy efficiency requirements we have already required the other branches of government to meet. It's time for Congress to encourage widespread adoption of new technologies to reduce energy consumption that we hope will be widely adopted in commercial and residential properties. We need to continue our efforts on behalf of renewable energy programs and energy efficient programs. Maybe my amendment, which recognizes that what's good for the goose is good for the gander, will be adopted during the energy bill conference proceedings.

Of course, this is a small part of the solution. But I do not believe that conservation should play a small part in our national energy debate. And I believe that H.R. 6 was not sufficient in recognizing the very real gains that conservation can achieve.

In conclusion, the 2003 blackout was a staggering event. Thirty-four thousand miles of transmission lines were adversely affected in approximately nine seconds, eventually leaving tens of millions of Americans across the Midwest and Northeast without power. Colorado was not walloped, but I do not fool myself that Coloradoans are immune to future blackout threats. Let's work together—across the aisle and across the nation—to improve reliability standards. Let's undertake more conservation efforts. And let's listen to the experts as we figure out the best way to avoid a repeat of the 2003 blackout.

[Brief recess.]

Chairman TAUZIN. The committee will please come back to order. And we are pleased to now welcome the very patient Secretary of Energy of the President's Cabinet, and our dear friend, former Sen-

ator of the U.S. Senate, the Honorable Spencer Abraham, who is accompanied today by the Deputy Secretary of the Department of Energy, the Honorable Kyle McSlarrow, who is here to assist the Secretary in his testimony.

Mr. Secretary, again, we are anxious to hear from you as to what your Department's understanding of this event is and any suggestions you might have about how we ought to proceed from here and what you believe will follow. Particularly, I know we are all interested in the joint task force that has been assigned to you and the officials in Canada to make sure that we have not only a multi-state but international cooperation in solving this problem.

So again we thank you. We appreciate your service to the country, and your willingness always to come to our committee and share with us information as we desperately need it today. Secretary Abraham.

STATEMENT OF HON. SPENCER ABRAHAM, SECRETARY, U.S. DEPARTMENT OF ENERGY; ACCOMPANIED BY HON. KYLE McSLARROW, DEPUTY SECRETARY OF ENERGY

Secretary ABRAHAM. Mr. Chairman, thank you very much. I thank you and the ranking member for inviting us here today. And as you indicated, I am joined by our Deputy Secretary, Kyle McSlarrow, who along with myself has been very active in overseeing the work of our task force. We appreciate the chance to give an initial briefing to this committee.

As you know, President Bush and Prime Minister Chretien of Canada formed this joint task force just a few hours after the lights went out across large portions of the United States and Canada on August 14. I am the cochairman of the task force, along with my Canadian counterpart, Canada's Minister of Natural Resources Herb Dahliwal.

I can assure this committee that both Minister Dahliwal and I take the responsibilities which we have been given extremely seriously. We have been in frequent contact since August 14, and since the task force was created, and will certainly apply our own personal commitments as well as the resources of our respective department and ministry to the task force efforts.

As a personal matter obviously for me, this is significant not just because it happened here in America, but because one of the affected States is my own home State, Michigan. Like a number of the Members of Congress who are present here today, I have family members who were directly affected by this, and I can assure the Members of Congress that even as you implore us to answer the question of what happened and why, even more on my doorstep are my own relatives who want to know the answers to the question, those questions as well. And we intend to provide them.

Our job is to find out why such a widespread power outage occurred and to recommend measures to help keep something like it from ever happening again. To ensure complete and cooperative investigation, the task force is working closely with the Governors of the States involved, some of whom I know will be testifying later today, as well as the affected Canadian Province of Ontario. We are also working with the major entities involved, with the operation of our electric transmission infrastructure, including the inde-

pendent systems operators that manage the flow of power over transmission systems, the utility companies whose customers were affected by the blackout.

Today, less than 3 weeks after the blackout, I think we are making good progress in putting together the extraordinarily complex sequence of events which surrounded the incident. And while we are encouraged by the progress, there is still a lot more to be done before we can determine exactly what caused the blackout and why it spread.

As we all have heard, there are a number of theories already circulating as to what may have happened and who might be responsible. All of that, no matter what the source, is only speculation at this point. Determining the exact causes of this blackout is far too complex a task for anyone to know all of the answers at this stage. We are gathering information on about 10,000 individual events that happened across thousands of square miles in the space of about 9 seconds.

All of that information has to be collected, compiled, sequenced, and analyzed before any credible conclusions can be drawn.

To try to put the complexity of this inquiry into perspective, I think it is important to understand the nature of the electric transmission grid. Our grid system consists of thousands of power plants, tens of thousands of substations, switching facilities and other specialized equipment, hundreds of control centers and about 260,000 miles of power line stretching all across the country.

The American portion of the area affected by the blackout included 34,000 miles of transmission lines and about 290 power generating units, which is a substantial segment of the national total. As members of this committee who have worked on these issues know, this intricate network delivers electric power to virtually every home and business in America.

Electricity, because it can't be stored, might be produced almost the very instant it is used. It must be moved efficiently from where it is produced to where it is being consumed, traveling over this highly technical grid system at the speed of light. Keeping this complicated web of interconnected wires and power plants and control facilities operating is I think a miracle of modern engineering, and it is a miracle that happens 24 hours a day all year round.

It is without a doubt the most complex and elaborate piece of infrastructure that this country has. And it is, in my judgment, the most important, because without electric power there is no U.S. Economy. When the lights go out, as members of this committee have already suggested today, modern life as we know it grinds to a sudden halt, transportation is interrupted, communications fail, water systems shut down, factory work is disrupted, food spoils, businesses lose money, and people are inconvenienced and even endangered.

And that is why it is so important that our task force conduct a complete and totally thorough investigation of what happened on August the 14. It is why we have so many experts from so many sectors of government and industry working in our search for answers.

The United States members of our task force are Secretary Tom Ridge of the Department of Homeland Security, Pat Wood, who is

the Chairman of the Federal Energy Regulatory Commission, and Nils Diaz, who is the Chairman of the Nuclear Regulatory Commission.

The Canadian members of the task force are Deputy Prime Minister John Manley, Kenneth Vollman, who is the Chairman of Canadian National Energy Board, and Linda Keen, who is President and CEO of the Canadian Nuclear Safety Commission.

The task force is organized into three working groups that are focusing on critical areas of the investigation. Our Electric Systems Working Group, led by experts at our Department and FERC, along with Natural Resources Canada, is focusing on the transmission infrastructure, its workings and management. The Nuclear Power Working Group, which is managed between the Nuclear Regulatory Commission and the Canadian Nuclear Safety Commission, is looking at how nuclear plants in the affected areas performed during the outage. Our Security Working Group, managed with the Department of Homeland Security and the Canadian government's Privy Counsel Office, is looking at all of those security aspects of the incident, including cyber security.

Technical support for the Electric Systems Working Group is being provided by our department's Consortium for Electrical Reliability Solutions, the CERTS group, a group of experts from our national laboratories, and a number of universities, people with broad experience in transmission and power delivery issues.

That team, which has investigated a number of major power outages, including the 1999 blackouts, includes some of the world's foremost experts in transmission reliability issues, grid configuration, transmission engineering, wholesale power markets, outage recovery and power system dynamics.

In addition, we have recruited transmission experts from the Bonneville Power Administration to help in the investigation as well. These are the experts who led the team that examined the 1996 blackouts in the West.

Each working group will consist of technical management and engineering experts appointed by the Governors of each U.S. State affected by the blackout and the Province of Ontario in addition to the governmental agencies involved in the investigation. That will allow the States who are affected to be directly involved in helping us to both collect the information and try to analyze it effectively.

Once we are able to determine what happened, why and how, we will then enter a second phase of the task force's assignments, which is formulating recommendations to address the problems which we uncover. Any recommendations that the joint U.S.-Canada task force makes will likely focus on technical standards for operation and maintenance of the grid, and on the management of the grid, in order to more quickly correct the problems which we identify.

Mr. Chairman, we believe we have put together a superlative investigative team. We are pleased at the level of cooperation we are receiving from State and Provincial governments, regulatory agencies, utility companies and industry groups, and we work together in this binational effort.

We are determined to complete this inquiry in a timely manner. We hope to have conclusions and recommendations in a matter of

weeks, not months, but we will not compromise quality for speed. We want answers quickly, but we want to make sure they are the right answers. The American and the Canadian people want and deserve answers about what happened to our power system on August 14, and we on the task force are aware of the importance and the urgency of our assignment, and we know the vital role that our findings will play in maintaining the energy security of both of our countries. That is why we are dedicating so many resources to the investigation. That is why we will not engage in any sort of preliminary theorizing or speculation about what might have happened. We will focus only on the facts, we will follow the facts where they lead us, and we will not draw any conclusions until the facts are in.

Mr. Chairman, I want to thank you, thank the ranking member of the committee for inviting me here today to appear before you on this important matter, and I will be glad to try to answer questions at this time.

[The prepared statement of Hon. Spencer Abraham follows:]

PREPARED STATEMENT OF HON. SPENCER ABRAHAM, SECRETARY OF ENERGY

Good morning, Mr. Chairman and members of the Committee. I am pleased to be here today to discuss the August 14th blackout and the work of the joint U.S.-Canada Task Force that is investigating the cause or causes of the blackout and the reasons it cascaded to encompass such a wide area.

Given that the U.S.-Canada Task Force has not yet completed its investigation, I will not speculate today as to why the August 14th blackout occurred or why it was not better contained. Such speculation would be premature. The Task Force will follow the facts wherever they lead us. We won't jump to conclusions. Our investigation will be thorough and objective.

At the appropriate time and in consultation with the other U.S. and Canadian members of the Task Force, I will report to you on the Task Force's findings and recommendations. In the meantime, I want to describe for the Committee how the Task Force was formed and how it is conducting its work.

On August 15, 2003, only hours after the blackout had occurred, President Bush announced that he and Canadian Prime Minister Chretien had agreed to form a Task Force to investigate the causes of the blackout and to make recommendations on how to minimize the risk of future outages. The President and Prime Minister determined that, given the international scope of the August 14 event, a bilateral investigation would be more efficient and would end the counterproductive international finger-pointing that began immediately after the blackout.

President Bush appointed me to serve as co-chair of the Task Force along with Canadian Minister of Natural Resources Herb Dhaliwal, appointed by Prime Minister Chretien. On August 20th, I met in Detroit with Minister Dhaliwal. That day, we agreed on a joint communiqué expressing our determination to work cooperatively and quickly in carrying out the Task Force's work. Based on our discussions with each other and with relevant government agencies in each country, we also agreed on the membership of the Task Force and to an outline that lays out the working structure for the inquiry and the initial questions that the Task Force will address.

The U.S. members of the Task Force are Tom Ridge, Secretary of Homeland Security, Pat Wood, Chairman of the Federal Energy Regulatory Commission (FERC), and Nils J. Diaz, Chairman of the Nuclear Regulatory Commission. The Canadian members are Deputy Prime Minister John Manley, Kenneth Vollman, Chairman of the National Energy Board, and Linda J. Keen, President and CEO of the Canadian Nuclear Safety Commission.

Minister Dhaliwal and I agreed to a narrowly focused investigation to determine precisely what happened—in phase one, to identify why the blackout was not contained, and in phase two, to recommend what should be done to prevent the same thing from happening again. Our recommendations will focus on technical standards for operation and maintenance of the grid, and on the management of the grid, in order to more quickly correct the problems we identify.

Because of the complexity of the work before us, the Task Force established three working groups to support the fact-finding phase of its work—an electrical system

working group, a security working group, and a nuclear issues working group. These groups are chaired by the U.S. and Canadian agencies best able to carry out the work. In addition, as was stated in the August 20 statement issued by the U.S.-Canada Task Force, the North American Electric Reliability Council (NERC) “and the affected Independent System Operators and utilities have agreed that their investigations will supplement and contribute to the work of the Task Force.”

Even before my meeting with Minister Dhaliwal, and shortly after the blackout occurred, I used my authority as Energy Secretary to assemble and dispatch a number of individuals to begin investigating the blackout. I also asked industry officials with involvement in the blackout and the recovery process to preserve all data of potential relevance to our investigation. The Task Force team has grown larger since those first days and is working hard to collect and review the massive amounts of data involved, as well as to interview officials from NERC, the relevant utilities, and the independent system operators.

As I have repeatedly stated since being named Task Force co-chairman, we are not setting a deadline for completing our work. We are focusing on doing the job right—not on meeting an arbitrary deadline. The complexity of the challenge demands no less than our full attention and enough time to do a complete and thorough job of assessing what happened and putting forth our recommendations and solutions.

Finally, Mr. Chairman, I want to thank you for your complimentary remarks concerning my efforts with respect to the investigation. I look forward to answering any questions you may have.

Chairman TAUZIN. I thank you, Mr. Secretary, and the Chair recognizes himself briefly for a round of questions.

Let me first, I guess, try to put this in layman’s terms so we understand what we are looking at. In a house, in a home in which we live, power surges occurs. There is a short on a wire. Our homes are protected with circuit breakers, and the surge occurs, and the circuit breaker switches off, and our house doesn’t burn down, but we are out of juice on that circuit. Lights go out, appliances stop until we flip the circuit switch back on and we got power again, and if that short isn’t corrected, it clips it again.

In a big grid, multistate, international, I assume that is part of the problem, too, that we have a series of events, some involving perhaps a tree falling on a line, we are told, perhaps a power plant going down, and, in the context of the surges or the shortages, whatever happens in that system, circuit breakers started going off. We know that parts of the system were protected from shutdown. Parts of the Northeast continue to have their lights, continue to have electricity. Others failed to work. So the two questions I think that we will anxiously await, all the technical gurus and the task force are working on, number 1: How did it start? That is important, what started it, although that is not the most critical one. Storms knock down power lines; ice storms, hurricanes, tornadoes, earthquakes knock down power lines, put stations out of work.

The most critical one is we have these massive grids. Why did it spread? Why did these power surges develop, and why didn’t the protections in the grid work? Was it a failure of the Reliability Council having enforcement authority to make sure standards were enforced throughout the grid that would have prevented the spread, or was it something else? Can you give us any kind of idea yet as to what you are learning or what you think we may want to focus on to reexamine with Governors and power company officials and others coming to our committee in the next 2 days?

Secretary ABRAHAM. Mr. Chairman, I should state at the outset and repeat what I said in my opening statement: Until we have what I think are and what our task force has a comfort level with

and the analysts have given us a comfort level, I am not going to try to prejudge what might have happened or why it cascaded, although you have identified the first two parts of our responsibility, and why it cascaded, is that, in many ways, as you say, is even more important. There are a lot of things that might create surges or instability in terms of the grid.

We do know some things, though, just as a fundamental matter. One is that these things happen very fast, and yet humans are in various rolls that are critical to the process, and people can't move as fast as these events can develop.

Chairman TAUZIN. Were there communications problems?

Secretary ABRAHAM. We are looking at that. We are also obviously looking at the interesting question of why certain areas were able to isolate themselves and others weren't.

One of the broader issues, you know, that we have been talking about for some time is the need to move to a smarter grid, one that relies—or allows for much more instantaneous communication if issues happen, and all of those are part of the sort of the role or the possibilities that we will be taking into account. But it is early in the process, now, too early to specifically say why things failed in certain areas.

Chairman TAUZIN. Mr. Secretary, it is clear that States, communities in those States, are becoming more reliant on electricity generated and functioning over interstate boundaries. We now see in the Northeast blackout a situation where those boundaries even extended to another country, and I realize the President has called upon the task force representing both countries to look at this.

As we wrestle with the problems of multistate jurisdictions, the jurisdiction of the FERC and your Department, and the complexities working out siting problems between sites, does the fact that these lines cross international boundaries add a level of complexity that we need to focus on?

Secretary ABRAHAM. It certainly adds more to the challenge, but I don't believe it is the case, at least in terms of the U.S. and Canada, that there is a lack of relationship or lack of communication or working relationship between us. We have initiated a number of strong binational energy dialog and working group activities to deal with these issues, but the point you make, helps to underscore how big this grid is, how complicated it is, how far we are now hauling electricity and it is not just a local or a single-State issue any longer, and the fact that it is international in scope underscores, I think, the challenges we have.

Chairman TAUZIN. And the final question, we have debated transmission in this committee for a long time. We have been told the transmission is the lowest profit, if you will, sector of the utility industry, that incentives for new transmission lines are desperately needed, that authorities to make sure those lines are built to at least the technical standards are desperately needed, that coordination between States and siting is desperately needed, all of which we tried to include in the energy package we sent to the floor. Do you concur that all three items are necessary basic reform, as we move to a solution?

Secretary ABRAHAM. Well, again, I want to separate what took place on August 14 from a broad discussion of public policy decisions. We don't know yet what happened on August 14.

We do know, as I think was underscored in the national grid study which our Department completed last year, that the combination of growth and demand for electricity, the age and condition of the grid, and its congestion levels and so on require us to address all of the issues you identified, and obviously the recommendations of that are still well-known to this committee.

Irrespective of what we might determine as to the causation of the events of August 14, those issues will remain before this country and a challenge for us to address as we move ahead.

Chairman TAUZIN. Thank you, Mr. Secretary.

The Chair welcomes and recognizes the ranking Democrat, former chairman of our committee Mr. Dingell, for opening statements—for a round of questions, rather.

Mr. DINGELL. Mr. Chairman, thank you.

Welcome, Mr. Secretary.

Secretary ABRAHAM. Thank you.

Mr. DINGELL. Mr. Secretary, I was impressed by your comments about the way you are inquiring into this matter, and I commend you for that. You and I have had some correspondence on this, and I would like to ask at this time, Mr. Chairman, that that correspondence—

Chairman TAUZIN. Without objection, the Secretary's response will be made part of the record.

[The information referred to follows:]

ONE HUNDRED FIFTY-THIRD CONGRESS
U. S. House of Representatives
Committee on Energy and Commerce
 Washington, D.C. 20515-6115
 W. J. "BILLY" TAUZIN, LOUISIANA,
 CHAIRMAN

August 22, 2003

The Honorable Spencer Abraham
 Secretary
 Department of Energy
 Forrestal Building
 1000 Independence Avenue, S.W.
 Washington, D.C. 20585

Dear Secretary Abraham:

As you know, the Congress will soon be considering what actions should be taken in response to the electricity blackout that last week plagued my state of Michigan and others, as well as parts of Canada.

With respect to the pending House-Senate conference on energy legislation, I look forward to working to get a good bill that can be signed into law as soon as possible. The matters before that conference, however, are numerous and in many cases contentious, and it is difficult to predict how quickly a resolution may be reached. For this reason, I have suggested that as a first step Congress immediately pass targeted legislation to improve the reliability of the

transmission system. Otherwise, I am concerned that this important provision may become entangled in protracted discussions on other more controversial issues before the energy conference. While a reliability bill may not address all the factors that contributed to the blackout, this bipartisan, bicameral consensus proposal is a necessary and useful step towards preventing its recurrence.

I support Chairman Tauzin's decision to schedule hearings on the blackout by the Committee on Energy and Commerce when Congress returns in September. I understand that you have been invited to testify on September 3, 2003. In order to assist Members in understanding the causes of last week's reliability crisis and what actions are needed to prevent future blackouts, I would appreciate your including a response to the following attached questions in your written testimony or, if you prefer, in a separate response provided no later than Tuesday, September 2, 2003.

Your assistance in this matter is appreciated and I look forward to your participation in the hearing. If you have any questions, please feel free to contact me or have your staff contact either Sue Sheridan or Bruce Harris of the Committee on Energy and Commerce Democratic staff at (202) 226-3400.

Sincerely,



JOHN D. DINGELL
RANKING MEMBER

cc: The Honorable W.J. "Billy" Tauzin, Chairman
Committee on Energy and Commerce

The Honorable Joe Barton, Chairman
Subcommittee on Energy and Air Quality

The Honorable Rick Boucher, Ranking Member
Subcommittee on Energy and Air Quality

Enclosure

**Questions for the Honorable Spencer Abraham, Secretary, U. S. Department of Energy
by the Honorable John D. Dingell, Ranking Member
Committee on Energy and Commerce, U.S. House of Representatives.**

1. In a Department of Energy (DOE) announcement released August 19, 2003, regarding the creation of the "US-Canada Task Force," you discussed plans to investigate the recent blackouts. Please describe in detail the specific statutory authority under which DOE is conducting this investigation.
 - (a) Has this authority been used for similar purposes in the past? If so, explain when and what findings, reports, or conclusions resulted.
 - (b) Your announcement stated "It is important that all parties preserve all relevant data so that it may be made available for review and inspection." Does DOE have specific authority to require the retention and submission

of such data? If not, how will the Task Force determine the sufficiency and validity of information used in the investigation? To what extent does the Task Force anticipate relying on other entities' authority to obtain such information, for example the North American Electric Reliability Council (NERC) or the Federal Energy Regulatory Commission (FERC)?

2. The announcement listed a number of parties that will work with the Task Force: "executives of electric companies, the Independent Systems Operators (ISOs) and the North American Electric Reliability Council (NERC)."
 - (a) Which electric companies and which ISOs will participate in the Task Force?
 - (b) What role do you expect them to play?
 - (c) Has the Department attempted to prevent such entities from pursuing their own independent investigations or reports, separate from their participation in the Task Force?
3. Press reports indicate that FERC commissioners and/or staff also will participate in the Task Force.
 - (a) How was the decision to include FERC in the Task Force made, and by whom?
 - (b) Please describe which FERC personnel will be involved and their specific role in the investigation.
 - (c) The Federal Power Act authorizes and directs FERC to conduct its own independent investigation of the blackouts in order to inform its rulemakings and enable it to make legislative recommendations (see sections 307 and 311). How does the Commission's participation in the Task Force square with its responsibility as an independent agency to conduct its own investigations?
 - (d) Did the Department or others in the Administration attempt to prevent FERC from conducting its own investigation? Does the Department or the Administration have any objection to the Commission doing so?
4. Your announcement indicates that "the Department of Energy has dispatched teams of investigators to the Northeast and Upper Midwest to begin on-site investigations into the cause of the recent power outages." Please indicate the number of personnel on these investigative teams, and which government or other agency they work for.
5. Your announcement also states the Task Force "is charged with identifying the causes of the recent power outage that affected North America and with making recommendations on preventing future outages."
 - (a) Do you have an estimated time for completing the investigation?
 - (b) Do you have an estimated time at which such recommendations will be released? Do you anticipate making recommendations for legislative action?
 - (c) Do you believe that enacting legislation to make NERC's reliability rules mandatory and enforceable would help prevent future blackouts? How long do you think it would take NERC to fully implement the authority such legislation would provide? Do you think Congress should defer action on a reliability bill pending the results of your investigation?

The Secretary of Energy
Washington, DC 20586

August 26, 2003

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The Honorable John D. Dingell
Ranking Member
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Representative Dingell:

I am writing in response to your August 20, 2003, letter in which you state the "public deserves nothing less than complete, parallel, and independent investigations both by [the Department of Energy] and NERC" into the cause of the August 14, 2003, blackout.

With all due respect, we see this differently for a number of reasons.

First, the scope of this investigation is primarily factual. It is to identify the exact cause of the power outage and the reasons it cascaded. There is only one set of facts and essentially one base of data to analyze. It would be extremely counterproductive to have two different groups attempting to identify and compile the same data necessary to determine those facts.

Second, two nations were affected by the blackout, and the United States and Canadian heads of state have concluded it would be beneficial to determine the cause together. As you know, as soon as the blackout occurred, numerous cases of international finger pointing were reported in the news media. The President and the Prime Minister believe that this behavior is counterproductive and that it is important to have a single investigation to avoid it. Having numerous investigations could undermine that goal.

Third, NERC – a not-for-profit corporation comprised of utilities, power marketers, and end users – is continuing its investigation. As was stated in the August 20 statement issued by the U.S.-Canada Task Force, NERC "and the affected Independent System Operators and utilities have agreed that their investigations will supplement and contribute to the work of the Task Force." While the expertise and analytical abilities that NERC brings to the Task Force will be invaluable, a number of Governors and others have expressed concerns about a NERC-led investigation because of its relationship to the utility and power marketing industries. In fact, I recently received a letter from Governors James McGreevey (NJ), George Pataki (NY) and John Rowland (CT) in which

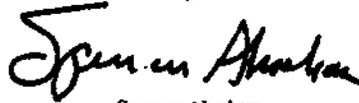
they write, "Although some have called for industry dominated groups to lead the primary investigation, we are confident that the DOE and its Canadian counterpart are the most appropriate entities to provide the objective analysis of all aspects of the outage that the citizens of New York, New Jersey, and Connecticut deserve and demand."

Finally, you have raised a concern that somehow the Bush Administration's views on energy could influence the conclusions of the investigation. The fact is that everyone capable of engaging in this type of investigation has played a role in the development of energy legislation. NERC has. Canada has and so have ISOs, utilities, power generators, and transmission providers. In short, it would be possible, therefore, to express concern about the motives of any single organization conducting its own investigation. I believe the Department of Energy, as the lead Federal Agency for the U.S. side of the Task Force, is best equipped to bring the divergent stakeholders involved in this incident into a cohesive investigative organization whose sole motivation is discovering the cause of the blackout.

As a co-chair of the Task Force, I assure you our mission is to conduct a factual inquiry and to let the facts lead us to the answers to the questions Americans are asking. We will do our very best to fulfill the President's and Prime Minister's goal of conducting a full, fair, and impartial study.

If you have any other questions, please contact me or Ms. Shannon D. Henderson, Acting Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,



Spencer Abraham

Mr. DINGELL. There is one letter with questions I would appreciate an answer to, Mr. Secretary, and I hope you will give that.

Secretary ABRAHAM. Actually, we were working on that, and I will try to answer any part of that today as I can.

Mr. DINGELL. Now, Mr. Secretary, we have, really, an ongoing query to find out what was the cause. We also have no assurances that this blackout could not occur again; isn't that right—

Secretary ABRAHAM. Well—

Mr. DINGELL. [continuing] under current—under current practices, and so forth.

Secretary ABRAHAM. Until we know the exact reasons for this blackout, I think it is difficult to answer whether this particular type of incident would occur again, but I would just reiterate what I said in response to the last question: The condition of the grid, its age, the demands being put upon it causes a lot of concern, as we have expressed in our grid study and other comments the Department has made.

Mr. DINGELL. Now, Mr. Secretary, are you familiar with the reliability sections of the Senate and the House bills?

Secretary ABRAHAM. Yes.

Mr. DINGELL. Does it—does the administration support them?

Secretary ABRAHAM. Yes, we do.

Mr. DINGELL. Do you have any additional suggestions for legislative actions which would perhaps prevent either the event of August 14 or something similar thereto from occurring again?

Secretary ABRAHAM. We do. I believe, Congressman, that probably next week a broader statement of administrative position conferees will be forthcoming, but I think we have expressed, and I think my answers to Congressman Tauzin's question before indicate, our support for the need for providing incentives for investment in transmission, for the reliability standards that you have just referenced for addressing the broad set of issues that threaten the long-term health of the transmission grid.

Mr. DINGELL. Now—

Secretary ABRAHAM. Number of provisions, in other words, that are in—

Mr. DINGELL. I am concerned. General statements tend to be somewhat troublesome. They are hard to reduce to legislative language.

Will you be submitting to us legislative language, or will you be submitting to us statement of principles?

Secretary ABRAHAM. I think that we will be submitting a fairly specific statement of administration position to conferees on the various issues that will be going to conference on the energy bill. I believe next week may even be the timetable.

Mr. DINGELL. I find that—I find us, Mr. Secretary, in a position where neither you nor I or anybody on the committee or regulatory agency can assure us that this kind of blackout, or at least these kinds of events, couldn't occur again, and I am very troubled by the need to get reliability authority in at the earliest time.

I remember one time I was much praised for getting the clean air bill through the House in 13 hours. I observed it took me 13 years to get it through in 13 hours.

We are now in our eighth or ninth year of hassling around with a general energy bill, and a big broad energy bill carries with it huge amounts of controversy that preclude early and speedy enactment, so I am concerned that—that, if we have a serious problem with regard to reliability, we address the reliability questions to reduce possibilities of confronting another event like we found on August 14 and the days that followed.

Can you tell us that—that waiting around for a big energy bill will give us assurances that we can protect people in the Northeast and Midwest from the kind of events that we saw on August 14, or we would be better off if we are interested in reliability to bring forward a provision which will—which can be speedily passed on which there is agreement in the House and Senate already with regard to reliability? Which is the better course?

Secretary ABRAHAM. I think there are a lot of provisions in the energy bill that enjoy the kind of consensus support that the reliability provisions enjoy, and I think there are a few areas of contention that need to be worked on.

I guess I would say this, that every few weeks or months, at least during the time that I have held this job, there has been a sector of the energy world that has had something either described as a crisis or certainly a serious problem, whether it is natural gas

storage a few weeks ago or this blackout, or it is high gasoline prices. I think to ignore those other challenges would be——

Mr. DINGELL. I am not talking about ignoring them, Mr. Secretary.

My time is running out.

I just want to observe that some of these other areas are much more controversial. We can get to the areas where we have agreement, do so quickly, and then proceed to address the other more contentious questions which could delay us addressing the reliability question.

I am curious which was the course that you would take.

Secretary ABRAHAM. I would reiterate what I have said to my friends on both the Republican and Democratic side for 2 years, which is let us get an energy bill done quickly, and I think now the conferees have plenty of reason and plenty of momentum to move quickly.

We have conferenced much of this legislation, almost to completion a year ago. I don't think that that much has changed, so I believe it can happen quickly, and I would encourage the conferees and certainly the Chairman.

Mr. DINGELL. I would note in sheer desperation the Senate passed a bill which—which they had never even considered. It was last year's bill. They seemed to be trying to punt, and they have punted it, I think, either over here or into conference.

What I am trying to do is figure out how to kill the closest snake first. It appears to me we are going to be busy killing snakes and maybe not the one that is most near us or that constitutes the most serious danger.

Secretary ABRAHAM. Well, I commend the Senate for finishing an energy bill this year, doing it in less time than it took them last year. I hope the same pragmatism will produce a bill through conference as soon as possible.

Chairman TAUZIN. Thank you, Mr. Dingell.

Mr. DINGELL. Thank you, Mr. Secretary.

Chairman TAUZIN. The Chair recognizes the chairman of the Telecommunications Subcommittee, Mr. Upton from Michigan, for a round of questions.

Mr. UPTON. Thank you, Mr. Chairman, and thank you, Mr. Secretary, for your statement this afternoon.

I would like you to comment briefly about the need to upgrade our transmission facilities, and in light of that, two statements that I see. One is a recent energy report that indicated, and I quote, some utilities are concerned that transmission investments may be of greater benefit to their competitors than to themselves, and, as a result, many promising technologies are left stranded.

The second statement that I think you made at one point, indicating the need to increase rates of return from investment in transmission facilities, and in that—those remarks, I think it was understood that FERC had not acted sufficiently to address transmission investment.

We have a provision in H.R. 6, the energy bill that passed the House, that requires that for transmission rulemaking to provide better rates, but there are a number of us that are concerned that they may not propose anything better than what they have already

offered, and I would like to ask you whether you would support provisions to the Federal Power Act that would require for it to provide better transmission rates if, in fact, it is needed to encourage transmission expansion.

Secretary ABRAHAM. The administration, I think, has previously endorsed those provisions that are in the House bill.

I think that the need for investment in terms of upgrading the transmission grid is obvious, and several Members who have worked on it spoke earlier very authoritatively about the need to do that.

One of our concerns is not only that we upgrade the grid, but that we move to a smart grid, to a smarter grid, and also one that works more efficiently, which is also one reason we have invested very substantially in things like superconductivity research, to try to make the grid more efficient in its operation.

One other point I would make is our grid study revealed—and I think most experts concur on—is that the congestion in the grid is driving up the cost of energy for the ratepayers of this country today, and that, in fact, if we improve the transmission grid and relieve that congestion, it will actually have a positive impact on the other side of the bill, the part that relates to the cost of generation.

Mr. UPTON. As you begun to investigate the events of August 14, is one of the things you are going to be looking at is the wholesale transactions that were scheduled to take place that day, particularly in the Midwest?

Secretary ABRAHAM. Well, we intend to look at all the events, to determine in both sequence and how they related to what took place, so those events would be included in the scope of the work we do.

Mr. UPTON. Now, for the most part, my district escaped direct impact because of the energy blackout, but one of the—one of the events, and I mentioned this in my opening statement, that really did trigger an impact, that hit us, was, in fact, the almost immediate spike in gasoline prices about 2 weeks later when they went up about 20 cents, in fact, overnight.

Are those refineries back on-line that were taken out?

Secretary ABRAHAM. It is my understanding they all are back on-line.

There was one, I think, in the Detroit area which was down a little longer than others because of problems that I think ensued in the wake of the blackout, but it too, is operational. So my understanding is that they all are up and functioning.

Mr. UPTON. Thank you.

I yield back my time.

Chairman TAUZIN. Gentleman yields back, and the Chair is pleased to recognize the gentleman from Massachusetts, Mr. Markey for a round of questions.

Mr. MARKEY. Thank you, Mr. Chairman.

Mr. Secretary, I read in the paper that the Bush Administration has agreed to a proposal by Senator Shelby to prevent FERC Chairman Wood's proposed standardized market design plan from being implemented until the year 2007.

What if it should turn out that one of the reasons why the existing system failed to contain the blackout was a lack of standardized market structure, including strong regional transmission organizations that communicate well with each other? Haven't you traded away already what is potentially one of the solutions to the problem?

Secretary ABRAHAM. Well, Congressman as you probably know, last year in the energy conference that was conducted with a Senate Majority of one party and the House majority on the other, the decision to delay implementation of those proposals had already been largely agreed to. We did not——

Mr. MARKEY. Mr. Secretary——

Secretary ABRAHAM. Yes?

Mr. MARKEY. There was no conference report which was ever completed between the House and Senate.

Secretary ABRAHAM. Yes. I am describing what I know to be and I think was reported at the time to be the situation.

Our goal in this Congress is to see an energy bill passed. We thought that it remained the view that to have gotten a bill through the Senate required us to support that provision.

Our top priority is to get an energy bill passed, and that remains our goal.

Mr. MARKEY. Would you be willing to change your mind if it turned out that this is part of the solution? Are you open to that, changing your mind on the commitment that you have made to Senator Shelby?

Secretary ABRAHAM. This administration is on record as supporting the idea of regional transmission organizations. The question whether they should be mandated or not is not one we have endorsed, and so that is our position at this time.

Obviously I am not going to speculate about what might or might not evolve from our investigation until I——

Mr. MARKEY. Mr. Secretary, I think it is going to be difficult for you to get a comprehensive solution to this electricity problem if you have already made up your mind with regard to which provisions you are going to mandate and which you are going to negotiate away.

I have also read in the papers that you have said that there aren't sufficient incentives for new investment in transmission, and that this may have contributed to the blackout.

Why isn't rate recovery for transmission investment and a regulated 11 to 12 percent profit for those companies, which is what the Federal Power Act already allows the utilities to get, sufficient to incentivize them to invest in transmission?

Secretary ABRAHAM. I can't answer what investment decisions individual companies make. What I know and what I think a number of people on both sides today have commented on is that there are a number of impediments, including financial considerations, to the expansion of the grid. How long it takes to site transmission lines is a big impediment.

In some instances, the extent of the return on investment is less predictable because sometimes the transmission line, the Chairman maybe mentioned this a little bit earlier, that the people who in-

vest in building the line are not necessarily the people who benefit from its use.

Mr. MARKEY. I know that, but there is a guaranteed 11 to 12 percent return on investment, guaranteed. What business in America, in the world, gives you a guaranteed 12 percent return on investment? Why would a company need more than a just and reasonable return on their investment to build a transmission system? What is the flaw? How much more money do consumers have to give these companies to build transmissions lines, more than a 12 percent profit?

Secretary ABRAHAM. The ratepayers that you have heard, the consumers, two-thirds of whom are the businesses of America, private industry and business, obviously are shouldering a substantial burden with their energy costs. The one thing that we do know is that if we improve the transmission grid and alleviate some of the congestion, a very substantial amount of the energy prices people are paying will, in fact, be affected in a positive way, because right now, of the full energy bill the typical ratepayer pays, 80 percent is paid for generation; 10 percent of that bill is—

Mr. MARKEY. All I am saying is that a 12 percent guaranteed return seems to me—

Secretary ABRAHAM. Well—

Mr. MARKEY. Mr. Secretary, let me ask one final question: In an August 27, 2003, article in The New York Times, Mr. Donald Benjamin, vice president of the North American Electric Reliability Council, said, we think we have a time line fairly well nailed down. It is down to the second in terms of what happens, which transmission is open when areas became isolated. It provides a good understanding of how the power flows.

The article goes on to say that while NERC was unwilling to point to a particular cause, Federal investigators had already determined that, “all the data pointed to mistakes by people in the event’s earlier stages relating to the hour-long sequence of line failures and plant shutdowns in the Midwest.”

This article suggests that you already have a chronology of the key events that led to the blackout and those which caused it to spread, and that based on that and other information, you already have a pretty good idea of what happened. If that is the case, why aren’t you sharing that information and analysis with this subcommittee today?

Chairman TAUZIN. The gentleman’s time has expired, but the Secretary may answer.

Secretary ABRAHAM. Yes.

Congressman, we will share our conclusions when we reach that point, and the article in The New York Times was premature. It did not accurately state the actual status of the work that was being done.

We are putting as much emphasis on this as we can to get a timely conclusion to this sequencing issue, but the analysts set another meeting yesterday, looking at the data they had, and concluded that they still did not have it to a stage where they felt they could recommend its release as being accurate.

Believe me, I would have very much enjoyed coming here today and making news by announcing it before this committee, but we

are not going to announce or release anything we claim is the authoritative sequence of events or any of the other things that we are addressing here until we really can tell this committee it is right and it is unimpeachable.

Chairman TAUZIN. I thank the gentleman.

The Chair now recognizes gentleman from Pennsylvania, chairman of the Oversight and Investigations Subcommittee, Mr. Greenwood for a round of questions.

Mr. GREENWOOD. Thank you, Mr. Chairman.

Welcome, Mr. Secretary. Thank you for your patience.

I would like to touch on an issue or ask you a couple of questions about an issue that is rather tangential to this hearing, but that is connected, and Mr. Upton mentioned it earlier, and that is the impact of the blackout on gasoline prices. Between August 18 and August 25, the average retail price for regular gasoline in the United States rose by 12 cents a gallon, which I think is the largest weekly increase ever both in terms of the actual price increase and the percentage, which was 7 point—

Mr. UPTON. If the gentleman will yield, it went up 20 cents in my district.

Mr. GREENWOOD. Well, you have a high-priced district.

Mr. UPTON. Yeah.

Mr. GREENWOOD. It was 7.4 percent where smart shoppers buy gasoline, and it is 100—it is \$.175 a gallon now, which I believe is the highest average retail price ever.

We have heard that the fact that refineries were shut down because of the blackout contributed to a supply crunch, and, of course, this is all going into a high driving period of time for vacations and the Labor Day weekend and so forth.

The question is: What has the Department done to—to look at—it seems it is a fairly straightforward mathematical calculation to estimate how much gasoline was not produced as a result of a blackout, what percentage of the supply that is, and how using that fairly simple economic model, how that should impact the price of gasoline, and also some estimate as to how long it should last.

I think—I have no reason to believe there is anything at work here other than the basic laws of supply and demand, but I can tell you that most of my constituents are not quite sure that that is all there is to it.

Secretary ABRAHAM. Right Mr. GREENWOOD. It seems to them we had a hiccup here which produced a lasting and very significant increase in the price of gasoline. So the question is: What can you tell us about that; to what extent was it, in fact, related to the blackout, and what kind of studies and investigations is the Department undertaking?

Secretary ABRAHAM. There is almost nothing that goes on in the energy world that has my attention more quickly riveted than rising gasoline prices, because whenever the price goes up above about \$1.50, I read articles that say it is my fault, and when it goes back down, somehow the market is working, so it gets me focused.

There obviously were several incidents that occurred. There was, in addition to the blackout, and I think a certain amount of exaggerated speculation that always seems to happen when a crisis

happens, people predicting dire and longer-term consequences than sometimes happen.

We all know the events in Arizona which had an impact in that region that were very substantial, the pipeline breakdown, but the nature of this price—and then there was Labor Day driving and these other issues, and we had forecast some increase in the Department's Energy Information Administration, but the—the nature of this fluctuation struck me as being unusually large as well and in need of greater explanation.

We have actually in this instance launched an internal inquiry on it, and just started doing that, but I think we will hopefully get some additional insight into whether or not this was really a market reaction only or if other factors were involved. I don't know.

Maybe the Deputy might want to comment on some of the things we are doing specifically on that.

Mr. MCSLAWROW. As Secretary Abraham said, he has directed us to look at the events, particularly over the last week. We did predict there would be, as most everyone knows, the inevitable price increase in the run up to the Labor Day weekend. We have very low gas inventories, we have no margin for error, so once the pipeline in Arizona went down, you had three refineries—because of the blackout, you had some problems out in California with refineries. It all added up to a predictable increase.

The question is and what we will look into and work with our colleagues at the FTC about is whether or not anybody took advantage of a situation in terms of market manipulation.

Mr. GREENWOOD. And assuming that there did, and I don't know, I am not an expert on these issues, but I know a little bit about human nature, if you can ride the wave a little bit longer than it actually exists, you will do it, but there is nothing illegal about that; am I right? In other words, profit taking, gouging, if that is what is going on, there is nothing illegal about that. And I don't—I am not going to put you on the spot about this right now, but I think when you do complete your analysis, including whether there was—whether there is ongoing profiteering that is resulting, I would appreciate it if you would let us know if you have any recommendations about that, because this is—it seems to happen with some frequency. It seems to happen in the home heating fuel sector as well.

There always seems to be some sort of a perfect storm that causes these spikes, but then they seem to go on longer than it would intuitively seem should be the response. And, with that, Mr. Chairman, I will yield back the balance of my time.

Chairman TAUZIN. Would the gentleman yield quickly?

I want to point out to the committee that we examined the effect of tight supplies on demand in the Chicago/Milwaukee spike situation that occurred a few years ago, and one of the things we learned was that when there are those tight supplies, and then something happens, a pipeline breaks or a refinery goes out—in this case six of them did—but when that happens, the first people who get the gas are the name-brand stations. They get it from the refineries of the name brand.

The independent stations then have to compete for what supply remains, and they start bidding it up, so even a small ripple effect

becomes a cascading effect in the marketplace, and that may have occurred in the marketplace. We obviously have to know that.

And second, I commend the Secretary in his statement that they are going to look to see whether anybody abused the marketplace, the market manipulation. There are laws against predatory pricing, a pricing too low on a sustained basis to drive somebody out of business, and there are laws against market manipulation for an extended period of time in which someone uses anticompetitive power to gouge consumers. So we do have some relief here, and I am pleased the Secretary wants to look at it. He may want to comment on it.

Secretary ABRAHAM. Only that one of the things which we instituted a couple of years ago was a hotline so that consumers could, in fact, communicate directly with our Department if they believed gouging was taking place.

We had—I think it was in the wake of 9/11 that we first launched this, and I would say that we had to monitor the frequency of calls on that to gauge whether there seems to be—and one of the reasons why we decided to look even further into this situation is that we were getting what seemed like a broader and more disproportionate response on that, on that hotline in the last few weeks.

Chairman TAUZIN. I thank the gentleman.

The gentleman yields back his time.

Explain to the members of the audience.

The gentleman had additional time because he waived his opening statement. Under our rules he got additional time, and he is yielding it back now, and the Chair is pleased to recognize Ms. Eshoo for a round of questioning.

Ms. ESHOO. Thank you, Mr. Chairman, and welcome, Mr. Secretary.

Whenever I am involved in either hearings and other legislative debates here at the committee relative to energy, I think many of my colleagues kind of tense up and think, here she goes again, because I am a Californian, and we are raw from our experience of market manipulation, indeed market manipulation, because the energy companies actually signed confession slips and had very well-known names for the tactics that they employed, but we didn't get anywhere.

Certainly, California legislated, I think, shortage in their deeply flawed deregulation plan, but I think at the national level that there were huge failures and shortcomings as well. And so I led with that, with some of those comments, in my opening statement, and I think it is important to raise this today. Even though there may not be a nexus between the blackout that occurred in August in the—in the Northeast and in the Midwest, that it is very important for the administration, certainly for you in your leadership and trustee position as Secretary of Energy, that you take into consideration everything, everything.

Market manipulation was not taken into consideration before, and while I agree with you in the statement, part of your statement, in your opening statement to the committee, that while the facts will lead you wherever they may go, that you will not jump

to conclusions, and that the investigation will be thorough and objective. I commend you for saying that. I urge you to stick to that.

Your assistant just mentioned a few moments ago that market manipulation should be examined, at least I think that is what you said, relative to the prices at the gas pump, and I might add that in California and in the Bay area, they jumped 35 cents a gallon in 2 weeks. I filled my car up the other day. It was \$2.35 for regular, for unleaded, so we know what market manipulation can do.

What I want to ask you, Mr. Secretary, is will you commit to the examination of even that in your investigation; that the energy in whatever role they may have played—and they may not have played any role in this—but that you will be open to and will indeed look at this area as well, because the administration, most frankly, didn't before, when manipulation happened in California.

Secretary ABRAHAM. Well, first of all, we will follow the facts where they lead, as I said.

Second, I don't want to leave unresponded to the implication the administration did nothing in California.

Ms. ESHOO. What did you do?

Secretary ABRAHAM. Well, first of all, we inherited a problem that no one had done anything about.

Ms. ESHOO. But what did you do?

Secretary ABRAHAM. Well, on the very first week in office, we promulgated emergency orders to allow electricity to be bought by California. The President issued—

Ms. ESHOO. But I might interrupt because it is my time, Mr. Secretary, and I will let you finish that, but I think it is important—wait a minute. Wait a minute. It is my time.

Secretary ABRAHAM. For the record—

Ms. ESHOO. It is very important to note that the FERC, which is—has a key role in this, would not allow and did not allow the refunds for a whole variety of reasons, but California has been screwed, in plain English.

So you want to finish what you were saying about what you did do? I am curious.

Secretary ABRAHAM. Well, I would be happy—it is a fairly lengthy list. I would be happy to enter it into the record in order to preserve time.

Ms. ESHOO. It did nothing about manipulation.

Secretary ABRAHAM. Well—

Ms. ESHOO. That is my—that is my point.

Secretary ABRAHAM. I would only note that, prior to the appointment of Mr. Wood and Nora Brownell to the Commission, nothing had been done about—no investigations had occurred and no refunds had been ordered, and after the appointment by President Bush, all of those things happened.

Ms. ESHOO. Nothing. I still don't—that is why I am asking about manipulation. If, in fact, the administration chose to do nothing, which is the public record—I mean, I don't know what you can point to that the administration ever did relative to market manipulation. We never even had a hearing here.

Now we are here as a result of the August 14 blackouts, and I think it is very important that the administration, you, the Secretary, give us the encouragement that wherever the facts lead,

and you have said that in your opening statement, that market manipulation be included in this, and I just want a yes or no answer.

Secretary ABRAHAM. I think I already gave you a yes answer.

Ms. ESHOO. Good.

Secretary ABRAHAM. Again, Mr. Chairman, there was an administration that didn't do anything, but it was not ours.

Chairman TAUZIN. All right. The gentlelady's time has expired.

Ms. ESHOO. I think that is a suspension of reality.

Chairman TAUZIN. Would the gentlelady or the Secretary request that that information be included as part of the record?

Secretary ABRAHAM. I would be happy to provide.

Chairman TAUZIN. Is there objection?

Hearing none, you will enter that into the record.

[The information referred to follows:]

List of Administration actions on California blackouts:

CALIFORNIA

The Administration offered a great deal of assistance to the State of California during the power crisis. It is important to remember this crisis began months before the Administration took office. Prices began to rise in May 2000, and the blackouts started a week before the President was inaugurated. In the wake of these blackouts, one of the first actions Energy Secretary Spence Abraham took was to call Governor Davis and offer the assistance of the department.

On the third day of the Bush Administration, Secretary Abraham issued emergency orders directing electricity generators to sell power to California. This action kept the lights on while the State passed emergency legislation authorizing the State to buy electricity on behalf of its citizens. President Bush issued emergency orders directing Federal agencies to conserve energy use and expedite permits for new power plants.

Governor Davis asked Secretary Abraham to intervene with FERC and urge them to issue an emergency order waiving certain fuel requirements to qualifying facilities. Secretary Abraham intervened and FERC issued the desired order.

Governor Davis asked Secretary Abraham to support his proposed purchase of the utilities' transmission grid. Secretary Abraham supported his proposal, although it was later rejected by the California State legislature.

During the early months of 2001, FERC ordered substantial refunds. The Department of Energy consistently supported refunds of unjust and unreasonable charges.

Secretary Abraham directed the Western Area Power Administration to take the necessary steps to build a transmission line to remove the Path 15 bottleneck that caused higher prices and lower reliability.

The Bush Administration appointees to FERC developed a price mitigation approach that helped lower prices without causing more blackouts.

In the past, Governor Davis credited the Administration for helping solve the California crisis: "[President Bush] appointed Brownell and Pat Wood. They helped save our behinds . . . I think the world of President Clinton but the Clinton Administration didn't give us any help." *San Diego Union Tribune*, March 10, 2002.

Chairman TAUZIN. I would also remind the gentlelady that there were hearings in this committee on the California question, and we will be happy to go back in the record and clarify those.

The Chair at this time would recognize—

Ms. ESHOO. Not since the Enron memos came out, Mr. Chairman.

Mr. COX. A point of order, Mr. Chairman?

Mr. BURR [presiding]. The Chair would recognize the gentleman from California Mr. Cox.

Mr. COX. Thank you, Mr. Chairman, and as a California Member, I certainly remember vividly participating in those hearings, answering questions, asking questions of the administration, and getting a very healthy response that I think was very constructive

in helping California get back on its feet. And I want to commend you, Mr. Secretary, for the role that you played in those actions by the Bush Administration.

I want to ask a question that anticipates some of the testimony we are going to get later today. Some of what we are going to hear is going to advise us that all of this August blackout could have been averted if only somebody at FirstEnergy had picked up the phone and alerted other transmission operators when it first detected problems.

We will have other testimony not exactly to that effect, but to a similar point, which is that there were thousands of megawatts of capacity, of power plant capacity, that was shut down by American Electric Power, by Detroit Edison, by FirstEnergy, and if there had been better communication, this could have been avoided.

And what I want to ask you is, without necessarily opining who shot John, because I know you are very clear that the U.S.-Canadian task force is still studying this, and you don't know all these answers yet, if there is, in fact, an element of this that is apparent or appearing already that in here is inadequate communication among the different players, shouldn't we go beyond technology that looks like picking up the telephone, but relies on human beings watching things in real time when so much of this can happen in seconds and less than a second? And isn't technology part of the solution here; by investing in our systems, can we not build redundancy and backup into a security plan that doesn't currently exist?

And, then, finally—and I will let you take all the time for answering, I will not ask a follow-up—finally, because I spend so much time worrying with another hat on in another committee about homeland security, isn't this an example of an area in which homeland security investment that protects us from the downside of things going bad can also make our economy healthier; by investing in what will protect us from security downside, we might also build the capacity of our country to produce more goods and services and make the lives of Americans better?

Secretary ABRAHAM. Well, I couldn't agree more with the last comment you made.

First of all, we recognized when we launched the task force the important issues that relate to homeland security, which is why we have as one of the three working groups a security working group. That isn't because we have any evidence that there were homeland security or national security factors involved in the actual blackout, but because we want to learn from this experience and focus on anything that might be second either to this blackout or future ones where we might be able to enhance the security of the infrastructure.

Second, there is no doubt that the technology either exists or can be developed to enhance the intelligence of the transmission grid and to assist the people who want it in terms of their ability to respond even quicker to developments that occur.

I mentioned earlier in response to Chairman Tauzin's question the concern that we are talking about 10,000 events or so in 9 seconds. No human being has the ability to be that responsive, to take every action maybe in terms of communication, notification in that

sort of timeframe. And so we are looking at or will look at the ones that collected information.

We are going to be looking at the issues and analyzing whether communication problems were a factor, but, whether or not they were, I have already advocated here some of the new technology that we are looking at, whether it is in terms of superconductivity or smart grid technologies, to try to enhance the capacity of the system, and I think this committee on both sides has appreciated that point even in the abstract. Now maybe because of the blackout it is more widely appreciated nationwide.

Mr. BURR . The gentleman's time has expired.

The Chair would recognize the gentleman from Michigan Mr. Stupak for questions.

Mr. STUPAK. Thank you.

I believe I get 8 minutes?

Mr. BURR. The gentleman is correct.

Mr. STUPAK. Thank you.

Mr. Secretary, thanks for being here.

I mentioned that we weren't affected in northern Michigan from the blackouts, but I am sure a lot of my people were, as you have mentioned people from the United States, Canada, all over, were affected. There is a great deal of concern on what has happened here.

When your task force meets, will these meetings be open to the public, where people can see what is going on?

Secretary ABRAHAM. Well, we are trying to address the question of how to properly keep people informed. Right now the work that is going on is taking place, a lot of it is taking place, at the NERC offices in Princeton, New Jersey. It is a setting in which literally a huge table of analysts is sitting in front of a computer terminal trying to sequence events and to analyze, so that is what—

Mr. STUPAK. These working groups are going to have to report back to your task force, right?

Secretary ABRAHAM. Right.

Mr. STUPAK. And will those meetings be open to the public?

Secretary ABRAHAM. Well, there are two phases which we are in. In the first phase, which is just collecting information, I don't really see that as lending itself to a public role. However, we are interested in and I have asked legal counsel to explore how, during that first phase, information can be formally received from people who are not part of these working groups. We recognize there may be individuals out there who are either not contacted by us or who may have information which would be helpful to us, so we are looking for a way to address that.

Once that sort of data collection and analysis is done and we move to the sort of second phase that I described earlier, phase 2, which is kind of a time in which we would hope to make recommendations, then I think we are going to try to look at how we can determine what the public role is in terms of being careful what the legal issues are, both Canadian as well as American legal issues that surround participation and recommendation or policy formulation.

Mr. STUPAK. Well, there is some concern that we don't want this task force to be like the energy policy task force at the White

House where nothing that happens there is public. In your testimony you go on to say that you are going to look to North America Electric Reliability Council, and I am quoting now, and the affected independent system operators and the utilities have agreed that their investigations will supplement and contribute to work of the task force.

As I read that, these other people are going to be reporting to this task force, and your recommendations, I take it, will be after the report. So, while they are reporting to you, especially like the North America Electric Reliability Council, why wouldn't that be an open meeting so that we can see what is being recommended by the North American Reliability Council, which has some expertise—

Secretary ABRAHAM. Let me be very specific about what they are providing. They are not providing recommendations at this point. In phase 1, what all of those entities are providing are data—

Mr. STUPAK. Sure.

Secretary ABRAHAM. [continuing] and information.

Mr. STUPAK. This would be phase 2, right?

Secretary ABRAHAM. To the extent that we can, I envision that information also being made public. We haven't yet figured out as to how the formulation of recommendations will be done. We are working on that to address both the legal side of that—

Mr. STUPAK. Sure.

Secretary ABRAHAM. [continuing] as well as the public interest side.

Mr. STUPAK. Well, I am sure that if you mention that the task force is going to have a meeting, whether or not it is a working group, and that they are going to be looking at the report from the North American Electric Reliability, if you are concerned about whether people would be interested, why don't we just make it an open meeting, invite the media with C-SPAN on it so we can watch it, you know, and, if there is no viewer interest, I am sure they won't show up. But if there is interest, and I am sure there is great interest, why don't we just do it that way so there is an open dialog?

Secretary ABRAHAM. You are putting, I think, conclusion in place before we have gotten to that stage yet. I am not prepared today to tell you that, when we get to the recommendation stage, we are going to have outside groups, whether it is the North American Electric Reliability Council or anyone else, engaged as part of the effort. It may or may not be the case.

Until we determine that, then I think at that point we would determine what the proper way was to make sure that the process was appropriately inclusive.

Mr. STUPAK. Well, in order to make the changes that may be needed in the energy grid, I have heard about new technology today. People are asking what is it going to be? Usually, when there are changes, the cost comes from the taxpayers, in this case the ratepayers. So I would think as recommendations are being made, whether recommendations will be asking the Congress to give tax breaks or whether you are going to push it off to the taxpayers, that they would want to know about that so that they could have some input before the recommendations are made. And that

is the reason I am pushing so hard to make these hearings that you are going to be holding public in the recommendation stages, because I think we all have a stake in this, whether ratepaying or through just turning on the electricity in our homes, even in the Upper Peninsula.

Secretary ABRAHAM. I am cognizant of that, and I appreciate the recommendation.

I would just say this: As I indicated in my opening statement, at this stage, and this is an early stage in this process, I think it is my belief, and I think Minister Dhaliwal shares this, that the types of recommendations that this task force will be putting forth are going to be far more in terms of operations, engineering and mechanics as opposed to broader public policy recommendations of the sort you outlined. I think the results of our effort will probably be used by Members of Congress, the Canadian Government, our administration and others to formulate those kinds of recommendations, and that is my sense of it.

Mr. STUPAK. The technical working part that you think you will be doing that we won't be interested in, I think we would be very interested. Also we are up here as policy makers. According to the North American Electric Reliability Council, in the year 2002, there were 97 planning standard violations and 444 operating policy violations. I mean, if that is what is going on, and if you are going to try to fix this so we don't have these 444 operating policy violations, which obviously may have led to some of this cascading effect of this blackout—

Secretary ABRAHAM. Right.

Mr. STUPAK. [continuing] I think we need to know that, especially if we are going to have to write some rules. Whether it is the energy bill that is in conference or Mr. Dingell's reliability bill that he is introducing today, these are things that we need to know, and you are assuring us that your report will be done in the next few weeks, not months, you said, were your quotes.

Secretary ABRAHAM. Right.

Mr. STUPAK. So I want to make sure that as you are doing your work, that we are all on the same page, and we can interact on what is going on, and people know what is going on before you come back or the Energy Committee comes back and says, we need this and that from the American taxpayer either through higher rate increases or through tax breaks. We want to make sure we are all on the same page so we don't have these problems again.

Secretary ABRAHAM. Right, and I appreciate the point.

I would commit to the Congressman that I would share these concerns with our Canadian counterparts as we work to develop the process for the formulation of recommendations and also assure you that all of the information that we are obtaining that is forming the basis for this analysis will, to the fullest extent possible, legally be information we share.

Mr. STUPAK. One more and I will just wrap with this. There has been a lot of discussion about the gasoline prices. I happened to have the opportunity to be up in Pennsylvania with my colleague Mr. Doyle, and I couldn't help but notice that the gas was 30 cents less in Pennsylvania. Now, the blackout skirted around Pennsylvania, but I am sure some of the refineries were down, had to get

their gas from some of these refineries that were down. Why would—you know, if this is a problem from Arizona because of a broken pipeline and the blackout, whatever else you want to call it, why wouldn't all States see the increases, or is it just a manipulation of a few?

You have heard from about everybody here. Ms. Eshoo said hers was \$2.35 to fill up. We are right around \$2 up in the Upper Peninsula. Then I fly into Pittsburgh and fill up Mr. Doyle's car; I was happy to pay for his because it was 30 cents cheaper a gallon.

So I hope you look at that in your investigation.

Secretary ABRAHAM. Yeah. And one of the other issues here is that transportation costs of the fuel itself can be a factor.

We will try to analyze and separate that which is—I mean, as the Deputy Secretary indicated, and as I indicated, you know, we see a lot of fluctuations in prices. This one for a variety of reasons caused us concern.

Mr. STUPAK. Sure.

Secretary ABRAHAM. [continuing] and we decided to pursue an inquiry.

Chairman TAUZIN . The gentleman's time has expired, and the Chair yields to the gentleman from Illinois Mr. Shimkus for a round of questions Mr. SHIMKUS. Thank you. Mr. Chairman, and, Mr. Secretary, thank you for your long time being here.

Let me just briefly talk about a few—energy cannot be discussed in isolation, so it is—I think it is appropriate that we talk about gasoline prices. I think it is appropriate that we talk about natural gas and generation of coal and other things. And that is why it needs to move in a bill together. Gasoline, because of the regional requirements for fuel being specific for the area, because of EPA standards on the Clean Air Act, that is why you can't move product from one area to another, even if—if there is disruption, because we can't move fuel. Hopefully in this energy bill, I think there may be some ease of that because of doing away with the 2 percent oxygen standard when we go to—with the 5 billion renewal fuel standard. So these should not be taken in isolation. It is very, very important.

My friends on the other side talk about the reliability language which we support in the comprehensive bill, but the transmission grid is not a reliable—reliability standard by itself. There is need on investment, there is need on a return of that investment, and there is a need to address the siting issues, and we have had numerous hearings on the siting of transmission lines.

Many times I have talked about the Illini Coal Basin. Nineteenth of the State of Illinois is the Illini Coal Basin, more coal reserves than Saudi Arabia has oil. The Illini Coal Basin also goes into Indiana. It goes into Kentucky.

How does this all relate? Well, if we don't have a transmission grid, then what we have done is we site natural gas peaker plants that are actually running for baseload generation in different locations instead of using baseload generating facilities like coal and nuclear to do the everyday activity, and when we have to run a natural gas generating plant, that creates a higher demand, which then calculates into the price debate. So for those who will claim to take it, an isolated aspect of energy, it is just like putting a

Band-Aid on a problem. That is why it is so critical to have a national energy policy.

Let us make a statement. Let us set some consistency. Let us give investors the idea of where this country wants to move to be free of the swings that come when we just take a Band-Aid approach.

So again, Mr. Secretary, I applaud the push, and this is the time again, as I said in my opening statement, if we can't move a national energy plan when natural gas has doubled in price, when we have gasoline prices as high as they have ever been at the pump, when we have 50 million people without power, if we can't do it now, then we ought to give up.

I do have two questions, and I will ask them both and you can address those. Your agency has been working on high temperature superconductivity cables. We have had a tough time trying to authorize funding for that. Can you talk about the need and the importance of high temperature superconducting cables? And the other issue is why is Canada part of our grid?

Secretary ABRAHAM. Well—

Chairman TAUZIN. You sound like the kid from South Park, John.

Mr. SHIMKUS. I don't let my kids watch that show.

Secretary ABRAHAM. I will answer the second one just by saying this: we think it holds the possibility of superconductivity really revolutionizing the electric system. I have said that two or three times in my answers. Because superconducting lines can carry much more electricity than conventional cables, and yet can be buried underground, they can serve multiple purposes potentially. So it is, in my judgment, yet another important ingredient in the comprehensive energy approach. And we have just awarded several substantial grants for new research in this area, and we think it holds tremendous promise and would urge Congress, in fact, would compliment the committee and the work it has done in this area and, more broadly, in trying to address the energy challenges through the passage of your energy bills, both this year and in the last Congress.

Mr. SHIMKUS. Mr. Secretary, wouldn't that also alleviate some of the NIMBY aspects, if we can push more power over conventional rights-of-way, that that would be an important aspect?

Secretary ABRAHAM. It would seem that that would be important, because obviously, to the extent we can minimize the amount of transmission needed, transmission lines needed, and to the extent we might be able to put more underground instead of building towers as some wanted, that would certainly be better.

The issue on Canada, I mean we really have a very interdependent economic relationship in North America. I do not know the exact history of the U.S. and Canadian cross border transmission construction, but it is consistent with much—a lot of other things where there is an intertwining of relationships. And I would note, it is always I think maybe an interesting side-bar is just that we have this interconnectivity with Canada throughout the country running north and south, but we don't have an east-west capability of transmission connectivity in this country, or I guess in Canada. So that is just an interesting comment on how the system evolved.

It has evolved internationally, but it hasn't evolved nationally. And it has obviously implications as well. I am not advocating that we do anything specific about it; I just mean it is an interesting reflection of how the system develops.

Chairman TAUZIN. The gentleman's time has expired.

The Chair recognizes Ms. McCarthy for a round of questions.

Ms. MCCARTHY. Thank you very much, Mr. Chairman. Thank you, Mr. Secretary, for all of the time that you are spending with us today. I want to commend you and the administration for your work with Canada and to continue the line of thinking you have just been sharing with my colleague across the aisle.

In your testimony you talk about recommendations that will focus on technical standards for operation and maintenance of the grid and on the management of the grid in order to more quickly correct the problems we identify. It is the management of the grid I would like to explore with you in the brief time that we have, particularly again working with Canada and the north-south grid. What will this mean for States' authority which traditionally has been the management and regulatory bodies for the 50 States? And second, does the administration still support PUHCA repeal? In the literature and in the information that I have received from both industry and other sources, PUHCA has served a very good purpose in transmission and regulation, and also in sort of shoring up the public's confidence that rates are indeed fair and no foul play has been going on. So I would love—I know you don't have the report and the recommendations will follow, but as far as the administration's view on PUHCA, do they still support repeal, and also how do you envision the administration's position on management of the grid and what that will mean to the States who have traditionally held such authority?

Secretary ABRAHAM. Well, in answer to the PUHCA position, we have not changed our position; we still favor its repeal. We believe that the benefits in terms of the potential for sufficient investment in the energy sector, particularly in transmission, would be very important.

In terms of the management issues, I don't wish to be misunderstood. The comments that are in my testimony relate to what I suspect would be the scope of recommendations that our joint task force would make and that should be interpreted, at least as it was intended by me, as a small M, not a big M, management, and by that I mean the operational systems between ISOs between the managers of the system itself, the operational people. I am not trying to prejudge the outcome, but the scope that we are looking at right now is the actual day-to-day functioning, hour-to-hour and minute-to-minute functioning and how that is managed, as opposed to the broader issue that I think you are asking about in terms of the macro management of the structure, the regulatory structures of electricity systems.

Ms. MCCARTHY. So you do not foresee a Federal regulatory role or even a Canadian-American role, but the power, or the authority still resting within the States and provinces?

Secretary ABRAHAM. Yes. Again, I don't want to be too far-reaching and speculating about recommendations, but I do think this is a task force, the conclusions of which will be ones that both the

U.S. and Canadian members will be either approving or not, and I just suspect that we will be looking at the operational side of the electricity grid. I don't foresee either the Canadians or the American participants trying to make recommendations about how the other country's overall regulatory structure is established. But again, I will leave myself a small amount of wiggle room. But that is what I believe, so far to be the—

Ms. MCCARTHY. Well, I appreciate you can't anticipate the outcome of the study you are doing, but I do want to know the administration's view of that. And I want to revisit the PUHCA issue with you just briefly and be sure that you are aware that industries and groups such as Trans-Elect feel that it is the wrong time to act to repeal PUHCA. I am reading from their newsletter commentary: PUHCA has the effect of keeping certain predatory players out of the transmission business, and Trans-Elect is perfectly willing to be governed under PUHCA and so should any other independent transmission player.

As Mr. Markey I think raised with you earlier in the hearing, with a guaranteed return of 11 or 12 percent of whatever it is investing, utilities investing in transmission and PUHCA does nothing to restrict that investment; certainly PUHCA has not been a problem. So I am just wondering again why the administration feels that this is the time to eliminate PUHCA.

Secretary ABRAHAM. Well, again, I think our concern has been that the absence of investment in the modernization of the transmission system and other elements of the energy sector have been affected by that legislation, which is, as you know, a piece of legislation passed at a different time in terms of—

Ms. MCCARTHY. Mr. Secretary, if I might regain my time.

Chairman TAUZIN. The gentlewoman's time has expired.

Ms. MCCARTHY. I just want to close with PUHCA does not restrict their investments, Mr. Secretary, so I hope you will rethink that, and I thank the Chair for his indulgence.

Chairman TAUZIN. If you want, Karen, we can include a provision in the bill that says any company that wants to be covered by PUHCA can still be covered by them.

I thank the gentlewoman.

Mr. Norwood is recognized for a round of questioning.

Mr. NORWOOD. Thank you very much, Mr. Chairman. I am going to try to get us a little bit back on the subject. I can't tell if this hearing reminds me of the markup or the many, many hearings we have had over the last year or what our subject matter is here. But as I recall, it is about the blackout, what caused it and what caused it to spread.

Mr. Secretary, you have answered this in a lot of different ways this morning, but let me just ask you a couple of very simple questions for the record.

You don't really know what caused the outage, do you?

Secretary ABRAHAM. We are not at the stage of being able to answer that question, no.

Mr. NORWOOD. Well, do you agree that our response to this outage should be formed by a proper understanding of the reasons that it occurred?

Secretary ABRAHAM. Sure.

Mr. NORWOOD. Yes, I thought you probably would.

Can we make an intelligent legislative response to this outage until we know how it got started and what caused it to spread across the country?

Secretary ABRAHAM. Well, I am not going to speculate as to what might have caused this outage and, as a result, I am not going to speculate as to whether there will be a specific legislative silver bullet to prevent it from happening in the future. What I will reiterate is what I have said many times. I think the legislation this committee has worked on addresses both in the electricity sector as well as in a variety of other energy sectors serious challenges this country faces today and will face in the future. I would hearken back to the chairman's prediction of not too long ago that he has mentioned today, and that moving comprehensive energy legislation is important to try to avoid other kinds of problems afflicting either the electricity sector or other parts of our energy world.

Mr. NORWOOD. Well, I totally agree with you and I appreciate your adult response to this because, frankly, I don't know how any of us think we can write legislation to solve a problem that we don't know what the problem is. I wish other members of the Federal Government would consider that as responsible, too. Because we had a blackout is not the time to use the blackout to try to ram down the throats of Congress that has already done this through the House, through hearings after hearings and produced legislation, one's personal agenda. Now is not the time to do that. Now is the time to let your task force work and us move forward. I appreciate some comments you made one time about forcing ideas and ramming it down the throat of individual communities and regions, and I think that also should apply to Congress. I don't think anybody ought to use this blackout simply as an excuse to push their agenda that has already been set aside by this Congress and will, in the end, cause great harm to a final energy comprehensive package.

Let me just take a minute and talk plainly here. The problem—we keep referring to all of the United States, Mr. Secretary, about the problem simply that we have not met demands, there needs to be more generation, there is not enough transmission lines. I agree that that is true, but it is not true all over the United States. It is true in certain areas that has been pointed out, I forgot what the Vice President called his task force, that predicted this was going to happen immediately after the President came into office and produced his blue book. This has been fairly predictable. But it doesn't mean we should use this opportunity to ruin the parts of the country that has met demand, that does have good transmission and does have good generation. It seems to me everywhere blackout has ever occurred, it is in an area that insists on importing electricity, whether that be from another country or whether that be from two States over. There is where the problems are concerned. And I hope, Mr. Secretary, at the end of the day as you work with us in conference that we can all come to a good energy bill that actually doesn't tear up part of the country in order to fix another part of the country.

I see my time probably ought to end about now, Mr. Chairman. I yield back.

Chairman TAUZIN. The gentleman yields back. I thank the gentleman. Hooray for Georgia.

Ms. Solis is next. The Chair is pleased to recognize Ms. Solis for a round of questions.

Ms. SOLIS. Thank you, Mr. Chairman. Thank you again, Secretary Abraham, for being here.

My question is a little different. I wanted to ask about sitings of potential power lines that affect minority communities and low-income communities. We have—someone mentioned earlier I think on the other side of the aisle regarding NIMBY, NIMBYism. But the reality is that many times when we are looking at placing these kinds of power generating facilities, they end up in areas where minorities or low-income people or disadvantaged communities have to shoulder the burden. I would like to know what opinion you would have on the placement of future facilities like that and if there will be some level playing field that would be applied, some standard.

Secretary ABRAHAM. Well, the first and most important point is just that the Federal Government obviously does not have the power to site. These are decisions made at the State and local level, and I would hope they would be made in a credible and open process that allows everybody to have some input in terms of where the siting will occur rather than discriminate against any community. I think that one of the concerns we have has been that because the Federal Government in this unique area does not have any authority to do siting, no eminent domain power, unlike interstate highways or pipelines that failure to site sufficient transmission capability is obviously a problem and creates occasionally the kind of bottlenecks that result in higher prices for everybody, as well as creates stress on the system. So that is one of the reasons why we have advocated at least some sort of last resort authority for the Federal Government. But at this point we don't have any. The local communities and the States make those decisions. I would urge them to be as inclusive in the process of decisionmaking as possible.

Ms. SOLIS. Might that be something that would be included in say a potential goals statement that might be included in language that might introduce? I mean we have done that in the past. Actually through President Clinton's Administration, we had an Executive Order that asked for different agencies to look at fair play standards in siting different projects throughout the country.

Secretary ABRAHAM. Well, I am happy to stand on the statement I just made which people are welcome to use. I think that it is something obviously the Congress needs to deal with. I think in the absence of having a Federal authority though to do any siting, it might be questionable whether the States would feel much reason to be responsive until the Federal Government itself is in the business. So it might be one possible step in the right direction to have at least some last resort authority for the Federal Government.

Ms. SOLIS. Okay. My next question goes to renewable energy. It is my understanding that the Niagara project, which is a hydroelectric plant, did not go off line during the blackout, but plants powered by coal and natural gas and uranium all tripped off line.

Why was the Niagara project less fragile to the blackout when other systems went off?

Secretary ABRAHAM. I don't know yet. I mean one of the things that I envision the task force and the working groups especially looking at are the places where things worked, where there wasn't a failure of the system. That would pertain to generating facilities as well as to parts of the grid. You mentioned renewables. There is no question that I think in the area of the hydro systems we are more easily able to get back on line or to be more stabilizing, and that is probably true of other renewable energy sources as well.

Ms. SOLIS. What about solar power?

Secretary ABRAHAM. I think it would be consistent for most of the renewable energy generation approaches, wind, solar, or hydro. Unfortunately, of course, the percentage of energy generated from those sources is not as great at this time, but I think that comparatively speaking, obviously have a little different kind of activation approach, as I understand it, that allows them to be back up and running more swiftly, obviously, in comparison to other, bigger facilities.

Ms. SOLIS. Might that be something that we could explore, given that as we heard earlier by some on our side that there are definitely incentives for some of the power companies to keep a profit to start putting that money back into other renewable type of sources?

Secretary ABRAHAM. Well, I don't know about that. I do know that we endorsed and supported that part of the energy package, the tax provisions that would help to subsidize more renewable energy.

Ms. SOLIS. Incentives.

Secretary ABRAHAM. It is one of the reasons why our renewable energy budgets that we have submitted, our energy efficiency and renewable budgets for the last 2 years have been larger than any budget Congress has enacted in the last 20 years. One of the earlier comments about distributed generation I think was a very important one, because the potential to have fuel cells play a role in terms of a smart grid and help to both be a backup, but also a provider of energy for the grid is important and is one of the reasons why we have put a lot of our resources in the Department research programs on fuel cells and hydrogen.

Chairman TAUZIN. The time of the gentlewoman has expired.

I might point out to the gentlewoman that 70 percent of the energy bill passed out of this committee was in renewables and conservation, so a lot of good stuff in there.

The Chair will yield to Mr. Walden for a round of questions.

Mr. WALDEN. Thank you very much, Mr. Chairman.

I wanted to follow up on the discussion about distributive energy generation. During the August break I met with a constituent out in La Grande, Oregon who is working on localized wind energy development, and he was telling me they think they can basically put a windmill on each farmer's farm that will power a full wheel of irrigation. So basically the farmer could recoup in a couple of years on energy savings the cost of putting one of these smaller sized wind generation facilities on their own farm and pay for their irri-

gation costs from then on. So it is an exciting development as we move forward on distributed energy.

Mr. Secretary, I am told that within 6 hours of the start of the blackout, the NYPA's entire hydropower generation was back on line which provided New York with 3,794 megawatts of energy or close to 45 percent of the State's total electricity load, and that the two largest facilities, Niagara and St. Lawrence-FDR remained in service during the outage because their size enabled them to withstand the shock that had pushed thermal and other generating plants off line.

As you know, H.R. 6 included House Resolution 1013, the legislation I introduced with my colleagues, Mr. Radanovich and Mr. Towns, which adds some common sense to a currently onerous relicensing process for non—for Federal hydro projects. Ninety-nine percent of the hydropower generated in my district in Oregon comes from facilities up for renewal over the next 3 years. Together these projects have the cumulative potential to produce up to 1,602 megawatts of power or enough to serve the power loads for everyone with a home in the Pacific Northwest cities of Portland, Seattle, and Spokane.

Hence my question to you is the administration's view on those hydro policy changes for relicensing first, and then I have two other questions.

Secretary ABRAHAM. Well, again, we are likely to be issuing an official statement of administration position in the next few days, but we have already acknowledged in both our energy plan and in the previous discussions of last year's bill and so on that we support the streamlining of relicensing for hydro facilities. We think it should be quicker, and that certainly we have to balance the environmental effect of dams with their ability to produce both abundant power and clean power, to fuel economies of the regions in which they are located, and we will play an active role, I expect, on that issue to try to make sure that a final bill would include provisions that help streamline the system consistent with those environmental challenges.

Mr. WALDEN. Earlier this year, as I mentioned in my opening comments, the Congress provided \$700 million in increased borrowing authority with the support of the administration for the Bonneville Power Administration to build new transmission facilities and, as you know, they got under way this summer. However, Bonneville had originally requested more than that in bonding authority. In light of the renewed focus on reliability and the need to modernize the grid, do you anticipate being able to support additional funding of—bonding authority, I should say, to reduce transmission congestion in the Northwest? I think they were seeking up to \$1.3 billion.

Secretary ABRAHAM. Let me ask the Deputy Secretary to just comment because he has been involved in this quite a bit.

Mr. WALDEN. Certainly.

Mr. MCSLAW. The short answer would be not at this time. I was actually pleased to participate in one of the groundbreaking for one of the 3,500 KV lines that we have started construction on, but in my discussions with the Bonneville Administrator my understanding is that in terms of the pace and the resources required for

the upgrading of the transmission grid in the Northwest, which everybody agrees is critically important, the \$700 million is sufficient. If that changes, then we will obviously review it again.

Mr. WALDEN. Mr. Secretary, I have a little less than a minute left, so let me ask you this: again, could you just summarize for us what additional investments—what the Bush Administration believes Congress should do to promote greater investment in the grid? What are the top two or three things that we could do here to get the reliability we need, and adequacy?

Secretary ABRAHAM. In terms of transmission investments, we had an earlier discussion about the repeal of PUHCA. I have a different opinion than that which was expressed by the Congresswoman, because we think that there are restrictions. The restrictions PUHCA has on who can even participate places a restriction on investment by and of itself, and we think its repeal would help to bring needed investment into the sector.

Second, we would favor and have favored the provisions which would bring about a FERC action to try to produce an incentive system that would stimulate investment.

Third, I think we have acknowledged on a number of occasions our support for the spinning off of transmission assets to RTOs, and I think that really those would be some examples of ways that this could happen.

I mean at the end of the day people decide where their investment is best placed, and I can't speak for those companies who might invest in transmission. I mean they make those decisions based on their shareholders' concerns or whatever it might be that is their decisionmaking process. But presumably, they will invest what resources they have available in those investments that have the best chance of return, where they feel they have the best opportunities and the least risk. And clearly, if this was an attractive investment at this point, more of it would happen, I think. But maybe we also need more people able to make those investments.

Mr. WALDEN. Thank you.

Chairman TAUZIN. The gentleman's time has expired.

The Chair is now pleased to recognize the gentleman from Florida, Mr. Davis, for 8 minutes because he waived on his opening statement. By the way, Mr. Davis, our numbers indicate that California uses about nine times as much energy, total energy, as it produces within its State. Florida uses 22 times as much, and yet Florida has not had nearly the problems that other regions have had. That may be some compliment to your State, although I would like to see you produce more from California. The gentleman from Florida, Mr. Davis, is recognized.

Mr. DAVIS. I didn't think you would let me off that easy, Mr. Chairman. Thank you.

I want to congratulate the Secretary because he has succeeded in bringing this committee together on energy issues, and that is tough to do. There is a universal respect which I share that we should not rush to judgment, Mr. Secretary. We should wait upon the facts and have an open and honest discussion as to how we interpret those facts and the conclusions we draw. Certainly the public will be unforgiving if we do not act on that information once we ultimately have it.

There was a statement made earlier by Congressman Blunt, a thoughtful member of this committee and the Republican whip, and I think it is important enough that I need to ask you your reaction. He said, I believe, that having a policy developed was more important than what the policy said. I don't agree with that, and I wanted to ask you your opinion. It ultimately is important that we get the right policy and not that we just rush into any policy, isn't it?

Secretary ABRAHAM. Well I can't actually remember his statement. But what I would say is that this committee, under Chairman Tauzin's leadership, has spent an awful lot of time trying to debate these issues, the broad issues, and I commend you for that. Energy challenges are important ones that have to be confronted and getting the best policy requires the kind of deliberation that is going on. I don't think this committee has underperformed when it comes to the deliberation on policy discussions in this area. It seems to me that the number of hearings that the full committee and subcommittee have had have been very thorough, and I think they have yielded legislative action here which resulted in a bill passing. So I commend you for it.

Mr. DAVIS. Mr. Secretary, as I understand your testimony, the administration does support the incentive rates to encourage upgrades to the transmission grid?

Secretary ABRAHAM. Yes.

Mr. DAVIS. Now, the FERC has already taken that position, and my question to you is, why is it so essential that Congress put that in statute as well?

Secretary ABRAHAM. It is my understanding that there is some dispute as to their authority to take action, and again, maybe in the later panel when Chairman Wood is here he might be able to shed more light on that issue. But my understanding is that the clarification of it by a congressional statutory action would be helpful to dispose of questions that might exist.

Mr. DAVIS. In 1998 an advisory board to DOE issued a report that said, without fundamental reforms, substantial parts of North America will be exposed to unacceptable risk.

My question to you is how urgent is it that the Congress act on the issues you have generally identified this morning to help tackle the blackout problem once it is fully defined?

Secretary ABRAHAM. Well, I think that, as I have said before, no one should confuse what we are doing to try to focus on the specific problems of the specific blackout with the obvious broad challenges that this committee has already wrestled with in the passage of its energy bill in terms of the electricity title. I mean regardless of what the sequence of events was on August 14 there is no question that the demand being put on the grid is growing and already pressing the grid to its full limits. There is no question that we need more transmission capability. There is no question that we need to have enforceable reliability standards, because some other event at some later point may be averted and likely will be if we do these things.

So my view is that the legislation which has already moved through the House is a giant step forward to dealing with those challenges which not only that study, but the one which we con-

ducted in 2002 identified. And again, I commend this committee and all of you for working on it and making it a priority.

Mr. DAVIS. I guess my point, Mr. Secretary, is I understand your point of view that investor confidence is important and that steps need to be taken quickly to deal with this grid. Once you have finished your report and we all have a chance to look that over, there is an urgent need for us to act. To convince the rest of the country that we are serious about making sure this does not happen again, shouldn't we be prepared to pass that legislation separately if the Congress gets bogged down with the rest of the energy bill?

Secretary ABRAHAM. Well, I think the opposite is true. I think that the problem America faces is a broad set of energy challenges. And this is where it is frustrating, I have to be honest, in my job, because whenever there is one of these crises there are usually hearings and there are people who are calling for action to address that one crisis, and then there are other people who say it is wrong to let a crisis force legislation, and then soon the crisis abates, and then people say, well, we don't have a crisis, why do we need a bill? And this sort of circular, or the cycle, seems to keep happening.

The problem is that it is not just a problem with electricity transmission, although that is the one that we are here today about. I think the chairman's—I can't remember your quote exactly, Mr. Chairman, but he predicted something like this. We were very much caught up in the concerns about, and continue to be, the natural gas storage levels as we go into the winter, and there is that problem. I would hate to see us ignore these other problems, because they are equally important. They will affect our economy, they will affect the safety and health of Americans in many respects as much as the blackout.

Mr. DAVIS. Mr. Secretary, it is a fair point. I don't want to debate with you, I just want to underscore that the country is watching you, and us, and expects us to act. There are not even conferees appointed to this energy bill and, to my knowledge, there has been no meaningful staff conversation that would push forward a conference.

Chairman TAUZIN. Will the gentleman yield?

Mr. DAVIS. Yes, Mr. Chairman.

Chairman TAUZIN. That is not true. Senator Domenici and I, and I will give the gentleman additional time, we had a conversation the day the Senate acted and we agreed to put our staffs immediately to the task of side by side analysis, to begin working out exactly what the conferees are going to need to agree and disagree on, because there are areas of broad agreement and there is of disagreement, to isolate them. The staff has been working all through—they took 1 week off. They worked all during the August recess, and if you were to call Senator Domenici today you will find out that he believes, as I do, that we are going to make speedy progress once we officially begin the conference. We have a lot of work going on. Add to that, Mr. Davis, the fact that we came awfully close last Congress, and the Senate under Democratic leadership came very close to agreeing with us last year, I feel very confident that our staffs are going to give us the chance to finish this work before we leave. So I hope you have a sense of the same opti-

mism I have before this is over with, and as I predicted the problem, I hope my predictions about our answer is equally accurate.

Mr. DAVIS. Thank you, Mr. Chairman. I hope the conferees are appointed soon so the official conference can start, and what the Senate has done speaks for itself.

Mr. Secretary, in my remaining time which the chairman has generously offered to recalculate slightly, I would like to talk about something that has heavily affected my State and that is the price of gasoline at the pumps, and certainly the blackout is the major issue we will be discussing over the next couple of days.

As I understand it, the EIA in your department had said not too long ago that they thought prices would be returning to the more normal range after the Labor Day holiday. Is that correct? Is that still your expectation?

Secretary ABRAHAM. Yes. I think we have a number on Monday—the Deputy Secretary points out that on Monday the wholesale gasoline—or Tuesday the wholesale gasoline prices dropped 20 cents, so that is kind of consistent with what we had predicted.

Mr. DAVIS. I haven't seen that translate to a reduction at the pump in my area. Are you seeing it in other parts of the country?

Secretary ABRAHAM. That is a wholesale number.

Mr. DAVIS. Okay. So my question was going to be what is your expectation or projection as to that translating into a reduction at the pump?

Secretary ABRAHAM. I will give you my projection. The analysts in the Energy Information Administration suggests there is typically a 2-week lag time in terms of the decline in price. And my observation has been that there is a much quicker increase whenever events happen, but there isn't a similarity in terms of the change in the price at the pump. The increases happen instantaneously, and the tendency, at least in my observation, it is non-empirical.

Mr. DAVIS. I assure you that is the perception of the consumer at the pump as well.

Do you expect that the investigation you have mentioned and presumably are undertaking is having a positive impact on bringing the prices back down?

Secretary ABRAHAM. Well, we just started, so I don't think that would be true. But I have said repeatedly whenever there has been one of the sort of major incidents over the last couple of years, starting with 9/11, is that we have a hotline, a gouger information hotline, and I will even read it into the record, Mr. Chairman. It is 1-800-244-3301.

Chairman TAUZIN. We will start calling it today.

Secretary ABRAHAM. I will let you finish.

Mr. DAVIS. I don't need to call. I have delivered to you my—

Secretary ABRAHAM. Every time I have noticed that when we do reference that it is a positive statement, I think.

Chairman TAUZIN. The gentleman's time has expired, Mr. Davis.

Mr. DAVIS. Mr. Chairman, thank you. I would just add, I hope that you would consider dispatching Mr. Greenwood as chairman of the Oversight and Investigation Subcommittee the opportunity to conduct some hearings on this very issue as well.

Chairman TAUZIN. Mr. Davis, I can assure you if the Secretary and Mr. McSarrow indicate to us there is a need to do that, we will do that, but we obviously want to give them a chance to report to us.

The Chair recognizes the vice chairman of our committee, Mr. Burr, for a round of questions.

Mr. BURR. I thank the Chair.

Again, welcome, Mr. Secretary. Some analyses of the blackout period have already taken place, though cursory, and I think it is safe to say that I think this committee would rather wait until the official committee that is set up comes out with their conclusions. But I think that there are some things that we can sort of take for granted, that this is a process that happened in very close to an hour or a little bit longer, that we went from the startup problems to a total blackout.

In that process, in that hour period, we had transmission lines that tripped, we had generation that shut down; I might say all by design. Had that not happened, had that design not been in place, what would have happened to that grid and those generation facilities?

Secretary ABRAHAM. Well, obviously, there is a certain fragility in the system that is designed to be that way so that, for instance, a nuclear power reactor, if there is this instability that goes to backup generations so that there can't be any adverse affect on its cooling systems, things like that worked and we have got a nuclear security working group that is focused on that, to see if it worked the way it was anticipated across the board. Parts of the grid obviously responded effectively and quickly in terms of preventing the blackout from spreading, and others didn't. So we are—one of the most important parts of what we will be doing is to learn from the ones—the things that did work well to see what the dissimilarities would be between those systems and the ones that shut down.

Mr. BURR. But it is true the transmission lines tripped so that they didn't overload, bringing the lines down?

Secretary ABRAHAM. Right.

Mr. BURR. Generation shut down so that turbines didn't blow up. The net result is to not have it default, that they trip or go off line means that the potential damage is much more serious and longer, and that is why we do that?

Secretary ABRAHAM. Right.

Mr. BURR. My question gets at the heart of whether we are headed in the right direction to totally separate transmission from generation. One might look at this and question whether in this particular case we have increased our ability to respond given that in the transmission or the generation end there is an anomaly that happens, that without the ability for immediate conversation between those responsible for generation and those responsible for transmission, it could in fact delay a decision and based upon not this scenario, but potentially others, the net result might be much worse. Do you have concerns of that?

Secretary ABRAHAM. As I have indicated, I think the issue of communication is one that will certainly be explored as the working groups try to assess what went right and what went wrong. I don't want to speculate as to how the nonexistence or existence of

integration within the system addresses that; I think it falls in the category of issues that would be difficult and premature to look at today.

Mr. BURR. Well, I hope, since we do have part of the system that was a member of an RTO, that the Commission will look at whether in fact that delayed or decreased our reaction time on particular decisions that may or may not have been made.

I don't want to cover old ground, but I think in the week after the blackout you made some statements that I think were very much on line that related to the transmission grid. You said we need greater return on investment, we need quicker return on investment, we need adjustments to the Tax Code or adjustments to the Tax Code that favor voluntary sell off of transmission assets to a transmission only entity, along with NERC standards are among the types of remedies that you referred to that weekend after.

I would only ask, is that still the belief of you and the Department of Energy today?

Secretary ABRAHAM. As I have said, again, I want to separate the specific causes and issues that affected the world on August 14 from what I think is a broader challenge, that regardless of what we might determine on this blackout need to be addressed, and certainly the adequacy of our transmission grid is one of those, and I stand by those comments.

Mr. BURR. I would like to encourage you, in concluding, that the efforts that the Department has already entered into, the cooperation and the agreements which involve field testing of new potential transmission line, 3M, numerous manufacturers who are out there, I think it is an integral part of our decision as to where we head with our energy policy as it relates to the transmission upgrade. I think that it is really the role of the Department of Energy to set that standard, and I think you are making a correct investment today and I hope that investment continues so that when the capital markets are ready to finance this upgrade of the transmission grid that in fact what we are stringing or what we are burying is in fact the right thing for the future and not necessarily what is right for today.

Chairman TAUZIN. The gentleman's time has expired. I am sort of the multi-breaker here. I have to trip you off and go on. I recognize Mr. Engel from New York for a round of questions.

Mr. ENGEL. Thank you, Mr. Chairman.

Mr. Secretary, welcome. I realize that many of us have different ideas about what energy policy should be, and I just wanted to ask you, we have heard a lot of talk here today about Congress should pass a comprehensive energy bill, and I agree. I don't like the bill that the Congress—the House passed. I think that it relies too much on coziness with the energy companies and with the industry, and I think that it talks too much about production. And what has been troubling me is the policy of the administration seems to be that the solution to our energy problem is production: more oil, more gas, more power, drilling in the Alaska wilderness, pass an energy bill that I think is very much tilted toward the industry and against conservation instead of energy policies.

What bothers me is it seems that many people are putting the cart before the horse, saying that let's pass this bill again, and that is going to be the solution to all of our problems.

Now, we in New York, and it has been said by the chairman and others, very generously, I am very proud of the way New York has acted during the blackout. We showed again why New York is a great city and showed again why New Yorkers are great, as the aftermath of September 11 showed that certainly we can cope with any kind of crisis. But we recently found out the EPA's Inspector General stated that the White House and the National Security Council essentially forced the EPA to lie about the air quality in New York City just after September 11.

So what bothers me, and I guess I am saying to you say it ain't so, and you have said it, but I want to hear it again, that I want to first find out the facts. I want to find out what happened, and then I think it makes sense to decide where our policies go from there, and I am just worried that if we try to wrap this all into a big comprehensive energy bill that we are going to have lots of disagreements, and honest disagreements, that what we really need to do in terms of upgrading the grid and other things is going to fall by the wayside. So I just would like to hear from you that that is not the case, that we are not putting the cart before the horse, and that the administration doesn't already have an idea of what it wants to do before we find out what the facts really are.

Secretary ABRAHAM. Well, first of all, let me reassure you again, our goal is to find the facts and to follow the facts where they lead. And remember, a substantial amount of this energy bill has nothing to do with the electricity grid and has to do with a lot of other areas such as our hydrogen fuel initiatives, such as the tax credits that will support investments in the use of alternative fuel vehicles and renewable energy sources, a lot of things that I think the American public wants. And you have my assurance that our goal is to—and remember, this is a binational task force. This is not a task force of just the United States; it is one where the Canadians are equal participants in and certainly will bring the same commitment I believe that we bring.

Mr. ENGEL. Can I ask you, Mr. Secretary, if any of the findings or backup documentation will be made classified, and if it is made classified, the public would not have access to it? Because, you know, there is an energy policy that was developed by the administration. The Vice President held meetings with Enron and other companies in the industry and refused to provide Congress with documentations of these meetings, contrary to Congress' requests. We don't know what happened. I just want the windows to open and the fresh air to come in, and I want to know will everything be made public or will we have parts of it being classified and, therefore, once again, we are not going to really know what the story is?

Secretary ABRAHAM. My goal and our goal is to have a transparent process. I have asked our legal counsel to determine what, if any, legal issues exist, and by that I would just point to the following: I have no idea what kind of proprietary information is being obtained from the various people who are part of this transmission system and what options we have as to the release of pro-

prietary information. I don't know how that works, and we intend to determine that and determine, you know, what—but our goal is a fully transparent process.

Mr. ENGEL. Are you involving FERC at all?

Secretary ABRAHAM. Yes, FERC's Chairman, who will be testifying some time today, I guess—

Chairman TAUZIN. We have the Governors scheduled for 2 o'clock.

Secretary ABRAHAM. Mr. Chairman, Pat Wood is a member of one—one of the four U.S. members of the task force and FERC shares with our Department the lead responsibility on the U.S. side for the electricity working group.

Mr. ENGEL. I think you can understand, and then I will give back the balance of my time, which is already up, that I just don't want to use this blackout as an excuse to cook the books, to further the administration's energy policies. I want to find out again what happened and I want to make sure that we act according to that. You said that the energy bill has all kinds of other things. I want to concentrate on why the power went out and what we can do to make sure that it never happens again.

Secretary ABRAHAM. I do, too.

Chairman TAUZIN. Well, the gentleman's time has expired.

I want to point out to the gentleman that power doesn't come out of the air and it doesn't come out of the walls. Somebody has to deliver it to the wall. We had an amazing survey done, and I won't mention the State that recently had problems. A surprising number of respondents, when asked where electricity came from, said the wall. And a surprising number of respondents when asked who put it there said the contractor. Somebody has got to generate it and get it into that home, and if you don't have natural gas to build all the plants we are told we need and we don't have an energy bill that addresses those problems, we are going to have other problems. It is a complex maze that we have tried to literally work through in a major comprehensive bill.

Mr. ENGEL. If the chairman would just yield for 10 seconds.

Chairman TAUZIN. I will be happy to yield.

Mr. ENGEL. I think you would agree with me that energy can be dealt with in many different ways, and one of them would be to have more production, more oil, more gas, and more power, and another way would be to kind of temper that with conservation, renewables fuels, and things like that.

Chairman TAUZIN. The bill does all of that.

Mr. ENGEL. Well, not to the extent that I think it should.

Chairman TAUZIN. Not to the satisfaction of you and your vote, but again, 40 Democrats found the bill satisfactory. It passed 247 to 175. It was a bipartisan vote.

Mr. ENGEL. Okay, and 150 Democrats found it unsatisfactory.

Chairman TAUZIN. Exactly. Because you didn't like ANWR or something. But my point is that we have broad, comprehensive legislation in conference that has been agreed to by a bipartisan substantial majority of the House, and that is still true, whether you like that or not. We have to move on, though.

The Chair recognizes Governor Otter for 5 minutes.

Mr. OTTER. Thank you, Mr. Chairman. I want to point out that being one of the low ranking members on the committee has its advantages and one of those advantages is trying to ask a question which hasn't been asked, which I think most all of them have been asked. But the other advantage is to try to clear up a few misgivings that certain members have offered through the Secretary, or to the Secretary. One of those, in a response to the other side of the aisle; in fact, I think it was Ms. Eshoo, the Secretary was without an answer to her question as to why didn't the Department of Energy do something when California had its crises. And I want to offer to the Secretary a copy of a letter that was dated March 20, 1997, signed by the California delegation, including Ms. Eshoo, on the very top. The letter is directed to the chairman of the Energy and Commerce Committee and it says, This measure provides for national first fully competitive electric utility systems. The new law provides for customers' choice to begin January 1, 1998, and to be fully implemented by the year 2002, and it goes on to explain the virtues of that new law that was passed by a unanimous vote in both Houses of the California State Legislature and signed by the Governor, and it concludes by saying, stay out of our business. We believe that the decision made in California on utility restructuring and competition are the right ones for our State, so stay out of our business.

So I would also like to offer that, Mr. Chairman, as part of the official record of this committee.

Chairman TAUZIN. Without objection, it will be made a part of the record.

[The information referred to follows:]

Congress of the United States
House of Representatives
Washington, DC 20515

March 20, 1997

Honorable Tom Bliley
Chairman
House Committee on Commerce
2125 Rayburn
Washington, DC 20515

Dear Chairman Bliley:

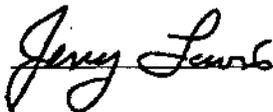
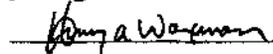
As you know, on September 23, 1996, the Governor of California signed into law a landmark piece of legislation which was passed unanimously by both houses of the California legislature. This measure provides for the nation's first fully competitive electric utility system.

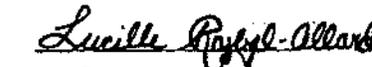
This historic legislation, Assembly Bill 1890, was the result of months of careful study, thoughtful consideration and intensive deliberation by a broad-based coalition of stake-holders. Historically, in California, it has been difficult to accommodate divergent views on this and other issues. AB 1890, however, is a shining example of success. The final product is supported by manufacturers, consumer groups, environmental groups, labor, and the state's electric utilities.

The new law provides for customer choice to begin on January 1, 1998, and to be fully implemented by the year 2002. This will ensure that all electricity consumers, both large and small, benefit from rate reductions resulting from competition. It will improve the reliability of service, advance the state's environmental concerns, and ensure the financial soundness of the system by allowing utilities the opportunity to recover their stranded costs during the transition without additional costs to the consumer. In short, it will provide tremendous benefits to the citizens of our state as well as those who choose to do business in California. We are justifiably proud that California, which represents the seventh largest economy in the world, is again the vanguard of an unfolding issue. During the 105th Congress, the House Committee on Commerce is poised to take up the issue of electric utility restructuring from a national perspective.

We believe that the decisions made in California on utility restructuring and competition are the right ones for our state, and must have the opportunity to be fully implemented. We trust and expect that this view will be respected as the legislative process moves forward in Congress.

Sincerely,




Bob Shoo

Conrad

John T. Little

Wally Henger

Jane Hanger

Sam Tan

Bob Sherm

Clara Young

Ronald K. Jellman

Ken Clark

Jay Kim

Sam P. Smith

Bill Thomas

Esther Jones

Brian P. Bellway

Vic J. J.

Don D. Davis

Ron Packard

Robert S. Upson

Al. Dooly

Joe G.

George E. Brown

Ernie Johnson

Robert D. Douch

Walter Hill

Howard L. Bawa

George Miller

Vin Hunt

Mr. OTTER. Mr. Secretary, isn't it necessary to attract investment that public policy relative to any kind of information in the United States lasts beyond one Presidential term? I don't know of any infrastructure that we have where we asked the private sector or a private-public sector investment that we want to attract, that they can amortize those kinds of investments in 4 years, do you?

Secretary ABRAHAM. Obviously, the predictability of policy is critical.

Mr. OTTER. So you have to have continuity. You know, I haven't made a check, but I know that relative to one of the other members from the other side of the aisle's questions about why isn't 12 percent enough and why isn't that going to generate a tremendous investment; however, I suspect if we checked our portfolios for our 401(k)s for those members sitting in this committee on this dais today, we probably wouldn't find a lot of investment in that 12 percent by any stretch of the imagination.

Let me move on. I want to commend you, Mr. Secretary, for staying away from leapfrogging over the process which you and the Canadians have already engaged in to try to come to some—instead of playing the blame game to try to come to some sort of conclusion on what has happened, because we do that in Congress all the time. If there is a little problem we jump right in and say this is the answer, and in the end we always conclude that wet sidewalks cause rain, and the process of doing that in this case could be way too damaging.

In another response, one of the questions was why aren't these hearings made public? I was not satisfied with your answer to that. But I would ask you this: have you and your colleagues made any assessment of opening these meetings and what it might suggest to the terrorists of the world of what our vulnerability would be if these meetings were opened and we came to some conclusions?

Secretary ABRAHAM. Well, as I indicated, we haven't even gotten yet to the stage of considering the deliberation process. Obviously, the task force at this point is in an information gathering stage, and the Congressman raises a very interesting and important point as to—

Mr. OTTER. So have you not made an assessment of that information being made public?

Secretary ABRAHAM. No, we have not reached the point of assessing public hearings.

Mr. OTTER. Immediately after 9/11 the Army Corps of Engineers was requested to go out and make an assessment of potential targets of our infrastructure like dams and like power plants and things like that. And then that information was made public, and of course it was a list of potential targets for somebody. Don't you think it is important that we not allow that kind of information in total to be made public?

Secretary ABRAHAM. The Department of Homeland Security and the Canadian counterpart are in the process of running that working group and I am sure they will be very explicit in terms of as they reach their information gathering and analysis as to the classification level of issues that might relate to terrorist threats.

Mr. OTTER. My time is up.

Chairman TAUZIN. The gentleman's time is up. Let me tell you where we are now. Mr. Secretary, you need to leave. I have four or five members who have still not asked questions. The Governors are here and we are trying to take good care of the Governors in our conference room and we need to get them up. So what I am going to ask if maybe the members who still have questions, if you could maybe make it one or two questions quick and move on.

Mr. Doyle is next.

Mr. DOYLE. Thanks, Mr. Chairman. I won't use my whole 5 minutes.

Mr. Secretary, I understand that Chairman Wood is part of the task force. I also understand that FERC has the authority themselves to conduct an investigation but they are not presently doing so. It just seems to me that some autonomy could lead to a useful process and it wouldn't be much harm having an additional set of eyes, if you will, examining the issue. Do you think it would be useful for FERC to conduct their own independent investigation?

Secretary ABRAHAM. I think that, first of all, I strongly have urged that we have one investigation so that we could benefit from the collective work of all of the people who can bring some talent to this effort. No. 2, I don't know whether FERC's authority extends to the full range of areas that I believe the Department of Energy's authority extends in terms of our capacity to conduct a comprehensive investigation. We are in no position to prevent FERC from doing its own investigation.

Mr. DOYLE. So you wouldn't oppose it?

Secretary ABRAHAM. Chairman Wood and the members of the Commission and the two other members I guess will have to make a decision. But I think we benefit from bringing all of the expertise together in one investigation so that we can get hopefully a timely as well as a comprehensive approach.

Mr. DOYLE. But you wouldn't oppose it if they decided to do it on their own?

Secretary ABRAHAM. Chairman Wood's investigative authority I think in this area or the FERC's is derivative of our Department which we have assigned on a nonexclusive basis to FERC and they are an independent commission to make decisions. I think the country benefits from having all of the talent working together, combined with that which Canada brings to this effort.

Mr. DOYLE. Fine. Thank you, Mr. Secretary.

Just one quick last question. I talked about distributed generation in my remarks and I felt strongly that this could go a long way toward solving some of our problems. Do you support ramping up R&D funding for this? I know you keep mentioning fuel cells, but the fuel cells that you mentioned, the hydrogen fuel cells are 15, 20 years down the road. We have fuel cells that have near term commercialization potential and that funding has been cut. So how do we get more resources to that?

Secretary ABRAHAM. Well, at the end of the day we have expanded our overall commitment to fuel cell research. I think the technologies that are being explored right now as to hydrogen production, for instance, as fuel cell functioning has the potential benefit in both the transportation as well as stationary application. But we certainly see, as I mentioned in response to another answer

a little while ago, that we share the view that this is part of a long-term solution.

Mr. DOYLE. Thank you.

Chairman TAUZIN. I thank the gentleman. Let me ask, does anyone on this side have a question? Mr. Stearns, quickly.

Mr. STEARNS. Thank you, Mr. Chairman.

Mr. Secretary, just an overview. It seems to me that if we are going to avoid incidences like these blackouts, the first thing we need to do is to establish a complete analysis of a national threat and vulnerability assessment that identifies these problems.

Has your office done this yet, a national assessment of grid?

Secretary ABRAHAM. Actually the Department of Homeland Security has that charge now.

Mr. STEARNS. So you don't do that at all?

Secretary ABRAHAM. I mean, we play a role as technical support. The DHS has the infrastructure security responsibilities. They previously have been more in our department.

Mr. STEARNS. You know there were a lot of studies done in the Clinton Administration. In 1999, a study of the transmission grid was done. The DOE released its power outage study in March 2000. You know, given these reports, are these reports useful or useless? I mean, shouldn't these reports have told us some of the vulnerabilities?

Secretary ABRAHAM. Congressman, as I have commented several times today, we feel that the grid study we did in 2002 is explicit in identifying challenges which we confront. They were also, if one reads our energy plan, expounded on there. And Secretary Richardson was frequently seen and heard, in the wake of the blackout, talking about the work he had done in terms of these issues. We waited a long time to address them. They need to be addressed.

Mr. STEARNS. All right.

Mr. Chairman, thank you.

Chairman TAUZIN. Anyone on this side the last question?

I think Mr. Allen first, and then I will get you next.

Mr. ALLEN. Thank you, Mr. Chairman.

And, Mr. Secretary, thank you for being here. Like many other members, I am going to ask you a question about the energy bill, because you know, we are, as you have said several times, sort of ahead of the curve a little bit in trying to devise legislative solutions to what happened on August 14. But in the course of this hearing today, several members have referred to a provision in the energy bill that they have characterized as allowing the Federal Government to work with States to get transmission lines sited. But when you look at that provision, it is a provision that was reported by this committee, but opposed by almost every Democrat and certainly seems to be much more heavy-handed than working with a State.

The provision allows FERC here in Washington to swoop into a State and preempt the State's ability to make siting decisions in a variety of situations, some of them, I would suggest, inappropriate. For example, if a State denies a permit for transmission facilities for any reason whatsoever, then FERC can overrule the State. So if a utility wants to build a transmission line interstate—transmission of interstate electricity in one spot rather than another—

and the State agency has a preference, then basically the utility cannot agree, wait for a denial, wait for a delay and count on FERC to preempt the State. Or if the State takes more than a year to consider a transmission proposal, then FERC can also simply take over.

This approach is great for utilities, but it may be terrible for States who want to ensure that these facilities are constructed in a way that meets their other public policy objectives, environmental and otherwise. And I think that Congresswoman Solis asked a question along these lines, and I think you used the words "last resort" in describing the State authority. But I would suggest to you that for an administration that prizes State rights, this looks and feels to some of us like a pretty heavy-handed power grab, to use the phrase, because the weight of the FERC authority is there from the beginning of the filing of the application, and basically FERC is there to take over the transmission siting decision, you know, if anything, changes.

So the question after all that, with respect to this specific provision of the House energy bill, does the administration support it? Do you have reservations?

Secretary ABRAHAM. Let me tell you what I think, first of all.

You know, nobody thinks twice if a pipeline is sited by the Federal Government or the highways. We have done those. This scenario, the Federal Government has no authority whatsoever. The problem we have is that made sense when essentially the transmission system was intrastate, when there wasn't a lot of interstate development. Now there is. The question is, should the Federal Government have any role.

What we have tried to argue in our grid study and what I think was intended in the construction of the House bill was that we ought to identify serious congestion areas, what we called in the grid study "national interest corridors," that is, interstate transmission corridors which were so severely congested as to cause the potential for the sorts of problems we are here today talking about; that once we identify those, we would wait, give the States an opportunity to act. But if the States won't act, the question is, do we just do nothing, or should there be some ultimate power at the Federal level; when its an interstate matter that affects interstate commerce, interstate health and safety issues, should there be an opportunity for the Federal Government to site in the last resort. That is the viewpoint we support.

Mr. ALLEN. But you would agree, this is a fairly significant change from the rules that prevail today?

Secretary ABRAHAM. The communication I received from the Governors of this country on this issue certainly reflects that view, and I in no way wish to diminish the significance of it. But what is equally significant, I think—and again, I am not going to speculate about what happened on August 14, but I believe if we don't have adequate transmission on an interstate basis, and it is what we call—not every single transmission siting but ones that have caused severe congestion problems with broader implications, I think the State should have the first crack. They should have a sufficient time to act, but if they won't act, then I believe there ought to be some ability of last resort.

Chairman TAUZIN. The gentleman's time has expired.

Let me point out, however, for the record that there is a tradeoff in the bill. Feds get that authority, but the States get additional siting authority on Federal lands as part of the tradeoff. So States do gain additional rights under the provisions of the House bill.

Ms. Schakowsky and then Mr. Brown.

Ms. SCHAKOWSKY. Before and after September 11 there was this broad acknowledgment that the grid had to be upgraded, and I am trying to understand under what conditions.

Mr. Markey talked about that guaranteed 11 to 12 percent rate of return on the investment. And that doesn't seem to be sufficient to have prodded people, nor did the warnings that this could be a serious problem for the economy and for our security as a Nation. The—so the answer seems to be, we talk about incentive rates, representing the idea of consumers and who pays. Isn't another idea that we just say this is so vital to the United States' economy and to our security as a Nation that we require that the transmission grid be upgraded, as opposed to trying to find how much money do we have to require consumers to pay in order for companies to be induced, incentivized to do that?

And then the question is, who does pay? I mean, is it going to be the captive consumers who are now paying so much at the pump or paying so much for natural gas and then seeing their electric utility bill rise? Is there some way to protect those captive consumers from those high rates?

Secretary ABRAHAM. Just two observations: First of all, about 80 percent—I mentioned this earlier. About 80 percent of the energy bill that people pay, whether it is the individual or the business or industry consumer, about 80 percent goes to the cost of generation, 10 percent goes for transmission, 10 percent for distribution.

It is our view—first of all, it is an important point that came out of our grid study that because of the congestion in the transmission system, we are artificially inflating the cost of the generation.

Ms. SCHAKOWSKY. But you don't guarantee that prices will go down. There is a guarantee of a rate of return, but.

Secretary ABRAHAM. I am expressing just the results of our study.

Ms. SCHAKOWSKY. I know, but consumers would feel, we give you this tradeoff and give you higher rates, and then we say, and then, therefore, we guarantee you that because congestion will be alleviated, prices will go down. As you said, prices go up pretty fast, but prices don't come down very fast; and there is no guarantee of that.

Secretary ABRAHAM. I think I was candid in my earlier response in that.

I think the other point, though, I would bring to the committee's attention is this: Two-thirds of the consumption of energy in these rates that are paid is the consumption in the business-manufacturing-industrial sector; one-third is residential. And so what we have right now—I mean, in terms of who does pay the bill and who should pay the bill, it seems that as we look at this, I believe there will be an offset, but I also believe that these heavy industrial consumers need to pay their fair share, and if we are going to increase the system to meet those demands, that the people who are putting

that demand into the system need to pay their fair share. And that would be my—

Ms. SCHAKOWSKY. Did you ever lower—was there ever gouging found throughout your hotline, this gasoline price gouging hotline? Did anything result in lower prices?

Secretary ABRAHAM. We brought and referred to the FTC, you know, every.

Ms. SCHAKOWSKY. Did anything ever happen?

Secretary ABRAHAM. I have no idea. I have to get back to the committee.

Chairman TAUZIN. The Chair reminds everyone, we have two Governors and a mayor who have to catch a plane. Mr. Brown is the last one.

Mr. BROWN. Thank you, Mr. Chairman.

The response—to respond to the question of Ms. Schakowsky, can you give us in writing the response to her and to me of what actually came of those?

Secretary ABRAHAM. Sure.

Mr. BROWN. I have one question and a couple of remarks before the question, and I appreciate the chance to speak to you, Mr. Secretary.

May, 2003, the North American Electrical Reliability Council issued its summer reliability assessment estimating summer electricity demand in the Midwest ECAR region, or the reliability region which includes my home State of Ohio, at over 100,000 megawatts. But according to NERC, our region will use demand-side efficiency measures in other words to meet less than 3 percent of the demand this year.

The American Council for an Energy Efficient Economy estimated that adopting a seasonal energy efficiency ratio of 13 for air conditioners would reduce demand nationwide by 57,000 megawatts during the next quarter century. One of the White House directives in 2001 was to roll back the SEER, the SEER 13 air conditioner standard, rolling back the required efficiency. The Alliance to Save Energy says the administration's decision will cause demand to be 13,000 megawatts higher than under the one point enacted, more responsible SEER 13 standard.

During the next quarter century or so, the administration decision will reduce energy efficient standards for air conditioners and will cost consumers \$18-plus billion in higher electric bills. With the grid already badly strained with demand-side measures meeting only a small fraction of total demand, it seems puzzling to me that we can ignore the reliability benefits of the SEER 13 standard.

Are you willing—are the Department and the President and the administration willing—in light of this \$18 billion cost on top of perhaps 50 billion in transmission grade upgrades brought on by what we are doing today, is it something you would reconsider?

Secretary ABRAHAM. Two points: First of all—and then I am going to have the Deputy Secretary comment.

Point No. 1, these standards would go into effect in 2006. And I don't think there should be confusion as to how they might have in any way affected the blackout.

Second, we increased the standard from 10 to 12. We did not roll anything back.

Third, I would just point out that one of the reasons we did not support the 13 SEER standard was that—we concluded that the analysis—we concluded that the cost to the consumers, to low-income consumers, of the 13 SEER standards in position would be prohibitive in terms of their ability to afford to have residential air conditioning; and we did not think that that was an appropriate way to save on energy on the backs of those low-income consumers who would simply be priced out of the market.

Mr. MCSLAWROW. I would only add that in addition to that rule, which increased the energy efficiency of air conditioners by 20 percent, this administration approved three other energy efficiency rules. The total savings in terms of electricity would equal over 5 years of all power that goes to every American home. So we have already done a tremendous amount.

Now, it is true none of these start until 2006, but every rule that we had in front of us we approved.

Mr. BROWN. Just in closing, I would dispute a couple of things that the Secretary and the Deputy Secretary said. One is that while we did maybe increase from 10 to 12, the administration before, in addition to regulation, increased it to 13. So it is only in Washington do you call it an increase to paraphrase my friends.

Second, this is the same administration, that is showing such concern for low-income air conditioning users, that doesn't seem to show that concern when it is time to put out a budget on helping low-income energy assistance when it is heating assistance in my part of the country.

Secretary ABRAHAM. That is actually false, Congressman. And if you look at the President's proposals on the weatherization program in my department, where we have consistently submitted to Congress budgets substantially greater than the appropriators have given us to try to expand the weatherization program. So that is not an accurate statement.

Chairman TAUZIN. The Chair wishes to express my sincere gratitude to the Secretary for the enormous patience he has shown today, and I wish you Godspeed.

As you said, you plan to give us a report, you think, by next week?

Secretary ABRAHAM. We will give it.

Chairman TAUZIN. Thank you, Mr. Secretary and Deputy Secretary.

And we will now move on to the second panel, which has been waiting patiently. And we will call the second panel and I will wait for them to assemble before I introduce them, but I ask all the members and guests to allow the Secretary to make his departure and to invite Governor Taft and Governor Granholm and Mayor Kilpatrick to enter the room.

[Brief recess.]

Chairman TAUZIN. Let me ask the witnesses to take their seats. The Governors are here and the Mayor is here, and we are deeply honored to have the presence of two of our Nation's Governors and the distinguished Mayor of the great city of Detroit, who are here to share their perspectives on the crisis that occurred in the Northeast on August 14.

So if our guests will take seats, please, we can begin the rest of our hearing. So please take seats and get the doors closed. Thank you very much.

Ladies and gentlemen, the committee and guests, we are honored and pleased to have with us, as I mentioned, two of our Nation's most distinguished Governors and the great, distinguished Mayor of one of America's great cities that gives the New Orleans Saints the dickens every now and then.

I want to welcome the Honorable Bob Taft, Governor of the great State of Ohio, the Honorable Jennifer Granholm, the Governor of the great State of Michigan, and the Honorable Kwame Kilpatrick, who is the Mayor of the great city of Detroit, Michigan. All of you had some real experience in what occurred August 14, and obviously a perspective that maybe can help us understand what happened and how we can best prevent it again.

Let me extend to all of you, first of all, our sympathies for what your folks had to go through; and second, the great appreciation of the rest of our country in the way you handled it. In New York, your great city and State were an example to the rest of us of how to handle a crisis, and you managed it awfully well; and I want to extend my thanks to all of you for setting the right example for the rest of us in the country.

And we will begin with Governor Taft, if you will lead off and give us your perspective, Governor.

STATEMENT OF HON. BOB TAFT, GOVERNOR, STATE OF OHIO

Governor TAFT. Mr. Chairman and members of the committee, thank you for this opportunity to testify on a matter of great importance to Ohio and to the Nation. It is my hope that what happened on August 14 will awaken us all to the urgency of creating a modern, well-coordinated system for the transmission of electricity.

The unprecedented blackout that occurred posed severe threats to public health and safety and to the economy of Ohio, other States and provinces and two nations. Although we will not know for some time the exact sequence of events that gave rise to the blackout, this incident revealed serious shortcomings in the transmission of electricity that could well create a real calamity in the future if not addressed.

The blackout underscores our deep dependence on our energy infrastructure and the vulnerability of that system. The consequences go far beyond the personal inconvenience of lights, refrigerators or air conditioning. In Cleveland, the downstream impacts led to a near catastrophic failure of the city's water system leaving tens of thousands in the metro area without safe drinking water and rendering beaches unsafe for days due to sewage contamination.

The blackout cost Ohio businesses more than a billion dollars in lost economic activity. One major Ohio company lost steel-making capacity for more than a week because of the damage of the blackout.

Above all, the blackout shook the confidence of our system—of our citizens in the system that most take for granted. We must now do whatever it takes to establish an improved system that peo-

ple can rely on to power their homes, their offices and their communities.

In that immediate effort to assist with an answer to the question of what happened, I have directed the Public Utilities Commission of Ohio to undertake a second-by-second account of events in Ohio that took place leading up to and during the blackout. The chairman of the PUCO, Alan Schriber, has been in contact with utilities and industry groups operating in Ohio to gather time lines and other data critical to the investigation. He will be a member of the joint U.S.-Canadian task force and, in that capacity, will make his information available to support the binational investigation; and he will be testifying before you later today.

From the standpoint of preventing a future potentially more serious blackout, we support several initiatives that are under way or under consideration. First, we urge the Congress to require mandatory reliability standards for the transmission of electricity. Voluntary standards have been proven inadequate. Responsibility for enforcement of rigorous national standards for safe, reliable transmission of electricity could be given either to a Federal agency or to State commissions operating to enforce Federal standards.

With respect to rail lines, natural gas pipelines, there is already a precedent for State enforcement of national safety and reliability standards in Ohio and other States.

Second, I strongly support FERC's proposal for an effective, empowered regional system that places direction and control of transmission with independent, regional grid operators. The current system is both fragmented and weak.

For example, in Ohio, oversight of transmission is divided between two different organizations. We have companies that are members of the Midwest ISO, others that belong to PJM and one company whose efforts to join a regional group has been delayed by legal and technical disputes. In addition, the Midwest ISO and PJM still lack effective control over transmission lines in Ohio that they are supposed to oversee and coordinate with lines outside our State.

Congress should act promptly to support FERC's plan for empowered, all-inclusive regional transmission entities. A 3-year delay, as some are proposing, would impose an intolerable risk on the Nation.

I have directed our PUCO to conduct a review of whether Ohio's division among two separate regional transmission organizations poses a serious risk to the reliability of the delivery of power to customers in Ohio and, if warranted, provide recommendations to bring our utilities within the State under a single transmission organization. Without strong Federal action, such a result may not be achievable.

In addition to mandatory reliability standards and strong RTOs, we must not overlook the importance of investment in technology and infrastructure to upgrade the grid and its operating systems. It has been reported by many sources that investment in transmission has declined even as the burden on the lines has increased. After the blackout, a transmission system in a neighboring State stated that his company should have received a courtesy call from an Ohio utility in regards to lines going out in Ohio. Quite frankly,

in the 21st century, a system that relies on courtesy calls is clearly outdated and needs to be modernized. Therefore, I encourage the Congress and the FERC to provide incentives and adequate returns on investments to enable grid operators to upgrade transmission systems, including deployment of advanced technology to detect problems and provide rapid communication and coordination.

Some may disagree that change is needed. Others will use the blackout as a platform for concerns that are not relevant to the cause of the outage or actions necessary to prevent new blackouts in the future. I believe we must support the joint U.S.-Canadian task force as it works to identify the causes of the blackout, adopt national mandatory reliability standards and establish a strong regional transmission system capable of upgrading technology, creating regional wholesale markets and managing the power grid so our lights will stay on.

I urge the Congress to enact the required reforms at the earliest possible date as part of a comprehensive energy bill that addresses, also, the need to expand domestic energy supplies, reduce our dependence on imported oil and eliminates the ethanol penalty which unfairly discriminates against Ohio and other States in the allocation of Federal gas tax dollars.

Chairman TAUZIN. Thank you very much, Governor.

What is your relationship to the ex-President?

Governor TAFT. Great grandfather.

Chairman TAUZIN. I wanted to express the appreciation of the people of Louisiana because it was he who appointed one of our native sons and a great person in Louisiana history, Chief Justice Edward Douglas White, to the Supreme Court and named him Chief Justice. So we have a debt to your family.

Governor TAFT. Thank you so much, Mr. Chairman.

[The prepared statement of Hon. Bob Taft follows:]

PREPARED STATEMENT OF HON. BOB TAFT, GOVERNOR OF OHIO

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The blackout underscores our deep dependence on our energy infrastructure and the vulnerability of that system. The consequences go far beyond the personal inconvenience of lights, refrigerators or air conditioning.

In Cleveland, the down-stream impacts lead to a near catastrophic failure of the city's water system, leaving tens-of-thousands in the metro area without safe drinking water and rendering beaches unsafe for days due to sewage contamination.

The interruption of business activity resulted in the loss of millions of dollars of economic activity that will not be fully recouped through private insurance and state or federal programs. One major Ohio company lost steel making capacity for more than a week because of the damage from the blackout.

Above all, the blackout shook the confidence of our citizens in a system that most take for granted. We must now do whatever it takes to establish an improved system that people can rely on to power their homes, their offices and their communities.

In an immediate effort to assist with an answer to the question of "what happened?", I have directed the Public Utilities Commission of Ohio (PUCO) to begin a second by second account of events in Ohio that took place leading up to and dur-

ing the blackout. PUCO Chairman Alan Schriber has been in contact with utilities and industry organizations operating in Ohio, to gather timelines and other data critical to the investigation. As a member of the joint U.S.-Canadian Task Force, he will make that information available to support the bi-national investigation.

From the standpoint of preventing a future potentially more serious blackout, we support several initiatives that are underway or under consideration. First, we urge the Congress to require mandatory reliability standards for the transmission of electricity.

Voluntary standards have been proven inadequate. Responsibility for enforcement of rigorous national standards for the safe and reliable transmission of electricity should be given either to a federal agency or state commissions operating to enforce federal standards. With respect to rail lines and natural gas pipelines, there is already precedent for state enforcement of national safety and reliability standards in Ohio and other states.

Second, I strongly support FERC's proposal for an effective, empowered regional system that places direction and control of transmission with independent regional grid operators. The current system is both fragmented and weak. For example, in Ohio oversight of transmission is divided between two different organizations. We have companies that are members of the Midwest ISO, others that belong to PJM, and one company who's efforts to join a regional group has been delayed by legal and technical disputes. In addition, the Midwest ISO and PJM lack effective control over the transmission lines in Ohio they are supposed to oversee and coordinate with lines outside Ohio.

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In addition to mandatory reliability standards and strong, regional transmission organizations, we must not overlook the importance of investment in technology and infrastructure to upgrade the grid and its operating systems. It has been reported by many sources that investment in transmission has declined even as the burden on the lines has increased.

After the blackout, a transmission system operator in Michigan reported his company should have received a "courtesy call" from an Ohio utility in regard to lines going out in Ohio. Quite frankly, in the 21st Century, a system that relies on "courtesy calls" is clearly outdated and must be modernized.

Therefore, I encourage the Congress and the FERC to provide incentives and adequate return on investments to enable grid operators to upgrade transmission systems including the deployment of advanced technology to detect problems and provide rapid communication and coordination.

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I urge the Congress to enact the required reforms at the earliest possible date as part of a comprehensive energy bill that addresses also the need to expand domestic energy supplies, reduce our dependence on imported oil and eliminates the ethanol penalty which unfairly discriminates against Ohio and other states in the allocation of federal gas tax dollars.

Chairman TAUZIN. It is now our pleasure to welcome the Honorable Jennifer Granholm the Governor of the great State of Michigan for your testimony.

**STATEMENT OF HON. JENNIFER GRANHOLM, GOVERNOR,
STATE OF MICHIGAN**

Governor GRANHOLM. Thank you, Mr. Chairman, and thank you to all of the members of the committee, particularly the ones from

my home State, Representative Upton, Representative Stupak, and of course our ranking member, Mr. Dingell.

I appreciate the chance to come and tell you what it was like from the perspective of a Governor and from my perspective, as well, what we might take a look at in terms of remedying the problem.

In Michigan more than 6 million people were without power. The entirety of the Detroit Edison system went down for the first time in their history. And of course that left us without recourse with respect to water. I am sitting next to the great Mayor of the city of Detroit, Mayor Kilpatrick, whose water system serves all of southeast Michigan, and without electricity, people couldn't turn on the taps and see fresh water coming out. And I know that the same was experienced in Ohio. Clearly there are negative impacts on all of our States.

For us, the public dollars that we have requested assistance on amount to \$20 million that we have calculated so far. Detroit Edison says that they suffered \$35 million in losses.

On the private side, at least 70 manufacturing plants went down. The water system, as I mentioned, was also shut down. And the total loss of earnings in Michigan, we believe will total at least \$1 billion once the numbers are aggregated.

So there were things that went right, however. There is a silver lining to all of this. The real success, I think, is that in Michigan we had no deaths. We had no severe injuries; we had no spikes in crime. We had a spike in community, and that was the good news that came out. This is a testament, I think, to our first responders who sprang into action and to the spirit of the great Michigan citizenry. It was the power of the people that really held us together in those dark hours.

Our communities united instead of dividing. And as soon as we knew—for example in southeast Michigan, as a Michiganiaan, we come with a map attached to our persons—but in our southeast Michigan region, which is this part here that all went out, people from the west, when they learned that this part of Michigan was without power, began to send bottled water; and in fact over a million bottles of water were donated from areas of the State that were completely unaffected. So it was, I think, a good tribute to citizen patriotism.

The suspected cause of the blackout was one of the questions that was asked when we were invited to testify. And of course as you heard from Spencer Abraham and you will hear from our public service commissioners, who will testify after us, investigations are ongoing, and it is difficult to speculate as to exactly the cause when it is still preliminary. However, I think there may be and I think the investigation might suggest three possible factors in this.

One, I do believe there may be an aspect of human error involved, related to communications or lack thereof. And I agree with Governor Taft that we shouldn't have to rely on courtesy calls, absolutely. We should have a system that is reliable enough that you don't have to rely on a courtesy call.

But in this case, of course, there was no courtesy call nor was there a system in place. Neither Detroit Edison nor the international transmission company which services the transmission

grid in Michigan received any indication prior to the blackout, although it has been traced to about an hour and 5 minutes prior to the time that in Michigan the transmission company found that there was a problem. So about an hour and 5 minutes before that, problems began to emerge on the grid and yet nothing happened.

In the best of all possible worlds, we would have a command and control system where it would be clearly—notification would be given to States, to connected grids, to connected entities that a problem was occurring; and if power needed to be offloaded, that would be the time to make that decision. None of that was able to occur because it was too late by the time the ITC, the International Transmission Company, which is our transmission grid, was notified—or found it wasn't notified—and saw the problem emerging on the system.

If our utilities had the ability to identify that a problem was occurring either through the regional transmission organization, or some other entity during that previous hour, then this problem of cascading might have been prevented. So the first problem or the first factor that might weigh into this is the potential human error.

Second, obviously we had a power line failure. There were reports that failure to adequately maintain some power lines in the region might have contributed to the blackout. I am sure that question is going to be covered extensively by other witnesses.

And the third thing that is a factor, that may not be the cause of the problem but is certainly a factor for the discussion today, are the changes in the utility market. While restructuring of electricity, which has occurred in Michigan, did not cause the blackout, I think we have to explore whether an evolving utility market might not have impacted the ability to get responsibility out there for the power outage. In other words, nobody was taking responsibility because there is nobody we can point the finger to who is responsible for maintaining reliability and enforcing it.

So Michigan has not fully deregulated like a number of other States, but several years ago, we did make significant changes in the ownership of our utility system and how power was transmitted. There are a lot of positive results that came from that. Wholesale electricity began to become competitive and people could purchase that. More power plants were built, more investment in the transmission grid and in the transmission lines.

However, partial deregulation also had some impacts that may dilute responsibility, and that is a problem. Power companies sold off their transmission systems to separate operators. Movement of power on the grid is now controlled less directly by the power companies in Michigan and is much more widely influenced by the power supply and demand in the region. And the bottom line, of course, is that this contributes to a system where no one, myself included, knows who is ultimately responsible for ensuring reliability. That is an unacceptable situation.

So the lessons that we learned are: First, increased training and planning after September 11 meant that we were able to respond. And you will hear from Mayor Kilpatrick, who I am sure will underscore the great efforts he made in responding; and two, the necessity of ensuring a safe and reliable and efficient electric trans-

mission system should be critically apparent to all of us, and that is why we are here.

The State of Michigan certainly stands ready to help, but the necessity of a Federal solution is evident. The third question you asked, How can similar incidents in the future be prevented, we need to pass immediate reliability standards. I think we also need to pass a bill included in that requires accountability.

If we can look at price stability, that would be a marvelous thing. Something that incentivizes investment in the power grid would also be, I think, a worthwhile exploration for this committee. Perhaps investment tax credits. Perhaps an enhanced return on investment, some have suggested, although frankly 12.88 percent, or 13.88 if you are a member of an RTO, is a good return on investment and should be enough to provide incentive to invest in the grid.

And, of course, I think the biggest incentive is to develop a regulatory framework that requires predictability, mitigates investment risk and ensures enforcement of reliable standards.

So, as Governor, you know, I don't pretend to be an expert in this, but I do know this: that our citizens, when they flip the switch, they want the light to come on; when they get in an elevator, they want to be able to know they will be able to get off; when they turn on the tap water, they want to make sure safe water emerges.

I appreciate the chance to come and share my thoughts with you, and I am confident that if sane heads prevail, we can see a quick resolution to this question of making sure we have got reliable, enforceable standards. Thank you.

[The prepared statement of Hon. Jennifer Granholm follows:]

PREPARED STATEMENT OF HON. JENNIFER GRANHOLM, GOVERNOR, STATE OF MICHIGAN

Mr. Chairman and members of the Committee, my name is Jennifer Granholm and I am the Governor of the State of Michigan. I appreciate the opportunity to appear before the Committee on Energy and Commerce today to discuss the blackout that ripped across the Eastern United States and Canada on August 14th, eventually hitting and stopping in my State.

As this Committee has recognized, all of us need to ensure that appropriate steps are taken to identify, address and correct the causes of the blackout.

In Michigan, over 6 million people lost power. The entire utility system of the Detroit Edison Company (DTE) was knocked out, leaving the City of Detroit, and much of the southeast region of Michigan without electricity and other essential services such as water and sewer. Detroit Edison's officials have stated that this is the first time in the company's history that the utility lost power to all its customers at one time.

I must express how enormously proud I am of Michigan's citizens, emergency responders, utility workers, and governmental employees who responded in extraordinary ways to lessen the severity of the crisis and restore the utility services as quickly and efficiently as possible. Our emergency preparedness was tested and I am pleased to report that Michigan's citizenry and emergency management system came through with flying colors.

Despite the best efforts of the people of Michigan, the effects of the blackout on individual residents, small businesses, and major industrial electric users were very substantial. Although we are still in the process of assessing the damage, we have an initial estimate of direct cost of the emergency to state and local government of over \$20 million dollars. In addition, we know that DTE suffered about \$35 million in losses. Over 70 manufacturing companies in Michigan were forced to shut down. Anderson Economic Group in Lansing, MI has estimated that the total lost earnings in Michigan will reach the \$1 billion mark once all of the numbers are totaled. Moreover, facilities such as hospitals and nursing homes were left scrambling to

provide care to those who needed it. Streets were clogged with cars and gas stations were largely shut down, which made it more difficult for emergency responders to get to people in need.

We feel fortunate that despite the inconvenience, financial loss, and disruption of people's lives caused by the blackout, there was no loss of life. If we were to have a similar incident in the future, we might not be so lucky. In short, we cannot afford to have this kind of failure to our electric system happen again.

WHAT WERE THE SPECIFIC FACTORS AND EVENTS LEADING UP TO, AND CONTRIBUTING TO, THE BLACKOUTS OF AUGUST 14?

Michigan's Public Service Commission has launched an investigation into the outage, as has the U.S. Department of Energy in conjunction with our Canadian counterparts. I would like to thank Secretary Spencer Abraham for appointing Mr. J. Peter Lark, the Chair of the Michigan Public Service Commission, to this body. I can assure this Committee and Secretary Abraham that Mr. Lark brings with him a wealth of expertise that will serve both Michigan and the country very well.

Until we receive the results of the investigations, I am reluctant to make pronouncements of what may have been the precise cause of the outage. While we believe we know the sequence of events that resulted in the power outage—power plants tripping off-line and transmission lines going down in a fashion we are not used to seeing—we do not know why those events occurred, and I believe we need to wait for the investigations to be completed before we jump to conclusions.

Based on information provided by our utilities, transmission companies, and by our preliminary examination of the situation, we do know that there is a strong likelihood that the outage can be traced to at least three potential factors. One potential factor is human error. The transmission system that serves Detroit Edison's utility system, International Transmission Company (ITC), as well as Detroit Edison officials, have reported that they received no communications prior to the blackout from the northern Ohio utility that has been identified as the likely system where the troubles originated. ITC has traced the timeline on actions that contributed to the blackout back to 1 hour and 5 minutes before it occurred. While ITC was able to develop and provide this information to us after the blackout occurred, ITC and DTE tell us they were unaware of any problem or any unusual activity on the grid until 2 minutes before the blackout, when the power flowing from Michigan to Ohio jumped by 2000 megawatts in 10 seconds. By this time, ITC told us that the situation was at the "point of no return." If they had been informed during the previous hour that the system was having problems, they may have been able to craft a contingency plan for the energy demand and delivery, and avoid the cascading failure.

The second potential cause for the blackout cited in various accounts is powerline failure, possibly due to inadequate maintenance. Again, the extensive investigations currently underway will probably give us a precise factor or set of factors and events that caused the blackout. I also anticipate that the testimony provided by public service commission chairs and by the transmission companies today will give you greater insight into the precise series of events and technical failures that occurred.

A third potential cause that needs to be explored is whether an evolving utility market might have impacted the power outage. In 2000, Michigan passed PA 141, a law whose main goal was to provide cheap, reliable power for Michigan's industrial, commercial and residential customers. It was touted as a law that would provide "[c]hoice for those who want it, and protection for those who don't." Whether you believe this act was a positive or negative step for electricity in Michigan it does not change the fact that this law completely altered the way electricity was transmitted, distributed and sold in Michigan. This legislation changed Michigan from a state with a fully regulated utility system, to one with a restructured market. Michigan did not fully deregulate like some other states, but Michigan did make significant changes in ownership of the utility system and how power was transmitted.

There were some positive results that came out of PA 141. More power plants were built in Michigan which has helped us meet peak demand in the summer months, and 2000 MW of new transmission lines were constructed to transfer power in and out of the lower part of the state. Both of these changes should have helped enhance the reliability of the power supply.

However, PA 141 also resulted in power companies selling off their transmission systems to separate operators. Before restructuring, Michigan's two big utilities, DTE and Consumers Energy, shared a power pool and were able to monitor and control production and movement of power between each other and their customers in a centralized fashion. Under PA 141, movement of power on the grid is now con-

trolled less directly by the power companies in Michigan and is much more widely influenced by power supply and demand in the region.

In addition, under the guidance of the Federal Energy Regulatory Commission (FERC), Michigan utilities chose to join a Regional Transmission Organization (RTO). The RTO that Michigan utilities and transmission companies generally joined was the Midwest Independent System Operator (MISO). MISO is supposed to help control the movement of power across the grid, and ensure that situations like the one that happened on August 14 do not occur. But, participation in an RTO is not mandated by the federal government, and there are no mandatory reliability requirements that RTOs must follow. In the case of MISO, some of Michigan's most critical partners—utility and transmission companies in Northern Ohio and Illinois—did not join. The bottom line is that this contributes to a system where no one, myself included, knows who is ultimately responsible for ensuring reliability. That is an unacceptable situation.

The average citizen will not care who is responsible or how exactly they are held responsible. They simply want to know that when they get on an elevator, they are going to be able to get off; when they flip a light switch that light will come on; or when they turn on the tap safe drinking water will flow.

WHICH SYSTEMS OPERATED AS DESIGNED AND WHICH SYSTEMS FAILED?

Again, I am reluctant at this time to suggest what worked, what didn't work, and why, until we receive the results of the investigations. While we do know the westward flow of the cascading blackout stopped in Michigan, we do not yet know why. I hope that investigations by the Michigan Public Service Commission and the United States Department of Energy shed light on what worked, what didn't, and why, so that we develop a system capable of stopping any future cascading blackouts.

WHAT LESSONS WERE LEARNED FROM THE BLACKOUTS?

Two points stand out. First, our increased planning, training, and coordination since the events of September 11, 2001 paid off tremendously, even in a non-terrorism related contingency. We must continue to be prepared, to be vigilant, and to give our first responders every resource they need to protect our citizens in the event of another unseen emergency. The real success of this blackout is that Michigan had no deaths, severe injuries, or spikes in crime during the time when the power was out. This is a testament to our first responders who sprung into action, and to the spirit of the Michigan citizenry. It was the power of the people of Michigan held us together during our darkest hours.

Our communities united instead of dividing. As soon as we knew that drinking water was needed in southeast Michigan, businesses around the state offered up their stocks of water bottles. In two days, through the generosity of Michigan businesses, over 1 million bottles of water were delivered to the victims of the blackout in southeast Michigan.

During the early hours of the blackout, while the emergency management team and I were working hard to learn what had happened and what we needed to do, right outside my window civilians had taken to the street to help direct traffic and ensure people got home safely.

Second, the necessity of maintaining a safe, reliable and efficient electric transmission system should be critically apparent to all as a result of this blackout. It is vital that we take all steps necessary to avoid a repeat of the August 14 disruption. The State of Michigan stands ready to help, but the physical and legal nature of the Nation's transmission system requires a strong, coordinated federal solution.

HOW CAN SIMILAR INCIDENTS IN THE FUTURE BE PREVENTED?

Congress must respond swiftly to institute measures to stabilize and protect our electrical transmission systems. By this I mean there must be in place a system of mandatory standards and rules for the reliable operation of the electricity grid. **Congress should immediately pass a stand-alone bill that will provide enforceable reliability standards for the nation's transmission system.** This could mean giving more regulatory teeth to the North American Electric Reliability Council (NERC) or to the Federal Energy Regulatory Commission (FERC). It could also mean putting a higher priority on making RTO's work effectively.

The security and reliability of the interstate electric transmission system is unmistakably under the purview of the federal government. Yet, FERC's Chairman has stated that "right now, there is no federal regulatory authority over reliability." I urge you to fix this deficiency by passing legislation that requires enforceable standards for the safe and reliable operation of the nation's power grid.

While I believe that mandatory reliability standards should be immediately enacted in stand alone legislation, there are clearly other important goals that should be included in any overarching energy legislation considered by Congress:

1. **Require Accountability**—The electrical system in this country must include a system of accountability. We need to know who is responsible for what, and there must be ways to enforce accountability in the system.
2. **Ensure Price Predictability and Stability**—The system must provide a level of stability and predictability of energy prices. Clearly, steps need to be taken to strengthen consumer protections in electricity pricing. Currently, federal rules do not prevent unfair price gouging in wholesale electric sales, and they do nothing to protect families and businesses in Michigan or any other state and the retail prices they pay. No family—not just those living on fixed or low incomes, although they are particularly vulnerable—can budget for wildly changing or perhaps even doubling or tripling of their home energy bills. And as vulnerable as each family's budget can be, small businesses can be put out of business by dramatic increases in their electric bills. Energy costs are a large expense of doing business for the local grocery store, restaurant, or dry cleaner. How do they survive without stable and fair prices for their electricity? Even our largest manufacturers could lose business—could lose job—if energy costs climb and they lose they are unable to compete and win against foreign competitors.
3. **Encourage Investment in the Power Grid**—Finally, comprehensive energy legislation must do more to ensure the national power grid is capable of handling the energy needs of our country. Whether that is additional power lines, or the development of new technologies that allow for more efficient distribution of power, it is clear that we need a transmission system that provides an appropriate level of investment in improvement and maintenance. A poorly maintained power grid is not only an inconvenience to every family in the country—it is a threat to our jobs. Losing power shuts down commerce. Some of our largest manufacturing plants were shut down for days as a result of this outage. It threatens our health and safety when we can't provide electricity to guide traffic, illuminate roads and sidewalks, or power our water supply systems. And it has a continuing impact. An unreliable electric supply is a direct impediment to attracting investment, and something that we all will suffer the consequences of in the future.

As Governor, I do not set the rules for supplying electric power, but I am the one who has to protect the peace when the power goes off. A massive blackout has an even larger impact on public safety, from law enforcement to medical services, from ground transportation to even shutting down our airports. People will tell you that fixing this problem in our transmission system is going to be expensive, but the bottom line is we cannot afford to ignore this problem.

In conclusion, whether we learn that the causes were systemic or human error, mechanical or electronic, an obvious starting point to address the problem will be the passage of legislation to enact mandatory and enforceable standards and rules for the safe and reliable operation of the nation's transmission grid. I urge Congress to act quickly to address these issues and meet the need that was so clearly demonstrated on August 14, 2003.

Thank you for this opportunity to share these comments with you.

Chairman TAUZIN. Thank you for your excellent testimony. And I want to add something you said about the citizens across Michigan.

The citizens in Michigan and Ohio have always been there when we got hit with hurricanes. Fresh water flows in from across the country. It is a beautiful example of, as you said, citizen patriotism. Kids in my State gave up Christmas money for construction of two fire engines to the people in New York—Christmas money.

Those are good stories arising out of a crisis like this, and there are always reasons to celebrate.

Now we welcome the Mayor of the great city of Detroit. I want to tell something about Kwame that you may not know. He is a son of one our colleagues, Ms. Carolyn Cheeks Kilpatrick, is his mother.

I know she is as proud of you, as you are of her, Mayor. We are proud of you, too. And welcome.

STATEMENT OF HON. KWAME M. KILPATRICK, MAYOR, CITY OF DETROIT

Mr. KILPATRICK. Thank you, Mr. Chairman, and I feel right at home in Washington because my mommy is here; and I do appreciate you and Ranking Member Dingell from my home State. To the rest of the committee members, thank you for the opportunity. On behalf of the citizens of the city of Detroit, we see this as a privilege and an honor to come before this body and talk to you about what happened in the city of Detroit.

I am coming from a little different perspective. I am a Mayor, and mayors we don't have time to deliberate those macro issues. We have to respond immediately. We have to send out those first responders. We talk to the person that rides the bus, the person that drives the bus, and also the person that builds the bus and fixes the bus. So we have all of those different things at our fingertips.

The city of Detroit we boast as being the first city to deliver our homeland security plan to Secretary Ridge. We delivered our 10-point plan in April 2002. It focused on improving day-to-day service and preparedness to help us detect, prevent, and respond to terrorist attacks and any other critical issues, be it a tornado or the largest blackout in the history of this country.

We appointed a homeland security director. We established a homeland security council made up of key public safety, public health and other entities. We upgraded our emergency operations center and updated the department emergency response plans which formed the foundation for operations during the blackout.

On August 14, a massive power outage hit the northeastern United States and parts of Canada. The power outage hit the city of Detroit area about 4:17 p.m. When Enrico Fermi nuclear power plant lost power and shut down. The city of Detroit lost all power at 4:21 p.m. The impact: Transportation was paralyzed, communications disrupted, and many people, particularly senior citizens, were placed in potentially life-threatening situations without basic necessary services from food to water to oxygen that they needed to survive.

2.1 million people in Detroit lost power. Children suffered greatly. A lot of children who had asthmatic problems suffered because they couldn't get to the hospital.

Half of the Detroit water system, which serves about 4 million people, half of those people lost water completely. About 25 percent of the customers had low pressure, similar to New York. Part of our system is gravity fed, so the power stations didn't necessarily affect the same.

Transportation systems shut down. Traffic was critically impacted especially at the border. Detroit-Windsor Tunnel was shut down, stranding numerous workers. About 27,000 people use the tunnel daily. Many of these people that use the tunnel work in our hospital system, so there was a shortage of nurses throughout the hospital system at the same time.

Detroit Metro Airport remained opened, but had limited operations. About 216 flights were canceled by Northwest Airlines which is our hub carrier.

The Marathon Ashland refinery, which is in southwest Detroit, suffered an explosion due to the outage. Residents had to be immediately evacuated from that area, and many of our police officers and fire fighters had to be called to that site.

Most Detroit hospitals remained opened, but as I said, Children's Hospital had to immediately let people, who could be released, go to make room for all the children with asthma who had to come there immediately.

Our homeland security director could not use his cell phone. This disrupted communications between the city and the Federal Department of Homeland Security. Some cell phone manufacturers told us that this could be used as a backup form of communications. This did not work because their cell towers was down. This is important to note, because to get in touch with Secretary Ridge and Homeland Security and the White House, we had to go through our consultant in Maryland to get to us to talk.

Despite all of these things that were happening, it was calm in the city of Detroit. Our response to the blackout was quick and efficient due in large part to all of those planning initiatives that I told you about. The city responded efficiently with the rapid mobilization of first responders. We proved yet again that local first responders are the first in and the last out during critical incidents.

Our local homeland security office served as a hub for sharing critical information between city and Federal, State and other entities. During the blackout, the council convened as a problem-solving team. The emergency operations center in the city of Detroit was up within 45 minutes of the blackout. The Detroit police officers were at every major intersection within 20 minutes of the blackout. Our EMS operators handled about 576 calls. It is the most in the city's history, and we responded to those 576 calls, most of which were respiratory problems.

The entire police force was immediately placed on mobilization alert 2, which means all police officers, all police officers' vacations and furloughs were canceled and all of them were brought in. We were in all force, working 12-hour shifts with no one being able to leave.

The Detroit fire department mobilized as well, establishing backup water sources throughout the city of Detroit. We even used some of our recreation pools for backup water because the fire hydrants weren't working. We mobilized another team to specifically go to the high-rise apartments where senior citizens lived throughout the city, and we immediately took them water. Every single door in senior citizen housing was knocked on and they were delivered food and things they needed. Over 230,000 bottles of water were delivered to senior citizens within the 36 hours including 1,200 gallon jugs of water.

And thanks to the Governor of our State, 500 "water buffaloes" from the National Guard came from northern Michigan. They went to our hospital systems immediately and then to secured locations in the city of Detroit. So residents that needed water could bring containers to these sites and fill up.

Our public lighting department moved in quickly to get backup generators on line within a few hours. All of our precincts, 13 precincts—the city of Detroit building was up and all of our public housing system was up with backup generation within a few hours.

We moved quickly to get timely and accurate information to the public. We had periodic radio interviews and press briefings to make sure the calm would be there. We worked closely with State and Federal authorities. I personally briefed the White House on what was happening in the city of Detroit. And also I personally talked with Secretary Ridge on what was happening in the city of Detroit.

What lessons did we learn? City personnel worked tirelessly to respond to the needs of the community in the event of an emergency. We also learned that our efforts to prepare for catastrophic emergency strengthened our ability to respond to the blackout of 2003. All of that preparation, all of those meetings that my department heads did not feel like coming to actually did pay off.

However, despite our level of preparedness, we still have a long way to go. 911 and 311 communications and other information systems must remain operational and be able to handle a dramatic increase in use during a critical event. Communication among local, regional, State and Federal officials is vital during catastrophic events. A comprehensive notification process must be developed quickly. Locals should be contacted even in the midst of a crisis that is regional or national in scope; and communication with the public is vital especially during power outages.

Next was the section on suspected causes of the blackout. As Mayor, I don't believe that it is our duty. I am Cochair of the U.S. Conference of Mayors' Borders and Security Task Force, and as mayors it is our job to stay out of that debate at this particular time and let you ponder that here in Washington. And I believe that it is fitting that our Governors are taking a stand in also weighing in on this macro conversation.

The need in the future for local governments is that local governments need to be prepared to respond to future incidents. Thus, we expose the vulnerability in our security systems and, of course, in our energy systems in this country. We need to recognize the uniqueness of those systems. What may be needed in Chicago or L.A. may not be the same thing that is needed in Detroit.

So whatever broad-based policy is being proposed, we would love the opportunity to talk about the unique needs of our city. While there is concern that homeland security dollars will be funneled off to fill budget gaps, or any dollars coming out of this institution, it is bad policy to fund—to say that funding cannot be used for salaries of first responders or to buy key equipment like backup generators, fire trucks or communication or information technology. Key systems like 911 and other communication systems must have redundancy and capacity to be used during critical incidents like the blackout, and we cannot afford to politicize this issue.

Cities need direct funding from the Federal Government, because once it goes to State governments, it typically becomes a Republican or a Democratic issue. I am glad our Governor—the safety and security of the American people cannot be politicized.

And how much did the blackout cost? And this is my conclusion. It cost us over \$10 million. Detroit is still tallying the overtime numbers and the hit on the general fund, and those numbers we want to present to the committee at a later time.

Thank you, Mr. Chairman and Ranking Member Dingell and members of this committee.

[The prepared statement of Hon. Kwame M. Kilpatrick follows:]

PREPARED STATEMENT OF HON. KWAME M. KILPATRICK, MAYOR, CITY OF DETROIT

INTRODUCTION

Good afternoon Mr. Chairman, Ranking Member Dingell and other members of the Committee. Good afternoon and thank you for this opportunity to participate in this critical hearing about the Blackout of 2003.

At approximately 4:00 p.m. on August 14, 2003, a disturbance within the Eastern Interconnection power grid began a rapid chain of events that resulted in a massive power outage affecting a significant portion of the Northeastern United States. This outage disrupted service in eight states (and parts of Canada), forcing 50 million people to lose electrical power.

The outage hit the Detroit area at approximately 4:17 p.m. That is when the nearby Enrico Fermi Nuclear power plant lost power and shut down. The City of Detroit lost all power shortly after that at around 4:21 p.m. The blackout paralyzed transportation, disrupted communications and left many people—particularly senior housing residents—in a potentially life-threatening situation and without basic, necessary services. Four million customers of the Detroit Water and Sewage Department (DWSD) lacked drinking water, because the power outage shut down the pumps that delivered that water to homes and businesses throughout the region. Power was restored to the Detroit area on Saturday, August 16. However, even with the power restored, the region was forced to endure the threat of rolling blackouts, and residents were advised to boil-water until the following Wednesday to ensure that the drinking water was safe for consumption.

Despite these difficult circumstances, the people of Detroit remained calm and showed a true sense of community. There was no panic in the streets and neighborhoods remained calm. Much of the credit goes to the hard-working men and women who are employed by the city. These personnel worked tirelessly to confront the endless stream of issues and problems that arose within the city during the outage. These personnel (using updated emergency response plans and other protocols developed as part of the city's homeland security planning efforts) were able to respond to the needs of Detroit's communities.

I have learned a number of lessons from the events of those several days. The most important of which is that this experience serves as an indicator that our efforts to be better organized and prepared to deal with catastrophic emergencies has paid off and that our homeland security planning has pointed the city in the right direction. However, at the same time, this experience tells me that as a nation, we still have a long way to go particularly in addressing core vulnerabilities of critical infrastructure and in giving local governments the resources they need to be ready to respond to critical incidents.

What were the specific events leading to the blackout?

As all of you are aware, a comprehensive investigation has begun into the causes of the blackout. But, based on information that has already been publicly disclosed, I am greatly troubled. I am troubled that we still do not know why the outage occurred and why the safeguards built into the system to specifically prevent such a large-scale power outage failed to work. Even more disturbing is that this power outage is but one of a number of events that have occurred this summer that call into question the stability of our nation's critical infrastructure.

- On July 30, there was a major pipeline ruptured spilling approximately 10,000 gallons of gasoline and causing a massive disruption in fuel supplies within the State of Arizona. As a result gas prices shot up not just in Arizona, but also across the country.
- On August 20, a computer failure caused by two viruses shut down the entire CSX Transportation system and halted train service for hours in 23 states.
- Published reports also indicate that computer viruses disrupted New York City's 3-1-1 system, forced the closing of the Maryland Motor Vehicle Administration offices, shut down the check-in system at Air Canada and wreaked havoc on an unclassified Navy-Marine Corps intranet.

- And, the nation is still dealing with the ramifications of the latest “Sobig” and “Master” computer viruses, which spread to more than a million computers in a matter of days and disrupted critical public and private sector information systems.

When all these events are viewed together, there is only one conclusion—the nation’s critical infrastructures remain at risk and highly vulnerable to attack or failure due to system weaknesses. And despite two years of discussion and debate over how best to protect the nation’s critical infrastructures, we have yet to take steps to assess the vulnerability of the infrastructures and mitigate the risks caused by those vulnerabilities.

Which systems operated as designed, and which systems failed?

When the outage hit Detroit, approximately 2.1 million people lost power. Additionally, a number of key systems failed to operate effectively. For example:

- Four million Detroit Water and Sewage Department customers lost water.
- While the city’s 9-1-1 telephone system remained operational, the computer aided dispatch system used by the police and fire departments failed to operate at full capacity.
- The phone system used by the city government failed to operate.
- Cellular phones used by a number of key public safety personnel failed to operate, because a number of cellular carriers experienced partial network outages. This is particularly important because one of these cellular telephone companies advertises that its systems present a feasible back up to public safety radio systems. In this case, one of the phones that failed to operate was the one used by Detroit’s homeland security director. The failure of this particular cellular phone actually disrupted communications between the city and the Department of Homeland Security. DHS finally had to resort to going through our homeland security consultants in Maryland in order to get in contact with us.
- The blackout shut down transportation systems and critically impacted traffic, especially at the border. The Detroit-Windsor tunnel had to close, stranding some workers. 27,000 people use the tunnel daily to cross the U.S.-Canadian border. Many of the commuters staff our city’s hospitals.
- Detroit Metropolitan Airport remained open, but with very limited operations. Northwest Airlines, the main carrier out of Detroit, cancelled 216 flights.
- The Marathon Ashland refinery, which is about 10 miles south of Detroit, suffered a small explosion because of the outage, and police had to evacuate hundreds of residents who lived within a mile of the complex.
- Though most Detroit hospitals remained fully operational, they had to utilize back-up generators and keep hospital employees from using computers to conserve energy. Elective surgeries were canceled. And at Children’s Hospital of Michigan, everyone who could be discharged was sent home in order to make room for about 30 children who developed aggravated asthma problems due to the lack of air conditioning in their homes.

Despite all of these issues, I am proud to say that city personnel were able to respond to and manage the consequences of the blackout quickly and efficiently. As I said earlier, much of the credit goes to the hard-working men and women employed by the City of Detroit. Credit also goes to members of the community who were able to come together and weather this crisis. However, much of the city’s success in managing this crisis was due to the procedures and protocols developed through Detroit’s homeland security planning efforts. In April 2002, the city released its comprehensive homeland security strategy that focused on strengthening the day-to-day preparedness of the city. Since the release of that strategy, Detroit has taken a number of steps that improved the city’s ability to detect, prevent and respond to terrorist attacks and other critical incidents. These efforts directly enhanced the city’s ability to confront the myriad of problems that faced the city during the blackout. For example, the city:

- appointed a homeland security director who during the blackout served as a hub for the sharing of critical information between the city and various federal, state and other public and private entities;
- established a Homeland Security Council comprised of key public safety, public health and other city officials to coordinate strategic planning and operational coordination before and during critical incidents. (During the blackout, this group convened immediately and served as a problem solving team, working together to address the various consequences of the outage);
- upgraded our Emergency Operations Center which was activated and served as a command and control center during the entire blackout; and
- updated our departmental emergency response plans and utilized those plans as the foundation for operational activity during the blackout. For example, police,

fire and emergency personnel were either dispatched to the streets or put on alert to handle any potential emergencies. Additionally, three public schools were converted to “cooling centers” for the elderly and others in need of relief from the heat.

What were the lessons learned from this event?

Despite our level of preparedness, what we learned from the blackout is that we still have a long way to go. The lessons learned include the following:

- When a catastrophic event occurs—whether it is a terrorist attack or a power outage—local agencies are the first to respond and the last to leave. In Detroit’s case it was the fire and emergency departments that handled a number of calls for service. It was Detroit’s police that patrolled the streets and kept the city safe. And, it was Detroit’s housing workers, along with labor and business leaders, who checked on and delivered food to more than 1,200 public housing and senior housing residents. Local first responders handled this crisis.
- The same information networks, communication systems and personnel that cities depend on to provide day-to-day emergency and non-emergency service are critical to effectively dealing with the catastrophic events. 9-1-1, 3-1-1 and other communications/information systems must not only remain operational during any crisis, but also have the ability to handle a dramatic increase in use.
- Communication among local, regional, state and federal officials is vital when an incident like this occurs. We still need to make improvements in this regard.
- There needs to be thought given to how local jurisdictions will be notified that they are in the midst of a crisis that is regional or even national in scope. In this case, the city first learned that the outage was not simply a local problem from the news media. A comprehensive notification process must be developed quickly.
- Communication with the public is also critical. The city placed a high priority on getting accurate and timely information to the public. Within minutes of the blackout occurring, the city was communicating with the public via radio. I held four press briefings during the course of the blackout, updating the efforts to restore power, directing residents to cooling centers and just generally keeping them informed. But, obviously, as this was a power outage situation, communications were limited to those who had access to cable television (which was functioning), car radios or battery powered televisions and radios. The City of Detroit is exploring alternative means of communicating with the public (such as reverse 9-1-1 systems).

How can we avoid incidents like the blackout?

Although there was no horrific loss of life, the power outage “like the attacks of 9/11—illustrate that there are still a number of steps the nation must take as we seek to improve our emergency preparedness.

First and foremost, we need to take aggressive steps to assess and address the vulnerabilities to our nation’s critical infrastructure (Agriculture and food, water, public health, emergency services, telecommunications, energy, transportation, banking and finance, etc.). As a first step, the nation needs to complete a national threat and vulnerability assessment that identifies vulnerabilities to key systems. Then, we must systematically proceed to address the risks posed by those vulnerabilities. As we approach the two-year anniversary of 9/11, I am concerned that this task has not been completed.

In the meantime, local governments need to be prepared to respond should there be future incidents like the blackout (whether caused by mistake, disrepair or attack). Accordingly, local governments need to be given homeland security funding directly and have the flexibility to use those funds in a way that best meets the needs of that individual city. The needs of Detroit are different from the needs of Los Angeles, and prohibitions against using these funds to enhance a city’s service delivery infrastructure are misguided and counterproductive.

I understand that there are those in Washington who believe that if unchecked, homeland security dollars will get funneled off to fill other budget gaps. But to say that these dollars cannot be spent for salaries for first responders, key equipment such as fire trucks, or for the communication and information technology that comprises a city’s service delivery infrastructure is just bad policy. Homeland security funds must be available for use by local governments to do things like improve and strengthen their 9-1-1, non-emergency and information systems. These systems must have the redundancy and capacity necessary to be of use during critical events such as the blackout.

Projected Costs

Costs to the city based upon the blackout events, are projected to exceed 10 million dollars. We are still compiling this information and hope to have a final number before long.

Conclusion

We have been told that this outage was not the result of a terrorist attack. But, even if terrorism has been ruled out, we should hardly take comfort in that fact. We have certainly revealed to the world some of our vulnerabilities, and it is now time to demonstrate that we are taking the necessary steps to assess the critical issues and address any weaknesses so that we will be prepared in the event of any future crisis.

Thank you.

Chairman TAUZIN. Let me thank you all.

First of all, Mayor, obviously you mentioned this, and I know, Governor Granholm, you mentioned this, as did Governor Taft, the failure of communication in the system.

First of all, communication is on the grid. I think you are right; we are beginning to sense there were human errors caused by communication failures. And second, Mayor, you pointed out the communication problems of the responders, of yourself, trying to talk to the White House and get messages back and forth.

Our committee also has jurisdiction on telecommunications, so we are extremely interested in the telecommunication aspects of these emergencies, these disasters, and how we can have smarter utility systems, smarter highways, smarter telecom grids; and second, how we can make sure these systems stay up when disasters hit.

If you recall, on 9/11 cell phones tended to be the manner in which people communicated in New York. On the other hand, cell phones failed in your case and we need to understand what it is that worked or didn't work.

I want to invite all of your attention to the fact that one of your members, Chairman Cox of California, is chairman of the Select Committee of Homeland Security, and if you have any thoughts or suggestions that you want to refer to both him and this committee, we would deeply appreciate any thoughts you might have about what we at the Federal level might be thinking about in terms of not only improving the communication in these grids, but inadequacies in the communications backup systems when things do go down. So I would invite your comments on that now or later, in writing.

I want to thank you, Mayor, for that excellent summary of the effects of the blackout.

People don't realize how much we depend upon electricity. When we started this meeting, I mentioned how in New York people couldn't open the locks on their apartment doors because they are electrically controlled now. And the toilets wouldn't flush. Imagine being in the airport all night long and all those people stuck in facilities that would not flush. I heard from friends of mine that were there that said it was just awful. So, I mean, we don't think about all these consequences.

I heard people on several of the news channels saying, why did the water system fail; this was an electricity problem. You need electricity to drive the pumps and keep filtration systems going.

We are learning more as we go along, and I want to thank you for sharing some of those extraordinary, sort of on-the-ground experiences that you went through and again congratulate you on the way you handled it.

I forgot to mention, I am not sure you know it, but right after Chief Justice Edward Douglas White completed his term, I believe it was your ancestor again who took over his position as chief justice by appointment of President Harding. Again, I thank you for that.

What I would like each of you maybe to indicate to us is in terms of—Mayor, I know you can't get into some of the macro debates of what went wrong and how we have to fix them and more on-the-spot responding to the problem, and hope we can fix it.

I understand there was a declaration of emergency, right, so there is going to be some assistance in terms of some of the damage that was done. But tell me, if you can, Governors, how you two deal with this issue, because we are facing it in our debate as we go into conference on the energy bill. You Governors of States, obviously the State would like to have, as you pointed out, Governor Taft, some authority to make sure these systems work; and there ought to be some body you can point to and count on for reliability purposes. But we are facing a situation where more and more of these electric grids become interstate, that they reach out—I think Texas is the only one that has a complete grid within their State. Most other States depend on other regions for electricity, other States, and electricity crosses State lines now.

Siting of those transmission lines becomes an interstate issue. And I know States have jealously guarded their rights to make siting decisions. I had a Governor and I am not going to say who it was, call me last week and ask me if I would support a provision that would allow the Governors of our country to veto any electric project, generation project, in their State for any reason they wanted to. I said, Governor, that sounds like an interesting proposition; would you also agree if you vetoed energy production in your State that you would also disconnect yourself from any interstate grid? You are going to rely upon your neighbors exclusively and just have the right to shut down any project in your State for any reason you want?

You have to understand, we have some conflicts here that need to be worked out on a State and Federal level. Any thoughts you have right now? I know you are coming at it from a State perspective, and we have to look at it from a Federal, national perspective. Somewhere in between we have to set up systems where we can arbitrate and resolve—as the Secretary said, doing nothing is not a good answer anymore. We have to have better grids. We have to have site improvements. We have to site generation facilities where they are needed.

How do we solve this, Governor?

Governor TAFT. Electricity does not stop at the State line and in Ohio we are a great crossroads for the transfer of power from west to east from south to north, serving other areas. So we strongly support a strong regional approach under the supervision of Federal standards.

Now, in terms of enforcing mandatory standards on the reliability of transmission lines, that could be done by the Federal Government, or if you wish to delegate that to the States to enforce those Federal standards, there are precedents for that type of a Federal-State partnership in the area of rail and natural gas lines and other areas.

With regard to the issue of siting, we support and my chairman of Public Utilities Commission supports the section in the current energy bill, the electricity title that proposes a compromise under which, if the States wish to consider regional interests and base their siting decision on what is best for the region, then that would be acceptable, but have FERC as a backstop to settle disputes. So we think that kind of a compromise is something we can accept in Ohio.

Chairman TAUZIN. How about you, Governor Granholm?

Governor GRANHOLM. I think if we are asking for some Federal accountability, there obviously has to be Federal involvement with respect to siting, but I think the States should get the first crack. I think it can be a cooperative arrangement.

Clearly, the States know where the sensitivities are in their States, but clearly the States have an incentive, as well, to ensure a reliable transmission system. So whatever period of time is a reasonable period of time that can be given to the States first to get the first crack at siting, I think that is appropriate; and then perhaps it could go back to the Feds if for some reason that is not able to be obtained.

For State sovereignty reasons and for the ability of States to determine their own landscape, if you will, the States should get the first crack at it.

Chairman TAUZIN. Let me describe what we have in the House bill that is in conference. It basically says that in areas of national significance, national corridors where States are first given the opportunity for a year to settle the siting of a transmission improvement, if they don't settle it, the Federal Government, can step in and decide it; but it gives the States first opportunity and only in those areas where the national corridors of high density, if you will, movement of electricity and bottlenecks.

Second, as a trade in our bill, we gave the States new authorities in siting on Federal lands, which you don't currently have, so you would have a role in Federal lands. Is that a fair trade?

Governor GRANHOLM. I am open to that as long as the time period is a reasonable one in which the States can resolve those siting issues first.

Chairman TAUZIN. Governor, do you have a comment?

Governor TAFT. I would also support that particular approach.

Chairman TAUZIN. Let me recognize Mr. Dingell, distinguished ranking member of our committee, for a round of questions.

Mr. DINGELL. Mr. Chairman, I thank you.

I would like to extend my personal welcome to you, Governor Taft, and to Governor Granholm. And, Mr. Mayor, we are always delighted to see you. We have three distinguished public servants down there who have given us good counsel. We thank you, Governors and Mayor.

And I have no further questions.

Chairman TAUZIN. Mr. Upton?

Mr. UPTON. Thank you, Mr. Chairman. I would join the accolades for the panel. But I always hold my hand like this. And I want to thank my two Michiganders here. We call it the "Big House."

And, Governor Taft, we welcome you.

I just want to say, and I said in my opening statement a few hours ago that I know, Governor, we appreciated your visit to the west side of the State this last week for an extended period of time; and I know, as I was home during the August break, one of the visits I did was up in South Haven. And in talking to some of the local power officials there, of course, we had lost the Campbell plant, the coal-fired plant up in Grand Haven, and we were really very close to losing the Palisades nuclear plant because of the surge as it pulled out. And literally the finger was at the button for the shutoff. And had that happened, it would have likely gone right around the horn.

As you know, one of the two reactors at the Cook nuclear plant down in Bridgman, Michigan, further down is already out for maintenance. But clearly this would have taken it all the way across to more of the heartland of the Midwest in terms of Chicago and all of the western part of the States. So in addition to the Detroit area, we would have had a massive economic problem. We appreciate your emergency declaration.

And I guess, to follow up on the Chairman's question with regard to the RTOs, in the energy bill we passed last March, we had a Barton amendment or a Barton provision which was a sense of Congress urging that the utilities, in fact, join an RTO. Governor Taft, you talked about it in your testimony. Governor Granholm, you referenced it as well. It is not a mandatory challenge though, it is just the sense of Congress that they ought to be part of one.

One of the problems we see if that language sticks, and certainly I would like to see it stick if not strengthened, though we have problems with the Senate, is because we have so many different power companies in my district and we have not only Consumers Energy, but we also have American Electric Power, American Electric Power headquartered in that Buckeye town of Columbus, with a small C, but they operate one of the facilities and obviously provide—used to be the old Indiana and Michigan, but obviously they operate in at least three States. And the question would be, which RTO are they going to be part of and how do we manage this?

And those are some of the things we are grappling with as we try to pursue and enact legislation that will, in fact, prevent what happened on August 14 from ever happening again.

But in the interest of time, I would be interested in your comments about the Barton provision and whether or not you believe it ought to be strengthened, knowing full well that some of the Governors in the western States don't appreciate that at all. In fact, they are looking for language to relax what we passed in the House.

Governor GRANHOLM. This electric experiment over the past few years has been, I think, a real opportunity for us to step back and see what works and what doesn't work.

Clearly, electricity does not stop at the border of a State, and so a regional approach seems to make some sense. The problem is,

when we have regionalized the transmission grid, we have not mandated the enforcement, so I think those provisions must be strengthened.

Our State public service commission has no authority to mandate liability on the grid, on the transmission grid. Nobody has a requirement; the system is voluntary, as you suggest. That leaves nobody with anything. So we need to strengthen it if we are going to proceed down this path and hold, A, an entity responsible. Is it FERC? Is it NERC? Do they devolve it to the RTOs? This is acronym heaven, I recognize, but I think we have to make a decision about who is responsible.

Perhaps FERC or NERC does some sort of regional—but at some point some entity must make those—that accountability enforcement decision. And if they contract or if they have an agreement with RTOs to do it, that is fine. I don't care about the RTOs so much as the enforcement of reliability on the electric system.

Mr. UPTON. Governor Taft.

Governor TAFT. I agree with Governor Granholm, someone has to be in charge of our transmission system in this country or we risk another calamity or another disaster of even greater proportions.

This is a map of the existing RTOs and ISOs, and you can't really see it very well, but it looks in some respects like a patchwork quilt. You notice a big section of Ohio is not really fully integrated into any RTO yet. The reason for that is that AEP wants to join the PJM transmission organization, but it is being prohibited from doing that by regulation in two States that don't want it to join. They are making it impossible, either by law or by the regulatory power, for them to join a system. It would be excellent if an AEP was in that system.

Then you have the problem of what about the seam, the border between PJM and Midwest. I know that the FERC is working on trying to close that area off, develop partnerships, develop greater coordination, develop operating agreements. That would go a long step forward.

That would go a long step forward if we had an integrated system, Midwest over to the east coast there for regional transmission.

Mr. UPTON. Thank you.

I know my time has expired. I yield back.

Chairman TAUZIN. For the record, I want to point out, Governor, that in the House-passed bill that is in conference now is the mandatory authority given to NERC under the supervision of FERC, very analogous to the authorities that the National Association of Securities Dealers has to make regulations under the SEC's power to enforce those regulations. So we patterned it very closely under that. I would ask to you look at it and see if you have any comments on it as we go forward.

The Chair recognizes Mr. Brown from Ohio.

Mr. BROWN. I thank the chairman; and I welcome Mayor Kilpatrick, nice to see you; and Governor Granholm, nice to see you. I especially welcome my friend and Governor, Bob Taft, and thank you for the responsiveness you have provided to members of our delegation, both sides of the aisle, in your frequent visits here and what you do with us.

Governor TAFT. Thank you.

Mr. BROWN. Just one question of Governor Taft. Your comments offered insight into the need for Congress to promote not only modernization of America's bulk power system but also the modernization of the wholesale electric marketplace. You identified the enactment of mandatory reliability standards for the industry as the first priority that we should pursue in this Congress. I think most people agree with that. I certainly do. You also spoke of a broader piece of legislation, a broader energy bill, including things I also agree with, ethanol, clean coal provisions, both of which are important for a lot of reasons to our State.

Some of us are concerned that holding reliability provisions hostage to something more, especially if those something more are environmental issues, or something where there is provisions about which there is more disagreement, and I think the issue boils down and Congressional action really boils down to two choices, and I would like to hear your comments.

We can move quickly and bipartisanly, and it is—on legislation to ensure reliability for the electric power grid, or we can try to pass a significantly more comprehensive bill that includes some of the—both some of the President's pet projects, drilling in ANWR. You know how controversial that is. Even our own Senate Republican Senate delegation, one is for it, one is against it. Tax breaks for oil companies, many of the other wish lists the President has for the oil industry. What should we do?

Governor TAFT. First of all, I want to thank you, Congressman Brown, for your attention to this issue, for attending the hearing, as well as Congressman Gillmor, subcommittee chairman, and Congressman Strickland from Ohio. We appreciate very much your focus on this issue which is so important to the State of Ohio.

Clearly, an improved transmission system is very important, but we are also, of course, facing high energy costs in other areas in the State of Ohio. Gasoline prices right now are spiking. We are concerned about the cost of natural gas in the winter for heating our homes. We know that the Congress has been working on an energy bill for a long, long time. We know the issues are tough. I don't pretend to tell you how to do your business. We have got enough problems just getting agreement in the State of Ohio on what we are trying to do in the State.

But I would really encourage all of you to try to do what you can to enact, at the earliest possible date, a comprehensive energy bill that deals with all of these issues. And perhaps there is a way that you can use the impetus of what happened on August 14 to build bridges and to make compromises and make agreements that will get this country a strong energy policy that addresses, among other issues, the important challenge of improving our electrical transmission system in this country.

Thank you.

Mr. BROWN. Ms. Granholm.

Governor GRANHOLM. I respectfully disagree. I think if you have something you agree on, that you can enact in a bipartisan fashion, just from our perspectives, we need a quick response. And if you can get the other quickly, more power to you.

But something tells me that it might take a little bit longer than that. So if you can get agreement on this area that is so critical

to our Nation's citizens, I urge you to do so in the most expeditious of fashions.

Mr. KILPATRICK. You know, I didn't weigh in on this discussion because of some cognitive misunderstanding. It was more common sense. I need to stay out of this.

But I will weigh in on this point. I agree with our Governor for a different reason. And going back to the mayor's perspective, we are closest to people; and the quality of life of people and citizens can't wait 2 or 3 years while this is deliberated. We need quick resolution because the vulnerability that has been exposed can also lead to some future security problems as well if we don't close this gap.

Chairman TAUZIN. Thank you, Mr. Brown.

I take a chairman's prerogative here just to point out to all of you, however you may feel about the issue, Governor Granholm, you said "if you could do it quickly." I would ask you all to ever try to pass a bill through the House and Senate of the United States quickly, with Senators having the right to hold up a bill without even knowing who they are. Under their rules, they have a right to stop passage of a bill and attach amendments onto it. They have no germaneness requirements on the Senate. They can put an amendment dealing with something across the globe on an energy bill with no restrictions on the Senate side, and all of a sudden it gets Christmas-treed and you end up with a mess in your hands. The notion of passing something quickly, even something we think we have general agreement on—believe me, there is still controversy over what an electric title would look like—is not that easily accomplished.

I just want to point out to you, this is the second Congress, the House and Senate have both passed comprehensive energy bills. We are in conference now. We are one vote away in the House and the Senate, assuming we can reach those compromises, give those give and takes, of getting a comprehensive energy policy bill.

As much as I know you want to see this done quickly, this may be our best chance to get it done in a long, long time. I would just urge you to, if you can, help us do that in any way you can. I thank you.

I want to yield to our colleague from the great State of Ohio first, Chairman Gillmor. Paul.

Mr. GILLMOR. Thank you very much, Mr. Chairman.

I want to welcome our Governor here. I don't have any questions for them. I had the opportunity to meet with them earlier. But I do agree with his comments on the desirability of moving the comprehensive bill.

The issues related to electricity reliability are also greatly affected by the other provisions of the bill. For example, dealing with conservation affects the grid, global energy supply. So it is real difficult, if you are really concerned about reliability, to just isolate this one piece. They are all related.

And I do want to welcome Governor Granholm, our neighbor of the great State to the north, with whom we get along very well, except for 1 day a year. I do want to, however, follow up a couple of the points that you made for you to elaborate a bit.

But before I do that, I want to commend you, Mayor, for the actions you took in Detroit.

You mentioned three items that you felt were contributing factors, and one of those was the lack of maintenance of the transmission system. I wonder if you would elaborate on that a little more as to why you think that happened. Is the reason a financial one in terms of the incentives to invest in the system? Is it a technical problem? If you could just elaborate a little more on why you think that happened and what can be done to prevent it.

Governor GRANHOLM. Clearly, we have to wait until the outcome of the investigations that are being jointly conducted. But I think, you know, as we say in the law *res ipsa loquitur*, the thing speaks for itself. Clearly, there was a problem with the lines. And since electricity seeks the path of least resistance and the wires were not big enough, if you will, in very simplistic terms to hold the voltage that was seeking to go through it, there needs to be an investment in the system so that does not occur again.

Now, what can that be? It is possible, certainly, that Congress can provide some incentives to invest in the grid. As I was mentioning during my remarks, I think that there is an incentive which exists right now for the return on equity which currently is—if they belong to an RTO, is 13.88 percent, which is a good return. It gives enough confidence in investors that they will be able to maximize their investment. So there is an ability right now to invest.

I do think the best way to provide an incentive for investment in the grid is to have a reliable and enforceable standard that is enforced by an entity that is not just voluntary; and that will be the—in my view, the hammer, the carrot, the stick, however you want to frame it, to get that transmission investment, which I think needs to happen.

But, again, I think you are going to see more, and those who follow me will probably talk about this issue of maintenance of those power lines.

Mr. GILLMOR. Let me just ask you a little bit on one of the other factors which you mentioned, which is human error, which is a comment that we have heard from a number of people on the panel and elsewhere. And recognizing we don't know the causes but that you have instigated an investigation, in your investigation, have you made any contact with a company or companies or people who supposedly have made human error as to what actually transpired, or is—are we all just dealing with kind of hearsay here?

Governor GRANHOLM. I would defer that question to Peter Lark who will be following me, who heads up our public service commission and is responsible for the investigation. I don't want to repeat hearsay. I know generally what the impression is, but, again, I didn't speak directly with somebody myself.

Mr. GILLMOR. And the third factor which you mentioned, which I am not going to ask you about because I am running out of time, was the factor possibly that the Michigan law had some effect in your view.

Governor GRANHOLM. It had an effect on the inability to determine who is responsible.

Mr. GILLMOR. Thank you.

Chairman TAUZIN. Thank you, Chairman Gillmor.

The Chair recognizes Mr. Stupak for a round of questions.

Mr. STUPAK. Thank you, Mr. Chairman. Thank you, Governor Taft, Governor Granholm, Mayor Kilpatrick, for coming today.

Governor Taft, has your State started an investigation as to what happened? I know Michigan has.

Governor TAFT. Yes, we have. In fact, sitting right behind me is Allen Schriber, the Chair of our public utilities commission, who is going to testify later today. I asked him to prepare, based on Ohio information, a second-by-second account of what transpired; and he is still working on that and will be providing that of course to the public and also to the binational commission task force.

Mr. STUPAK. Leads me to my next question. The binational commission—I had asked Secretary Abraham earlier whether the meetings with this binational commission are going to be open so there can be public input. Are there going to be public hearings so we can see what is going on. Have any of you, the Governors or mayor, have you been invited to participate in this binational or Canadian-U.S. Task force? Have you been invited to submit your comments or concerns and/or do you have any reps on those task forces?

Governor TAFT. Let me state for Ohio, and I think other States as well, that Secretary Abraham has offered us, and I believe other States, the opportunity to have one person that we would appoint on each of the three subcommittees of the tasks force. We have submitted our names to the task force.

Mr. STUPAK. Okay. Same?

Governor GRANHOLM. Same here.

Mr. STUPAK. How about you, Mayor?

Mr. KILPATRICK. Cities have not been invited.

Mr. STUPAK. Governors have.

The deregulation question—and, Governor Granholm, if I may, I am looking at your testimony on page 6. You said: Before restructuring or deregulation, Michigan's two big utilities, DTE and Consumer's Energy, shared a power pool and were able to monitor and control production and movement of power between each other and their customers in a centralized fashion. Under PA-141, movement of power on the grid is now controlled less directly by the power companies in Michigan and is much more widely influenced by power supply and demand in the region.

You go on and say that the bottom line is that this contributes to a system where no one, myself included, knows who is ultimately responsible for ensuring reliability, and that is unacceptable.

Governor, I think Michigan deregulated, if you will, in 2000, before you were Governor. Do you have any idea how much they spent on maintenance of their lines prior to deregulation and what they spend now after deregulation?

Governor GRANHOLM. I don't have those figures, Congressman. But perhaps Peter Lark, who will be testifying after me, would.

Mr. STUPAK. Okay. Governor Taft, Ohio has deregulated. They have been deregulated for a while?

Governor TAFT. We are in the process of phasing in deregulation right now.

Mr. STUPAK. Do you have any idea what the utility companies would have spent for maintaining their lines and services before deregulation and after?

Governor TAFT. I don't have that information. Again, Allen Schriber, the chairman of our commission, would be better prepared to testify on that particular issue. But he has indicated to me, in response to my questions, that there is no indication that they were spending any more on transmission lines before deregulation than after deregulation.

Before deregulation, they had to come and get a rate case to get a rate increase. Those were far and few between. Often many years between those. So the same pressures existed from that standpoint before deregulation as might exist now.

Governor GRANHOLM. Congressman, for those who may be watching, of course in Michigan we went to this experiment of partially deregulating. And before the law changed, the distribution system, which are the wires to people's homes, the transmission grid, which are those big A-frame objects you see out there, and the generation, which are the power plants, were all owned by one company. So it was easy to point at who is responsible for investing and who is not.

This issue of investing in the lines is really a distribution question. But the issue of investing in the transmission grid, which I think is what you are looking at, is one that is so difficult to penetrate, because that is the part that partial deregulation has spun off elsewhere, and nobody is enforcing that investment.

Mr. STUPAK. Which leads me to my next question, because you mentioned the enforcement and who is responsible. I cited earlier for Secretary Abraham that NERC as we call it, North American Electric Reliability Council, indicated in the year 2002, 97 planning standard violations, and 444 operating policy violations. Who enforces them? NERC has no enforcement power. What happens to these violations? Were the Governors ever notified that in your States there may have been a violation? What power do you have under deregulation to say to a utility that is providing a service in your State, we have these violations, repeated violations, how are you—how do you get to enforce it? How do you get a remedy? How do you make sure things are done properly in your State with this deregulation or loosening of responsibility?

Governor GRANHOLM. These are the perfect questions that you are asking. Because those are exactly the questions that our public service commission is asking. I know that when he gets up here to testify he would say, well, we would assume that we have the responsibility for enforcing. But they would be taken to court by one of the transmission operators saying, no, you don't have the ability to do that. So the question is, who really does? You all need to provide the mechanism for that enforcement and reliability to occur. Perfect questions.

Mr. STUPAK. I think the Dingell bill would do it. Thank you.

Chairman TAUZIN. The Chair recognizes Mr. Rogers from the great State of Michigan.

Mr. ROGERS. Thank you, Mr. Chairman.

Governors, thank you very much for taking the time to be here from busy schedules. Governor Taft, I want to thank you and your

fellow Ohioans for that action in the 1830's, that you guys got Toledo and we got the Upper Peninsula and Bart Stupak, and believe me, we got the better part of that deal. All day long.

Governor TAFT. Come and visit us.

Mr. ROGERS. Actually, Congressman Gillmor just informed me that there was apparently a casualty in that exchange, and a mule was shot, which I didn't know until today. But we certainly.

Governor TAFT. Let's not revive these old conflicts.

Governor GRANHOLM. Let's move forward.

Mr. ROGERS. Thank you for the trade. Thanks, Bart, for being part of the Michigan delegation.

Mr. Mayor, I want to thank you very, very much. You know, the Big Apple gets lots of the credit in that turmoil. But you did some pretty extraordinary things, and thank you, Governor Granholm, for assisting in that. The Motor City was running, too, in that blackout. Your outreach program was particularly impressive when you went to the senior centers, and the amounts of water that you were distributing throughout the city was very, very impressive. My hat is off to you. Congratulations, thanks for doing such a great job for the State of Michigan and Detroiters. You are making us proud down here in Washington, DC.

Governor, I hope you can help me understand on the 141 question, PA-141. So your sole concern is the ability to have at least some oversight? You are not necessarily concerned that it has to be in the State of Michigan, but at least some point in the system there has to be a catch in the system for oversight?

Governor GRANHOLM. Right. I think that having it at the FERC or through NERC is fine. It has to be an entity that is responsible, though.

Mr. ROGERS. I was encouraged to hear you say that you would support at least some measure that fixes this problem, no matter where it falls, and if we can do it quickly under the energy bill that is in conference, fine with you. If you can do it on a free-standing bill, fine with you, as long as it gets to the President's desk. Do I understand you correctly?

Governor GRANHOLM. We need the reliability standards passed. I am not so interested in the other stuff. But the reliability standards are what need to be passed in my opinion.

Mr. ROGERS. Thank you. Thank you for taking the time to be here. We know you are busy. And thank all of you for what you are doing. Appreciate it.

Chairman TAUZIN. The Chair now is ready to recognize another Ohioan. Congressman Strickland is recognized for a round of questions.

Mr. STRICKLAND. Thank you, Mr. Chairman.

I also want to welcome my Governor. I am not sure exactly why it is, but it just feels good to look out there and see the Governor of Ohio and the Governor of Michigan sitting side by side.

Governor TAFT. That is a good thing.

Mr. STRICKLAND. Well, you both represent the heartland of our Nation.

I was sitting here listening to your comments, and I was reflecting upon all of our opening statements and sort of contrasting and comparing. And what you said, the two of you—the three of you—

said to us was understandable, it was practical, it was doable; and maybe that is the difference between a Governor and a legislator, I don't know. But I think we can learn from what you have said to us; and if we would follow your advice, perhaps we could solve this problem.

My dear chairman, someone that I respect a lot, made a comment about the Senate rules and the fact that the Senate can sort of muck things up and a single Senator can have so much power and anonymously stop things from moving forward. I agree with him that probably in the Senate individuals have too much power.

But, Mr. Chairman, I would just like to say to you that I think here in the House that I think that maybe individuals, especially in the minority, have too little power. So maybe we can modify both the Senate and the House Rules.

I say that for this reason. It is my firm belief that the differences which separate us in an approach to a comprehensive energy bill are so deep and so great that it is highly unlikely that we will be able to deal with that kind of bill in the short term. But we can agree on what you have said and what I think nearly all of us believe needs to happen. So what we need, I think, is a free-standing bill, the Dingell bill, which will speak to the questions raised by Mr. Stupak and will go a long way toward solving the problem that we are all here discussing today. Then there will be other days and weeks, months and perhaps years that we can spend arguing about ANWR or a whole host of other issues. But I think the Dingell bill is the bill that can solve the problem we are dealing with today, and that is why I would hope that we would move on it and try to solve this problem.

I want to thank you, all three of you. I think you have given us words of wisdom today. We ought to listen to them. Thank you so much.

Chairman TAUZIN. The Chair thanks the gentleman.

Are there further requests on this side for questions? The gentleman from Pennsylvania, Chairman Greenwood.

Mr. GREENWOOD. Thank you, Mr. Chairman. I will be brief and don't need to use all of my time, but I wanted to address a couple of the questions to Governor Granholm.

When I first read your testimony, it seemed that you were in some way implicating the deregulation legislation. Rereading it, you really aren't, because you have—there are many who seem to want to point fingers in that direction. But what you are acknowledging is that in fact it probably—the deregulation was responsible for putting more power plants and more transmission capability into your system.

And in rereading your testimony, it seems to me that your real complaint here is not so much that reregulation may have created vulnerabilities, but it is a question of accountability, that your problem with it is that you are not sure who is responsible and you are not really quite sure if anyone is ultimately responsible. Could you clarify that?

Governor GRANHOLM. Yes. The way it has played out is that because of this diffuse responsibility that there has not been this command and control situation that is necessary, causing a communications breakdown. So there is sort of two potential factors in-

volved in that. One is, because of the way it has played out—I am not saying that deregulation caused this. But the way it has played out because of the lack of accountability there is a contributing factor to a lack of communication that occurred in this particular instance and therefore also a problem with respect to who is responsible.

So both of those are factors. They are not the cause of the problem. But I do think it is an important time to step back and say, what works with this deregulated environment? What doesn't work? And it may be time to take a look at the whole array and say, what can—what worked before? What works now? Is there a way to blend? Is there a way to make sure that we are doing what works?

Mr. GREENWOOD. We probably need to wait until we have the final answers on exactly what happened here before we do that.

Governor GRANHOLM. Yes.

Mr. GREENWOOD. Why, in your opinion, is the Midwest Independent Systems Operator, MISO—it seems to me that entity was designed and created to provide the command and control and to be responsible for the communications. Is it your early assessment that it didn't handle that function well?

Governor GRANHOLM. Well, under the current rules that exist, there is not a mandatory requirement that they engage in that command and control environment. These are the facts as I know them: Two minutes before the power went down in Michigan, our operator got word—our transmission operator got word that it was going down. An hour and 5 minutes before the power went down, the provider in Ohio and the MISO had information that there was trouble. So there was a lot of time in there that somebody could have been communicating this information.

Mr. GREENWOOD. So when you say “got word,” somebody telephoned somebody? It was not an automated system?

Governor GRANHOLM. I want Peter Lark to testify to this, but it is my understanding that they—2 minutes before the blackout occurred, our independent—our transmission company saw that there was problems on the grid. It was not a formal communication it is my understanding at this point.

Mr. GREENWOOD. Okay. Thank you, Mr. Chairman. I will yield back the balance of my time.

Chairman TAUZIN. The gentleman yields back.

Further requests from this side?

Mr. Engel first. I will get you, Mr. Rush.

Mr. ENGEL. Thank you, Mr. Chairman.

A lot of the questions have been asked. I wanted to just follow up with Mr. Greenwood's question. I was also going to ask a question about deregulation.

I was on a panel on the BBC when this happened, and one of the so-called experts on the panel said that the root of this all stemmed from deregulation, and therefore if we didn't have the deregulation this wouldn't have happened. And when he was questioned about what do you do, do you go back to reregulation, he said, you can't put the genie back in the bottle, but one of the things that he would do is break the country into smaller regions.

I am wondering if any of you have any opinions on that. The country now, as you know, is broken down into four regions; and he was saying perhaps 12 or more would make it easier to ensure that a blackout of this magnitude wouldn't happen again.

Governor TAFT. Well, we have an interconnected grid today pretty much across the country, Congressman; and we had that before deregulation as well. So there would have been the potential for the cascading effect even before deregulation would have occurred.

But I really believe that we have to move toward larger regional wholesale markets for electricity and larger regional oversight direction and control of the transmission grid if we are going to make rederegulation work, if we are going to make our system work. You have to have an efficient wholesale market, you have to have good standards of reliability, and you have to have the ability to coordinate what happens in systems over a larger geographical area to prevent this cascading national—almost a nationwide blackout that occurred.

So, you know, I would be in favor of somewhat larger regional transmission organizations, No. 1, and, No. 2, a Federal authority with the ability to require that, require participation in that and also to require certain types of coordination, integration or even partnership agreements among regional transmission organizations so that you deal with the issue of what happens across the seam, between one region and another.

Mr. ENGEL. What about reregulating to some degree? Obviously, you cannot go back to the way it was. But in looking at the totality of what happened, would you move in that direction? And, if so, where and how?

Governor TAFT. Well, in a sense that is what Governor Granholm and I are proposing here with regard to transmission. As she was pointing out, at one time it was all under a State's jurisdiction. Now we have transmission under nobody's jurisdiction, and we are saying that needs—someone needs to be in charge of transmission. And, you know, we think that needs to be at the Federal level. If you are talking about the enforcement of standards, you know, that could be delegated to each State to enforce national standards with regard to reliability. But someone needs to be in charge. Someone has to be accountable for the development, the maintenance, you know, the reliability of that national transmission grid on which we are all so dependent today.

Mr. ENGEL. Governor Granholm, I assume that you essentially agree with Governor Taft?

Governor GRANHOLM. I agree that the transmission reliability now is—the system is completely unacceptable. It needs to be monitored and enforced in an entity responsible for it. So, yes, with respect to the transmission grid, yes. With respect to some stability over pricing, I think that is very important for our residents.

I do think the wholesale market has been effective; and the bigger players who want to be able to compete on the open market to purchase large amounts, it has worked well. So that is why I think we have got to get out of the sort of ideological hats that everyone always tends to wear and just figure out what works and what doesn't work.

The system is a natural monopoly. And when you have a natural monopoly with respect to the transmission grid and the distribution lines then it is difficult to have full competition. So what is it that we create that protects our citizens, that makes sure that there is reliable electricity? That is what we have got to come and take a look at.

Mr. ENGEL. Thank you.

Mayor Kilpatrick, I want to talk to you about a novel program that Detroit is dealing with to get more power into the city. As you know, I represent parts of New York City and the suburbs, and that is replacing copper transmission lines with superconductors. I had an amendment which would do that here in the Congress. I just wanted to ask you how is that going? Because I know you have been a pioneer in that. I really commend you for that. How much is it expected to cost and how much will it save? Also, how have you dealt with the siting issue?

Mr. KILPATRICK. First of all, let me say, Congressman, that the program is going fairly well. When we came into office 2 years ago, we actually had to look at it all over again, and we actually put an RFP out for a study to answer those questions.

Because when I walked in the office, no one could tell me how much it would save or how much it was going to cost us when it was completed. Now we know. We are moving forward with the project and the program. It actually picks up on the conversation before and deregulation, of which I was a member of the Michigan legislature at the time when this happened.

Municipalities like the city of Detroit actually got a chance to compete in the commercial part of power and also generate our own power, which in this crisis our power in the city of Detroit from our public lighting department came back up before our commercial utility, and we were able to light up a whole lot of things and actually get generation from there. So it helped us.

But we believe that moving to this conductor will help us push out more power but also enable us to compete in the market for generating power and selling power to different entities inside our city.

Mr. ENGEL. Thank you. I want to say that the fine job you are doing is surpassed only by the fine job your Congressperson is doing. I think you are related a little bit.

Mr. KILPATRICK. I can never be as good as she is.

Chairman TAUZIN. Just remember that.

The gentleman's time has expired.

Let me point out for the record the only deregulation occurred up here. States have done some deregulation. The only thing we have done up here in 1992 with EPAC was to deregulate the wholesale markets. And EIA has reported, since 1992 when that occurred, wholesale electric rates have dropped 20 percent to consumers, wholesale rates. In addition, they have reported that is about a \$13 billion savings to America's consumers. So we have got to keep that in perspective as we move forward.

I might mention also, to keep the record honest, that was also the period of time in which combined cycle natural gas technology was developed, which also helped reduce those rates. But the ques-

tion is, did one inspire the other or not? All we know is that rates have gone down since that act in 1992.

Mr. SHIMKUS.

Thank you, Mr. Chairman; and I appreciate you all being here and for your patience, Governors and Mayor. I really appreciate your testimony, especially initially on the siting issue. I think maybe we perceive that as more of a contentious issue that what you all have presented.

Governor GRANHOLM. I don't know that we both speak for all of the Governors on this either.

Mr. SHIMKUS. You are 2 of 50. That is what we need to hear. Because that is we have—the perception is that we have tried to address the siting issue somewhat.

I would also encourage you to talk to some of the independently owned units and ask them why they are not investing in the transmission grid. For the sake you say—there is the Federal Power Act says 13.8 percent return. There has got to be a reason.

Otherwise—so I would suggest that it might be siting issues, legal cases, environmental lawsuits, Federal lands issues, maybe crossing or not crossing. There is a reason why they are not investing, if it was just an ROE of 13.8 percent, and I think we should look at that. That is what we are trying to address here.

In our bill, we have the FERC that would set a rate, in essence doing what the State public utility commission did years ago. Now we do it based on the whole regional aspect of expanding a transmission grid.

So I think your testimony was very, very helpful and very, very appreciative. Because, as much as reliability is important, you can set all of the reliability standards that you want, but if you have a bottleneck on the transmission grid, you have got a problem. You have got a problem if the system goes down, and you have a problem for market manipulation. So the more pathways we have, the more that the market can work, and we get the return on the wholesale power, and we are in a much better position.

Mayor, I know you are about ready to return. I apologize. But the question quickly for you is—and you said it in your testimony—how much did the movement to homeland security and the re-evaluation of your needs help in the power outage? Was it helpful? Did it help you focus? Or did you have plans in place? Can you just briefly talk through whether—because I think if it was helpful it is a story that probably hasn't been told yet.

Chairman TAUZIN. If I can interrupt, the mayor is only going to be here for about 5 or 6 minutes. I know Bobby wants to get in. He has to catch a plane. I don't know about the Governors. I want to try to honor your commitment to us. So if you will respond, and we will try to get Bobby Rush in and perhaps anyone else.

Mr. KILPATRICK. Thank you.

Congressman, it not only helped us focus, it prepared us. Those every 2 week meetings in setting up that homeland security council, it actually worked.

After the power went out, to dispatch and go to our mobilization alert 2 for our police department automatically going out to these intersections, major intersections in the city of Detroit and directing traffic, we didn't have gridlock. Getting our emergency oper-

ations center up in 45 minutes, with all of the phones plugged in and able to communicate with water, fire, police, human services, housing, it actually did work.

So the setup, as we originally planned for—whether it was a tornado or it was a weapon of mass destruction, we would react and respond the same, to go to the emergency operations center and really command the event. And we did that. We reported to the citizens of the city who didn't have power, but they had radios. So many of them were in cars or were listening to battery-powered radios, and actually the angst went down immediately, which also helped us in every other aspect of the city of Detroit, from crime to everything else.

So, I mean, yes, the preparedness, the emergency preparedness, homeland security, moving over, getting that one person in place, that is the homeland security director, Derrick Miller, who is our chief administration officer, all of those people showed up at the EOC and really took control of the situation.

Mr. SHIMKUS. Thank you.

Chairman TAUZIN. Bobby Rush.

Mr. RUSH. Thank you, Mr. Chairman.

Mr. Mayor, I want to welcome you; and I wanted to welcome the other witnesses here, both of the Governors. But I am particularly concerned about the effect on local government and local governments' responsibility.

Because, as you have so articulately illustrated, you know, really you—the mayors and the members of the city council, you are all on the front line. We are all here in Washington, we can have these hearings, but you have got to produce. You know, when the lights go out, the electricity goes out, you have got to produce; and I think that your role should be expanded.

Can you inform us, what role do you think the local governments could play or should play in helping to develop this whole overall national policy as it relates to the upgrading of our grid systems and other ancillary issues? Can you explain to us what role would you like to play in this whole effort?

Mr. KILPATRICK. Well, thanks, Congressman, for the question. And earlier Congressman Stupak asked the question also, have we been invited to this binational task force on this issue? I think that the macro issues involved with transmission and RTOs should be discussed between Governors and the Federal Government. Where I believe mayors should come in is how that impacts cities to doing other things, because all of the different discussions on energy don't surround the blackout. They also surround the future economy of this country, whether it is the hydrogen economy, which is the next wave of the manufacturing industry.

In a city like Detroit what is unique about us is the largest corporation in the world, General Motors, sits on our border, which is tremendously dependent on this committee making good decisions. DaimlerChrysler, Ford, they are all housed in our city, and therefore they are all a big part of our economy.

When the Windsor border shut down in Detroit after 9/11, we had 2-mile backups at the border, which essentially stopped the American economy. So mayors at some point, after we really decide whether we are going to have reliability or whether we are going

to have an energy bill, or all the issues that need to be worked out in this arena, we need to sit at the table and talk about also how we move the economic issues involved in energy forward, as well, for our citizens' sake.

Also dollars that flow from whatever bill that comes out of this place, we really need to be involved in getting those dollars first.

I love our Governor. She was there every step of the way throughout this entire crisis. But there is no State fire department, there are no State EMS workers. There aren't any State police—we have State police officers, but they are on the roads giving tickets; they are not really going into those homes, really doing the things that our local police officers have done.

We really need to be involved in conversations also when this shuts down, how do mayors respond? What is our role? How do the dollars follow the problem?

Mr. RUSH. In my city, Chicago, our local utility company, you have to, I think it is every 10 years or so, enter into a franchise agreement in order to use the public ways for transmission lines, things like that. And we in Chicago have not used it as well as we should. But we are beginning to really use that as an opportunity to make sure that there are certain reliability issues that are addressed within that franchise agreement.

Do you all have the same kind of situation in Detroit?

Mr. KILPATRICK. No. In Detroit—actually we do. We have our Detroit Public Lighting Department. We do have an agreement with our major utility on some transmission issues. I don't know the exact—if it is similar to Chicago's agreement. But we do, yes, use some of the transmission lines from our major utility. We do have agreements, rights-of-way, all of those types of things.

Mr. RUSH. Is there any intercity or intracity collaboration among mayors, as it relates to—especially concerning the blackout, in terms of what can be done at the local level?

Mr. KILPATRICK. Not from the blackouts. But, what I can say is that Mayor Daley has called together the Great Lakes mayors and asked us to come together surrounding policy to create some type of interstate working relationship. I went to the first meeting we just had, and we are going to try to establish—now, since the blackout we have a lot to talk about, but before it was surrounding the water, you know, the sharing of information on manufacturing and the manufacturing industry, how to further diversify the economy with the service industry, a lot of our key cities in the Midwest of the United States.

Mr. RUSH. I want to take a moment. I know that a couple of years ago we had a blackout in Chicago. And although there weren't a lot of Federal or national concerns about it—or the issue wasn't really discussed on a national level, rather—I have to give credit to the mayor, because he used the bully pulpit of the mayor's office to make sure that public utility company in Chicago, that it invested money into the transmission system there in the inner city of Chicago.

And he castigated them. He was very hard, hard-nosed on them, and they basically responded somewhat. And so I know the role that mayors can play in regards to making sure that we avoid this kind of problem in the future.

Mr. KILPATRICK. For 30 or 40 years in the city of Detroit the conversation has been whether we need to be in the electric business at all, in the utility business at all.

The conversation after the blackout is, how do we continue to work together to make sure all of the lights are on.

So I believe the beginning of that type of relationship that you just spoke of may be able to happen now.

Mr. RUSH. Thank you very much.

Chairman TAUZIN. Thank you.

Any further questions for the Governors and Mayor? Before we dismiss you, I wanted to mention something that I know that you have all read of the star quality of Governor Granholm, we have read a lot about it.

But the real star at this table is the Mayor of Detroit. A recent report: Actor-Comedian Chris Rock directed and stars in a movie entitled Head of State which opens this weekend. And he did it with Detroit Mayor Kwame Kilpatrick in mind. The film is about a struggling young black alderman from Washington, DC, who goes from being an unknown to running a successful campaign to be the next President of the United States.

Here is a quote from Chris Rock. "I just saw Kwame 1 day on C-SPAN with that big earring, not realizing that he was the Mayor of Detroit," Rock, 37, says. "I didn't know who he was. I thought that he was a baseball player's agent or something. Then I started listening to him. What he was saying was right on." He used the mayor as his model for his character in the new movie just starting out.

So you not only have been a good example of a mayor who reacted in a crisis, you are star quality, man.

Mr. GREEN. Mr. Chairman, was that a compliment from Chris Rock?

Mr. KILPATRICK. Well, he made about \$100 million on that movie, so I guess it was a compliment.

Chairman TAUZIN. We appreciate all of you being here and would deeply appreciate your continuing to stay in touch with us as we finalize this work. Obviously your perspectives are extraordinarily valuable to us. We thank you for the time you have shared with us.

Any other members' final comments?

Mr. Green.

Mr. GREEN. Mr. Chairman, I don't have any questions of the Mayor if he needs to leave. But I had a couple of questions for the Governors. I will be real brief, because I think there are questions to both of you.

One, I believe that the electricity crisis is broader than just reliability. I think it is the reliability of humans and our operating equipment. I think we have had a problem with generating capacity. And we saw what happened in California with transmission problems and pipeline problems; and it just seems like our infrastructure is not what we expect it to be.

To build a natural gas-fired generating plant, you have to have a new pipeline or a new transmission line from there to the end; and the siting is an issue, I think.

Governor Taft, as demand for electricity continues to grow, what are the plans in Ohio, particularly for encouraging new power generation development and the associated infrastructure that will support it?

Governor TAFT. We have a very favorable climate for construction, approval, siting of new power plants, new generating facilities. We have had a great number sited in Ohio in recent years, perhaps in part in response to deregulation. Most of these are gas-fired, but our capacity has expanded very, very significantly.

Of course, we are all struggling with this transmission issue that we are talking about today. That is the fundamental problem in the system today.

Mr. GREEN. So transmission you would identify. It is not necessarily the generation of the power, but transmission of the power?

Governor TAFT. Generation of power is very adequate in Ohio today.

Mr. GREEN. Okay.

Governor Granholm, I understand from your testimony you inherited recently an electricity restructuring effort from a previous Governor. And do you have any plans for considering encouragement of new generation development and also the associated infrastructure, for example, the problem with transmissions?

Governor GRANHOLM. I think that every Governor is taking a look at their generation capacity and making sure that you have got enough. But we, like other States, purchase on the open market as well. So that—you know, we want to see enough generation for us to be able to either buy or generate ourselves.

We will be taking a look at that. And my chairman of the Public Service Commission will be testifying immediately after me. You can ask that question of him, too. We know there are several proposals to be able to get new plants up in Michigan.

Mr. GREEN. Thank you, Mr. Chairman.

Chairman TAUZIN. Thank you, Mr. Green.

I think that concludes this section of our hearing. I again deeply appreciate your attendance. And, again, stay in touch with us. We will try and keep in touch with you.

We have a distinguished panel yet to be heard from. The panel includes the man that you have heard a great deal about, as we are going to discuss the jurisdiction of the FERC. That will be the Chairman of the FERC itself, Mr. Patrick Wood, and representatives of State PUCs, as well as some utilities.

We invite all of our guests to take chairs again as we say goodbye to Governor Taft and Governor Granholm with our thanks.

The committee will please come back to order as we ask our guests to take seats. We invite our next panel to come forward and welcome them.

Let me introduce, first of all, the panel to you: The Honorable Patrick Wood, Chairman of the Federal Energy Regulatory Commission, who has been a frequent visitor to our committee room. We thank you again, Pat, for your steadfastness in working with us on these technical and very difficult issues.

We also have with us the Honorable Dr. Alan Schriber, Chairman of the Ohio Public Utilities Commission; the Honorable Peter

Lark, Chairman of the Michigan Public Service Commission; and the Honorable William Flynn, Chairman of the New York State Public Service Commission.

By the way, as a caveat, let me mention that we had invited Governor Pataki and Mayor Bloomberg, who were scheduled to come, and then commitments interrupted, and they could not be with us today. But we certainly appreciate their efforts to be with us today.

And, Mr. Flynn, thank you for coming.

Also Michael Gent, President of the North American Electric Reliability Council, a man who we have heard and seen on television recently—Michael; Mr. Brantley Eldridge, the Executive Manager of the East Central Area Reliability Council; and Charles Durkin, the Chairman of the Northeast Power Coordinating Council of New York, New York.

We certainly want to welcome you all. And again under our rules, you will have 5 minutes to tell us the most important things you have to tell us. Your written testimony is a part of our record, so please don't read it to us, but summarize your statement to us and highlight the important parts of that statement for us in 5 minutes.

Chairman Wood, we welcome you first. And, again, thank you for your attendance again.

STATEMENTS OF HON. PAT WOOD III, CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION; HON. ALAN R. SCHRIEBER, CHAIRMAN, OHIO PUBLIC UTILITIES COMMISSION; HON. J. PETER LARK, CHAIRMAN, MICHIGAN PUBLIC SERVICE COMMISSION; HON. WILLIAM M. FLYNN, CHAIRMAN, NEW YORK STATE PUBLIC SERVICE COMMISSION; MICHEHL R. GENT, PRESIDENT, NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL; BRANT H. ELDRIDGE, EXECUTIVE MANAGER, EAST CENTRAL AREA RELIABILITY COUNCIL; AND CHARLES J. DURKIN, JR., CHAIRMAN, NORTHEAST POWER COORDINATING COUNCIL

Mr. WOOD. Thank you, Mr. Chairman. I will actually go from my statement to respond to some of the questions that have been raised.

Chairman TAUZIN. Let me interrupt you, first. I want to thank you for a couple of things.

I noticed you were here all day attending in the audience, listening to our other presenters and gathering information along with us. I don't know that other heads of Federal agencies would do that. I deeply appreciate that. I hope the American public understands how deeply and seriously you take your job and how tough it is. We thank you, Pat.

Mr. WOOD. Thank you. It is part of my job. I appreciate being thanked for it, anyway.

As the Secretary testified early this morning, we are a very active participant in the joint U.S.-Canadian task force on reviewing the events of August 14 and 15.

I do think, just in answering an earlier question, that is a very efficient and effective way for the Federal Government to combine its resources and move forward. It was the same method that was

used in past recent blackouts since the Department has been formed. I think it is a good template for going forward.

If there are, however, issues that are within the FERC jurisdiction that require further activity from our agency, whether they be enforcement or other kinds of inquiries, we will of course proceed as an independent agency should.

It is not clear what happened on 8/14, and I will not prejudge this event until the engineers and all other technical experts have looked at it and explain to me exactly what happened, as an engineer. We have a lot of competent professionals working together.

But, I should say that this is not the first region-wide blackout that we have ever had in this country. In 1996, while I was a Texas regulator, citizens in El Paso, Texas, were shut off when a line went down in Oregon, and 13 Western States were blacked out for the better part of a day. We have tended to forget about that.

In 1999, I think, Mr. Chairman, you said about half a million citizens in your home State and mine were both blacked out during the summer for some rolling blackouts. Of course, we know about the blackouts that happened in 2000 and 2001 in California for other reasons. But, these are a series of events from which I think we have learned, and I think give us a legitimate base from which to start, that may or may not be germane to what happened 3 weeks ago.

But, I think we would be derelict in our duty—I would be—if I did not inform the committee the fact that we have been here before, and that as an agency, and collectively as a country, we have been working to address these problems in a thoughtful way.

One key issue in these previous blackouts and perhaps in this one is investment in infrastructure—specifically regional, not local, infrastructure. What sort of actions have we taken to learn from the past? In repeating my strong support for regional transmission organizations in my testimony, I stand on long-standing bipartisan policy of our commission, which I should say predates the current administration, that well-structured RTOs will help foster a more robust and competitive power market and help contribute to a reliable grid operation for each region. Both of these are in the best interests of customers in every region of the country.

The power industry needs an air traffic controller. I know all of you have flown in and out of airports recently, as I have. In the past, when electricity was chiefly a local commodity, the second-by-second balance of supply and demand was done by the local utility in about 150 to 200 small regions, small islands in the country.

The New York City blackout of 1965 spurred the interconnectivity of local utilities into more regionally connected reliability groups, and thus was born NERC, that Mr. Gent heads today. Advances in technology and ultimately legal changes by this body in 1992 broadened the interconnectivity of the grid for greater commerce among utilities and increasingly nonutility providers of power.

So, now with this greater regional scope and diversity of suppliers, who should be the air traffic controller making sure that supply and demand stays in balance, i.e., that the system stays reliable?

Almost all agree that it should be someone independent of commercial interests and competent to do the job. That power traffic controller must be accountable and have the ability and the money to address the problems that exist on the system.

And, as to how many there should be, so we don't have these communications issues that have been raised, I think less is better. When we had separate air traffic controllers for every utility, we had 140 little islands in the country, which is hard to personally coordinate certainly by phone, for a product that moves at the speed of light.

So, when we consolidate or bring together these little islands, we call them control areas, and we put them under a regional traffic controller, who can ensure efficient dispatch and a highly reliable system, provided that it has a modern communications system and real-time controls to keep the supply and demand in balance.

I don't care what we call these air traffic controllers, EROs, RTOs, whatever. They are and will be regulated entities, but we just need the Congress to tell us, or someone appropriate, to make this happen and we will do it. We are and will be accountable to you and to the public for this activity. We await congressional guidance on these broader policy issues, but I should say we are moving forward to fully understand the events of August 14, and I am personally committed to going to wherever the facts may lead.

Thank you, Mr. Chairman.

[The prepared statement of Hon. Pat Wood III follows:]

PREPARED STATEMENT OF HON. PAT WOOD, III, CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION

I. INTRODUCTION AND SUMMARY

The blackout experienced in the Midwest and Northeast on August 14, 2003 serves as a stark reminder of the importance of electricity to our lives, our economy and our national security. All of us have a responsibility to do what we can to prevent a repeat of such a blackout.

The United States-Canada Joint Task Force, with assistance from the Federal Energy Regulatory Commission (FERC or the Commission) and others, is working to identify the cause of the blackout and the steps needed to prevent similar events in the future. Analysis of the blackout is ongoing, and it is too early to know what caused the blackout or why the blackout cascaded through eight states and parts of Canada.

II. STEPS TAKEN BY FERC IN RESPONSE TO THE AUGUST 14 BLACKOUT

FERC staff based in Washington, D.C., and at the Midwest Independent System Operator (MISO) in Carmel, Indiana, have monitored blackout-related developments from the first minutes.

Directly after the blackout began, FERC staff members went to the U.S. Department of Energy (DOE) to coordinate our monitoring with DOE's emergency response team. At about the same time, FERC staff in the MISO control room began monitoring and communicating the events around the clock until most of the power was restored.

During this time, FERC staff was involved in nearly 20 North American Electric Reliability Council (NERC) telephone conference calls with the reliability coordinators, assessing the situation. These calls also involved close coordination with our Canadian counterparts. Also, the on-site staff monitored other calls between MISO, its control areas, transmission-owning members, and other Independent System Operators (ISOs) and Regional Transmission Organizations (RTOs) in their joint efforts to manage the grid during restoration.

In Washington, D.C., FERC staff immediately mobilized to provide relevant information to the Commissioners and to others, including DOE. These communications included, for example, data on output by generating facilities and markets adjacent to the blackout area. FERC also gathered information from ISO and RTO market

monitors for each of the ISOs or RTOs in the affected regions. Our staff closely tracked the markets to make sure that no one took advantage of the situation to manipulate the energy markets. Working with the market monitor for the New York Independent System Operator (NYISO), we tracked the New York market especially closely during the period when that market was coming back on line and during the first unusually hot days later in the week of August 18.

Currently, members of the Commission's technical staff are assisting the United States-Canada Joint Task Force on its investigation of the blackout. The Commission will contribute resources to this effort as needed to ensure a thorough and timely investigation.

III. BACKGROUND

A. The Current State of the Electricity Transmission Grid

The Nation's transmission grid is an extremely complex machine. In its entirety, it includes over 150,000 miles of lines, crossing the boundaries of utilities and states, and connecting to Canada and Mexico. The total national grid delivers power from more than 850,000 megawatts of generation facilities. The grid is operated at about 130 round-the-clock control centers, some large and others small. The large number of these control centers derives from the historical development of utility-franchised territories.

When a generating facility or transmission line fails, the effects sometimes are not just local. Instead, a problem may have widespread effects and must be addressed by multiple control centers. The utility staff at these centers must quickly share information and coordinate their efforts to isolate or end the problem. Given the speed at which a problem can spread across the grid, coordinating an appropriate and timely response can be extremely difficult without modern technology.

In recent years, the use of the grid has expanded significantly. The growth of our economy, and its increasing reliance on electricity, is the principal driver. Greater competition among power sources (wholesale power competition) has also increased use of the grid. The grid was built originally to interconnect neighboring utilities and to allow them to share resources when necessary but is now used as a "super-highway" for broader, regional trading.

Transmission capital investments and maintenance expenditures have steadily declined in recent years. In the decade spanning 1988 to 1997, transmission investment declined by 0.8 percent annually and maintenance expenditures decreased by 3.3 percent annually. (Maintenance activities include such items as tree-trimming, substation equipment repairs, and cable replacements, all of which affect reliability). Power demand increased by 2.4 percent annually during this same time period.

Finally, perhaps even more important than adding transmission capacity, is improving the tools available to control center staff for operating the grid. One example is installing state-of-the-art digital switches, which would allow operators to monitor and control electricity flows more precisely than the mechanical switches used in some areas. Installing additional monitoring and metering equipment can help operators better monitor the grid, detect problems and take quicker remedial action. Improved communication equipment can help control centers coordinate efforts more quickly. The level of investment in these technologies has been varied.

B. Today's Regulatory Framework

Currently, there is no direct federal authority or responsibility for the reliability of the transmission grid. The Federal Power Act (FPA) contains only limited authorities on reliability.

For example, under FPA section 202(c), whenever DOE determines that an "emergency exists by reason of a sudden increase in the demand for electric energy, or a shortage of electric energy or of facilities for the generation or transmission of electric energy . . . or other causes," it has authority to order "temporary connections of facilities and such generation, delivery, interchange or transmission of electric energy as in its judgment will best meet the emergency and serve the public interest."

Under FPA sections 205 and 206, the Commission must ensure that all rates, terms and conditions of jurisdictional service (including "practices" affecting such services) are just, reasonable and not unduly discriminatory or preferential. These sections generally have been construed as governing the commercial aspects of service, instead of reliability aspects. However, there is no bright line between "commercial practices" and "reliability practices."

The explicit authorities Congress has granted the Commission in the area of reliability are very limited. For example, under FPA section 207, if the Commission finds, upon complaint by a State commission, that "any interstate service of any public utility is inadequate or insufficient, the Commission shall determine the

proper, adequate or sufficient service to be furnished," and fix the same by order, rule or regulation. The Commission cannot exercise this authority except upon complaint by a State commission.

The Public Utility Regulatory Policies Act of 1978 (PURPA) also provides limited authority on reliability. Under PURPA section 209(b), DOE, in consultation with the Commission, may ask the reliability councils or other persons (including federal agencies) to examine and report on reliability issues. Under PURPA section 209(c), DOE, in consultation with the Commission, and after public comment may recommend reliability standards to the electric utility industry, including standards with respect to equipment, operating procedures and training of personnel.

Since the electric industry began, reliability has been primarily the responsibility of the customer's local utility. Depending on state law, utilities may be accountable to state utility commissions or other local regulators for reliable service. Typically, the local utility keeps statistics on distribution system interruptions in various neighborhoods, inspects the transmission system rights-of-way for unsafe tree growth near power lines, and sets requirements for "reserve" generation capability to cover unexpected demand growth and unplanned outages of power plants. Many state and local regulators exercise the authority of eminent domain and have siting authority for new generation, transmission, and distribution facilities.

In 1965, President Johnson directed FERC's predecessor, the Federal Power Commission (FPC), to investigate and report on the Northeast power failure. In its report, the FPC stated:

When the Federal Power Act was passed in 1935, no specific provision was made for jurisdiction over reliability of service for bulk power supply from interstate grids, the focus of the Act being rather on accounting and rate regulation. Presumably the reason was that service reliability was regarded as a problem for the states. Insofar as service by distribution systems is concerned this is still valid, but the enormous development of interstate power networks in the last thirty years requires a reevaluation of the governmental responsibility for continuity of the service supplied by them, since it is impossible for a single state effectively to regulate the service from an interstate pool or grid.

Northeast Power Failure, A Report to the President by the Federal Power Commission, p. 45 (Dec. 6, 1965).

In response to the 1965 power failure, the industry formed NERC. NERC is a voluntary membership organization that sets rules primarily for transmission security in the lower 48 states, almost all of southern Canada, and the northern part of the Baja peninsula in Mexico. More detailed rules are prescribed by ten regional reliability councils, which are affiliated with NERC. However, neither NERC nor the ten regional reliability councils have the ability to enforce these rules. And these rules are administered on a day-to-day basis at over 130 utility control areas.

IV. NEXT STEPS

Regardless of the actual cause of this blackout, the event, like earlier blackouts, has demonstrated that our electrical system operates regionally, without regard to political borders. Electrical problems that start in one state (or country) can profoundly affect people elsewhere. Preventing region-wide disruptions of electrical service requires regional coordination and planning, as to both the system's day-to-day operation and its longer-term infrastructure needs.

Currently, the Congress has before it, in conference, energy legislation which could address a number of issues that have arisen in the debate in the last few weeks over reliability in our wholesale power markets.

First, both the House and Senate bills going to conference provide for mandatory reliability rules established and enforced by a reliability organization subject to Commission oversight. Many observers, including NERC and most of the industry itself, have concluded that a system of mandatory reliability rules is needed to maintain the security of our Nation's transmission system. I agree.

That leads to the question of what entity will be in charge, on a day-to-day basis, of administering the mandatory reliability rules that are developed by the independent reliability authority. In Order No. 2000, the Commission identified the benefits of large, independent regional entities, or RTOs, in operating the grid. Such entities would improve reliability because they have a broader perspective on electrical operations than individual utilities. Further, unlike utilities that own both generation and transmission, RTOs are independent of market participants and, therefore, lack a financial incentive to use the transmission grid to benefit their own wholesale sales.

In the six years since the Commission ordered open access transmission in Order No. 888, the electricity industry has made some progress toward the establishment

of RTOs, entities that combine roles relating to reliability, infrastructure planning, commercial open access and maintenance of long-term supply/demand. H.R. 6 endorses this effort in a "Sense of the Congress" provision. Congress can direct this effort to be completed.

While coordinated regional planning and dispatch are sensible steps to take, we still need to attract capital to transmission investment. I understand that there is significant interest in investing in this industry already; however, to the extent the Commission needs to adopt rate incentives for transmission or other investment to alleviate congestion on the grid, including new transmission technologies, we should do so. While the Commission has recently taken steps in this direction, action by Congress on this issue, and in repealing the Public Utility Holding Company Act, can provide greater certainty to investors and thus encourage quicker, appropriate investments in grid improvements. The provisions in H.R. 6 would provide legal certainty to the Commission's recent efforts.

In addition to ratemaking incentives from the Commission, Congress can also provide economic incentives for transmission development. Changing the accelerated depreciation from 20 years to 15 years for electric transmission assets, as in H.R. 6, is an appropriate way to provide such incentives. Similarly, Congress can provide tax neutrality for utilities wishing to transfer transmission assets to RTOs.

To the extent that lack of assured cost recovery is the impediment to grid improvements, regional tariffs administered by RTOs are an appropriate and well-understood vehicle to recover these costs. The Commission has accepted different regional approaches to pricing for transmission upgrades, but the important step is to have a well-defined pricing policy in place.

Getting infrastructure planned and paid for are two of the three key steps for transmission expansion. The third step is permitting. States have an exclusive role in granting eminent domain and right-of-way to utilities on non-federal lands. Under current law, a transmission expansion that crosses state lines generally must be approved by each state through which it passes. Regardless of the rate incentives for investment in new interstate transmission, I suspect that little progress will be made until there is a rational and timely method for builders of necessary transmission lines to receive siting approvals. Providing FERC (or another appropriate entity) with backstop transmission siting authority for certain backbone transmission lines, in the event a state or local entity does not have authority to act or does not act in a timely manner, may address this important concern. H.R. 6 contains such a provision.

V. CONCLUSION

I look forward to visiting further with the Committee as the US-Canada Task Force continues to get to the bottom of what happened before, during and after the Blackout on August 14, 2003. Thank you.

Chairman TAUZIN. Thank you, Mr. Chairman. We deeply appreciate it.

We will now turn to the honorable Dr. Alan Schriber, who is Chairman of the Ohio Public Utilities Commission from Columbus, Ohio; and we are deeply interested in your thoughts on this crisis.

STATEMENT OF ALAN R. SCHRIBER

Mr. SCHRIBER. Thank you, Mr. Chairman.

Also, I will note that I am chairman of the Ohio Power Siting Board board, too, which will play into this also.

On August 14 at 4 o'clock I got back to my office after having a workout to relieve the stress of the day. By 5 o'clock, I was ready to go back. But I think the stress that I experienced was far less than that experienced by people in other parts of the State and, of course, the eastern part of the United States, as was so aptly articulated by the Governors whom we have already heard from. What happened on that day is something that I am looking forward to being a part of the team to determine, as I have been appointed to the binational task force.

I just want to make several points that are in my testimony.

First of all, I am prepared to argue that the outage that we experienced is not a result of deregulation, and I would be glad to elaborate on that later.

Second, I don't believe that we have anything remotely approaching a Third World grid, as has been articulated. This is not unlike the interstate highway system where you have great spots along the road and then sometimes it breaks down, sometimes it gets old and needs replacement, sometimes we get population shifts which cause demand for highway space, if you will, to increase in other areas, which is similar to that which we find on the electric transmission system.

I think reliability is an absolute necessity that has to be addressed right away. I think among the very many press calls I got immediately following the incident, a lot of questions were, well, who is responsible for the transmission system? I said, you know, at the State level, we are responsible, for we regulate, we have terms and conditions, prices, all kinds of issues related to and standards related to the distribution system. But when it came to the transmission system, well, I knew that the FERC regulates the rates, transmission rates, prices and what have you along the system, but I had no idea, it had not occurred to me, of who is it that regulates transmission. As it turns out, it is generally accepted utility practices that regulate, that takes care of the transmission issues.

Now, does that mean a transmission line is 12 feet above a tree or 14 feet above a tree? I don't know, and I don't know which would be the most appropriate. As I said, we do the distribution; we don't do the transmission. I am strongly in support and would urge you to move forward with either NERC or FERC promulgating rules that do and standards that do address transmission, the physical properties of the transmission systems.

As far as enforcement goes, I would propose that consideration be given to States. Currently in Ohio and many other States, we enforce Federal rules. For example, the Department of Transportation, we enforce their rules with respect to natural gas pipeline safety, with respect to hazardous material transportation, rail, rail crossings. It could seem a logical leap, therefore, to be able to have the opportunity to enforce rules with respect to transmission lines, rules that are promulgated again by a Federal authority.

Furthermore, I think that a comprehensive law is important to the following extent: I really believe we need to unshackle the Federal Energy Regulatory Commission. I think they need to be able—I think they must be able to move forward in order to establish their mission of a large regional footprint, if you will, a large regional transmission system. I think it relates to reliability.

I think that a large regional transmission system best allocates resources, and as an economist I like to talk about the allocation of resources. If you have multifragmented transmission systems, each one would be throwing money, if you will, at that part of the system, of its own system that needs fixing, if you will, in contrast to a regional approach which will allocate dollars most optimally toward where they need to be.

Furthermore, I think that attracts capital more readily. I think those investments that are made in the reliability of the trans-

mission system, the more capital will be attracted at more favorable rates. So the more optimal the application of money, the more capital will be attracted.

Also, I think there are a lot of pricing issues and pricing strategies that can be dealt with better in a super-regional transmission system.

I know there is a lot of push-back on the transmission systems, the regional transmission systems. There is no compelling reason that we have to address all regions simultaneously. Pat and his group can clearly carve out a region and say, we are going to do X region, the Eastern region, the Midwest, the Mid-Atlantic, the Northeast first. If at some point in time the West wants to buy in, we can do that or the Southwest or whatever, we can do that. But I think it is absolutely essential that in order to have a successful and appropriate reliability system that we have been talking about that we must have a governance that singularly has oversight over a large regional organization in terms of its operation.

At this point, I will stop. I appreciate the opportunity to testify and would look forward to some questions.

[The prepared statement of Alan R. Schriber follows:]

PREPARED STATEMENT OF ALAN R. SCHRIBER, CHAIRMAN, PUBLIC UTILITIES
COMMISSION OF OHIO

Mr. Chairman, Members of the Committee, my name is Alan R. Schriber. I am the Chairman of the Public Utilities Commission of Ohio and the Ohio Power Siting Board and am here today to answer what questions can be answered to date and express our views. I appreciate the opportunity to appear before the House Energy and Commerce Committee. I respectfully request that the written statement submitted under my name on behalf of the Public Utilities Commission of Ohio be included in today's hearing record as if fully read.

The Public Utilities Commission of Ohio is charged with the duty of regulating the retail rates and services of electric, gas, water and telephone utilities operating within our jurisdiction. Specifically, with respect to electricity, we regulate the distribution of power but not transmission. Additionally, since Ohio has restructured the industry, we no longer regulate generation. We have the obligation under State law to assure the establishment and maintenance of such energy utility services as may be required by the public convenience and necessity, and to ensure that such services are provided at rates and conditions which are just, reasonable and non-discriminatory for all consumers.

You have asked what factors and events led up to the blackouts that occurred on August 14. I am personally honored to be able to serve on the U.S.-Canada Joint Task Force on the Power Outage, and I am certain causes will be identified as expeditiously as possible. Following that, recommendations as to remedial action will undoubtedly be forthcoming.

To this point, many of the events that took place in Ohio have been documented via timelines. However, the entire picture of what happened August 14th will take serious analysis well beyond the scope of Ohio alone. Its effect upon the citizens and businesses of Ohio were documented for you earlier by Governor Taft. In the aftermath, the Governor charged my Commission with the challenge of scrutinizing events as they occurred in Ohio and will complement those of the U.S.-Canada Joint Task Force.

As we pursue our quest for causes and solutions to the outage, I think that we will find that the electrical system in this nation is by no means "third world". It is a very complex, interconnected system that has in fact worked very effectively. The system operated as it was designed to operate on that unusual day in August. Lines tripped, plants tripped, and systems were isolated to prevent further blackouts, just as they were designed to perform. If the systems had not operated as above, not only would the loss of power been far more extensive, but severe damage would have resulted to our infrastructure.

While it is reassuring that the situation was "contained" to some degree, and that remarkable restorations were implemented, we cannot ignore the fact that weaknesses exist that call for repair. Much like the Interstate highway system, traffic

patterns on the wires have changed, congestion has increased, and wires need fixing. Above all, we learned how vulnerable we are, and how dependent we are on our electric system.

You will undoubtedly hear from opponents of deregulation that states such as Ohio that have promoted *retail* competition collectively contributed to the 2003 outage. I must take issue with this stance. The type of competition that has been promulgated at the state level is one of retail competition, wherein end users purchase their power from marketers who, in turn, buy in the *wholesale* market. The grid as we know it today has always been the vehicle over which wholesale transactions take place. It was built to accommodate transactions between utilities. This is nothing new.

Nothing has really changed that principle except for the number of transactions that travel the wires, which is a measure of the overall increase in the demand for electricity. The electrons know nothing except that the quickest way to get somewhere is along the shortest path. Therefore, if you live in Illinois and buy electricity from New Jersey, you'll write a check to the generator in New Jersey. However, the electrons that you end up with will come from close by, while the New Jersey generator's electrons will stay closer to home. That is the difference between the contract path and the physical path. All of this is to say that deregulation, which has been adopted by less than half the states with a modicum of success, should not be a relevant consideration.

The real challenge that lies ahead, and one that Congress must confront, is molding the electric grid into one that can accommodate the economic realities of today. The reality is that demand has shifted and so to have the suppliers. Parenthetically, one should note that, *in the aggregate*, generation supply is sufficient to meet demand. The problem is that the suppliers are not necessarily lining up through the grid with the demanders. The reason for this misalignment is a patchwork of overseers of the grid; regional transmission systems, private transmission systems, and systems within the vertical structures of utility companies are accountable to no single boss even though they all interconnect at some point.

If we had many discreet, non-interconnected systems, I suspect we would have more blackouts than fewer, although of less duration, since there would be no interconnected neighbor to help out on a hot day. On the other hand, a regionally coordinated transmission system with a super-large geographical footprint would enhance the ability to work through all kinds of contingencies, some of which are simply beyond the scope of smaller control areas.

Everyone *should* want to see our transmission resources allocated in an optimal manner. I am prepared to argue that its achievement is predicated on the super-regional transmission system alluded to above. To this end, FERC is the federal agency endowed with the authority to make it happen. Congress should support FERC's efforts to enlist participation by all transmission owners into a regional grid that recognizes the economies of centralized management.

I do not know how many billions of dollars it might take to upgrade the grid, but I do fervently believe that whatever dollars are expended are done so most economically when the needs of the grid as a whole are evaluated as objectively as possible. Given the myopia associated with the fragmented systems of today, dollars may be thrown at "fixes" that often do nothing but add an asset to the utility rate base; not only are the needs of the region ignored, but the utility that has determined to fence itself in does very little at the margin to benefit its own customers. Regional approaches must be adopted to appreciate the needs and recognize the benefits.

An independently administered regional transmission system, on the other hand, could prioritize its investments based upon marginal benefits. Dollars would flow to the points on the grid that would yield the most benefits, for example, the amount of regional congestion that is relieved, regardless of whose "backyard" it resides. Why would a single state permit the construction of a high tension wire within its boundaries if there were not a single "drop" along the way? The answer would be that it probably would if it understood that the congestion relieved by the line significantly increased the level of unobstructed power flows within the state. The problem is in the "understanding". The manager of an independent, integrated, profit maximizing transmission organization understands the resource optimization process because it has the bigger picture.

In addition to rational planning, the aggregated grid system is also more likely to attract capital. Investment dollars move to the places where the potential yields are the greatest given the risks. We might conjecture that the greater the number of electrons that flow, the greater the dollars that flow to the construction of wires that carry those electrons. A unified super-regional grid maximizes power flow through the grid and should be politically indifferent as to the points of need located within. In contrast, sub-optimal investments in electric facilities are made when a

single entity, without regard for the region around it, is more interested in closing itself off from the greater good. Those who provide the dollars are more likely to follow the path of investment with the greatest potential for risk/return optimization, which from my point of view resides with the regional grid.

I have been talking to this point about the *physical* conditions that bind the grid for better or worse. However, the *economics* of all of this must not go unmentioned. Different transmission systems, as fragmented as they might be, often employ pricing strategies that are inconsistent with one another. When the price of moving electricity a number of miles across different operating areas varies according to whose area is being crossed, the outcome can be quite confusing for those paying the freight. Without belaboring the point, another strong argument that favors super-regional management of the grid is pricing consistency and the concomitant higher level of economic certainty conferred upon users of the grid.

This aggregation of transmission systems or control areas is the cornerstone of the FERC's endeavor. To be thoroughly effective, however, it must also draw lifeblood from Congress as Congress deliberates its Energy Bill. It is antithetical to our interests to delay FERC's attempt to implement its design for a rational transmission market.

If Congress must do any one thing immediately, it must address the issue of system reliability. While the states have the authority from their legislatures to set and enforce rules for distribution systems, the federal government must confer power upon someone to do the same for the transmission system. Whether it be the North American Electric Reliability Council (NERC) as currently proposed in the Energy Bill, or whether it be the FERC, the rules of the road must be mandatory. Once in place, the enforcement of the rules can follow the course taken by other federal agencies.

A unique and efficient means of enforcement of some federal rules has evolved over the years. Ohio, as well as other states, undertakes a number of such tasks on behalf of federal agencies. For example, the US Department of Transportation has very specific rules that speak to natural gas pipeline safety. Ohio's Public Utilities Commission receives funds from USDOT to inspect and enforce those rules within the state's borders. Ohio also participates in the inspection protocols for the transportation of hazardous materials. The same process has evolved with the Federal Railroad Administration which has prescribed rules for rail crossings. The Ohio Commission has personnel evaluating and prioritizing grade crossings for the purpose of supporting communities with safety devices. Given the fact that Ohio and other states already support federal agencies in rule enforcement, does it not make sense to consider the same for the transmission of electricity?

The events of the past couple of weeks speak clearly to the need for Congress to do two things. First, Congress must focus on endowing some agency or organization, e.g., the FERC or NERC, with rule-making authority that locks-in our quest for a reliable grid.

Second, it must enable the FERC to move forward in its initiatives to bring about a physically and economically rational structure and governance to the transmission system.

I appreciate the opportunity to have appeared here before you today and look forward to clarifying anything that I have said.

Chairman TAUZIN. Thank you, Dr. Schriber.

I will turn to the Honorable Peter Lark, the chairman of the Michigan Public Service Commission in Lansing, Michigan. Peter.

STATEMENT OF J. PETER LARK

Mr. LARK. Thank you.

Good afternoon, Mr. Chairman and members of the committee and, in particular, members of the Michigan delegation, Congressmen Stupak, Upton, Dingell, and my own Congressman Rogers. I appreciate the opportunity and the honor to address this committee today to discuss the blackout that ripped through our country and Canada on August 14.

The question on everybody's mind is what caused the blackout? Well, in Michigan, we have opened an investigation into the cause of the blackout, as have, as you know, many others. While I can't pinpoint the exact cause, I will leave that to the various inquiries

presently under way. I think I may be able to help with the answer to the next question, and that is, what can be done to reduce the likelihood of another similar event recurring?

In a word, the answer is: create a system with accountability. I think it would surprise a great number of Americans to know that there is presently no governmental oversight of the reliability of this country's electric transmission system. This shortcoming, in my view, must be eliminated. The buck must stop somewhere. Our citizens need to know who to turn to and the government needs to know who to hold accountable for ensuring a reliable system.

In Michigan, Detroit Edison and the transmission system that serves it, ITC, have reported they received no communications prior to the blackout from the northern Ohio utility that has been reported as the likely system on which trouble began. As the Governor before me said, ITC has traced the time line on actions that contributed to the blackout back 1 hour and 5 minutes before it occurred. While ITC was able to provide this information after the blackout occurred, it is vital to understand that neither entity had any idea what was happening at the time. What we have here is a failure to communicate.

You have to ask yourself, did a single utility make imprudent decisions that jeopardized the integrity of many utility systems? Again, the buck must stop somewhere. Congress must pass mandatory and enforceable reliability rules applicable to all users, owners, and operators of the transmission network. Reliability rules must be mandatory throughout the industry within the footprint of the North American Electric Reliability Council.

While the authority to establish reliability rules should repose in the Federal Energy Regulatory Commission, NERC may well be the best candidate for developing the rules. Where regional transmission organizations or RTOs are deemed essential, such as in the upper Midwest, these RTOs must have the authority to order its members where necessary to shed load or add generation. Whether or not RTOs are mandated throughout the country is less important than having in place a set of reliability standards that will govern the entire grid.

There are sections of the grid where membership in an RTO makes a good deal of sense, such as the upper Midwest, and areas of the country where it may make less sense. The enactment of mandatory reliability standards that are enforceable by an entity with the power to sanction violators must not be postponed by regional squabbling. One thing is clear, the situation we presently find ourselves in where reliability rules are voluntary and there is no oversight or regulation of the grid is a prescription for disaster.

Michigan's transmission companies are presently members of the Midwest Independent System Operator, or MISO. Unlike some other RTOs, MISO does not enjoy security coordination control over its 23 utility members. At most, as I understand its operation, MISO can make only suggestions to its members. This arrangement lacks the teeth necessary to reliably run a transmission system. Moreover, at present MISO is not the sole RTO in the upper Midwest. If power is to move reliably across this area of the country, there can be but one RTO and FERC must have the authority

to order membership in that RTO. Anything less invites gamesmanship on the system.

In conclusion, it is my view that Congress must pass legislation that does three things: First, that directs the development of a set of reliability rules applicable to all who use the grid; second, that gives oversight authority on the rules to the FERC; and, third, that requires the creation of RTOs where necessary that are geographically correct, that have security coordination control and have the authority to sanction scofflaws. If Congress gives FERC the authority to ensure a reliable transmission system, we can say with confidence, “the buck stops here.”

I appreciate the chance to share my thoughts with you, Mr. Chairman, and members of the committee. Thank you.

[The prepared statement of J. Peter Lark follows:]

PREPARED STATEMENT OF HON. J. PETER LARK, CHAIR, MICHIGAN PUBLIC SERVICE COMMISSION

Mr. Chairman and Members of the Committee: My name is J. Peter Lark and I serve as Chairman of the Michigan Public Service Commission. I am very pleased to have this opportunity to address this Committee today, although I wish it were under different circumstances.

The topic of today’s hearing, “Blackout 2003: How Did It Happen and Why?” allows exploration of some of the complex issues involved with keeping the nation’s lights on. But it’s much more than that. A safe, reliable electric utility industry is the heart that pumps America’s blood. It was recently stated that the electricity business accounts for only two percent of the Nation’s economy. But the other ninety-eight percent relies one hundred percent on the reliable and economic operation of that two percent. We are occasionally reminded, as we were on August 14th, just how significant the loss of electricity can be to our economy and to our daily lives.

As you well know, Michigan was one of the State’s that was hit hard by the blackout on August 14th. More than 2 million utility customers lost electricity on that day, the majority of them on the Detroit Edison utility system, which lost power to all of its customers for the first time in the company’s long history. Detroit Edison estimates that about 6.1 million people lost power. The City of Detroit, and much of the southeast region of Michigan, was without electricity and other essential services such as water and sewer. The effect of the blackout on Michigan’s residential, business, and major industrial electric users was devastating. For small and medium-sized business operations, the loss of revenue for even a single day can have dire implications. And the effect on the general citizenry cannot be downplayed. Although we are still in the process of assessing the damage, we have an initial estimate of the direct cost of the emergency to state and local government of approximately \$20 million. In addition, we know that Detroit Edison claims \$35 to \$40 million in losses. Over 70 manufacturing companies in Michigan were forced to shut down. Facilities such as hospitals and nursing homes were left scrambling to provide care to those in need. In short, we cannot afford to have this kind of failure on our electric system happen again. For every story we heard of how some people found creative ways to make the best of a bad situation, there were countless others for whom the loss of electricity meant the loss of essential services.

It is incumbent that we take the steps necessary to ensure that future blackouts do not occur.

WHAT WERE THE SPECIFIC FACTORS AND EVENTS LEADING UP AND CONTRIBUTING TO THE BLACKOUTS OF AUGUST 14?

The Michigan PSC has initiated an investigation into this matter (Case No. U-13859), as has the U.S. Department of Energy in conjunction with our Canadian counterparts, so I would like to reserve a final determination on the cause of the blackout pending the outcome of the investigations. While we believe we know the sequence of events that resulted in the power outage—power plants and transmission lines tripping off—we do not know why those events occurred, and I believe we need to await the outcome of the pending investigations before jumping to conclusions.

What we do know is that, based on information provided by our utilities, our transmission companies, and through other accounts, there is a strong likelihood

that the outage can be traced to at least a couple of factors. None of these probable causes necessarily represents the smoking gun; but rather, one needs to look at the entire set of events, and the existing systems that allowed them to get to a point of criticality, before reaching a conclusion on the causes of the blackout.

One apparent contributing factor appears to be a communication failure. Michigan's utilities and owners of the state's transmission system have stated that they had no warnings that there were problems on the system. To the extent other utilities were experiencing difficulties, those utilities failed to offer even a "heads up" to their neighboring utility systems. With even a little warning, safeguards could have been put in place that may have minimized, or even prevented, the outage.

The International Transmission Company has traced the timeline on actions that contributed to the blackout back to 1 hour and 5 minutes before it occurred. While ITC was able to develop and provide this information to us after the outage, it is important to understand that ITC was unaware of what was happening during that period. Both ITC and Detroit Edison tell us they had no idea there were problems on the grid until 2 minutes before power went out in Michigan when power flowing from Michigan to Ohio jumped by 2,000 MW in 10 seconds. ITC describes this as the point of no return. One-and-one-half minute later, power flowing into Michigan from Ontario jumped by 2,600 MW. Thirty-seconds later, Detroit Edison's system was dead.

Also cited in various accounts is power line failure, which may be attributed to, among other things, inadequate maintenance. Certain power line failures on August 14th, however, appear to have been due to overloading. How and why line maintenance was allowed to lapse to a breaking point, or why power was redirected to lines incapable of handling the added capacity are questions that I cannot answer at this moment, although I suspect the extensive investigations currently underway will give us a precise set of factors and events that caused the blackout.

Last week Michehl Gent, who serves as the President of the North American Electric Reliability Council, was quoted in an article that ran in an August 26, 2003 issue of the Toronto Sun, that he believes rules "were willfully broken" on August 14th and that "happens more or less routinely." That rules are broken routinely with no ability of any agency to enforce the rules on the transmission grid is a recipe for disaster. Plainly, a lack of enforceable standards for the reliable operation of the transmission system was a significant contributor to the blackout.

Moreover, Michigan's transmission utilities chose to join a FERC-approved Regional Transmission Organization known as the Midwest Independent System Operator. MISO's obligation is to help control movement of power across the grid, and ensure that the situation that occurred on August 14 does not happen. However, the federal government does not mandate participation in an RTO, and MISO possesses no command and control requirements to ensure reliability. Even more important, because membership in an RTO is not mandated, some of Michigan's most critical partners—utilities in Ohio and Illinois—are missing from the MISO's membership.

WHICH SYSTEMS OPERATED AS DESIGNED AND WHICH SYSTEMS FAILED?

It is my expectation that the answer to this question will be clearly explained in the reports that will come out of the investigations presently underway. While I am reluctant to speculate as to those systems that worked and those that did not, it is clear that the cascading outage stopped its westward travel after coursing through Michigan. Thankfully, millions of Michigan's utility customers were protected from the blackout, as well as those customers in states to the west of us.

WHAT LESSONS WERE LEARNED AS A RESULT OF THE BLACKOUTS?

While I believe there are a number of valuable lessons that will become apparent the further we get into our investigation, a couple of thoughts clearly stand out. First, an electric utility industry where reliability rules are voluntary with no enforceable oversight is not acceptable. The necessity of maintaining a safe, reliable and efficient electric transmission system should be critically apparent to all as a result of this blackout. Second, a balkanized regional wholesale market for electricity, where some utilities are in and some are out; where more than one RTO is operating in a single discrete area; and where rules are unclear and unenforceable, does not work. There must be certainty in the operation of the transmission grid, and that cannot be achieved where reliability rules are optional, and RTO membership is voluntary. Far too much is at stake to have a transmission system that allows a single utility to jeopardize the safe, reliable and economic electric utility operations of entire regions of the country.

HOW CAN SIMILAR INCIDENTS IN THE FUTURE BE PREVENTED?

First, Congress must pass legislation that will create a system of mandatory and enforceable reliability rules applicable to all users, owners and operators of the transmission network.

Reliability rules should be mandatory throughout the industry within the footprint of the North American Electric Reliability Council, which includes Canada. Reliability rules must be enforceable and must include the ability to impose sanctions on market participants that violate the rules.

The security and reliability of the interstate electric transmission system is unmistakably under the purview of the federal government. Yet, the Chairman of the FERC has stated that "right now, there is no federal regulatory authority over reliability." This deficiency must be eradicated by passing legislation that requires enforceable standards for the safe and reliable operation of the nation's power grid.

The NERC is the best candidate for developing reliability rules. The NERC currently has such responsibility and is best positioned to do the job effectively. However, oversight of the development of the reliability rules should be given to the FERC.

Reliability coordination and enforcement functions should be outside of the NERC, due to the potential conflicts between the financial interests of the utilities who constitute NERC's membership and reliability decisions. Coordination of the grid should be administered through an independent and strong RTO, while enforcement authority and the ability to impose sanctions should be vested in the FERC.

Second, Congress must support the FERC's initiative to require transmission owners to join RTOs, at least in those regions where RTOs are recognized and either fully operational, or moving toward full operation.

While I recognize that some parts of the country are opposed to mandating RTOs, in the Midwest and throughout the Northeast, strong RTOs are necessary. The transmission grid in these regions is highly interconnected and regionally responsive. Coordination of the grid is at the heart of preventing problems and RTOs must have this reliability coordination function. In these regions RTOs are well along in the developmental process. Backing off now would be a major setback to both economic efficiency gains and regional reliability improvements.

In conclusion, whether we learn that the causes were systemic or human error, mechanical or electronic, an obvious starting point to address the problem is the passage of legislation that requires enactment of mandatory and enforceable standards and rules for the safe and reliable operation of the Nation's transmission grid. I urge Congress to act quickly to address these problems and meet the need that was so clearly demonstrated on August 14, 2003.

Thank you for the opportunity to share these comments with you.

Chairman TAUZIN. The Chair thanks you, Mr. Chairman.

We are now pleased to welcome the chairman of the New York State Public Service Commission, the Honorable William Flynn. Mr. Chairman.

STATEMENT OF WILLIAM M. FLYNN

Mr. FLYNN. Good afternoon, Chairman Tauzin, Ranking Member Dingell and other distinguished members of the committee. I would like to thank you for the opportunity to testify before this committee on the matter of the August 14 blackout.

What we know for certain is that on 4 p.m. on August 14, immediately preceding the outage, New York State generation facilities and transmission and distribution systems operated normally to serve customers with reserves well in excess of minimum requirements. The State was serving a load of about 28,000 megawatts, with available generating capacity of as much as 33,000 megawatts, more than enough to ensure reliable electric service in the State. There is no information of any unusual transmission system occurrences or events in New York preceding the outage. It appears that more than adequate generation capacity was available to serve the State's needs and that no difficulties on the in-State transmission distribution system impeded its delivery.

There are a total of approximately 7.5 million customers in the State, representing the State's population of 19.2 million residents as well as thousands of commercial, industrial, and municipal facilities. About 6.7 million of those customers, or nearly 90 percent, were without power for some period of time, including virtually all of the customers in New York City who, unfortunately, went without power for the longest period of time.

While we are concerned about outages in any part of the State, you can imagine how that concern is heightened when outages strike New York City. New York City not only serves as the financial capital of the world but is heavily reliant on electricity to power a subway system that carries more than 7 million passengers each day, as well as for air-conditioning and lighting to the high-rise commercial and residential buildings that characterize the cityscape. For these reasons and others, New York State strives to maintain the highest reliability standards in the Nation.

In terms of responding to the blackout, the State commenced emergency public communications programs by contacting radio stations to urge customers to curtail usage if they still had power or turn off electrical equipment and appliances while their electric service was being restored. In addition, Governor Pataki declared a State of emergency within an hour of the event and called for emergency demand reduction measures to be implemented across the State to conserve power and aid restoration efforts. In the end, the call for emergency demand reduction played a critical role in restoring power throughout the State in a timely and effective manner.

The electric utilities and generators responded to the event by stabilizing the energized portions of the transmission systems, ascertaining any damage and following plans for service restoration. By necessity, system restoration was a deliberate and carefully measured process. Customer service could not be restored until generation was available and, because of the extent and nature of the outage, careful balancing of the loads and supply was required.

Under the circumstances, the quick response of the utilities and generators and the restoration of electric service in New York State represent a significant accomplishment. Power was restored to about 95 percent of the upstate area by 4 a.m. on Friday. Con Edison, the utility responsible for delivering power to customers in New York City and Westchester County, managed to restore service to its essentially entire service area by 9 p.m. on Friday. Most notably from a national perspective, Con Edison restored power to Wall Street roughly 3 hours before trading opened on Friday morning. In less than 30 hours, service was effectively restored to the entire State. This achievement is a testimony to the commitment and hard work of the men and women engaged in the power restoration, given the virtually unprecedented nature of this event, the complexity of the systems involved, and the magnitude of the effort required.

In addition to the international effort, at the request of Governor Pataki I have directed my staff to lead a formal inquiry into the effects of this outage on New York State, including the circumstances of the outage, the effect of the events occurring outside

of New York on electric service operations within the State, recommendations for actions or procedures to prevent, to the maximum extent possible, a similar outage from reoccurring, and any other relevant issues that arise during this formal inquiry. I hope to have information pertaining to New York State's inquiry available before the end of the year, but suffice it to say this is the agency's top priority.

Yet, while New York reliability criteria are mandatory for New York electric corporations and the New York system operator is authorized to control the system pursuant to all rules established by the North America Reliability Council, the New York State Reliability Council and the Northeast Power Coordinating Council, this is not necessarily true for other parts of the country. While, based on what we know, the outage does not appear to have been caused by any flaw in New York State's transmission or generation system, the independence of regional power grids does leave us susceptible to disruptions and problems emanating from events outside of our jurisdiction. To minimize this susceptibility, the public service commission has supported mandatory national reliability standards, provided that New York State can retain the right to implement higher standards than might be required by the Federal Government. These national standards should serve as a floor and not a ceiling.

To that end, I am aware of language Congressman Fossella has included in a bill before Congress concerning national electric reliability standards, H.R. 6, that suggests New York should retain the right to set higher standards than might be imposed at the national level, provided that such standards do not have any negative consequences for reliability outside of New York State. I would urge the conferees to support that language.

As I mentioned earlier, New York's response to this crisis was exemplary, but we must seek ways to minimize the risk of repeated occurrences. The economic and social costs are simply too high. We would certainly support broader language to extend the ability to implement higher reliability standards to other States as well.

Much has been written since the outage about the lack of appropriate regulatory financial incentives for upgrading the transmission infrastructure. It is FERC that creates these incentives for transmission investments by establishing appropriate rate recovery levels for utilities. The Federal regulatory framework for transservice must allow for cost recovery certainty and fully recognize and capture the multiple benefits to the market and reliability that are created by transmission system improvements. We look forward to continuing an open dialog with FERC and other stakeholders on the issues surrounding transmission infrastructure.

In summary, the outage is of immense importance to all New Yorkers and the public service commission has taken the lead to inquire into the effects of the outage in New York. Right now we have many more questions than answers. Please be assured that we will commit every effort and resource necessary to conduct an exhaustive and comprehensive inquiry and to provide recommendations that hopefully avoid any repeat of the blackout and its effect on New York State. Once the report is complete, we would welcome

the opportunity to come back in front of this committee and report its findings.

Thank you, Mr. Chairman, for this opportunity; and I, like others, would be more than happy to answer any questions.

[The prepared statement of William M. Flynn follows:]

PREPARED STATEMENT OF WILLIAM M. FLYNN, CHAIRMAN, NEW YORK STATE PUBLIC SERVICE COMMISSION

Good afternoon Chairman Tauzin and distinguished members of the Committee on Energy and Commerce. I would like to thank you for the opportunity to testify before this Committee on the matter of the August 14th blackout, which appears to have affected more than 50 million people in the United States and Canada, including nearly 90 percent of New York State's customers. I commend this Committee's efforts to better understand the causes behind the blackout and possible solutions to prevent an event like this from happening again.

What we know for certain is that as of 4:00 p.m. on August 14, immediately preceding the outage, New York State generation facilities and transmission and distribution systems operated normally to serve customers, with reserves well in excess of minimum requirements. The State was serving a load of about 28,000 megawatts, with available generating capacity of as much as 33,000 megawatts, more than enough to ensure reliable electric service in the state. There is no information of any unusual transmission system occurrences or events in New York preceding the outage. It appears that more than adequate generation capacity was available to serve the State's needs and that no difficulties on the in-state transmission and distribution systems impeded its delivery.

The early reports we have received indicate that a rapid series of events occurring outside of New York State in the period before the outage likely set the stage for occurrences resulting in power losses within New York State and elsewhere. The outage appears to have started on a transmission system outside of New York State and spread across the affected states in a matter of minutes. The reasons for the failures on these systems have not been identified with any certainty at this time, but according to preliminary New York Independent System Operator (NYISO) reports, approximately 3,000 megawatts of power surged into New York State over lines that connect us to the interstate grid, causing transmission lines and generators to trip and resulting in power outages. Significant power surges and frequency fluctuations occurred in New York State during 30 critical seconds, culminating in the blackout. To put this power surge into perspective, it is estimated that 3,000 megawatts is roughly enough power to supply 3 million typical households in New York State. I am not aware of any transmission system in the world that is designed to handle a surge of that magnitude.

There are a total of approximately 7.5 million customers in the state, representing the state's population of 19.2 million residents as well as thousands of commercial, industrial, and municipal facilities. About 6.7 million of those customers, or nearly 90 percent, were without power for some period of time, including virtually all of the customers in New York City who unfortunately went without power for the longest period of time. While we are concerned about outages in any part of our state, you can imagine how that concern is heightened when outages strike New York City. New York City not only serves as the financial capital of the world, but it is heavily reliant on electricity to power a subway system that carries more than 7 million passengers each day, as well as for air conditioning and lighting to the high-rise commercial and residential buildings that characterize the cityscape. For these reasons and others, New York State strives to maintain the highest reliability standards in the nation.

In terms of responding to the blackout, the state commenced emergency public communications programs by contacting radio stations to urge customers to curtail usage if they still had power, or turn off electrical equipment and appliances while their electric service was being restored. In addition, Governor Pataki declared a state of emergency within an hour of the event and called for emergency demand reduction measures to be implemented across the state to conserve power and aid restoration efforts. In the end, the call for emergency demand reduction played a critical role in restoring power throughout the state in a timely and effective manner.

The electric utilities and generators responded to the event by stabilizing the energized portions of the transmission systems, ascertaining any damage, and following plans for service restoration. By necessity, system restoration was a deliberate and carefully measured process. Customer service could not be restored until

generation was available; and, because of the extensive nature of the outage, careful balancing of the loads and supply was required.

Under the circumstances, the quick response of the utilities and generators, and the restoration of electric service in New York State represent a significant accomplishment. Power was restored to about 95 percent of the upstate area by 4:00 a.m. on Friday. Con Edison, the utility responsible for delivering power to customers in New York City and Westchester County, managed to restore service to essentially its entire service area by 9:00 p.m. on Friday. Most notably from a national perspective, Con Edison restored power to Wall Street roughly three hours before trading opened on Friday morning. In less than 30 hours, service was effectively restored to the entire state. This achievement is a testimony to the commitment and hard work of the men and women engaged in the power restoration given the virtually unprecedented nature of this event, the complexity of the systems involved, and the magnitude of the effort required.

Given the impact that this outage had on the lives of all New Yorkers, particularly the residents and commuters in New York City, I would like to take this opportunity to commend New Yorkers for their response to this crisis. Once again, crisis has brought out the best in New Yorkers and I am proud of the way in which we responded, as well as the public's cooperation in helping to restore service. Our focus now, however, must be on understanding the events that took place on August 14th as well as on how to avoid a reoccurrence of this type of event in the future.

I have every confidence that the U.S./Canadian Task Force led by U.S. Energy Secretary Abraham and Canadian Minister of Natural Resources Dhaliwal will identify the events occurring outside of New York State that led to the outage. I pledge the full cooperation of my staff to support that effort in any way possible and am pleased to see that my staff will be represented on the task force. In addition to this international effort, at the request of Governor Pataki I have directed my staff to lead a formal inquiry into the effects of this outage on New York State, including the circumstances of the outage; the effect of the events occurring outside of New York State on electric service operations within the State; recommendations for actions or procedures to prevent, to the maximum extent possible, a similar outage from reoccurring; and any other relevant issues that arise during this formal inquiry. I hope to have information pertaining to New York State's inquiry available before the end of the year. Suffice it to say, this inquiry is the agency's top priority.

While I have attempted to lay out the facts leading up to the outage as we know them today, I must make it clear that we do not fully know the exact sequence of all the critical events, and their cause and effect relationships at this time. I cannot emphasize enough that it is very important for the success of our inquiry on the New York State system, the federal and international inquiries on the outage, and for development of any recommendations for changes, that speculation and conjecture is avoided. There have been countless reports in the media drawing conclusions as to the reasons behind the blackout based on limited, and at times erroneous, information. This speculation has placed blame for the blackout on factors ranging from lightening strikes to deregulation of the electric industry. Only after a complete, rigorous, and professional study and analysis is performed, will we be able to provide specific answers to the many questions about the outage and recommendations for future action.

Based on historical precedence, it is very likely that this blackout will lead to regulatory, legislative, or policy changes, at either the federal or state level, in an effort to try to prevent an event of this magnitude from happening again. The blackouts of 1965 and 1977 both resulted in significant changes at the national level as well as within New York State. The 1965 blackout provided the impetus for interconnecting individual state systems into more of a national grid structure, as well as the formation of the North American Electric Reliability Council (NERC) to establish reliability standards, albeit voluntary standards. The 1977 blackout provided the impetus for increased reliability standards in New York State that are now the most stringent in the country, and in fact are mandatory. As a result, we have since maintained what I believe is the most reliable system in the country. Yet, while New York reliability criteria are mandatory for New York electric corporations, and the New York Independent System Operator is authorized to control the system pursuant to all applicable rules established by the North American Electric Reliability Council, the New York State Reliability Council, and the Northeast Power Coordinating Council, this is not necessarily true for other parts of the country.

While, based on what we know, the outage does not appear to have been caused by any flaw in New York State's transmission or generation system, the interdependence of regional power grids does leave us susceptible to disruptions and problems emanating from events outside of our jurisdiction. To minimize this susceptibility, the Public Service Commission has supported mandatory national reli-

ability standards, provided that New York State can retain the right to implement higher standards than might be required by the federal government. These national standards should serve as a floor, and not a ceiling.

To that end, I am aware of language Congressman Fosella has included in a bill before Congress concerning national electric reliability standards, HR 6, that suggests New York should retain the right to set higher standards than might be imposed at the national level, provided that such standards do not have any negative consequences for reliability outside of New York State. I would urge this Committee and Congress to support that language. As I mentioned earlier, New Yorkers' response to this crisis was exemplary, but we must seek ways to minimize the risk of repeated occurrences. The economic and social costs are simply too high. We would certainly support broader language to extend the ability to implement higher reliability standards to other states as well.

The systems on the interconnected grid support and supplement each other through periods of stress. In some instances this interconnection has allowed New York State to support other states' systems in difficult times, while other states' systems have likewise provided assistance to New York State. On August 14th however, it appears that the regional interconnection may have enabled a problem in one state to cascade across borders into neighboring states as well as Canada. While I remain convinced that interconnections among states and regions represent a strength of the system rather than a weakness, mandatory reliability standards at the national level should help to reduce the likelihood of regional blackouts by requiring the bulk power systems to meet a minimum threshold for reliability. Admittedly, I cannot say with certainty that such mandatory standards would have prevented the blackout of August 14th, but with our economy more dependent than ever on reliable, uninterrupted access to electric power, we can no longer afford to simply leave consumers vulnerable to the voluntary compliance of national standards. The current reliability environment may or may not have contributed to the August 14th blackout, but given the interconnectedness of the nation's power grids and a future of growing demand for electricity, the current standards must be recognized as mandatory and minimum to prevent, to the greatest extent possible, systems in one region negatively affecting systems in other regions.

Much has been written, since the outage, about a lack of appropriate regulatory financial incentives for upgrading the transmission infrastructure. It is FERC that creates those incentives for transmission investments by establishing appropriate rate recovery levels for utilities. The federal regulatory framework for transmission service must allow for cost-recovery certainty, and fully recognize and capture the multiple benefits to the market and reliability that are created by transmission system improvements. We look forward to continuing an open dialogue with FERC and other stakeholders on the issues surrounding transmission infrastructure.

In summary, the outage is of immense importance to all New Yorkers, and the Public Service Commission is taking the lead to inquire into the effects of the outage in New York. Our formal inquiry will include a report on the circumstances of the outage; effects that occurred outside the State on electric service operations in the State; recommendations for actions or procedures to prevent, to the maximum extent possible, a similar outage; and other relevant issues. Right now, we have many more questions than answers. Please be assured that we will commit every effort and resource necessary to conduct an exhaustive and comprehensive inquiry, and to provide recommendations that hopefully avoid any repeat of the blackout and its effects on New York State. Once the report is complete, we would welcome the opportunity to come back in front of this committee and report its findings.

Thank you again Chairman Tauzin for this opportunity to discuss the circumstances surrounding the August 14th blackout. I would be happy to answer any questions you may have regarding this event.

Chairman TAUZIN. Thank you, Mr. Chairman.

We are now pleased to welcome the President of the North American Electric Reliability Council from Princeton, New Jersey, President Michehl Gent. Michehl, we have seen you on television discussing this a lot, and you can maybe give us the latest news.

STATEMENT OF MICHEHL R. GENT

Mr. GENT. Mr. Chairman, I am retiring my celebrity status and I hope not to appear again on TV, but I thank you and Mr. Dingell and other members of the committee for having me here today.

Let me start with the obvious. This outage simply should not have happened. NERC's standards for reliable operation and planning of electric systems have at their core prevention of widespread, uncontrolled, cascading outages such as the one that occurred on August 14. NERC is working with the United States Department of Energy in support of a joint U.S.-Canada task force to determine precisely the sequence of events during the blackout, the causes of the outage, why it spread as far as it did, and what needs to be done to prevent any reoccurrence. In the end, we will know if our NERC reliability standards were not adequate to prevent the cascading outages or if the responsible parties did not comply with our standards or possibly some combination of the two.

Regarding our ongoing investigation, the industry answered our call for experts to help us very quickly. We had between 15 and 30 people in our Princeton offices examining the data. We have had them there every day since the blackout, all working to determine what happened.

In addition to our staff, we have systems operations people from each of the affected regional councils, the ISOs and RTOs and most of the affected companies. We also have dedicated help from several utilities that were not even in the affected area. The Department of Energy has up to five people onsite at all times. The FERC has a dedicated person and occasionally more than that, and we expect to have somebody from Canada onsite very soon. We must keep in mind that Canadian utilities and customers are also part of the blackout. We also have a steering group for the investigation that is comprised of the best experts the industry has to offer, and I have some of their bios in my prepared testimony.

Every party that has been asked for data has responded quickly and thoroughly. Our initial call for data brought us tens of thousands of records. Fortunately, most of this was electronic, but not all of it. The handwritten logs are now beginning to arrive. We have built huge electronic data bases to house much of this data to go along with dozens of maps and diagrams that are plastered all over our walls. We will need to be able to use all of these to be able to understand the sequence of events.

National security is a concern that I did not address in my written testimony. Even though we are certain this was not an act of terrorism, we do not want to be creating a blueprint for would-be terrorists and have therefore implemented standards for security processes and procedures in our offices and elsewhere.

Our partnership with the Department of Energy has been outstanding. We jointly hosted a meeting in Newark on August 22 to get the views of the affected parties, and we have continued to use that channel to develop a time line of events. The Department has the hammer and we have the expertise.

We intend on holding other meetings as we proceed to the "why" phase of the investigation. Obviously, we are too early in the investigation to draw any conclusions. To that end, we have agreed with the Department that all public information regarding the investigation will be released through the Department of Energy, thus freeing NERC to concentrate on the investigation. NERC's efforts will be a key component of the work of the joint U.S.-Canada task force that has been mentioned so many times here today.

One important step Congress can take now is to enact the reliability legislation that has been proposed one way or another for the last 5 years by me and others and to make those reliability rules mandatory and enforceable. The comprehensive energy bills that have passed both the House and Senate have versions of that reliability language.

I will close by repeating, NERC is fully committed to finding out what happened and to see that steps are taken to prevent a recurrence. I thank you again for this opportunity, and I look forward to your questions.

[The prepared statement of Michehl R. Gent follows:]

PREPARED STATEMENT OF MICHEHL R. GENT, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Good afternoon Mr. Chairman and members of the Committee. My name is Michehl Gent and I am President and Chief Executive Officer of the North American Electric Reliability Council (NERC).

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. NERC works with all segments of the electric industry as well as electricity consumers and regulators to set and encourage compliance with rules for the planning and operation of reliable electric 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 is uniquely qualified to set standards for the reliable operation of North America's high voltage, interconnected grid system, and we hope soon to be able to enforce those standards. We are also uniquely qualified to assist the U.S. Department of Energy ("DOE") and the U.S.-Canada Joint Task Force on the Power Outage in investigating the August 14, 2003 blackout that encompassed parts of the upper Midwest and Northeast United States and eastern Canada.

NERC is governed by a board of ten independent trustees and brings together the best electrical system technical expertise available in the world. We are an international organization, integrating reliability across North America's electricity grids. In short, our mission is bulk power system reliability—it's what we do.

As a standing procedure, NERC reviews and reports on disturbances that occur on the bulk electric systems in North America. As the entity responsible for reliability standards for the bulk electric system, NERC must understand and communicate to its members what happened on August 14 and why it happened. NERC must also determine whether any of its standards were violated and whether its standards and procedures require modifications to take into account the ways in which the bulk electric system is being used. Finally, NERC must assure that measures necessary to avoid a recurrence of the August 14 outage are taken.

Immediately after the onset of the blackout on August 14, 2003, NERC began assembling a team of the best technical experts in North America to investigate exactly what happened and why. Every human and data resource we have requested of the industry has been provided, and experts covering every aspect of the problem have been volunteered from across the United States and Canada. Shortly after the investigation began, representatives of DOE and the Federal Energy Regulatory Commission ("FERC") joined the investigative effort. The investigative team has numbered between 15 and 30 individuals from day to day, and all members of the team, regardless of their affiliation, have worked side by side to help correlate and understand the massive amounts of data that are being received.

To lead the NERC effort, we established a strong steering group of the industry's best, executive-level experts from systems not directly involved in the cascading grid failure. The steering group scope and members are described in Attachment A.

NERC and DOE representatives, including people from the Consortium for Electric Reliability Technology Solutions ("CERTS"), have been jointly conducting the fact-finding investigation of the events leading up to the August 14th blackout. We expect to have representatives of provincial and federal agencies from Canada join the investigative team shortly. The investigation is ongoing, and no causal conclusions can yet be drawn. DOE is a part of the United States-Canada Joint Task Force on the Power Outage. NERC has provided its information to DOE in support of the Joint Task Force effort. DOE has requested, and NERC has agreed, that DOE, as a member of that Joint Task Force, coordinate release of that information.

NERC and DOE collaborated on the data request that NERC issued on August 22, 2003, to those organizations who were directly involved in the August 14 outage, as well as surrounding systems. DOE and NERC are jointly developing a data warehouse to manage the thousands of data records being submitted in response to that request and all subsequent data requests. DOE and NERC also co-hosted a meeting of the major entities involved in the outage to help focus the investigation and begin to develop an understanding of the events that led to the outage; we expect to co-host additional fact-finding meetings in the future.

Understanding exactly what happened and why is an enormously complex task requiring a methodical investigation by experts from many disciplines. Analyzing what happened and why it happened has both a technical side and a people side.

The technical side begins with a reconstruction of what happened on the electrical system, within fractions of a second. The investigative team has already received many thousands of data records from control center event logs, disturbance recorders, and other system data that must be pieced together one at a time to understand how the power system broke apart and cascaded into a blackout. Unlike an airplane that has a single “black box,” the power grid has thousands of event and disturbance recorders that measure events at critical points on the system. Each event, which might be a relay or circuit breaker operation, or an electrical fault, is “time stamped” as it occurs. However, we discovered that many of these time stamps were not accurate because the computers that recorded the information became backlogged, or the clocks from which the time stamps were derived had not been calibrated to the national time standard. As our data analysis progressed, we have been able to confirm those events that were accurately time-stamped, and from those events, we are in the process of aligning the event data for each system event from multiple sources until we are confident we have the precise time for each event.

I assure you this painstaking effort to synchronize event data down to fractions of a second is not an academic exercise. Most of the electrical operations in the system failure on August 14 occurred automatically over a very short period of minutes and seconds. Without such a deliberate, methodical reconstruction of events, it would be impossible to determine the exact sequence, and therefore the cause of the cascading failure and how it propagated to result in the ultimate blackout condition.

To ensure that the investigation is complete, NERC and DOE have requested data from the affected organizations starting at 8:00 AM EDT on August 14. This data will enable the investigators to form a clear picture of how that day started and what events through the course of the day may have contributed to or set the stage for events later in the day. Because that data is still being accumulated and has not been evaluated, it is too soon to determine whether events earlier in the day may have contributed to the outage.

To complete the technical investigation of “what” happened, we must also construct electrical models to simulate the exact conditions of August 14 and then subject those models to the events that occurred during the time preceding the outage to understand better its causes. These simulations will examine the electrical stability of the grid—that is, how strongly the generators were synchronized to one another—and whether there was a voltage collapse of the transmission system. We will also focus on why operating procedures that should have detected problems that developed on the grid and kept them from spreading did not prevent the cascading outage across such a wide area.

Preparing these simulations is a complex task requiring the reconciliation of power system data snapshots from multiple data recorders on August 14. I am confident that the investigation, when completed, will allow us to describe exactly what happened to the power system and why it failed.

The investigation also includes a “people” aspect. Working jointly with DOE as part of the U.S.-Canada Joint Task Force, we will be seeking to discover such things as: What were system operators and reliability coordinators doing leading up to the blackout? What indications of problems did they see or not see? What were their qualifications and training to recognize and respond to system emergencies? Did they follow established NERC and regional reliability standards and procedures? Were those standards and procedures effective? Were responsibilities clearly assigned and did operating personnel have the necessary authority to act in a timely manner to avoid the blackout? How effective were the control center computers and displays in providing information to the operators? What communications took place among system operators and reliability coordinators in different parts of the grid prior to and during the outage?

After determining what happened on August 14th, the investigation will analyze the root causes of the cascading failure—looking once again at both technical and human factors. From the root cause analysis, we expect to develop a clear set of rec-

ommendations to ensure that our system operators, equipment, and reliability standards will successfully handle the kinds of events that led to the blackout.

It is too soon to identify specific equipment, measures, and procedures that worked as intended on August 14, but large parts of the Eastern Interconnection did not suffer the blackout. (Attachment B to my testimony is a map showing the Eastern, Western, and ERCOT Interconnections.) Protective relays within the distressed area operated to remove transmission lines, transformers, and generating units from service before they suffered physical damage. The system is designed to do that. It was the action of those individual relays, operating to protect individual pieces of equipment, that eventually isolated the portion of the grid that collapsed from the remainder of the Eastern Interconnection. The fact that the transmission lines, transformers, and generating units did not suffer physical damage is what made it possible to restore the system and service to customers as quickly as happened.

Another factor in the successful restoration was the restoration plans themselves. Restoring a system from a blackout requires a very careful choreography of re-energizing transmission lines from generators that were still on line inside the blacked-out area as well as from systems from outside the blacked-out area, restoring station power to the off-line generating units so that they can be restarted, synchronizing those generators to the Interconnection, and then constantly balancing generation and demand as additional generating units and additional customer demands are restored to service.

We will learn many additional lessons from this event that will enable us to improve the overall reliability of the grid. We can also build on some of the positives from this event, such as the extraordinary efforts to quickly put the system back on line and restore electric service to consumers.

I will close with one final point—the need to establish mandatory, enforceable reliability standards. NERC has developed a world-class set of planning and operating standards, and I expect we will find areas of those standards that need improvement based on the events of August 14. However, as long as compliance with these standards remains voluntary, we will fall short of providing the greatest possible assurance of reliability that could be achieved through mandatory verification of compliance and the ability to impose penalties and sanctions for non-compliance.

Apart from the particulars of the August 14th outage and without knowing whether or not violations of our reliability standards occurred, one important step Congress can and should take to strengthen the reliability of the bulk power system in general would be to pass legislation to make the reliability rules mandatory and enforceable. NERC and a broad coalition of industry, government, and customer groups have been supporting legislation that would authorize creation of an industry-led self-regulatory organization, subject to oversight by FERC within the United States, to set and enforce reliability rules for the bulk power system. The comprehensive energy bills that have passed both the House and the Senate have versions of that reliability legislation. NERC looks forward to working with the conference committee to achieve passage of that legislation this year.

NERC is fully committed to finding out what happened on August 14, why it happened, and to see that steps are taken to prevent a reoccurrence. We are committed to supporting the U.S.-Canada Task Force in fully disclosing all the facts, the reasons for the cascading failure, and recommendations that will make the electricity grids in North America more reliable.

Thank you.

[Attachments are retained in subcommittee files.]

Chairman TAUZIN. Thank you, Mr. Gent.

Now we hear from the two area councils. I understand they operate under the umbrella of NERC. We will hear first from the Executive Manager of the East Central Area Reliability Council, Mr. Brant Eldridge.

STATEMENT OF BRANT H. ELDRIDGE

Mr. ELDRIDGE. Thank you, Mr. Chairman and members of the committee. We appreciate the opportunity to assist your review here. For brevity, I will simply summarize my written testimony.

ECAR is one of the 10 regional reliability councils of NERC. We were formed in 1967, and our membership is voluntary and open to any entity impacting the reliability of bulk power systems in the

ECAR region. Our membership includes entities that own and operate electric systems in all or portions of the States of Michigan, Ohio, Indiana, Kentucky, Virginia, West Virginia, Pennsylvania, Maryland and Tennessee.

It is important to note that ECAR itself is not a system planning or operating entity. Rather, ECAR is the forum through which the regional entities that are responsible for real-time assistance operations and planning coordinate reliability matters. The responsibility for planning and operating the ECAR region's bulk power systems rests with ECAR control area members.

The August 14 blackout impacted electric systems in Ohio and Michigan, among several other States and provinces. In the ECAR region the most severely impacted systems were those of First Energy, Detroit Edison, and International Transmission Company. To a much lesser degree, Consumers Energy, Michigan Electric Transmission Company, and American Electric Power were also affected.

Every effort is being made to properly coordinate the parallel investigations currently being conducted by the affected regional reliability councils and NERC. ECAR has an investigation under way, and ECAR members have provided information and other assistance to NERC's inquiry. As others have noted, the results of NERC's investigation, which we will be inputting to, will be an important input to the U.S.-Canadian effort.

As stated by others, the various investigations are not complete and will certainly take several more weeks at a minimum to finish. A massive amount of technical data is still being accumulated, which will be analyzed and evaluated to determine the cause or causes of the blackout.

Over the years, NERC and its regional councils, including ECAR, have developed operating and planning standards and other reliability criteria that are aimed at keeping the interconnected bulk power systems reliable. A large, complex, interconnected power system cannot be made 100 percent fail-safe. The goal of NERC and its regional councils, including ECAR, is to prevent the inevitable local problems from cascading out of control to other areas. Adherence to both NERC and ECAR reliability criteria is a fundamental obligation of ECAR membership.

The August 14 blackout did not spread throughout the eastern interconnection. A basic reason is that the automated controls for systems that did not shut down detected abnormal operating conditions and disconnected their lines from the affected systems. Such automated system control operations prevent possible damage to major equipment, limit the extent of service disruption to customers, and enable the restoration process to proceed much more quickly than would otherwise be possible.

Apart from any specific actions the blackout investigations may identify, there are several parallel issues that should be addressed. There have been relatively few new transmission lines built in the U.S. in the last 15 years, even as the demand for electricity has continued to grow and new generation has been installed to meet these demands. In addition, the existing transmission infrastructure is now being used in ways for which it was not designed. It was initially designed primarily to enable neighboring utilities to exchange power in the event of a loss of generation. But, today,

many transmission lines are often heavily loaded as large amounts of power are transferred across multi-State regions. Therefore, a significant priority is to move forward with necessary modernization upgrades and expansion of the Nation's interconnected high-voltage transmission systems. Appropriate economic incentives are urgently needed.

Federal and State governmental agencies should also enable utilities and merchant generators to site new generation facilities in locations that would relieve constraints and thus help reduce the need for major new transmission lines. However, where new transmission is required, we must have the political will to proceed.

Also, resolution is needed to the ongoing national debate regarding FERC initiatives for the establishment of regional transmission organizations and standard market design. Finally, Congress is urged to adopt Federal reliability legislation that would make compliance with bulk power system reliability standards mandatory and enforceable.

Mr. Chairman, ECAR is committed to doing its part to determine the cause or causes of the August 14 blackout and to help ensure that the bulk power system reliability is maintained in the future. I thank you for your leadership of this effort and will be pleased to respond to the committee's questions.

[The prepared statement of Brant H. Eldridge follows:]

PREPARED STATEMENT OF BRANT H. ELDRIDGE, EXECUTIVE MANAGER, EAST CENTRAL AREA RELIABILITY COUNCIL

Chairman Tauzin, Ranking Member Dingell, and Members of the Committee, thank you for the opportunity to assist the Committee's review of the August 14 blackout events through participation in this important hearing.

ECAR is one of the ten regional reliability councils of the North American Electric Reliability Council ("NERC"). ECAR serves as the forum for addressing matters related to the reliability of the bulk power systems in the east central region of the U.S.

Parts of the ECAR Region were among the widespread areas affected by the blackout events. Among the major questions to be answered are: what caused the blackout and why did it spread so far?

ECAR OVERVIEW

Formed in 1967 in the aftermath of the 1965 Northeast Blackout, ECAR is a non-profit, member funded, unincorporated association. Membership in ECAR is voluntary and is open to any entity having an effect on or interest in the reliability of the ECAR bulk power systems (generation and high voltage transmission).

The membership of ECAR includes entities that own and operate electric utility systems in a geographic area covering all or portions of the states of Michigan, Ohio, Indiana, Kentucky, West Virginia, Virginia, Pennsylvania, Maryland, and Tennessee. Since ECAR's formation, all key entities in the ECAR Region that are involved in the planning and operation of bulk power systems in ECAR have been and are members.

ECAR Structure

The core ECAR governing document is the "East Central Area Reliability Coordination Agreement" ("ECAR Agreement"). The stated purpose of the ECAR Agreement is "to augment reliability of the parties' bulk power supply through coordination of the parties' planning and operation of their generation and transmission facilities."

Under the ECAR Agreement, the governing body of ECAR is the Executive Board. Each member of ECAR is represented on the Executive Board. Reporting to the Executive Board is the Coordination Review Committee ("CRC") which, like the Executive Board, is composed of representatives of ECAR members. The CRC directs and oversees all technical activities of ECAR. To carry out its responsibilities, the CRC is supported by nine member-populated technical panels.

ECAR also has a Market Interface Committee that serves as the ECAR forum for addressing issues related to the interface between the NERC and ECAR reliability criteria and the wholesale electric market. A small full-time staff located in Canton, Ohio provides support necessary to perform the ECAR's various functions.

Currently, there are twenty one (21) ECAR "Members" and seventeen (17) ECAR "Associate Members." Members have voting rights and provide most of the technical and financial support for ECAR activities. "Associate Members" do not have voting rights and provide relatively little of the technical and financial support of ECAR, but are represented on the ECAR Executive Board and in other ECAR groups, and participate in deliberations regarding the reliability of the ECAR bulk power systems.

ECAR members commit to (i) adhere to the reliability policies, principles, procedures, criteria, and practices adopted by the Executive Board pursuant to the ECAR Agreement; (ii) furnish all system data, studies, and other technical support necessary to coordinate planning and operation of ECAR's bulk power supply; and (iii) provide necessary financial support.

Reliability Criteria and ECAR Role

The ECAR Members have developed a set of reliability criteria called the "ECAR Documents." There are currently fifteen (15) ECAR Documents that have been approved and adopted by the ECAR Executive Board. The ECAR Documents are written to be in concert with the NERC Operating Policies and Planning Standards (collectively, the "reliability rules of the road"). The ECAR Documents also address certain ECAR-specific reliability criteria. Compliance with the ECAR Documents and the NERC Operating Policies and Planning Standards is considered a fundamental obligation of all ECAR members.

It is important to note that ECAR is not a system planning or operating entity. Rather, ECAR is the forum through which those entities in the ECAR Region that are responsible for system planning and real-time system operations address and coordinate matters related to the reliability of the bulk power systems in ECAR. The responsibility for the planning and operation of the ECAR bulk power systems rests with ECAR Members. Each ECAR Member has the obligation to plan and operate its generation and/or transmission system in accordance with the NERC Operating Policies and Planning Standards and the ECAR Documents.

BLACKOUT INVESTIGATION

As the Committee is aware, the August 14th blackout impacted electric systems in Ohio and Michigan, among several other states and parts of Canada. Affected systems in Ohio and Michigan are part of the ECAR Region. The most severely impacted systems in the ECAR Region were those of FirstEnergy, Detroit Edison, and International Transmission Company. To a much lesser degree, Consumers Energy and Michigan Electric Transmission Company in Michigan and American Electric Power in Ohio were also affected.

Following the blackout came the major task of restoring service to all affected customers. The ECAR Region systems that were impacted by the blackout immediately focused their resources on the restoration effort. Neighboring ECAR systems and others that were not blacked out were able to facilitate the restoration process by assisting in the reenergization of transmission facilities and supplying power. Many impacted customers had their service restored within several hours of the blackout, although for some customers it took one to two days.

ECAR Participation in Joint Investigation

The United States and Canada are jointly conducting an investigation of the August 14th blackout events, with Energy Secretary Spencer Abraham leading the U.S. involvement in this effort. NERC and its regional reliability councils are fully supporting the U.S.-Canada investigation through parallel investigations being conducted by NERC, ECAR, Northeast Power Coordinating Council ("NPCC"), Mid-Atlantic Area Council ("MAAC"), and others. ECAR members have provided information to NERC's inquiry.

Every effort is being made to properly coordinate the regional reliability council and NERC investigations. The results of the ECAR, NPCC, and MAAC investigations will be inputs to the NERC investigation. In turn, the results of the NERC investigation will be an important input to the U.S.-Canada investigation.

It is ECAR's understanding that the U.S. Department of Energy will coordinate release of information related to the investigation of the blackout events. The various investigations are not complete. While it is not known at this time how long it will take to conclude this detailed work, it will certainly require several more weeks, if not months, to finish the investigations. A massive amount of technical

data still being accumulated will be analyzed and evaluated to determine the cause(s) of the blackout.

The end result will be the release of a report from the joint U.S.-Canada investigation effort. While it is premature to speculate on the final conclusions, once the root cause(s) of the blackout are identified and understood, ECAR (along with NERC and other regional reliability councils) will utilize the lessons learned from the investigations to: (i) implement all needed actions to lessen the probability of future widespread, cascading blackouts, (ii) reduce the impact of such an occurrence should it happen again, and (iii) enable more rapid system restoration.

ECAR Inquiry Elements

Among other questions to be addressed, the investigations by ECAR and others are considering such issues as:

- 1) What were the conditions in the interconnected power systems in the several hours prior to the blackout, and what was the precise sequence of events that led up to the initiation of the cascading blackout?
- 2) What caused these events to result in the initiation of the cascading blackout?
- 3) Once the blackout began, why did it spread so far and so fast?
- 4) Did system protection devices and other equipment vital to the reliable operation of the bulk power systems operate as intended?
- 5) Are there any problems or deficiencies with the existing reliability rules and procedures?
- 6) Were there violations of the existing reliability rules for the real-time operation of the interconnected power systems?
- 7) Were communication and system operation oversight mechanisms and protocols a factor in the blackout occurring?
- 8) What can be done, both short term and long term, to prevent such blackouts in the future?

BUILDING ON LESSONS LEARNED

These questions are central to developing a more comprehensive understanding of August 14th. Even as we are conducting this ongoing investigation, it is important for the Committee to be aware of the lessons learned and implemented in the almost forty years since the major 1965 Northeast Blackout.

As a result of the 1965 blackout investigations, NERC, ECAR, and the other regional reliability councils were formed in the 1967-68 timeframe. In the intervening years, NERC and its regional councils have developed operating and planning standards and other protocols aimed at keeping the interconnected bulk power systems of North America reliable.

By "reliable", it is meant that the bulk power systems will be planned so as to meet the aggregate demand for electric energy (industrial, commercial and residential customer load), and that the interconnected power systems will be operated in real-time so as to prevent localized problems within the bulk power system from becoming widespread, uncontrolled, cascading blackouts.

Ongoing ECAR Reliability Actions

With the rare exceptions of the 1977 Northeast blackout (which was not as widespread as the one in 1965) and the 1996 events in the Western Interconnection, the industry's collective efforts to maintain the reliability of the interconnected bulk power systems have been successful until the August 14th blackout.

A large, complex interconnected power system cannot be made 100% fail-safe. The goal of NERC and its regional councils is to prevent the inevitable local problems from cascading out of control to other areas. Clearly, something went wrong on August 14th, and the investigation now underway will, in time, result in a full understanding of what were the cause(s) of the 2003 blackout.

As part of its scope of responsibility, ECAR periodically assesses the reliability of the ECAR Region and revises its Documents as needed. Some of the steps that ECAR does and has done since the earlier blackout events to improve the reliability of the bulk power systems include:

1. ECAR performs assessments of the adequacy of the ECAR transmission systems to satisfy the load requirements of our region. This is normally done twice a year (for the summer and winter seasons). Periodically, an assessment is done for a future year. The purpose of these assessments is to identify potential transmission constraints and to provide a relative indication of the expected performance of the ECAR transmission systems and surrounding Regions' systems as compared to the previous year under a variety of possible operating scenarios.

2. ECAR participates on three interregional groups that assess the adequacy of the transmission systems for the upcoming summer and winter seasons in the involved regions. For the various interregional studies, ECAR works with NPCC, MAAC, Mid-America Interconnected Network ("MAIN"), and the Virginia-Carolina ("VACAR") and Tennessee Valley Authority ("TVA") subregions of South-eastern Electric Reliability Council ("SERC").

The interregional studies and the ECAR-specific assessments are very comprehensive and cover many possible scenarios. However, the interconnected bulk power system is very complex and it is not practical to study every possible scenario of system operating conditions.

3. ECAR has implemented an Automatic Reserve Sharing System ("ARS"). The purpose of this system is to enable a company to recover from a sudden loss of generation as quickly as possible. In essence, whenever an ECAR generator trips, all the Control Areas in ECAR may be called upon to participate in replacing the power from the generator that tripped instead of just the Control Area where the tripped generator resides. Use of the ARS results in one or more ECAR systems increasing generation to replace the power lost when a unit is tripped, and speeds the recovery from the lost generation. The ARS system is most useful when the system demand is high and generation reserves are tight.
4. ECAR has implemented a FERC-approved Inadvertent Settlement Tariff. The purpose of this tariff is to discourage companies, through financial penalties, from taking power from the Interconnection during periods when power is costly and the interconnection is operating below normal frequency.
5. ECAR performs assessments of the adequacy of generation resources to satisfy the load requirements of our region. Three assessments are done every year. One is done for the upcoming summer period, one is done for the upcoming winter period, and one is done for the next ten years (with primary emphasis on the next five years).

For each of the items, it is premature to determine their effectiveness or ineffectiveness concerning the August 14th blackout. We need to understand the cause(s) of the blackout events before we can fully evaluate this question. Any deficiencies that are identified from the investigations will be corrected.

PREVENTING A REOCCURRENCE

What we clearly do know at this juncture is that the blackout affected a significant portion of the east central and northeastern parts of the country. Fortunately, the cascading did not spread through the Eastern Interconnection. The basic reason it did not spread further is that the automated control systems for those transmission systems that did not shut down detected abnormal operating conditions and disconnected their transmission lines from those of affected systems. The purpose of such automated system control operations is to prevent possible damage to major equipment and injury to utility personnel and the public. Avoiding damage to major equipment enables the system restoration process to proceed much more quickly than it otherwise would.

Systems Modernization and Expansion Priority

Certainly, one issue that must be addressed, apart from any specific lessons learned from the blackout, is how to move forward with necessary modernization, upgrades, and expansion of the U.S.'s interconnected high voltage transmission systems.

By and large, these systems have served the Nation well. However, there have been relatively few new transmission lines built in the U.S. in the last 15 years, even as the demand for electricity has continued to grow and new generation has been installed to meet the growing demand.

The reasons for this situation have been well documented by many parties and key factors include: (i) lack of economic incentives to invest in new transmission infrastructure; (ii) inability and uncertainty regarding rate recovery for transmission investments; and (iii) public and governmental opposition to construction of new transmission lines which makes it very difficult to obtain the necessary permits to construct needed new lines.

Realigning System Constraint

Another important issue is that the existing transmission infrastructure is now being used in ways for which it was not designed. This is primarily a result of the deregulation of the generation segment of the electric power industry. The Energy Policy Act of 1992 paved the way for competition in the generation segment and the subsequent FERC Order 888 provided for open access to the interconnected trans-

mission systems to enable the establishment of large regional markets for electric energy.

The existing transmission infrastructure was initially designed primarily to enable neighboring utilities to exchange power in the event of a loss of generation or for economic reasons. With the deregulation of the generation segment, many transmission lines are now often heavily loaded as large amounts of power are transferred across multi-state regions. This has resulted in a situation where some transmission lines are now being operated closer to their design limits more of the time than before deregulation opened use of the transmission systems to foster wholesale competition. This is not to say that the transmission systems are being operated beyond their allowable limits, but only to point out that some transmission systems are operating with less margin than before for contingencies.

In those areas where the transmission system is frequently constrained (heavily loaded and unable to take any more power flow), and where it is also politically or otherwise not feasible to build needed new transmission, the installation of local generation facilities (as opposed to remotely located facilities) would help to ease the burden now placed on such constrained transmission lines. Federal and state governmental agencies can play a key role by taking actions to improve the ability of utilities and merchant generators to site new generation facilities in locations that would help ease transmission constraints. The benefits to the country of such actions would be a more secure transmission system that would operate more reliably while achieving the aspirations of deregulation.

Legislative and Regulatory Action

Finally, apart from any specific actions the blackout investigations may identify as necessary to enhance the real-time operational security of the interconnected bulk power systems, government policymakers are urged to address:

- 1) The need for passage and implementation of federal reliability legislation that would make compliance with bulk power system reliability standards mandatory and enforceable.
- 2) The need to provide appropriate economic incentives for investments in needed expansion, upgrading, and modernizing of the interconnected transmission systems and related critical electric system infrastructure.
- 3) The need to provide for the siting of major transmission projects through eminent domain, if necessary, when it is determined by appropriate governmental authorities to be for the greater good of the Nation.
- 4) The need for resolution of the on-going national debate regarding the Federal Energy Regulatory Commission ("FERC") initiatives for the establishment of Regional Transmission Organizations ("RTOs") and Standard Market Design ("SMD").

Mr. Chairman, on behalf of the ECAR membership, we are committed to doing everything possible to determine the cause(s) of the August 14th blackout and to help ensure that bulk power system reliability is maintained in the future. ECAR is available to provide any additional information the Committee may request.

Chairman TAUZIN. Thank you, Mr. Eldridge.

Finally, Mr. Charles Durkin, who is the Chairman of the Northeast Power Coordinating Council, New York, New York. Mr. Durkin.

STATEMENT OF CHARLES J. DURKIN, JR.

Mr. DURKIN. Thank you, Mr. Chairman. As the other colleagues at this table, I am pleased to be here, and I thank you for the opportunity to speak to you and the members of the committee.

I am going to jump over a good part of what I was planning to say, since the table has already said quite a bit of it. But let me first talk about NPCC.

The NPCC region includes all of New York, New England, and Eastern Canada. The Canadian provinces are Ontario, Quebec and the Maritime Provinces. The load in our region between the Canadian provinces and the U.S. States is split about 50-50, with actually about 70 percent of the Canadian load within our region.

The NPCC membership agreement provides for an open and inclusive membership and a fair and nondiscriminatory government structure. Within NPCC adherence to reliability criteria is enforced through a comprehensive program of compliance monitoring and nonmonetary sanctions.

So what happened on August 14? The immediate electrical events observed at NPCC prior to the blackout occurred starting at about 4:10 p.m. eastern daylight time, with a sudden reversal of power flow between Ontario and Michigan. The NPCC system appears to have remained stable during this energy power surge. Within a minute or so, the NPCC region observed large in-rushing power flows and severe frequency and load oscillations. This power swing caused the tripping of interregional and regional tie lines. Consequently, portions of the NPCC region separated from the eastern interconnection.

As a result, most of New England and the Maritimes successfully islanded from the rest of the interconnection. The Quebec area, because of its HVDC ties, was not affected.

New York divided into two islands, a northwest island and a southeast island. The northwest island was also connected to eastern Ontario and continued to serve load. The southeast island, also connected to southwest Connecticut and Long Island, had insufficient generation to meet its load and blacked out. That, of course, includes New York City.

Northwest Ontario, separated from the rest of the Ontario system, remained connected to Manitoba and Minnesota. Eastern Ontario separated from the rest of Ontario but remained connected to the northwest New York island, which continued to serve load. The remaining portion of Ontario had insufficient generation to meet its load and also blacked out.

On August 15, NPCC announced that it would conduct an investigation into what happened within NPCC. That investigation involves determining a sequence of events, figuring out why the sequence occurred that way, and also an analysis of the restoration.

In addition, along with the Chairman of MAAC, which is the regional council basically similar to PJM and ECAR, the three chairmen and myself have established a flexible coordination agreement with NERC as we proceed to investigate the blackout.

I serve as the facilitator for this coordination, and we are presently using an existing group within the three regions to develop both the steady state low flow cases and the dynamic computer models that will be necessary to conduct a detailed analysis once the sequence of events is put together.

Early indications are that the systems within NPCC that have been designed to protect the power system operated as expected. Similar to other regions, very little power system equipment was damaged by the power surges; and that, of course, was very important in allowing for a timely restoration.

The events of August 14 have focused attention on the reliability interdependency of the systems within the eastern interconnection. This interdependency is by design and has been critical in avoiding blackouts in the past. As has been mentioned, one primary responsibility of each of the regions is to make sure local actions are taken to keep local problems from spreading.

With regard to the future, we certainly need to wait until the analysis is done. However, in the meantime, NPCC has indicated its support for enactment of the U.S. electric reliability legislation and its preference for section 16031 of H.R. 6 as previously passed by the House of Representatives. In a letter attached to this testimony, NPCC has outlined its support for the provisions within this legislation which authorize the establishment of industry-based reliability organizations and advance NPCC's international reliability assurance efforts. NPCC prefers the language in section 16031 of H.R. 6 because it contains express acknowledgment of the necessity for more stringent criteria to address the unique reliability needs within New York.

In closing, I thank you again for this invitation to speak with you today.

Chairman TAUZIN. Thank you, Mr. Durkin. Thank you for your endorsement of our provisions in the House bill. I happen to be closer to those provisions than those in the Senate bill, as you might guess.

[The prepared statement of Charles J. Durkin, Jr. follows:]

PREPARED STATEMENT OF CHARLES J. DURKIN, JR., NORTHEAST POWER
COORDINATING COUNCIL

I. INTRODUCTION

My name is Charles J. Durkin, Jr. I am Chairman of the Northeast Power Coordinating Council ("NPCC"), the international regional electric reliability organization for northeastern North America. My business address is Northeast Power Coordinating Council, 1515 Broadway, 43rd Floor, New York, New York 10036.

Prior to acceptance of this position in January 1999, I was a senior electric power executive for Consolidated Edison in New York City. I continue to provide consulting services to them and the industry. A summary of my qualifications is included at the end of this statement.

I am pleased to have this opportunity to appear before you to discuss the electric power disruptions experienced on August 14, 2003 and to tell you about NPCC's numerous follow-up activities.

BRIEF DESCRIPTION OF NPCC

Let me start by giving you a brief description of NPCC. The Northeast Power Coordinating Council is one of ten Regional Reliability Councils, which together make up the North American Electric Reliability Council ("NERC"). NPCC's Region encompasses Northeastern North America, including all of New York and New England, and the area in Eastern Canada comprised of the Ontario, Quebec and Maritime Provinces. NPCC is almost equally balanced, 50 percent U.S. and 50 percent Canadian. Approximately 70 percent of Canada's load is located within NPCC's region.

NPCC plays a vital role in assuring the reliability of the international, interconnected bulk power systems in its Region. The NPCC *Membership Agreement* provides for open and inclusive membership, and fair and non-discriminatory governance with the Council's activities directed by a balanced stakeholder Executive Committee.

Each NPCC Member is obligated to plan, design and operate its bulk power system in compliance with mandatory regionally-specific reliability criteria and broad-based industry-wide NERC standards. Within NPCC, adherence to reliability criteria is enforced through a comprehensive program of compliance monitoring and non-monetary sanctions.

II. WHAT HAPPENED ON AUGUST 14TH

The sequence of events experienced in the NPCC Region on August 14th happened in a very short time period (seconds) and was initiated by events outside its boundary. A full understanding of the events will come from careful review of all the data, on a consistent basis.

What we know at the present time comes from information supplied by the operating entities within the affected areas. This information is still in the process of being reviewed and time-sequenced by NPCC and NERC. The following information may be revised as the disturbance analysis continues.

The immediate electrical events observed in NPCC prior to the blackout occurred starting at approximately 4:10 p.m. EDT with the sudden reversal of power flow between Ontario and Michigan. The NPCC system appears to have remained stable during this initial power surge. Within a minute or so, the NPCC Region observed large inrushing power flows, and severe frequency and load oscillations. This first power swing caused the tripping of inter-regional and regional tie lines. Consequently, portions of the NPCC Region separated from the Eastern Interconnection. As a result:

- Most of New England and the Maritimes Area successfully islanded from the rest of the eastern interconnection;
- The Quebec Area, because of its HVDC ties, was not affected;
- New York divided into two islands, northwest and southeast. The northwest island, also connected to eastern Ontario, continued to serve load; the southeast island, also connected to southwest Connecticut and Long Island, had insufficient generation to meet its load and blacked out.
- Northwest Ontario (west of Wawa, Ontario) separated from the rest of the Ontario system, but remained connected to the Manitoba and Minnesota systems and was not affected. Eastern Ontario separated from the rest of Ontario, but remained connected to the northwest New York island, which continued to serve load. The remaining portion of Ontario had insufficient generation to meet its load and blacked out.

SUMMARY OF PRESENT ANALYSIS

On August 15th, NPCC announced it was assembling an assessment team of regional experts to perform a detailed analysis of events within the Region. This activity, which will require significant effort, will be coordinated with NERC, the DOE, Provinces and States. The analysis is expected to require extensive investigative work to determine the factors within NPCC that contributed to the wide spread blackout. It is anticipated that it will take several months to complete.

NPCC has adopted an aggressive three-phase approach in its internal analysis of the blackout; first, to develop a detailed sequence of events within NPCC; and second, to conduct a detailed analysis of the events that resulted in the cascading collapse of a major portion of the NPCC Region and identify areas for analysis. Included in this analysis will be a review of the sequence of the restoration. The third phase of the analysis will develop findings, conclusions and recommendations for further study.

In addition, the Chairman of MAAC, a designated representative for ECAR and I, as Chairman of NPCC, have established a flexible coordination agreement with NERC as we proceed with our analysis of the Blackout of 2003.

I serve as the Regional blackout investigation facilitator, working closely with the NERC blackout investigation steering group. NERC's efforts will supplement and contribute to the Joint U.S. DOE-Canadian Task Force Investigation.

The Regions assigned an existing MAAC-ECAR-NPCC ("MEN") interregional Study Committee the role of lead industry blackout study team and directed them to update the MEN 2003 summer load flow base case computer model to represent the system conditions that existed on August 14th. In addition, building on the dynamics analysis efforts already underway within NPCC, a Major System Disturbance Task Force ("MSDTF") has been formed under the MEN Study Committee to develop a companion dynamics database. These cases will serve as the basis of the computer simulations of the events of August 14th.

III. NPCC SYSTEMS OPERATED AS DESIGNED

Early indications are that systems in NPCC designed to protect power system equipment operated as expected. Very little power system equipment was damaged by the power surges that came crashing in over the NPCC tie lines.

In an occurrence such as this, one of the greatest dangers to the restoration of electric service is the potential for damage to the system itself—the power plants and the transmission lines, and related equipment. If damage of this nature occurs, it potentially could take days, weeks, or months to complete restoration. The complex protective mechanisms installed on the NPCC system, its power plants and related equipment worked as intended and no serious equipment damage was reported.

IV. LESSONS LEARNED

The events of August 14th have focused attention on the reliability interdependency of systems within the eastern interconnection. This interdependency is by design. The resources of the interconnected systems have throughout the years successfully supported individual utilities during times of capacity shortages and following sudden contingencies. As a result of this support, blackouts have been avoided.

However, this interdependency also carries risk and specific responsibilities. The system must be operated consistent with its design in order to reap the economic and reliability benefits associated with interconnections. One primary responsibility is that local actions must be taken to keep local problems from spreading.

This appears to not have happened in this case. Speaking from an NPCC perspective, by the time the systems in New York and Ontario saw indications of a serious problem, it was already too late.

V. AVOIDING FUTURE BLACKOUTS

With regard to actions that can be taken to reduce the potential for future blackouts, we must avoid speculation and wait until the investigation currently underway is completed. Some of these possible actions can be extremely costly.

However, in the meantime, NPCC has indicated its support for enactment of U.S. electric reliability legislation and its preference for section 16031 of H.R. 6 as previously passed by the House of Representatives. In a letter attached to this testimony, NPCC has outlined its support for the provisions within this legislation, which authorize the establishment of industry-based reliability organizations, and advance NPCC's international reliability assurance efforts. NPCC prefers the language in section 16031 of H.R. 6, because it contains express acknowledgement of the necessity for more stringent criteria to address the unique reliability needs within New York.

CLOSING

In closing, I thank you for the invitation to speak with you today, and answer questions you may have. I reaffirm NPCC's unwavering commitment to assuring a high level of electric system reliability and stand ready to take the necessary actions to accomplish this objective.

Chairman TAUZIN. Let me first see if you all agree with me. We have heard from three panels now, all of whom have said that before we definitively say what happened, how it happened, and before we define the sequence of events and, therefore, before you can tell us what you recommend we do to correct the problem, there is still a little work to do and that none of you are prepared to definitively say essentially what caused this or why it spread and why some regions were able to isolate themselves and others were not. Is that generally correct?

Let the record reflect the witnesses have all indicated yes.

Second, Chairman Wood, I want to make sure the record is clear on this, because people have confused the mandatory reliability standards which Mr. Gent has spoken on television about and on which our bill speaks to in the House provisions that Mr. Durkin just endorsed. They have confused those provisions of mandatory reliability standards in these organizations with the questions of mandatory membership in the RTOs, which is the subject of a Senate amendment, as you know.

Mr. WOOD. Yes, that is a separate issue.

Chairman TAUZIN. As far as we are concerned in the House bill and the Federal regulatory commission which you chair, the House provisions were, in fact, worked out in concurrence with your office and you support those provisions, do you not?

Mr. WOOD. We do.

Chairman TAUZIN. And they include native protections for native load customers, is that correct?

Mr. WOOD. They do.

Chairman TAUZIN. And for the purpose of explanation for all who may be listening, those protections are designed to make sure that when utilities join a regional transmission authority that they do so with the capacity at least to ensure that it doesn't prejudice those customers who live in the area where the load is native, where it exists, and where those customers have been supportive of that utility and its transmission lines, is that correct?

Mr. WOOD. That is right. Yes, sir.

Chairman TAUZIN. And we have worked out that language to your satisfaction, is that correct?

Mr. WOOD. Yes, sir.

Chairman TAUZIN. Next, I wanted to please have an explanation, Mr. Eldridge. We have had a lot of members say, by golly, with all of the kind of guaranteed profit a person can make if they build a transmission line, why has demand increased so dramatically on these lines? If there is a guaranteed profit to be made, where are the investors? What is not happening? Why aren't we building new transmission lines just to take care of this enormously increasing demand?

Mr. ELDRIDGE. Well, the demand has been driven by continued load growth.

Chairman TAUZIN. That just means people are using more electricity. I have more customers using more electricity, the government says I can make 11, 12 percent, whatever it is. Why isn't Wall Street rushing, the financial markets rushing to support investments in new transmission? What is the problem?

Mr. ELDRIDGE. I can't answer that question.

Chairman TAUZIN. Somebody on this panel can. What is the problem? Come on. Anyone want to try it?

Mr. Lark, you look like you have the answer.

Mr. LARK. I don't know that I have an answer for you exactly, but I wouldn't say there has been no investment.

Chairman TAUZIN. There has been some.

Mr. LARK. As I understand it, and I think I get this from NERC press releases, I think there is \$3 billion per year.

Chairman TAUZIN. Yes. And I have seen numbers coming out of New York where demand is growing exponentially compared to investment in new transmission lines. It is essentially the problem in California, Path 15. You have extra power in northern California, a big demand in southern California, they can't get it from one end of the State to the other because you can't build a transmission line. If it is so profitable, if there is so much money to be made there, why aren't people flocking to build transmission lines?

Do you want to handle that, Mr. Wood? The Chairman of the FERC, tell us why.

Mr. WOOD. If I were an investor, I would want to know what the rules of the road are so I know how I am going to get my money back, and I think there are a couple of different ways to slice that salami, but pretty much put your money where you have a good return. The promise of 12 percent is fine, but if you have a State squabble over whether you get any percent, much less 12, if there

is a question about whether you have a cap on your retail rate like we saw in the West and we have seen in other States.

Chairman TAUZIN. So there is uncertainty in investment, essentially.

Mr. WOOD. I would think that is an understatement.

Chairman TAUZIN. And, second, you have to tie up your money for a long time waiting for all the permitting to go through, the siting problems, the lawsuits, the lawyers that come in and file suits on behalf of everybody who doesn't want a transmission line built in their backyard. So why would you tie your money up for all of these years waiting for this project to get approved?

Mr. WOOD. It is not attractive.

Chairman TAUZIN. It really isn't attractive today, is it?

Mr. WOOD. And for a regular utility, it is a small part of their business.

Chairman TAUZIN. It is a small part of the business.

Mr. WOOD. So why go through the headache?

Chairman TAUZIN. Why go through that headache when you can put your money into a new generation facility and just drop that load on that old line and hope it holds up.

Doctor, you are about to tell us what is going on here.

Mr. SCHRIBER. I think it is more than just a siting issue, and I do agree that there are some siting issues there, but, as you suggested, investment dollars are going to chase those investments that have potentially the greatest yield at the less risk.

Chairman TAUZIN. And the quicker yield, right?

Mr. SCHRIBER. And the quicker. But if each one of us at this table had our own transmission systems and we each had our own concept of where the dollars needed to be spent, I would perceive that as more risky than if we all joined and agreed that there was, with one of us in control, a specific place that needed it more than anywhere else which would dictate the maximum.

Chairman TAUZIN. But the point I am making, and I hope you don't disagree with me, and if you do, I would love to hear it, is that it is not just the question of saying you can get a guaranteed rate of return if you build one. There has to be some rules of the road that are clear. There has to be an investment opportunity that is clearly understood by investors. There has to be some time certain in the process and some clarity in whether or not you are going to get permitted or whether or not you will be in court forever. Aren't all of those problems with investing in transmission lines, and shouldn't we be addressing as many as we can if we are going to get some new transmission lines built?

I see you shaking your head, Mr. Durkin.

Mr. DURKIN. I think I would add one more to that, and that is exactly how does the return, be it 12, 13 percent or whatever, you know, get collected and distributed.

Chairman TAUZIN. Yes. That is another point: What happens to those returns?

Let me ask you, too, you tell me there was some indication that something was wrong within this area. There were some fluctuations of frequencies. We saw a shift in the electrons. Instead of flowing in one direction, they were shifting around the loop in the other direction an hour or something before. What happened? Who

called whom? Did any of you get a phone call or any of your counsels get a phone call saying there were some real aberrations on the system going on?

Mr. DURKIN. I will answer that. From so far, everything we have investigated within NPCC is there was no phone calls.

Chairman TAUZIN. No phone calls.

Mr. DURKIN. The first indication there was a problem within NPCC was the reversal of flow that took place at about 4:10.

Chairman TAUZIN. So maybe we have to look real hard at how these things get communicated and how people know there is a problem and who is in charge of making sure the right person gets the information so that they can make the right decision in terms of separating from a system that is about to go down.

I mean, we don't—you are not ready to tell us what happened, Mr. Gent. I know that. But we do at least have some insights here, that there were a lot of surges occurring, and that it had held together for a while and then there started to be things separating and plants shutting down. And all of a sudden there wasn't enough power, and switches started tripping, and people were suddenly without lights. I mean, that is generally what happened. How it all happened and in what sequence you are going to tell us later. But doesn't that speak to real communication problems, that all of this was happening and the right person didn't get the right message to do the right thing?

Mr. Gent.

Mr. GENT. Mr. Chairman, I listened to many people testify today; and I would like to assure you that the communication equipment and protocols are all in place.

Chairman TAUZIN. But did they work well?

Mr. GENT. That is part of the investigation.

Chairman TAUZIN. They are in place, but did they work?

Second, there was some comment and, Mr. Durkin, you talked about mandatory regional specific reliability criteria, and I don't want to get into all of that. But today if your members join, they sign operating agreements with you, don't they? Are they enforceable operating agreements? If somebody violates them, what are your rights? What do you do?

Mr. DURKIN. Our membership agreement requires anyone who joins, which the five control areas that operate in our area, our region are members, it requires them to adhere to the criteria and so forth. We assess it. We do check. We make sure they do, and we use enforcement tools such as—we use a nonmonetary penalty, but we will inform the regulatory structure, we will inform the governmental structure.

Chairman TAUZIN. What does that mean? You have nonmonetary regulatory tools. What are they?

Mr. DURKIN. The first level is peer pressure within our organization.

Chairman TAUZIN. Peer pressure?

Mr. DURKIN. Let me finish, because it works well within our region.

The second thing that we do is we will send letters to regulators, the regulatory structure.

Chairman TAUZIN. Letters to embarrass them into doing the right thing?

Mr. DURKIN. Well, just to let the regulators who have oversight for the operating entities within our region know that they are not in compliance.

Chairman TAUZIN. So you sort of report them to the dean?

Mr. DURKIN. Well, we sit here talking about the need for enforcement capability. I can tell you the regulators in our region take very seriously compliance problems.

Chairman TAUZIN. Nobody likes to have a letter like that written about them, I take it.

Mr. DURKIN. That is very correct.

Chairman TAUZIN. But the bottom line is this is an area that clearly needs some new enforcement authority.

Mr. DURKIN. Without any question.

Chairman TAUZIN. You guys endorse what is in House bill 6. This is in conference today.

My time has expired.

Joe Barton is the chairman of our subcommittee; and he just returned from Colorado, from an energy conference. I understand, Joe, that in Colorado whiteouts are as big a problem as blackouts in the wintertime. We want to welcome Joe and put him in the Chair, and I now recognize the distinguished ranking member of our committee for a round of questions.

Mr. DINGELL. Mr. Chairman, I thank you for your courtesy, and welcome and thank you to the panel.

These questions are for Mr. Gent. You have appeared before the committee before. You have made some interesting comments at that time. You said, as economic and political pressures on electricity suppliers increase and as the vertically integrated companies are being disaggregated, NERC is seeing an increase in the number and severity of rules violations. Was that correct at the time it was given?

Mr. GENT. That was correct then, and it is correct now.

Mr. DINGELL. Is it correct now? That was the second question.

In a letter I sent on August 22, which I ask, Mr. Chairman, to be inserted in the record—

Mr. BARTON [presiding]. Without objection.

Mr. DINGELL. [continuing] I ask you, Mr. Gent, to expand on that statement to provide specific examples of these violations.

In your response you noted that, in 2002, NERC found 97 bonding standard violations and 400 operating policy violations, is that correct?

Mr. GENT. That is correct.

Mr. DINGELL. Has that changed in any way that would be significant and would you like to make a comment on any changes since that letter?

Mr. GENT. This is the latest data that we have. We will have another report later this year.

Mr. DINGELL. Thank you.

You further state in your response that although NERC does not have the ability to level fines for violations, you do calculate simulated penalties that would have been assessed under a system of mandatory compliance. You state that the value of the aforemen-

tioned violations would have been just over \$9 million, is that correct?

Mr. GENT. Yes.

Mr. DINGELL. Would you tell us whether or not the character of those violations was serious, imposed risk to the system, and including possibility of shutdown of the kind that we saw on August 14?

Mr. GENT. Yes. Chairman Dingell, the letter that you referred to lists several possible types of violations for which the violations occurred. I would like to give you a little context of those violations. This probably encompasses over 10,000 measurements, so when I come up with this 444 operating policy violations, they could vary all the way down this page from being very serious to being, I won't say trivial, but being less serious.

Mr. DINGELL. I think it would probably therefore be useful that you submitted those for the record and with such explanatory comments as you might deem to be appropriate. Is that acceptable?

Mr. GENT. I would be pleased to do that, yes.

Mr. DINGELL. I think that would be appropriate.

Mr. Chairman, I would note that we have a good deal to learn about the sequence of events from the blackout. This information points to the urgent need to give NERC enforcement authority over the mandatory rules and to do so quickly.

Mr. Gent, I thank you.

Now, I would like to address the independence of the NERC blackout investigation. Mr. Gent, your testimony suggests that NERC must determine whether standards were violated and whether modifications to its rules are needed. I commend you for that, but your testimony also indicates that you were closely coordinating at least some of your efforts with DOE as a part of the U.S.-Canada task force, is that correct?

Mr. GENT. Yes, it is.

Mr. DINGELL. Now, I am not clear. Is NERC conducting then its own independent inquiry? Will it issue its own independent findings and/or recommendations, or will it merge its inquiry with that of the Department of Energy? In other words, are we going to have an independent research and inquiry from NERC, or are we going to have something in which we are going to have the input of DOE?

Mr. GENT. Right now there is one investigation under way, and it is being primarily conducted by NERC, NERC personnel. We have DOE people onsite, as I said in my oral. We have a FERC person and others. They are of great help. These are people there to dig through the data with us and try to help us organize the sequence of events. At some point, NERC will have to do what NERC does, and that is to take a look at whether our standards and operating procedures were violated. We will do that. And we will do whatever is necessary to correct the standards, if the standards are incorrect, or to point out the violations.

After the data is all in and verified, I suspect that the Department of Energy will probably go in some other direction and deal with policy issues like the ones you have been discussing here today.

Mr. DINGELL. Now, I would note that in the event that NERC disagreed with DOE or the task force participants about finding the recommendations related to the blackout, you have kind of indicated to me then that NERC would issue its own independent findings, is that correct?

Mr. GENT. That is correct, sir. We will do our own.

Mr. DINGELL. Now, going back to the questions earlier, you told me about the large number of violations, some of which were of great significance and some of which were rather lesser significance. Were any of these of the character which could have contributed to the creation of a major blackout or something of that kind?

Mr. GENT. I am sure they were. I don't have the numbers in front of me or the specifics, but in that listing that we gave you, virtually half of these could have resulted in that kind of a blackout.

Mr. DINGELL. Roughly half of those could.

Mr. GENT. Right.

Mr. DINGELL. Would you want to elaborate on that, please, because I think you have made a very important point.

Mr. GENT. For instance, the first one says operating portions of the transmission system beyond their first contingency rating. That is a factor that could have played into and caused at least the start of the blackout.

Mr. DINGELL. What other ones do you find of that character?

Mr. GENT. Failure to return the generation demand balance within 15 minutes following the sudden failure of generation.

Mr. DINGELL. What does that mean?

Mr. GENT. That means if you have a large outage, then you have to get the system back in balance within 15 minutes.

Mr. DINGELL. And if you don't?

Mr. GENT. Then you have exposed the system to compounding outages.

Mr. DINGELL. Okay. Any others of this character?

Mr. GENT. One that might play in later—of course, we don't know this—is the lack of a restoration plan and training documentation to show that those restoration plans are conducted in training programs.

Mr. DINGELL. You view these as being important violations of the rules and exposing the system to substantial risk, do you?

Mr. GENT. Well, we haven't seen—we are not at that point in the investigation yet, but we expect that we will uncover in our investigation plenty of violations of these rules.

Mr. DINGELL. Now, have you any appreciation that you found anything of that character in connection with your preliminary inquiry with regard to the events of August 14?

Mr. GENT. We don't have anything conclusive yet.

Mr. DINGELL. I see.

Mr. Chairman, you have been very courteous. Thank you.

Mr. BARTON. Thank you, Congressman Dingell, for those excellent questions.

I have just assumed the Chair; and I am told that the order of appearance of our Republicans is Mr. Norwood, Mr. Walden, Mr. Bass and Mr. Whitfield. Does anybody object to that order of ap-

pearance on the Republican side? If not, then the Chair recognizes Mr. Norwood for 5 minutes for questions.

Mr. NORWOOD. Thank you very much, Mr. Chairman. Welcome back.

This has been a very interesting day of hearings. I thought our Chairman Tauzin came up with a pretty good summary just before he left, so I just have a couple of observations.

One of the questions he asked and was looking for answers to is why would not investors wish to invest in transmission? And I think there are probably a number of reasons, but maybe high up on that list is that the utilities don't know which Congress or which FERC may take away their ability to run their business. That uncertainty would scare anybody; and I am certain that, since they are investor-owned, they have to pay attention to that. So I would like for us to think about that, too, as we concern ourselves with why we have not invested.

Now I come from a part of the country where we have kept up with the demand by increasing generation. We have a lot of transmission, and we have relatively reasonable power rates. So we are concerned that in involving problems for other parts of the country that we sort of don't throw the baby out with the bath water. I mean, I like a lot of you guys up in the Northeast, but I am not willing to lower your rates to raise ours. I am not willing for you to have more reliable electricity as our reliability goes down. And as we are now, we are fairly happy with it.

That doesn't in any way mean that we shouldn't try to solve the problem in the parts of the country that are importing electricity. We should. But we shouldn't maybe necessarily do it as a one-size-fits-all.

One of you mentioned earlier about RTOs and the fact that, well, why don't we do one in the Midwest and let's see if that works. Don't make me do it if I don't want to, but if that is the way to go up there and everybody is happy with it, why don't you consider that, but don't mess with our little backyard where things are working pretty well.

I don't think I have heard in all of the hearings we have been into, Mr. Chairman, the word reliability standard used more times than I have heard today. That was certainly part of our discussions. Our bill does deal with some of that. But witness after witness after witness has come forth today on three panels and are saying we have to have reliability standards.

Well, the NERC gives us reliability standards now. We have them. The problem is, you can't enforce something that is voluntary, and it is basically you can't oversee something that you are suggesting people to do and, happily, Mr. Barton's bill deals with that. We make reliability standards mandatory. That is a good thing. We let NERC oversee it, enforce it, and, in some convoluted ways, we pass off to FERC occasionally if anybody can figure that out.

I just want to point out and remind you, Mr. Chairman, that the two Governors here today implied pretty strongly that States are perfectly capable of doing that enforcement and probably in conference that ought not to be not considered. I happen to fall under the heading that, if the States don't do it, I would like to see NERC

do it, but I am sure you are all pleased, as were the other panelists, that we are going to at some point this year, hopefully in the next month, make reliability standards mandatory and something that will happen.

It is important, I think, that we don't confuse reliability standards with standard market design. At a time right after this blackout where everybody wants to solve this problem, that can be confused. Now, we have solved the problem of reliability standards, I believe.

The standard market design is still of great interest to a lot of people. I find it interesting that the model that Mr. Wood and FERC wants to put out or has been pushing their concept about a standard market design is very similar to what is, frankly, going on at the PJM, at the Midwest ISO, the New England ISO, the New York ISO. They are pretty close to the model that Mr. Wood is suggesting, and we ought to consider that. Is there a problem there, that model may be part of the problem that has happened? We don't know the answer, Mr. Chairman. That is the purpose of this hearing, to find out why we had a blackout, why it spread. I urge us all to let's take our time and get the answers before we try to legislate.

Mr. BARTON. I thank the gentleman from Georgia; and I recognize the distinguished gentleman from Michigan, Mr. Stupak, for 5 minutes.

Mr. STUPAK. Thank you, Mr. Chairman.

Mr. Gent, your standards, they are all voluntary, right?

Mr. GENT. Yes.

We would like to refer to it as mandatory standards, however the enforcement is voluntary.

Mr. STUPAK. So no accountability in other words?

Mr. GENT. Yes.

Mr. STUPAK. Regarding your investigation, you said you are moving right along and the Canadian-U.S. Task force is working with you. Will your hearings or meetings on what happened be open to the public?

Mr. GENT. We have not held any meetings per se. We had a joint meeting with the Department of Energy that was not open to the public.

Mr. STUPAK. Do you have any objections to them being open to the public in the future?

Mr. GENT. If that meeting had been opened to the public, I don't think we would have learned what we learned.

Mr. STUPAK. Do you feel there comes a point in time that the public should know?

Mr. GENT. Absolutely. It is important that we get what we know out into the public.

Mr. STUPAK. Would you agree with me that the previous blackouts occurred before the deregulation or restructuring, whatever you want to call them, the previous blackouts you cited in your opening statement?

Mr. WOOD. In 1996 and 1999.

Mr. STUPAK. 1996 would have been part of deregulation.

Mr. WOOD. And 1999 as well. 2000 and 2001 in California were certainly in the post restructuring.

Mr. STUPAK. Restructuring and deregulation.

Mr. WOOD. The 1977 and 1965 would be different.

Mr. STUPAK. Have you found 1996 and 1999—has the lack of accountability led to or could be one of the problems we have here for these blackouts, these failures?

Mr. WOOD. Lack of accountability? Yes.

Mr. STUPAK. You would agree with NERC's findings there are violations; some could lead to blackouts and no one is held accountable?

Mr. WOOD. Correct.

Mr. STUPAK. Would you suggest anything in the future of how you put the accountability in there and what should happen?

Mr. WOOD. The NERC language you just discussed which goes through us and they do the detailed work and it is a pretty strong structure.

Mr. STUPAK. Would you see NERC taking a role of doing the enforcement, leveling fines or whatever it might be or something you feel FERC should do?

Mr. WOOD. Either.

Mr. STUPAK. You mentioned air traffic controllers in your opening and the movement to privatize them, so I wouldn't use that as an example anymore.

Mr. WOOD. The privatization of the grid is a decent outcome. I don't know that it has to be a public asset, but I think what is important is that it not be operated by somebody who has got a vested interest in whose plane lands first and whose never gets to land.

Mr. STUPAK. The standards should be pretty much the same. If you are an air traffic controller in Washington, DC, or in Green Bay, Wisconsin, you should be using the same standards to land that plane, right?

Mr. WOOD. That certainly is a benefit.

Mr. STUPAK. Mr. Schriber, you mentioned a super regional RTO and how large they can be. Is there no limit on how large they can be?

Mr. SCHRIBER. I think certainly there are physical limits and economic limits. I think my reference to a super regional RTO would be one that is larger than that which exists today or those that exist today, for example, one that encompasses most of the eastern interconnect, if you will.

Mr. STUPAK. If you get larger does that lead to less accountability?

Mr. SCHRIBER. I don't think accountability is related here in terms of size. I think that accountability—well, let me retract that. I think the larger and the more centrally governed the RTO, the stronger is the accountability.

Mr. STUPAK. Give me some idea of maximum size. This blackout was 50 million people. What do you think the maximum size could be?

Mr. SCHRIBER. The eastern interconnection which encompasses the Northeast, the mid-Atlantic, the Midwest, part of the South would probably be reasonable both from a physical and economic point of view size.

Mr. STUPAK. Mr. Lark, you mentioned there are 23 utility members in MISO, and that is the Midwest ISO?

Mr. LARK. It is my understanding, yes, sir.

Mr. STUPAK. And only one in Michigan, DTE, went down basically?

Mr. LARK. Parts of Michigan. DTE was the largest utility to go down, affecting 2.1 million customers. But in addition our other large electric utility, Consumers Energy, was out for a little while too, but to a much lesser degree, as was the Lansing Board of Water and Light.

Mr. STUPAK. Any idea why it stopped in basically mid-Lower Peninsula in Michigan? Why didn't it go farther west?

Mr. LARK. My understanding of this and of course I even am reluctant to speculate inasmuch as there are so many investigations ongoing now, but from what I have been able to understand—this could be a little lengthy—the power was attempting to flow into the northern Ohio area. And as lines tripped in northern Ohio so that the power could not get into northern Ohio it began to flow through the southwestern intertie in Michigan. Michigan has two points at which power can come in, southeast and southwest portion. So the power diverted itself in going through that southeast part and went all the way over to southwest, came through the AEP system and up through Consumers Energy, which occupies the western part of the State. All of the transmission grid properly tripped off between the Consumers Energy grid and the Detroit Edison grid. And at that point what happened, as what has been described earlier, there was a reversal in flow and the power suddenly reversed around and went around Lake Erie and Ontario came in through the Port Huron-Sarnia interconnect in Michigan into the Edison system and down to Cleveland, and everything tripped off from there. I don't know if that answers your question, but that is my understanding.

Mr. BARTON. The gentleman's time has expired. Before we recognize Mr. Walden just on that point, it is true that once you put power into the system it has to go somewhere. It can't just sit there like in a lake and if there is water you could put it in a lake. But once you put electricity, it has to move and it has to go and it is going to find the path of least resistance.

Mr. LARK. And that is exactly what happened, the speed of just under 186,000 miles per second.

Mr. BARTON. Which is the speed of light. The gentleman from Oregon is recognized for 5 minutes.

Mr. WALDEN. Thank you very much, Mr. Chairman. I wanted to first start out on this issue of the 1996 blackout and the reference that maybe deregulation had something to do with it. Now I am not a big fan of deregulation. I think it is instructive to note what happened there. On August 10 of 1996, Bonneville's transmission lines sagged into tree limbs triggering outages and system oscillations. The western interconnection separated into four electrical islands with significant loss of load in generations and it impacted an area from British Columbia to Baja, California and Norte in Mexico. So the whole western region. So what happened out of that? In response, Bonneville as well as other western utilities took steps to ensure that it would not be repeated. The utilities invested in voltage support devices, high-speed communication and control and implemented more conservative operations. Bonneville initi-

ated a system-wide voltage support study, revamped its grid operating procedures and spent more than \$130 million to increase reliability of the transmission system. Specifically, Bonneville and the neighboring utilities aggressively ramped up the power lines to be as conservative and safe as possible. Set interim operating procedure for the intertie with Pacific Gas and Electric and Southern California Edison. Set conservative operating limits on the intertie. Installed additional remedial action schemes. Reviewed equipment at McNary Dam. Set new limits on the exciters to assure generators wouldn't trip. And they went through step by step very methodically to determine what happened. I don't think sagging lines and tree limbs probably was directly related to the change in Federal policy. The outcome though is one that maybe is instructive here and I know that some of the people involved in determining what went wrong there are going to be involved in this discussion and investigation. One question I have for Mr. Gent.

Mr. GENT. Gent.

Mr. WALDEN. There are mandatory standards and voluntary compliance under the system you manage. What is the outcome? I mean you held up the list of issues that some of the participants have violated, some of the mandatory standards in question. But I never did hear what happened. Did they just blow you off and ignore you or were those issues you held up for our ranking Democrat, were they resolved? Were they addressed?

Mr. GENT. Most of them were addressed and didn't occur again. But then they have a tendency of popping up elsewhere. So there is a compliance program in each of the 10 regions. In fact they have one in ECAR where they actually go out and inspect to see if people are in compliance with these rules.

Mr. WALDEN. Do you have participants—I assume first that everybody participates if they are on the grid. Second, do you have participants who participate on the grid violate your mandatory standards and continue to participate?

Mr. GENT. Yes.

Mr. WALDEN. And so you have no way to say you are out of here?

Mr. GENT. No, we don't.

Mr. WALDEN. That is why the legislation we are working on has those provisions?

Mr. GENT. That is part of it. And I would like to add that one of the things they implemented in the West after the 1996 blackout was they all signed an agreement that they would comply to certain standards with monetary sanctions, and there has been a lot of money that has exchanged hands.

Mr. WALDEN. Good to know. As an observer of all this during that period, the question kept going through my mind why did it take so long to turn the power back on. I understand a little bit about the tripping of things, but 30 hours is probably miraculous in time for what you had to do and the utilities you oversee. But could you educate a little bit about how complex it is to get a system that large?

Mr. GENT. When you lose 280 something generating units, some of those you could bring back on like this, the jet engines and hydro. Others like natural gas where they have steam could take 4 to 6 hours. Coal plant might take 10 to 24. A nuclear plant might

take 48 hours. And that is primarily the reason it took so long to bring Detroit back. Despite their best efforts they had to bring generation in. You had to get generation running and match it with load.

Mr. WALDEN. So it is a sequencing of the generation and the load so you maintain a balance on the grid?

Mr. GENT. Limited by the availability of generation and limitations as to how quickly you can bring it back on line.

Mr. WALDEN. In terms of the lines themselves and the trip points, have you found lines that were actually severed as opposed to just tripping the relays?

Mr. GENT. No. I know we used this jargon, but by tripping generally what happens is the relays trigger a breaker and they open up the line and that has always been the case. We haven't identified any lines or any other equipment that has been damaged significantly.

Mr. WALDEN. In one way your system functioned the way it was designed, which was to prevent the destruction of the generating facilities; is that correct?

Mr. GENT. Yes.

Mr. FLYNN. In New York the uniqueness, to add to his explanation, is where in upstate New York we have generally rural areas, you have above ground transmission lines, where as you move to the higher population areas, New York City, Manhattan, Staten Island, you have underground transmission. So the uniqueness of upstate versus downstate, the New York guys not only had to balance demand and supply, but they also had to take into account the infrastructure they were working with to balance that demand and supply. You made note of 30 hours and that is a remarkable amount of time I am told to bring the full New York State system you know back on line.

Mr. WALDEN. Do you have any idea how many circuit breakers broke, came open?

Mr. FLYNN. I have no idea. Mr. Museler, who runs the New York State ISO, will be here tomorrow to testify and he is probably watching right now and he will have that answer for you.

Mr. BARTON. Gentleman's time has expired. The gentlelady from Missouri is recognized for 5 minutes.

Ms. MCCARTHY. Thank you, Mr. Chairman, and I thank all the witnesses for their wisdom.

Mr. Wood, I was looking through your testimony and your optimism about the next steps. And again, as others have said, the word "reliability" seems to be almost on every page and almost every paragraph in much of the testimony, sometimes twice in a sentence. I would like to talk to you about your thoughts for the future that you talk about in section 4 in your next steps testimony. But begin with just from you a simple definition of reliability that you were perceiving as you talk about those next steps. What do you see as the—what is reliability in the future?

Mr. WOOD. There are two levels, Ms. McCarthy. The one that we focus the most on today is the one we refer to generically as the short-term reliability, the real-time balance that keeps that at 60 cycles per second all the time, plus or minus. The other issues, which actually came up more when we were doing hearings in Cali-

fornia at this committee and others, deal with the longer term reliability, which is long-term supply and demand balance. So I think, depending on the context of the paragraph in my testimony, I do tend to view both as really shades of the same reliability concern.

Ms. MCCARTHY. Well, you talk about the conference providing for mandatory reliability rules and enforced by a reliability organization subject to the Commission's oversight and that you—the industry has concluded a system of mandatory reliability rules is needed to maintain the security of our Nation's transmission systems. If the Congress were to mandate reliability rules, which would then dictate both the categories you described, including supply and demand balance, what would be the next step then for the industry if that is, in fact, the outcome of the conference committee work? How do they meet that mandate of supply and demand balance? Will it be the same old, same old or are we going to take a step back and look at the future in terms of alternatives and other means to provide for that reliability that we have not yet sought or found?

Mr. WOOD. I understand where you are going. I am not really sure and I will have to reread the language of the House bill. If that actually encompasses that, you would have that long-term reliability as part of that mandatory NERC language. If, in fact, it does, certainly the rulemaking that we have been looking at in our Commission does envision the State commissioners at that level deciding if there are alternative fuels or alternative demand side participation in the marketplace; some of the technologies that may have been ignored by the prior market structure that we had. Those issues, I think, really still do lie fundamentally at the State regulators. And we have indicated the ability to work with them and have FERC be there to be able to implement those visions for longer term reliability. I haven't thought through if the rulemaking required in H.R. 6 would envision that breadth. I would be glad to look that over.

Ms. MCCARTHY. I would appreciate that. I was a State legislator before coming to the Congress and I am very sensitive to that role of the States and this issue. And all day as I have been listening, I am torn, where are we going. If we create this national effort that has been traditionally the regulatory bodies of the 50 States that have created and supported this grid and the surety to the States of the cost and pricing of energy, in whose lap does it rest to meet this mandate? Will it come from at the Federal level from your organization or others, something we create omnibusly or is it the 50 States left to grapple with Federal language mandating such an effort? And having been a State legislator it fills me with some apprehension how we would resolve that. I think it is a good goal that you have mentioned and called for. I don't know how it plays out in reality.

Mr. WOOD. At least the debate for the last couple of years—and Mr. Gent might be able to shed some light on that—has focused more on the short-term reliability, the minute-by-minute supply and demand and not so much on the longer; that really has been primarily a State domain. In our standard market design rule, we call that resource adequacy and have made clear that is really the State's role. We are here to support that effort. If FERC is needed

to help make it work on a regional basis where a single State can't make it work alone, we are glad to play that role. We know where our jurisdiction stops and it does stop before we get to long-term resource adequacy type planning, and whether that would actually be changed by this reliability statute I haven't researched that, and I would be glad to do that.

[The following was received for the record:]

FEDERAL ENERGY REGULATORY COMMISSION
OFFICE OF THE CHAIRMAN
October 2, 2003

The Honorable KAREN MCCARTHY
Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515

Re: Response to Question Regarding the August 14, 2003 Electrical Outage

DEAR CONGRESSWOMAN MCCARTHY: I am responding to the question you asked me during the September 3, 2003 hearing before the House Committee on Energy and Commerce, concerning the blackout experienced in the Northeast and Midwest on August 14, 2003. As you know, there is currently no direct federal authority or responsibility for the reliability of the transmission grid. The energy policy bill now in conference provides for mandatory electric reliability rules subject to Commission oversight. During the hearing, you asked whether these rules, as proposed in the pending legislation, would encompass both short-term and long-term reliability.

Section 16031 of the House version of the draft energy legislation, H.R. 6, currently sets forth that the Electric Reliability Organization (ERO) would establish and enforce mandatory "electric reliability standards," subject to Commission oversight. These standards would include requirements for the operation of existing bulk-power system facilities and the design of planned additions of modifications to such facilities, but would specifically exclude any requirement to enlarge such facilities or to construct new transmission capacity or generation capacity. Section 16031 also does not authorize the ERO or the Commission "to order the construction of additional generation or transmission capacity or to set and enforce compliance with standards for adequacy or safety of electric facilities or services." In addition, Section 16031 states that it does not "preempt any authority of any State to take action to ensure the safety, adequacy, and reliability of electric service within that State, as long as such action is not inconsistent with any reliability standard" (except that the State of New York may establish rules that result in greater reliability within that State). Further, Section 16031 would require the Commission, within 90 days of the application of the ERO or other affected party, to issue a final order determining whether a State action is inconsistent with a reliability standard.

Thus, the mandatory electric reliability standards authorized in H.R. 6 would allow the Commission to oversee short-term reliability by approving requirements for the operation of existing system facilities. But the provision, as presently drafted, would not clearly encompass long-term reliability.

I believe that mandatory reliability standards are critical to our Nation's security. If Congress wishes to establish a stronger federal role in ensuring long-term reliability of the bulk-power system, Section 16031 of H.R. 6 could be revised to authorize the ERO, subject to Commission oversight, to order the enlargement of existing transmission facilities or the construction of additional transmission capacity. Apart from this possible exception, I believe H.R. 6 properly preserves state authority over long-term reliability issues.

In conclusion, thank you for the opportunity to address these issues in detail. If I can be of further assistance in this or anything else, please call me.

Best regards,

PAT WOOD, III
Chairman

cc: The Honorable W.J. "Billy" Tauzin, Chairman
The Honorable John D. Dingell, Ranking Democratic Member

Ms. MCCARTHY. Would you? And I would welcome some thought on that so we are not creating a situation that is worse than doing nothing. There is always that challenge in the things that we do. And I have gone beyond my time. Also the—you also mentioned we still need to attract capital transmission investment in your testi-

mony, which I very much appreciate, and that is very much on our minds as we have these hearings this week.

Earlier in the hearing, we talked about—one of our members mentioned the built in profit that exists by regulation for utility companies. And I wonder as we expect utilities to alleviate the congestion on the grid and come up with some new technologies and ways to assure that reliability, is it that 11 to 12 percent profit margin that is the stumbling block or why is it in your testimony you tend to indicate that we have to find other ways to, you know, attract investment to the utility industry in order to accomplish the goal you and others share, we all share, of making sure we modernize the grid and make sure that it is working well and all of those things?

Mr. WOOD. Representative McCarthy, there have been a few instances since I have been on the Commission now for 2 years that use of an incentive has been productive. One of them, I guess most prominent, was the incentive that we gave of 13.5 percent to the investors in Path 15 in California, which was kind of a notorious link in which was not being invested. We also did it with the utilities in Michigan as they spun off their transmission to stand-alone transmission companies. So, we have looked at that on a case specific basis. And I heard from a large company yesterday that admitted that the 12.8 percent we are giving all the utilities in the Midwest is more than enough for them, that they just want to make sure that they navigate the State-Federal maze of actually being able to get their money back from customers at the end of the day. So it may not be so much the amount you give them, it is just the certainty of getting it back.

Ms. MCCARTHY. May I ask unanimous consent for 1 more minute?

Mr. BARTON. Why don't we let Mr. Bass—if you wait until after him, I will let you ask some more.

Mr. BASS. I will be very fast.

Mr. BARTON. Recognize the gentleman from the Granite State.

Mr. BASS. Thank you, Mr. Chairman. Can anybody comment as to why the blackout stopped at the edge of New England? Are there any theories as to why that happened? It didn't affect except for a small part of Vermont, New Hampshire, Maine, Rhode Island, Massachusetts and most of Connecticut?

Mr. DURKIN. Probably the best place to start is that the protective systems that operated in New England to separate it from the rest of the interconnection are the same—designed with the same criteria as New York and Ontario and PJM and so forth. It is the function of the conditions that occurred when the large power swing came through New York and into Ontario that the New England systems saw that as crossing into the area where the protection systems needed to operate and they did and opened up that piece of the region from the rest of the region. New England actually ended up along with the Maritime Provinces as an island standing alone by itself. The—guessing at this point, because we don't have all the study work done, is that the magnitude of the surge was enough to cause generators to automatically shut down in the eastern part of New York. But that is very preliminary and

only based upon some of the initial data that is coming in and the sequences together yet to know exactly how that played out.

Mr. BASS. Is there any validity to the observation that perhaps the grid system was better in this region of the country than it was in other regions of the country and built better and better modernized and it functioned better? Any validity to that argument?

Mr. BARTON. I just heard that the Congressman was better.

Mr. DURKIN. There have been claims made very early on that were very unique characteristics in some of the systems, but the criteria to which New England and the Maritimes and New York and Ontario designed their system is all the same. It is all the same criteria that MPCC requires. It is not unique in a sense.

Mr. BASS. You mentioned—I don't remember the term you used, I think it was recognized and cutoff. What do you mean by that? It is different, for example, from other parts of the country?

Mr. DURKIN. I will get a little more technical. When a large power surge runs through a system, two things happen. One is the voltage on the system goes down and the current flow on the transmission lines goes up. There are relay systems out there that monitor for that condition. If it is severe enough, the relays operate the disconnect from wherever the source of the problem appears to be.

Mr. BARTON. Would the gentleman yield on that point? Isn't it true you actually have control rooms that you can physically see this? I mean you actually have these monitors that you watch the voltage in the current and you watch the cycle that Mr. Wood was talking to and somebody in Mr. Bass' region saw that happening and literally—part of it was human and part of it was the program that just said save us. In his case they were lucky enough that as they shut off from the rest of the region they had a power supply to come in and pick up the load; isn't that true?

Mr. DURKIN. I would express it this way. What happened is once it separated, the operators then stabilized the island and did a very effective job in maintaining that island in service. A separation within the MPCC region occurred within a matter of seconds. There was insufficient time for operators to do anything once the second surge came in to the MPCC region.

Mr. BARTON. It was all computer generated?

Mr. DURKIN. It is even more decentralized than that. The transmission lines will protect themselves independent of any computer signals. They have their own independent protection systems to cause a separation or an opening to take place if the conditions that they are monitoring occur.

Mr. BASS. If I can reclaim my time. I don't need much more time, Mr. Chairman. It is also true that at this particular time of year this region of the country may actually be exporting energy because—and doesn't that create a different kind of pressure differential, if you will? It is the reason they were able to create the island and make it work. And it might not have been the same in January or February but in the summer, the region, especially my State, New Hampshire, was pumping out electricity like crazy. And as a result, it lessened the impact of the blackout as it reached that region and they were able to get at it in time. Is there any validity to that?

Mr. DURKIN. The short answer is yes and the reason is that when the island separated, the load that was lost in southwestern Connecticut primarily and the generation that was lost was above balance, so the remainder of New England and the Maritimes were very well balanced. Actually there was excess generation and the unit did come off line due to the action of automatic control systems to stabilize the island and the Maritimes.

Mr. BASS. Mr. Chairman, you know one of the big issues here is we all know this is getting the differential between supply and demand on a better parity nationwide. And despite what my friend from Georgia said a few minutes ago, the northeastern United States is in fact producing significant excess energy for much of the year and exporting it to other parts of the country and it did indeed mitigate to some extent possibly the effect of this blackout.

One question for Mr. Gent. You have all these maps on the walls. How long is it going to take before we have some answers? Any idea?

Mr. GENT. We have most of the data collected that is going to be collected. About 90 percent of the data has been collected. We made an estimate today that we have about 40 percent of it certified and verified. It will take maybe another 4 weeks.

Mr. BASS. Thank you.

Mr. BARTON. Before the Chair asks his questions, he is going to recognize the gentlelady from Missouri for one additional question.

Ms. MCCARTHY. Thank you, Mr. Chairman. Mr. Wood, also in your testimony you talk about repealing PUHCA, and I wonder why a wholesale repeal is necessary. This is with regard to getting investor certainty in your testimony, because we have examples of targeted exemptions. We provided for the exempt wholesale generators. Why repeal the whole act if it is about investor certainty? Why not go down that same path of targeted exemptions?

Mr. WOOD. One good example I think of is, if there is a merger or, perhaps, even a foreign utility wants to come and invest in the United States and they want to sink capital into our infrastructure, which I think we would welcome, there is a strong prohibition on that, with some caveat. Certainly, the law over 70 years has changed, but there is a restriction on their ability to do that. And those may be beneficial mergers. I know Mr. Buffett wants to go shopping around for some transmission systems but he owns one right now, so that kind of maxes him out. There was a merger that happened when I was still a Texas regulator between a Texas utility and a Ohio utility that had to be linked, and basically the court has subsequently said, you failed PUHCA, although the merger actually went forward because the court took a while, but they have to be geographically connected to each other when the merger happens. From one who worries about market power, I actually would hope that utilities that are right next to each other don't merge because they might actually merge their competitive generation and create a market power problem in generation. Wires are regulated. They will be regulated. If they aggregate across the board or across the country, it becomes a regulatory issue, but not a market power issue, which is what we are concerned about when we look at how the competitive markets work. So, PUHCA is a significant obstacle, if not an outright bar to a number of companies that do have access

to lower cost capital, to coming into the current market. It worked fine over the years, but I do think the market structure has evolved beyond when that law was written.

Ms. MCCARTHY. I appreciate your comments and you will get back to me on the other issues that were raised. I appreciate the testimony that was shared today, and I appreciate the chairman for his indulgence.

Mr. BARTON. The Chair recognizes himself for the last series of questions unless another member who hasn't asked questions arrives. And Mr. Strickland has just arisen, so the Chair would recognize Mr. Strickland for 5 minutes, and Mr. Engel.

Mr. STRICKLAND. Thank you, Mr. Chairman, for your indulgence. Sorry I was called away, but since we have an Ohioan here, someone that I very deeply respect, Mr. Schriber, I did want to have a brief exchange because I note in your comments, sir, you said that you thought the blackout was not as a result of deregulation. But then I think you went ahead and said something to the effect that the grid was much like an interstate highway system, traffic patterns on the wires have changed and congestion has increased and the like. So would it be accurate to say that deregulation did not cause the blackout, but the blackout may be at least in part the result of deregulation because the traffic has increased on the grid, has it not, as a result of deregulation? So we don't want to unnecessarily fault deregulation. But when deregulation occurred, maybe we weren't as sensitive as we should have been to the need to attend to the additional strain that could occur on the transmission system.

Am I reasonably correct in that description or tell me where I am wrong?

Mr. SCHRIBER. Thank you, Mr. Strickland. First of all, I don't think it was as a result of deregulation. The one thing I think we really need to distinguish here that I haven't heard much of is the distinction between wholesale and retail, where we have deregulated at the State level, 23 States if you will at the retail end of it. You can buy from another supplier other than your local. It has had a modicum of success. Ohio has been remotely slightly successful and hasn't been overwhelming anywhere. But the grid was actually at one time built for wholesale transactions. I mean the reason the grid is linked is so that you can have electricity moving from area to area and utility to utility. So it is really nothing new to have a large volume of transactions taking place around the grid.

Mr. STRICKLAND. Has the volume increased following deregulation?

Mr. SCHRIBER. It has increased but I am not convinced it is totally because of deregulation. More merchant generators have come on line looking for opportunities to sell electricity, thereby pumping electricity in, but not pumping electricity in if it is not economical. And if you look at August 14 we were operating at below capacity, well below capacity. We weren't pushing the limits. And I suspect at that point in time, there may not have been every power plant pumping power into the grid that might otherwise have been.

Mr. STRICKLAND. That is interesting information for me and it is enlightening information because I was operating under the as-

sumption that at least part of the problem on August 14 was that the system was in fact overloaded and was at or beyond capacity and that contributed to the blackout. But you are telling me that was in fact not the case?

Mr. SCHRIBER. In the aggregate it was not the case. However, there could have been pockets where there may have been problems. If you take out a transmission line, then those that run parallel will pick up the load. When another one goes down, then two are left to pick up the load. In the aggregate, we were not.

Mr. STRICKLAND. That leads me to another question. You know, we all thought when this happened this may be terrorism and we were relieved when it wasn't. But I am just sitting here thinking if one or two or three lines sagging and getting into a tree or whatever could begin a process that led to the cascading effect that led to this widespread blackout, my God, if I were a terrorist I would be looking at that thinking, you know, if the system in effect is that fragile, all I have got to do is find a location where I can cause that kind of disruption and we don't know what the result may be in terms of a blackout. Is that a reasonable fear on my part?

Mr. SCHRIBER. It is somewhat reasonable but I think there are sufficient backup—parallel backups if you will. I have seen a tornado take down a 765,000 volt line, which is huge, and yet there was enough there to back it up.

Mr. STRICKLAND. But there wasn't the backup in this case?

Mr. SCHRIBER. No. In this case you had a series of events that did cascade. But with respect to northern Ohio, it is my understanding that the system stabilized itself even at that. The customer, when those lines went down in that service territory, those customers did not lose electricity. They stayed on line. It was when the other events in addition to that event, I guess you could say, if there were other events—I don't want to speculate on exactly what happened, but I would say that in and of itself would not have been catastrophic.

Mr. STRICKLAND. My time is up and I thank you. It has been enlightening.

Mr. BARTON. Recognize another gentleman who represents an area that was affected by the blackout, Mr. Engel of New York.

Mr. ENGEL. Thank you, Mr. Chairman. We have been at this hearing since this morning. It is almost as long as the blackout. Maybe some people would wish that we were blacked out so it wouldn't keep going on and on. But I have learned a lot and hope to learn a great deal more.

I would like to ask Mr. Gent, obviously you have a very hard job and I think most of us agree that some kind of national standards are necessary and that they need to be enforceable. I am wondering if you could comment on which agency in your estimation should have enforcement authority, NERC or FERC, and why you believe that.

Mr. GENT. Yes, Representative Engel. We have had this bill before the House and the Senate for a number of years and it is the result of a consensus process where most of the entities in the industry have agreed that we should have a system, as Chairman Tauzin mentioned earlier, similar to what we have in the relationship between the FCC and the NASD and that has been sort of a

basis of our proposal. And in that proposal, NERC would have that authority and they would be backstopped by the FERC. I need to also point out that if this goes through it is likely that the standards would be submitted to the FERC and those reliability standards would in fact be FERC standards. So that is the way the current legislation is constructed to work.

Mr. ENGEL. Okay. Thank you. Mr. Flynn, let me ask you this. First of all, I should ask you how Albany has been these days. But let me just ask you, has New York determined why it didn't just isolate itself from the grid when the power surges started to occur? New Jersey did that, New England did that and why not New York?

Mr. FLYNN. That is the \$64,000 question. And that is why Governor Pataki has asked the Public Service Commission to start a formal inquiry into why the circumstances affected the State. So in a formal inquiry that will be one of the, if not the No. 1 question we will be trying to answer.

Mr. ENGEL. My knowledge of—I have lived through three power blackouts in New York, 1965, when I was in school; 1977, which happened to be my first year in the State Assembly and I was in Albany then, which wasn't blacked out but New York City was blacked out. And we were lulled into this feeling that it wouldn't ever happen again obviously, but it did. What is your feeling about—we had asked the Governors earlier on that—I appeared on a show where there was a panelist who was supposedly an expert and said that the whole problem was deregulation, that once things were deregulated, everything fell apart. What is your view on that?

Mr. FLYNN. My view is based upon some of the information you just gave us and those two prior blackouts, one you were in and one you were not, both were under regulated conditions. And this latest one was under a scenario where we have a restructured system on the generation side and still a regulated system on the transmission side. So, in essence, I don't think the issue of deregulation, someone would want to pin it on something like that, but I think this is going to come down to some of the other issues we talked about today, communication, judgment by humans, technology. I don't think deregulation is going to play as major a role as some of those other issues that I just raised.

Mr. ENGEL. Mr. Wood, section 307 and 311, I believe, gives FERC the authority to do investigations. Department of Energy is obviously the lead agency in investigating. Why not FERC?

Mr. WOOD. The last three large blackouts, including the 1977 blackout right after DOE was formed, the DOE took the lead and the FPC and then the FERC supported that effort. Our role is really to contribute our expertise to the team in this fact-finding effort. If there are issues that do fall under FERC statutes, which as I mentioned in my testimony are relatively sparse on reliability issues, we will adjudicate those independent of the task force. But in this fact-finding gathering, like NERC, the Nuclear Regulatory Commission, and the Canadian entities, we are all working together to do the fact finding.

Mr. ENGEL. I told Secretary Abraham before that I had hoped that whatever the investigation showed that everything would be transparent; that there would be nothing that would be classified

or hidden from Congress or hidden from the public. And I think that is very important because we obviously want to make sure that the data that we get after conclusions are made that we know exactly what was there and that books aren't cooked and things aren't slanted so that people can have the result that they wanted to see before the investigation started, and I am wondering how you feel about that.

Mr. WOOD. I feel very strongly about that. I think certainly our experience with the California investigations, which were very significant and deep and data-intensive and gave answers that some people didn't want to hear, we released that. We are still litigating just how much we put out. Some people didn't want their personal e-mails out in public and we are adjudicating that. I am a big believer of transparency and I hope our record at FERC can demonstrate that to you. I think that is applicable here, subject, of course, to the security concerns about vulnerabilities or other issues related to security. But, I think when you let the facts go where they may and if that means dramatic changes in preconceived notions, we need to be big enough to accept that.

Mr. ENGEL. Thank you, Mr. Chairman. I believe my time is up.

Mr. BARTON. The Chair would recognize himself for the last round of questions. Before I ask questions, I think I need to make a little bit of a statement since I have not been here most of the day. I was out in Colorado in the Edison electric Institute and their executive board and this was the topic of discussion. The subcommittee that I chaired passed a bipartisan bill that was modified at full committee. It then passed in a bipartisan fashion and was sent to the floor and passed in a bipartisan fashion. Many of the elements of that bill were considered very ugly. We had quite a bit of testimony about our poor little bill and it wasn't worth a warm bucket of spit maybe, but the fact of the matter are had that bill been law, say a dozen years ago, with mandatory liability standards and with the creation of RTOs and with incentive rate making authority explicitly for the FERC and accelerated depreciation for transmission, repeal of PUHCA, I think you could make a case of what happened on August 14 would not have happened. But just passing the bill next month is not going to prevent what happened until it is fully implemented. So I guess I just want to pat my subcommittee on the back and Mr. Boucher and Mr. Doyle and Mr. Strickland and Mr. Engel and Mr. Norwood and Mr. Burr and others. Not all of them voted for the bill but they had input into the bill and I appreciate them for their efforts.

My first question to this panel and I apologize for keeping us so long, how many of you gentlemen actually lost power yourselves at your office or homes on August 14?

Mr. FLYNN. I did.

Mr. BARTON. Mr. Eldridge did and Mr. Lark did. So you experienced the pain so to speak. Mr. Lark, how long did it take you to get your power back on?

Mr. LARK. Truth of the matter is I didn't lose power at my home but I did lose it at the office. And the office was up and running the next day.

Mr. BARTON. Mr. Eldridge.

Mr. ELDRIDGE. About 6 hours.

Mr. BARTON. Mr. Durkin?

Mr. DURKIN. The MPCC's office came back about noontime the next day.

Mr. BARTON. We didn't lose power in Washington. Mr. Wood, you had power? There are those who wished you would have lost power.

Mr. WOOD. I was actually in Texas.

Mr. BARTON. I was in Houston, Texas. Some of you know what it feels like to have something that we take for granted all of a sudden not be available. Mr. Eldridge and Mr. Durkin, there is a question at the staff level about how your two organizations communicated before the blackout occurred. Were you all on any kind of communication monitoring what happened before—in other words, this thing looks like it may be bad and we might need to do something about it. Was there any kind of communications between your two organizations before the blackout occurred?

Mr. ELDRIDGE. No, there wasn't. As I indicated before, ECAR is not an operating entity, the ECAR office operation, so we don't have the capability to monitor what is going on in the system. That is the responsibility of our operating companies working in conjunction with the reliability coordinators.

Mr. BARTON. Explain to me the difference between a coordinating council and a reliability council. Are they the same?

Mr. ELDRIDGE. The regional reliability council, which is what ECAR is and MPCC is, is a forum of members who coordinate planning and operation of a generation and transmission facility.

Mr. BARTON. But you don't operate.

Mr. ELDRIDGE. The members are the operating entities.

Mr. BARTON. You are a board of directors. You don't have a control room somewhere.

Mr. ELDRIDGE. No.

Mr. BARTON. So the control room would be Mr. Durkin, the Coordinating Council.

Mr. DURKIN. Within MPCC there are five control areas: the New York ISO, ISO New England, the interior IMO, the Quebec area and the Maritime Provinces. They are the ones who operate the system in real time.

Mr. BARTON. Do we have anybody here who actually works for an organization that operates these systems? You guys are all policy guys.

Mr. FLYNN. Tomorrow.

Mr. BARTON. Tomorrow at 9:30 we get to hear from the operating guys.

Mr. Wood, you have already explained to Mr. Engel that your group—that the FERC is not a part—you are not doing your own investigation but are helping the investigation. Could you elaborate on that a little bit? Are you providing more legal assistance or staff assistance in terms of technical explanations? Exactly what is the FERC role in this investigation?

Mr. WOOD. I am personally a member with Secretary Abraham and Secretary Ridge and Chairman Diaz of the Nuclear Regulatory Commission on the overall task force from the U.S. side. Our counterparts, four gentlemen and a female from Canada, are of the other half. So that is at the steering level.

There are three working groups. My assistant, Ms. Silverstein, is on the electricity working group. There is a separate working group on homeland security and a third one on nuclear issues. Those are staffed with a number of people from States, from industry, from experts outside the industry. So it is a very broad group.

Our own people at FERC, like, for example, today, are up there working at Mr. Gent's organization with some issues related to the timeline that the Secretary spoke about earlier, getting that finalized and going through the details and making sure that it all works together. Contributing technical expertise is the primary job we are doing, but we are also offering legal assistance to the parties on confidentiality issues and the like.

Mr. BARTON. How many investigations are actually under way? Is there one investigation, two investigations or three investigations? Because we have the international task force, we have the NERC technical, and we have the DOE—your assistant, that is three. Do we have any interconnectivity?

Mr. WOOD. They are highly interconnected.

Mr. BARTON. Who is the ISO operator of all these?

Mr. WOOD. From our side, the Secretary and his counterpart in Canada are the guiding leadership on this joint multinational—

Mr. BARTON. Do any of the States—State of Ohio or the State of New York have State investigation, so we have some State investigations, too?

Mr. SCHRIBER. Yes, we do. And we have called the other companies in Ohio and have gone through time lines with them. Even though they were with power, we wanted to know what they were seeing. And I am on that binational task force, and we will be providing information to that task force with what we gather in Ohio.

Mr. BARTON. Mr. Gent, in response to questions from Mr. Bass, said that he had thought he would wrap his technical collection effort up in about 4 weeks. Is that the general timeframe for these other investigations?

Mr. FLYNN, what is your timeframe?

Mr. FLYNN. Hopefully, by the end of the year. But we are striving to get it done right instead of getting it done quick. We are already working with—the operator from New York State has already provided us information. We are cooperating or the utilities and generators in the State are cooperating along with the associations, and whenever information will be proved worthwhile we will feed it into the international investigation that is going on.

Mr. BARTON. So what is the—I mean, the Congress—we are in the energy conference with the Senate. We hope to move a bill—at least I hope to move a bill. I can't speak for all the members of the committee. We hope to move a bill sooner rather than later. So when do all these investigations finally come up with their report? I mean, sometime next spring? Mr. Gent.

Mr. GENT. I may have given you the wrong impression that we would be through in 4 weeks. That is when we hope to have the data all finalized. Then we have to go into the phase of why it happened, who is at fault, and that will go on. I have a whole outline here of what will probably take another year to finally conclude.

Mr. BARTON. Another year. So if a Member of Congress would say we ought to wait to get these investigation recommendations, that is basically a recipe to do nothing.

Mr. GENT. I would very much be opposed to that.

Mr. BARTON. Let me ask you gentlemen a few questions, and then we will let you go.

One of the elements in the House bill is that we do repeal PUHCA. The gentlelady from Missouri had a question about that. Mr. Wood addressed that. But is it not true that if you don't repeal PUHCA there is almost no way you are going to get the capital to come into this industry to rebuild and refurbish the infrastructure that I think everybody agrees that we need to refurbish and in some cases add capacity? Do any of you gentlemen oppose repeal of PUHCA?

Mr. LARK. I am not as familiar as I might be with it, but—

Mr. BARTON. That doesn't mean you can't answer the question.

Mr. LARK. I haven't seen the legislation and looked at it and vetted it the way I would like to before responding to your question. I do not believe in PUHCA repeal at this point, unless it was going to be replaced by something else, some other legislation with some consumer protections in it.

Mr. BARTON. We will have some reporting requirements and some expanded FERC authority for some increased FERC authority for penalties, financial penalties and maybe even criminal penalties. But the problem with PUHCA is, as Mr. Wood has pointed out, that you cannot get—unless your primary line of business is already utility business and unless you are adjacent to the service territory, PUHCA prevents you from merging or purchasing a utility. I mean, we have this huge infrastructure need and I think everybody in the panel agrees we are going to need more transmission siting. Is there anybody that disagrees with that?

If you don't repeal PUHCA you either have to put the government—the government has to come in and nationalize the system to put the capital into it or you are going to have to make do with the current system with a little bit of increase, and we have been increasing transmission about a third as fast as demand has been increasing or at least that is what I have been told.

Mr. LARK. I would just say that, as to how much investment is required in the transmission infrastructure, I don't think I have made a conclusion on that point; and that is one of the things I think we will learn following the outcome of the many investigations that you alluded to earlier.

Mr. BARTON. Does anybody on this panel oppose the incentive authority for incentive rates for new transmission capacity? FERC has some authority in that area already. The pending bill that the House passed expands that and makes it explicit that FERC has that authority. Are any of the panel members opposed to that?

Mr. LARK. Well, don't want to say I oppose that, but I would want to think that through just a little bit. I know that my Governor made some remarks earlier and I think those went to the point that I believe the return on equity at present is 12.88 percent. Membership in an RTO brings it up to 13.88, and there are other aspects that FERC has in place that would bring it up even

higher. So I have not concluded that is the problem, that, in other words, without additional incentives—

Mr. BARTON. We don't have mandatory incentive rates for transmission. What the bill would do, that would make it explicit in certain cases that the FERC could do it. So you could still have the traditional State or Federal rate-making authority that would not have an incentive rate to it. So this is not a blanket. Every transmission line that is going to be built is going to have an incentive rate.

Mr. LARK. I would like to look at the legislation.

Mr. SCHRIBER. Mr. Barton, you are talking part of this incentive rate making is the participant funding, which is pretty vague. It says those who benefit should pay, and it is not clear who benefits. That is the problem, because there may be benefits that are spread way beyond those that are perfectly obvious. It is a difficult part and I think needs to be ferreted before you go forward with that.

Mr. BARTON. Anything we would like to do in the House-passed bill is make it possible to get a more reasonable depreciation schedule for transmission lines that are built. So that instead of having a 40-year transition period you could have 10 or 15 years so you get your capital back quicker.

Any of you gentlemen oppose that?

So we have agreement on that one.

Mr. LARK. Mr. Chairman, I, again, would want to take a look at that. I think the general schedules presently are approximately 15 years. I believe what I am hearing is taking it down to 10 years. I wouldn't say I have a knee-jerk reaction about that, but, again, I am not certain that is necessary for transmission upgrades.

Mr. BARTON. One more question. RTOs, how many of you represent regions that are power generation sufficient? Ohio could generate all of its power. Michigan could generate all of its power. New York and New England could generate all of its power.

Mr. LARK. Mr. Chairman, I wouldn't say Michigan can generate all its power, but we are not generation deficient. We presently bring in generation from the two southern interconnects. So in our area we don't consider ourselves power deficient.

Mr. BARTON. Is there anybody who represents a region that is not interconnected with other States? Is there anybody who wants to be its own island and not be interconnected with other States?

So at least in principle we all agree there should be RTOs. The question is how to set them up and how to give the States and the regions the authority to set them up in a way that each State and each region has a say in that RTO that makes sense for that State and region's perspective.

Mr. SCHRIBER. Yes. And if I may, there are some States such as ours that have more than one RTO which has problems of its own.

Mr. BARTON. I want to ask Mr. Eldridge and Mr. Durkin, who do you actually report to? Who pays your salary?

Mr. DURKIN. My case, I am chairman of MPCC; and the membership pays my salary.

Mr. BARTON. So the utilities that are part of the Coordinating Council pay in and your salary is paid not directly but they supply funds to the Council and you are paid from those funds?

Mr. DURKIN. Yes. The funds that they provide pay me, they pay for the staff of the organization, and they also pay for the support that we are required to pay for NERC and so forth.

Mr. BARTON. What about you, Mr. Eldridge?

Mr. ELDRIDGE. Very same thing. ECAR is a nonprofit member organization.

Mr. BARTON. If you did a bad job, who would make the decision to replace you? Mr. Eldridge.

Mr. ELDRIDGE. Different from MPCC, which has kind of a permanent chairman, in ECAR we have an executive board which is a governing body of ECAR; and the chairman of the ECAR executive board is my boss. And—

Mr. BARTON. And who picks the chairman of the executive board?

Mr. ELDRIDGE. The board itself. They have a nominating committee process.

Mr. BARTON. Is that chairman of the executive board member a utility executive who would be an operating officer?

Mr. ELDRIDGE. The current chairman of ECAR's executive board is the CEO of Big Rivers Electric Corp.

Mr. BARTON. That is the kind of person—

Mr. ELDRIDGE. Typically, the people on the executive board are senior executive level people.

Mr. BARTON. You are not picked by Mr. Gent.

Mr. ELDRIDGE. I am picked by my board.

Mr. BARTON. The NERC puts these standards in place, but NERC does not serve in a supervisory capacity over you or Mr. Durkin.

Mr. DURKIN. That is correct.

Mr. BARTON. That is done by the participants who join your nonprofit organizations, and in most cases those are executives of utilities, is that correct?

Mr. DURKIN. In the case of MPCC, we have an executive committee that is split between transmission customers and transmission owners. The transmission customers are independent generation owners and so forth, market makers and so forth.

Mr. BARTON. Now is there any reason to believe that this structure—and I am not advocating that it did—but is there any reason that the way the structure is set up is a problem in terms of operating the system and preventing blackouts? Because it seems to be a very diffused structure.

Mr. DURKIN. Well, at ECAR each member company is represented on the executive board. The executive board determines the policy, direction and improves all reliability criteria that the ECAR forum develops; and most of what we develop is in conjunction with and in support of the NERC reliability standards. We are just a regional implementer of that, if you will. And—and I lost my train of thought there.

Mr. BARTON. It is late in the day. I just had a general question, and you have satisfied it.

Gentlemen, I want to thank you. This hearing is going to recess and reconvene tomorrow morning at 9:30, and we do appreciate your attendance.

[Whereupon, at 6:15 p.m., the committee was adjourned.]

[Additional material submitted for the record follows:]

NORTHEAST POWER COORDINATING COUNCIL
1515 BROADWAY, NEW YORK, NY 10036-8901
October 7, 2003

Hon. W.J. TAUZIN
Chairman, Committee on Energy and Commerce
Room 2125 RHOB
United States House of Representatives
Washington, D.C. 20515

Re: Committee on Energy and Commerce Request

DEAR CHAIRMAN TAUZIN: As requested, attached is Northeast Power Coordinating Council's response to the questions transmitted in your September 22, 2003 letter. We welcome this opportunity to provide additional information. Please let me know if you or the Committee have any other additional questions.

Very truly yours,

CHARLES J. DURKIN, JR.
Chairman

cc: Members, NPCC Executive Committee

NORTHEAST POWER COORDINATING COUNCIL RESPONSE TO THE U.S. HOUSE OF
REPRESENTATIVES COMMITTEE ON ENERGY AND COMMERCE

Question 1. You mention NPCC's preference for the reliability language in H.R. 6, specifically due to its acknowledgement of New York's unique reliability needs. Could you elaborate on what those needs are and why it is important to recognize them?

Response. NPCC criteria establish the regionally specific reliability requirements necessary to maintain the security and adequacy of its interconnected bulk power supply system. These criteria define the minimum requirements for both the design and operation of the Northeastern North American electric power system. While they are consistent with and meet NERC criteria, they are more stringent.

More stringent criteria and rules make for a more robust system, especially when operation outside of normal system conditions is encountered. These requirements provide for extra margin that adds flexibility when extraordinary events occur and reduces the likelihood of the need for load shedding in response to such system disturbances.

The New York State Reliability Council ("NYSRC") establishes rules for maintaining the reliability of the electric power system within New York State ("Reliability Rules"). These Reliability Rules may be more specific and more stringent than NPCC Standards, recognizing special New York system characteristics or reliability needs.

These Reliability Rules define standards for maintaining the reliability of the New York State Power System. Compliance with the Reliability Rules is required by the New York ISO and all entities engaged in transactions in the New York State Power System (New York ISO/NYSRC Agreement Section 2.1). Reliability Rules are developed in accordance with NERC, NPCC, FERC, PSC, and NRC standards, criteria, rules, and regulations, as provided in the NYSRC Agreement (New York ISO/NYSRC Agreement Section 4.1).

The Reliability Rules pertaining to operation of the New York System during impending severe weather conditions (New York City Storm Watch in-city generation requirements, for example) recognize the specific New York transmission configuration and outline the corrective actions to protect the system for one contingency greater than that required by the normal criteria. For example, limits may be imposed on the 765kV tie line with Hydro Quebec when thunderstorms are reported in the vicinity. Local reserve and installed capacity requirements recognize specific New York transmission constraints.

In general, due to New York's geography and network topology, a variety of local reliability rules are necessary in order to assure the safe and reliable operation of its electric power system.

Question 2. Your testimony briefly explains how New York divided into two islands. Can you elaborate on that occurrence and describe what effect this had on power restoration?

Response. Our understanding of the events described here, and of those not yet fully catalogued, may change as the investigation progresses.

Initially, the Eastern Interconnection split into two sections separated by an east-to-west line. To the north of that line was New York City, northern New Jersey, New York, New England, the Maritime Provinces, eastern Michigan, the majority of Ontario, plus the Québec system. To the south of that line was the rest of the

Eastern Interconnection, which was not affected by the blackout. During the next nine seconds, several separations occurred between areas in the northern section of the Eastern Interconnection.

The ties between eastern New York and New England disconnected, and most of the New England area became an island with generation and demand balanced close enough that it remained operational. However, southwestern Connecticut separated from New England and remained momentarily tied to the eastern New York system. At about the same time, the ties between eastern New York and western New York disconnected creating two islands.

Ontario and western New York then separated, with 15% of the demand across New York State disconnected automatically. About 2,500 MW of Ontario demand automatically disconnected as the Ontario system attempted to rebalance.

The Ontario-New York separation left New York's and Ontario's large hydro generators in the Niagara and St. Lawrence areas, as well as the 765 kV intertie with Québec, connected to the New York system, supporting the demand in upstate New York just south of Lake Ontario. Three of the transmission circuits near Niagara automatically reconnected Ontario to New York, and another 4,500 MW of Ontario demand automatically disconnected.

Just after 4:11 pm (EDT), the Niagara lines disconnected again, and western New York and Ontario again separated. Most of Ontario blacked out after this separation, leaving 22,500 MW of demand disconnected out of a total demand of about 24,000 MW.

The eastern New York island blacked out with only scattered small pockets of service remaining. The western New York island continued to serve about 50% of the demand in that island. When a 345 kV line feeding from southwestern Connecticut into eastern New York disconnected, it left southwestern Connecticut connected to New York only through the 138 kV cable that crosses Long Island Sound. About 500 MW of southwest Connecticut demand was disconnected by automatic grid operations. Twenty-two seconds later the Long Island Sound cable disconnected, islanding southwest Connecticut and blacking it out.

Some isolated areas of generation and load remained on line for several minutes. Some of those areas in which a close generation-demand balance could be maintained remained operational; other generators ultimately tripped off line and the areas they served were blacked out. One relatively large island remained in operation serving about 5,700 MW of demand, mostly in western New York. This service was maintained by large hydro generating stations in New York and Ontario in the Niagara and St. Lawrence areas as well as the 765 kV inter-tie with Québec. This island formed the basis for restoration in both New York and Ontario.

NPCC's *Emergency Operation Criteria* requires each area to have a system restoration plan in accordance with NERC Operating Policies, and requires that system operators be knowledgeable of the strategy, priorities and procedures for implementing their system restoration plan. NPCC regularly assesses and assures compliance with these requirements.

Under the New York ISO's Restoration Plan, developed in accordance with NERC and NPCC emergency operating criteria, priority is given to energizing the power system, synchronizing it with neighboring system, and restoring offsite power to nuclear facilities. The restoration of load to customers is the ultimate plan objective.

The first step taken in the restoration process involved stabilizing the system and restoring the tie lines to the neighboring control areas. Within about three hours, the New York ISO was able to restore the major tie line at Ramapo to the remainder of the Eastern Interconnection. The first major New York power plant was returned to service in just under an hour after that, and a few minutes later a transmission path to New York City was re-established. From the outset of the emergency, the New York ISO placed high priority on the restoration of New York City, where the absence of electricity is a more severe threat to health and welfare than elsewhere. Throughout the next day, there was a painstaking process of bringing generators back to the system and re-energizing lines.

New York State service was restored by 10:30 pm Friday, August 15th. The restoration process was aided and shortened by the fact that the western New York island remained in service and by having on-line generation already available in this island during the initiation of the restoration process.

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL
PRINCETON, NEW JERSEY
October 2, 2003

The Honorable JOHN D. DINGELL
U.S. House of Representatives
2328 RHOB
Washington, D.C. 20515-6115

DEAR CONGRESSMAN DINGELL: During the September 3, 2003 hearing of the Committee on Energy and Commerce concerning the August 14th blackout in the upper Midwest and Northeast United States and eastern Canada, you requested that I supply additional information regarding the nature of the violations that NERC had found through its compliance enforcement program.

This letter provides that additional information. At the outset I must emphasize that neither NERC nor the U.S.-Canada Joint Task Force on the Power Outage has completed its investigation of the blackout. Further, the violations described in this letter were not a product of that investigation; rather, these violations were found through NERC's ongoing compliance program. At the hearing you asked whether any of the violations that NERC found through its compliance program imposed risk to the system, including the possibility of a shutdown of the kind we experienced on August 14th. NERC found several types of violations that exposed the interconnected system to serious risk. A description of those violations and the nature of the risks they present follow.

- **Operating portions of the transmission system beyond their "first contingency" rating.** NERC's planning standards and operating policies require that the transmission system be planned and operated to withstand the failure of any single element without affecting other portions of the transmission system. Some control areas and reliability coordinators reported specific situations during which they operated beyond the first contingency rating of a portion of their transmission system. In 2002, NERC referred to this rating as the "operating security limit." Violating this limit increases the possibility that a disturbance to the transmission system could result in a widespread cascading failure. If portions of the system are being operated beyond their first contingency rating and the contingency occurs (such as a storm damaging a transmission line or a generating plant shutting down because of a boiler tube leak), then other portions of the transmission system could well be affected. Depending on the circumstances, such an occurrence could precipitate a cascading failure of a portion of the system. NERC's planning standards and operating policies require that a system operator know the first contingency ratings of the portion of the system under its control, that the system operator regularly assess system conditions, and that the system operator take corrective action to promptly bring the system back within first contingency ratings when those ratings are exceeded.

- **Exceeding control performance limits.** NERC operating policies require that each control area maintain a constant balance between its generation and demand within specified limits, recognizing that customer demand is constantly changing and generation control is never perfect. Operating outside those limits is considered a violation of these control performance policies and places a burden on the entire Interconnection as it feeds power to, or absorbs power from, the non-compliant control area. NERC expects control areas to comply with these control performance policies at all times, even when generation is limited. That expectation might require a control area to curtail customer demand through public requests for conservation, voltage reductions, and even load shedding. NERC performs monthly surveys that track each control area's compliance with NERC's control performance policies. Although most control areas fully comply with these policies, we have seen obvious instances of non-compliance that resulted in noticeably lower frequency in the Interconnection. Non-compliance with the control performance standards can also result in unscheduled flows on the transmission system as the entire Interconnection responds to correct the imbalance. These unscheduled flows may overload portions of the system. Because the flows are unscheduled and therefore unknown to the system operators, it may be more difficult to resolve the overload because the system operators do not know what is causing it.

- **Failure to return generation-demand balance within 15 minutes following the sudden failure of generation.** Generating unit failures cause an instant imbalance between a control area's generation and its customer demand, resulting in a decrease in system frequency. NERC's control performance operating policies require that a control area return to a balance between its generation and customer demand within 15 minutes following the sudden generating unit failure. Many control areas pool their generation reserve in a reserve-sharing group to

quickly restore this balance. Until that balance is achieved, the entire interconnection feeds power to the deficient control area as a result of automatic controls on the generators. Our monthly surveys show that most control areas comply with this policy. Those that do not are required to carry additional operating reserves. Until balance is restored, unscheduled flows occur on the system, presenting the same potential for overloads discussed in the prior example.

- **Lack of NERC-certified system operators.** Since January 1, 2001, NERC has required that all control center operators be NERC-certified. NERC certification requires that the system operators pass an examination based on our operating policies as well as a general knowledge of interconnected system operations. Not having NERC-certified system operators may place the system at risk because the non-certified operator may lack a sufficient understanding of interconnected system operations and the operating policies necessary for interconnected operations. The system operator may not appreciate the risk of operating in a particular manner. In the event of a system disturbance, the system operator may not understand the steps needed to bring the system back within acceptable operating parameters.

- **Non-compliance with regional underfrequency load shedding programs.** Underfrequency load shedding systems help provide a quick generation-demand rebalance when a portion of the Interconnection becomes isolated from the rest of the system. This underfrequency load shedding is accomplished automatically in fractions of a second. Each of the Regional Councils has established underfrequency load shedding requirements for its control area members. This load shedding must occur prior to generating units tripping offline to protect generating equipment and attempt to arrest a decline in system frequency. Not complying with these standards can result in insufficient underfrequency load shedding, or load shedding that doesn't occur until the frequency has declined too far. Once frequency declines to a certain point, relays designed to protect equipment on the system from physical damage begin to disconnect equipment (such as generating units) from the system, causing frequency to decline even further as demand and the resources available to meet it get even further out of balance.

- **Lack of system studies.** NERC planning standards require that utilities model their systems under normal, single contingency, and severe contingency situations. Studying the effects of contingencies on transmission system models helps the utilities and reliability coordinators understand how those systems are likely to respond under a range of normal to stressful situations. Lacking those studies means that the system operators may be faced with events whose outcomes might be unknown, i.e., operating in an unstudied state. Without such studies, system operators may not realize that they are operating beyond first contingency ratings, or system operators may not understand the limits they need to impose on transfers across the system to avoid a voltage collapse.

The 444 violations of NERC Operating Policies included in the 2002 Compliance Report break down in the following manner:

- Control performance standards, CPS-1 and CPS-2: 25
- Disturbance control standard: 8
- Formal policies and procedures to address the execution and coordination of activities that affect transmission system security: 11
- Operating security limit:
 - Violation of first contingency limit: 15
 - Violation of regional criteria that are more stringent than NERC criteria: 98
 - Path being up-rated (old limit violated—new limit not violated): 12
- Adequate facilities for system operators to monitor specific system parameters: 8
- Control area and operating authority to provide system data to reliability authority: 10
- Operators must implement and communicate emergency plan: 1
- Emergency operation plans developed and maintained: 15
- System restoration plans: 27
- System operator authority: 12
- Operator certification violation: 193
- Reliability authority to perform next-day study: 8
- Issuance of energy emergency alerts: 1

The 97 violations of NERC Planning Standards included in the 2002 Compliance Report break down in the following manner:

- System performance under normal conditions with reporting requirements: 11
- System performance under single contingency with reporting requirements: 12
- System performance under extreme contingency conditions: 18

Recorded fault and disturbance data: 5
 Develop and maintain a library of dynamic models: 2
 Consistency of entities with regional underfrequency load shedding program: 44
 Analyze and document regional underfrequency load shedding program performance: 2
 Analysis and documentation of under-voltage load shedding event: 2
 Regional assessment of special protection system coordination and effectiveness: 1

I hope this additional information is useful to the Committee. Please contact me if you have additional questions relating to the reliability of the bulk electric system.

Very truly yours,

MICHAEL R. GENT
President and CEO

cc: The Honorable W. J. "Billy" Tauzin

PREPARED STATEMENT OF HON. GEORGE E. PATAKI, GOVERNOR, STATE OF NEW YORK

Mr. Chairman, thank you for the opportunity to submit testimony regarding New York's experience during the recent northeast blackout.

On August 14, 2003, nearly ninety percent of New York State experienced a loss of electric service that lasted for periods ranging from several minutes to nearly 30 hours. This power outage has cost the State and its citizens untold millions of dollars in lost commerce, equipment damage, food spoilage and restoration, as well as inconvenience and risk to public safety on a monumental scale.

At this point, the precise origin of the outage is still not known—although speculation abounds. We also do not know how this fast moving event on our power grid could have crossed through so many jurisdictions and then entered New York without apparent warning. What we do know is that New Yorkers—upstate and down, young and old, rural and urban, responded to the situation with a sense of courage and community that is, unfortunately, learned only from hard experience. New Yorkers rose to this occasion as they have in the past—together. As the sun began to go down on August 14, 2003, millions of people tried to make their way out of New York City. They streamed across our bridges on foot, caught rides with co-workers or strangers, and many of them slept in our parks and on our streets. Neighbor looked after neighbor and New York met the challenge with a peaceful determination. In fact, during the time that New York was without power there was no discernible increase in crime of any kind in our state. Contrast that to 1977, when the last great blackout occurred. During that event there was widespread looting and crime as many took the opportunity to turn on their own neighborhoods. Not anymore, not in a City and a State that has been through what New York has been through in the last two years. Instead shopkeepers came out and directed traffic under darkened traffic lights. People offered rides to strangers and got them home safely. In some neighborhoods there were impromptu block parties as people came out of their homes and gathered in the streets—peacefully.

These people deserve answers. They deserve results. They deserve a rock solid assurance that this will not happen again.

One way we could fail them is to jump to conclusions. Another way we could fail them is to engage in an endless cycle of finger pointing or blame. But we will not fail them if we do two things: First, we must obtain a true understanding of this event before reaching any conclusions as to cause. Second, once those causes are identified, swift and certain action must be taken that deals—once and for all—with the weaknesses that allowed this to happen in the first place.

I would like to spend just a few minutes describing what was happening in New York State in the immediate aftermath of the blackout and some of the actions we took in response to this emergency. I then will offer to this Committee some specific actions which New York believes Congress can and should take to strengthen our nation's electricity system.

Shortly after the first flickering of the lights in New York, the state's emergency response system was up and running. Our Emergency Operations Center in Albany was activated under the direct supervision of my staff by representatives of twenty-three state agencies, FEMA, and volunteer organizations like the American Red Cross. I declared a statewide emergency less than one hour after the power failure.

The state's initial response focused on two major tasks: monitoring the restoration of electrical power to the citizens, and supporting local government efforts to protect public health and safety. While the Public Service Commission monitored and assisted the power restoration efforts of New York's major utilities and generators, in-

cluding the shutdown of the state's six nuclear power plants, our other state agencies were engaged in public protection efforts.

During this phase of the emergency our Operations Center coordinated the transfer of generators from state agencies to provide power to three downstate hospitals. Additional generators were dispatched to power local water supplies. The Department of Health remained in contact with the state's hospitals and, in coordination with New York City, organized the dispatch of over 50 ambulances from upstate New York to support New York City's emergency service units. The Department of Health in partnership with the Department of Agriculture and Markets provided inspectors to augment local inspection of grocery stores and restaurants as millions of refrigerators across New York suddenly stopped working. Immediately the state's private utilities and generators, as well as our own Long Island and New York Power Authorities, began working together with the Independent System Operator to restore electric service to 17 million people in a deliberate and orderly fashion.

Late in the evening on Thursday night the New York Power Authority and its counterpart in Ontario appealed to the International Joint Commission for permission to divert additional water into the large hydro-electric plants at Niagara Falls. At that point these huge hydro plants were virtually the only generators running in our state—thankfully they supply thousands of megawatts of dependable power.

Recognizing the magnitude of this emergency the International Joint Commission quickly allowed the diversion of an additional 50,000 cubic feet of water per second from the Niagara River into the hydro projects. The famous tour boat "Maid of the Mist" had to temporarily suspend operations because only half as much water was flowing over Niagara Falls. However, the water diversion allowed for the generation of an additional 1,100 megawatts of electricity beyond the normal output of the facilities, enough to provide power to more than one million homes. At a time when most of the northeast United States was without electric generating capacity, this move turned out to be critical to the restoration process, allowing other generators to come back on line more rapidly and decreasing the severity and duration of the outage across the state.

Over the course of the last two years we put together an initiative we call the Coordinated Demand Response Program, and on August 14th and 15th it played a significant role. The program involves all of New York's energy agencies acting together to strategically plan and implement programs in cooperation with the New York Independent System Operator (NYISO) and local utilities to reduce the demand for electricity at key times. This program, which provides financial incentives to customers who reduce their demand for power, uses a "quick response" alert system involving a statewide network of large and small electricity customers. For example, by operating via a combination of cellular and internet-based controls with 34 Home Depot stores throughout New York City we were able to reduce the electricity demand of these stores by over 4 megawatts—enough power for over 3,000 homes. We also had in place a coordinated program for reduced energy consumption by State agencies and authorities across New York. On August 14th and 15th, those programs were instrumental in helping to restore electricity to New York State by balancing the load as the electricity delivery system was re-energized. In New York State we showed that energy efficiency, demand response programs, and public appeals are important grid management tools. In this case they proved to be an emission-free way of reducing electricity demand by approximately 2,500 megawatts—the combined output of three large generating facilities.

During this same time frame Consolidated Edison was engaged in a major effort to restore power to the City of New York. Among the first significant electric generating station to come back on line in the greater New York City region was a small, clean-burning gas-fired combustion turbine located at Hell's Gate in the Bronx. This power plant and others in five locations throughout New York City had been installed in preparation for the summer of 2001 by the New York Power Authority. Because they are sited in strategic, energy-starved locations within New York City and are not dependent on long-range transmission, these small, clean power plants provided critical support to the electric grid, and helped to reduce the duration of the outage. In fact, many of the neighborhoods where these turbines are located were among the first to come back on-line. The installation of these plants is a clear example of New York's extensive planning and preparation to prevent and minimize energy emergencies.

On Thursday, August 14th, we also appealed to Energy Secretary Spencer Abraham for assistance with a vital link between Long Island and the State of Connecticut. The Cross-Sound Cable, a 330 megawatt power line that was fully capable of functioning but which had not yet been activated due to what can only be described as parochial political reasons, was the subject of a New York request for an emergency order from the Department of Energy. Secretary Abraham and his staff

answered our request almost immediately and within hours the Cross-Sound Cable was energized and critically needed power began to flow to Long Island. The operation of this line will make the entire region's electric grid more reliable as we begin to piece together how this event occurred.

These are just a few examples of the many stories of people working together to restore service across the state. I am sure that you will hear more as some of the affected utility companies come before you tomorrow. Overall, the State's private utilities and generators, the Long Island Power Authority, the New York Power Authority, and the Independent System Operator worked closely together with an unmatched level of cool professionalism. The system began to come back up piece by piece, and less than thirty hours later, the electric system in New York State was fully re-energized.

Again, we should not reach conclusions about what happened in this specific instance before an intensive investigation has reached its end. But that is not to say that we cannot begin the process of identifying how we might address the general state of our electric system and whether it is prepared to meet the challenges that we are placing on it every day.

This event appears to have crossed through a number of states, and indeed into Canada and back again, before it was done. No single state or province can be expected to find the answers that a great swath of our nation deserves today. I therefore look forward to the findings of the Task Force headed by Secretary Abraham and the Canadian Minister of Natural Resources. They are the right people to lead the inquiry. We pledge our cooperation to the Task Force during this inquiry and have already provided expert personnel to the working groups supporting their effort.

As no single state or province can be expected to find the answers, even more so no single state or province can be expected to supply the solutions that will guarantee the reliability that our nation deserves. The reliability of a system that is interconnected across nearly every state and into Canada can only be assured by the federal government, by Congress, by you. This Committee has an opportunity to begin breaking the gridlock on an issue that has remained in conflict for too long—this nation's energy future.

And so I cannot pass up this opportunity to tell you about how New York can provide some very pertinent examples for federal action at this crucial moment on the issue of energy and electricity.

First, the issue of under-investment in our electric transmission system. When the federal de-regulation of the electric system was conducted through the Order 888 Federal Energy Regulatory Commission (FERC) rulemaking in 1996, the New York's Public Service Commission went to court to seek to maintain its authority to set retail transmission rates which in turn would have allowed New York to encourage transmission investments to be made.

That case made it all the way to the Supreme Court of the United States in a case now known as *New York v. FERC* which held that FERC has jurisdiction over the rates for transmission to retail customers in states that have implemented retail electric supply competition. The case is rather prophetic considering the circumstances under which we find ourselves here today, and if I may, I would like to quote from the Court's unanimous opinion:

"New York argues that FERC jurisdiction over unbundled retail transmission will impede sound energy policy. Specifically, New York cites the States' interest in overseeing the maintenance of transmission lines and the siting of new lines... Regardless of their persuasiveness, the sort of policy arguments forwarded by New York are properly addressed to the Commission or to Congress, not to this Court."

That was a unanimous United States Supreme Court nearly two years before the blackout of 2003. The provision of financial incentives to induce the construction of interstate electric transmission is an issue that should properly, and legally according to the Supreme Court, be addressed at the federal level. This Congress can and must provide the level of investment certainty that will actually get transmission built and upgraded so we do not repeat this kind of event again. The problem is uncertainty. Nothing will chill investment like uncertainty. New Yorkers and others have unfortunately paid the price for an uncertainty that has existed for far too long. This Congress should fashion, or direct the FERC to fashion, clear rules that will allow transmission owners and other investors to know how, when, and by whom their investment will be returned. Without clear incentive, there will be no investment. Without investment, we cannot guarantee it will not happen again.

A second and related issue I would like to cover concerns reliability standards. New York has in place the strictest state electric system reliability rules in the nation. In response to the 1977 blackout New York adopted dozens of new, reliability

rules: One of the most prominent is the need to protect against lightning strikes on critical transmission facilities supplying power to New York City—known as the “Thunderstorm Watch” Procedure. In the energy legislation before Congress right now there are provisions which would establish national reliability standards—we need federal reliability standards in the form of law, not in the form of legislative proposals. As we have now learned the hard way, a reliable system in one state may be made suddenly unreliable by events outside of its borders. That is why only the Federal government can put in place the fixes that will ensure that it will never happen again.

I support federal legislation which would impose mandatory minimum reliability standards nationwide, but with a retention of the ability of states such as New York to set higher reliability standards provided they do not negatively impact other states or regions. New York City, with its high population density and dependence on electricity has concerns not found in other portions of the country. We must have the flexibility to respond to the needs of our own citizens, and Representative Vito Fossella has recognized that and included a provision guaranteeing that New York’s high reliability standards can remain in place. Nevertheless, this event demonstrates that we must have minimum federal reliability standards, states are simply not in a position to prevent events from occurring in other states. This Congress can and should pass national reliability standards.

As I discussed previously, New York State has a long track record of programs designed to promote energy efficiency and conserve energy during periods of peak demand. Our efforts involve energy efficiency programs like New York’s “keep cool” air conditioner rebate program, thermostats in houses that are controlled by the utility via the internet, and public education campaigns that educate people when and how to use energy wisely. In New York, already the most energy efficient state in the continental U.S., we are proving that energy efficiency is the most cost effective and cleanest grid management tool available.

These programs not only make our electric grid more reliable, but they create jobs and clean up the air while doing so. New York currently spends nearly \$290 million each year to improve the state’s energy efficiency, develop the state’s renewable and indigenous resources, and demonstrate new and emerging energy technologies. As of the end of 2002, these efforts resulted in nearly 1,700 gigawatt hours of electricity being saved—the equivalent of meeting the electricity needs of more than 283,000 households for a year. Additionally, these efforts have resulted in the creation or retention of more than 3,000 jobs. Furthermore by improving energy efficiency and using renewable resources through the end of 2002, emissions of more than 1 million tons of carbon dioxide, 790 tons of nitrogen oxide and more than 1,200 tons of sulfur dioxide have been avoided, helping to make the air cleaner for all New Yorkers.

New York State calls on Congress to increase its support for improving the nation’s energy efficiency and developing the nation’s indigenous renewable energy resources. Federal tax policy should reflect that saving a kilowatt hour of electricity, a therm of natural gas, or a gallon of heating oil or gasoline, is more beneficial for the economy, national security, and the environment than producing such energy domestically or importing it from elsewhere. We need to expand our focus on efficiency, which means being more productive with the energy we do use. We need to implement a federal tax policy that rewards efficiency through tax incentives for homeowners and businesses that improve the way they use energy. Adoption of a national renewal portfolio standard will ensure that the nation as a whole takes the steps that New York and twelve other states are already taking to make our electricity supply more sustainable, and to create and retain jobs domestically. Further, funding for weatherization projects for homes of low income residents, as well as funding for the highly successful state energy grant programs, will continue to pay dividends well into the future.

Finally, I would like to focus upon the importance of the use of distributed generation and combined heat and power as part of a comprehensive strategy to strengthen the electric grid. Distributed Generation is finding applications throughout New York—from helping hospitals to meet their critical energy needs to helping manufacturers meet their need for reliable, uninterrupted power. This technology offers many benefits: modern equipment is environmentally friendly; use of available heat (thermal energy) increases fuel-use efficiency, diversifies electric supplies to the end-user, and enhances energy security, and on-site generation alleviates transmission and distribution load pockets by targeting generation right where it is needed most.

In New York State we have invested nearly \$50 million that has leveraged another \$150 million in private sector capital to construct and operate nearly 100 different distributed generation systems throughout New York State, from office buildings in Manhattan to farms in upstate New York. Through our efforts we are reduc-

ing the regulatory and financial barriers that have inhibited this clean and efficient technology. We have 12 megawatts on line currently with 20 megawatts expected by the end of the year, and another 90 megawatts of distributed generation projects coming on line over the next year.

During the Blackout of 2003 and the subsequent restoration of New York's electricity grid, these systems were a part of turning the lights back on in New York State. The New York Police Department Central Park Precinct continued to serve and protect New Yorkers thanks to the electricity provided by a fuel cell installed at the police station by our own New York Power Authority. At the Rochester International Airport a new distributed generation system financed in part by the New York Energy Research and Development Authority helped the Airport to continue to operate. Outside of Buffalo the Oakwood Nursing Home distributed generation system kept the lights on and met the critical needs of its clients while the area surrounding them was without electricity.

Those are some of the solutions that I ask you to consider. Increasing investment in our transmission systems, enforceable federal reliability standards, as well as new incentives for energy efficiency, renewable energy, and greatly increased use of distributed generation are all actions that are needed to answer the wake up call we have all now received. Once we have answers to what caused this outage it is important that the investigative phase of this incident be followed by swift and clear action on these and other issues. The people of New York responded exactly as they should have—they deserve the same from their political leaders. This is the year to get an Energy Bill done.

Thank you Mr. Chairman.

COLEMAN A. YOUNG MUNICIPAL CENTER
DETROIT, MICHIGAN 48226
September 15, 2003

The Honorable W.J. TAUZIN
Chairman, House Energy and Commerce Committee
U.S. House of Representatives
Room 2125
Rayburn House Office Building
Washington, DC 20515

DEAR MR. CHAIRMAN: I would like to thank you for the opportunity to appear before the House Energy and Commerce Committee to discuss Detroit's response to the Blackout of 2003. The hearings provided an important opportunity to learn more about our nation's response to critical incidents.

The Blackout of 2003 presented issues that are crucial to improving not only the way this nation operates on a day-to-day basis, but also the way it handles future crises, and possible acts of terrorism. I believe that we, as a nation, need to refocus on the fundamentals. Specifically, we need to complete an assessment of the nation's critical infrastructures and immediately work to address our vulnerabilities. The two-year anniversary of the attacks of September 11th reminds us the completion of this task is long overdue.

The City of Detroit demonstrated preparation could go a long way. Thanks to a comprehensive homeland security plan the City was able to handle the massive power outage that crippled much of the Northeast. The lessons we learned during the Blackout of 2003 can be applied to other cities and localities across the country. We recognize that:

- *Communication and information systems must remain operational every day and be able to handle a dramatic increase in use during a critical incident.* Our key communications systems must have the redundancy and capacity to be of use during crises. For instance, Detroit's 9-1-1 and 3-1-1 systems remained up and running during the blackout. Detroit handled a record high 576 emergency medical service calls.
- *The integration of communication among local, regional, state and federal officials is vital during catastrophic events.* The blackout showed that communication between the Department of Homeland Security and the City of Detroit was an issue.
- *National processes and procedures need to be implemented and a national threat assessment must be conducted to identify vulnerabilities.* This assessment will help to identify critical factors for targeting resources, funding and priorities. Detroit has already conducted a full threat and vulnerability assessment and developed a process for constantly updating this assessment.

- *Local governments need to be prepared to respond to future critical incidents.* Detroit acknowledges the front lines of the nation's war on terrorism are America's cities and towns. The same communication and information systems we rely upon provide the foundation for efforts to detect, prevent and respond to terrorism.
- *Decisions related to homeland security cannot be done in a vacuum, separate and apart from day-to-day services.* It must be a truly "all hazards" approach and cannot take funding and resources away from traditional public safety, public health and emergency preparedness programs such as COPS, FEMA and OJP-administered grant programs like Edward Byrne Memorial Grants or Local Law Enforcement Block Grants Programs.
- *We need to view the role of localities as more than just first responders.* In the future, a police officer with the help from a member of the community may be the first to identify an impending terrorist threat. Likewise, city personnel, EMS and firepersons will be the first to respond and confront the issues and problems that arise during a critical incident.

I truly appreciated the opportunity to appear before your committee in response to the Blackout of 2003 and I look forward to the opportunity to work with you and members of your staff.

Sincerely,

KWAME M. KILPATRICK
Mayor

STATE OF NEW YORK DEPARTMENT OF PUBLIC SERVICE
THREE EMPIRE STATE PLAZA, ALBANY, NY
October 6, 2003

The Honorable W.J. "BILLY" TAUZIN
Chairman
Committee on Energy and Commerce
U.S. House of Representatives
2183 Rayburn HOB
Washington, D.C. 20515

DEAR CHAIRMAN TAUZIN: In response to your letter of September 22, 2003, I would like to thank you for the opportunity to clarify and expand upon the New York State Public Service's position regarding national reliability standards and the need for New York State to retain higher standards than any that might be implemented at the federal level.

As discussed in my testimony on September 3rd, H.R. 6 contains a provision (sponsored by Congressman Fossella) that would permit New York State to continue to set reliability standards greater than those that might be established nationally. New York City presents unique circumstances and challenges that warrant reliability standards that exceed those of the rest of New York State or the nation. New York City serves as the financial capital of the world, meaning the economic consequences of power outages can literally be felt globally. We were very fortunate that the local electric utility in New York City, Consolidated Edison, was able to establish power to Wall Street hours before trading opened on the next day following the August 14th blackout. While emergency back-up generation exists throughout the city, including on Wall Street, it is simply not adequate to sustain the city's level of economic activity. Therefore, the loss of power in New York City for an extended period of time can essentially translate into billions of dollars in lost revenue for the financial industry and others.

In addition, New York City is heavily reliant on electricity to power a subway system that carries more than 7 million passengers a day. The loss of power can have the impact of immobilizing the City, stranding commuters and endangering the lives of those unfortunate enough to be caught on the subway when an outage hits. Furthermore, the population density of New York City is significantly greater than any other large city in the nation. Due to its relatively small geographic size, the city has residential and commercial skyscrapers that require electricity for air conditioning, elevators, and lighting. In fact, it is estimated that at any given moment on a workday, more than 1 million people in New York City are either riding on elevators or in subways. Clearly the continuous and reliable flow of electricity to these buildings and subways is necessary to ensure adequate public health and safety.

The city's population density also makes siting power plants within the city difficult, albeit not impossible. We have recently made progress in siting new power plants within New York City. Some are currently under construction, while others

are essentially on hold due to the financial industry's reluctance to support large-scale power projects. In addition, New York State maintains a rule requiring that 80 percent of the electricity consumed in New York City be capable of being generated from within the city itself. Despite this rule, and despite the promise of new power plants in the near future, New York City will likely remain reliant on the transmission of power from other regions of New York, as well as from other states, to fully meet its electricity needs. The state therefore has an obligation to ensure that those transmission facilities that operate under our regulatory purview do so reliably. We have promulgated regulations to build redundancies into these systems ensuring, to the greatest extent possible, that we avoid outages as a result of damage to any two—and in some cases, three—particular transmission facilities. This level of system redundancy has not been duplicated anywhere else in the nation, nor would we insist that any other state or region require such redundancy. National reliability standards that do not permit New York State to enforce higher standards could, however, undermine our ability to maintain these redundancy levels.

The blackouts of 1965 and 1977 prompted New York State to develop and implement reliability standards for New York City and New York State that exceed those found anywhere else in the nation. We have continued to build upon these standards over time to respond to changes in the industry and ensure continued reliability. Some of the rules unique to New York State include:

- A requirement that operating reserves (generation available within 10 and 30 minutes in the event of an emergency) will equal, at all times, one hundred and fifty percent of the single most severe potential equipment outage;
- Development of detailed procedures and objectives for each of the five system operating states: normal, warning, alert, major emergency and restoration;
- Development of one of the most comprehensive set of guidelines and procedures in the country for determining the operating capacity of all bulk power system components in service in the state;
- Requirements for the Con Edison transmission system to operate as if the first contingency has already occurred when thunderstorms are within one hour of the system or are actually being experienced. This is known as the "Thunderstorm Watch" procedure;
- Requirements for the maximum capability of all generating units to be demonstrated by a formal test twice per year, once in summer and once in winter; and
- Requirements that generating units be subject to minimum performance targets to ensure they are available a high percentage of the time.

The above list is not exhaustive, but does provide you with a sense of the steps we are taking in New York State to ensure reliability. We certainly would not advocate that all states or regions of the country comply with such standards, but feel that the unique demographics and characteristics of the New York City region warrant heightened standards. At the same time, we would support the ability of other states to also implement higher standards than those that might be imposed by the federal government should they choose to do so, provided that such higher standards have no negative consequences on reliability in other states.

It is important to note that the utilities in New York State generally comply with the reliability standards we have implemented and are effectively penalized if they fall out of compliance. There is no outcry from the industry that the standards are in any way unfair. Utilities have made adequate investments to meet these standards and have been adequately compensated for these investments through their rate structures. The decision was made, and supported through the years, that any added costs borne by ratepayers as a result of these higher standards were acceptable given the greater reliability the standards produce. The Public Service Commission supports mandatory national reliability standards to ensure that utilities in other states achieve at least a minimally acceptable level of reliability given the potential for reliability problems in one state to cross borders and impact other regions—as was demonstrated by the August 14th cascading blackout. However, equally important to the Commission is the need to retain the right to maintain and potentially enhance the State's current reliability standards to minimize the threat of future blackouts and outages to our citizens.

Thank you again for the opportunity to share our views on reliability standards. Please do not hesitate to contact my office should you need any further information.

Sincerely,

WILLIAM M. FLYNN
Chairman

cc: The Honorable Vito J. Fossella

The Honorable Peter V. Domenici

FEDERAL ENERGY REGULATORY COMMISSION
October 17, 2003

The Honorable W.J. "BILLY" TAUZIN
Chairman
Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515-6115

Re: Responses to Questions from the Committee's September 3, 2003 Hearing

DEAR MR. CHAIRMAN: Thank you for forwarding Congressman Vito Fossella's questions for the record of your Committee's September 3, 2003 hearing titled "Blackout 2003: How Did It Happen and Why?"

My responses to Congressman Fossella's questions are enclosed. I hope that this information is helpful. If you have further questions or need additional information, please let me know.

Best regards,

PAT WOOD, III
Chairman

Enclosure

cc: The Honorable Vito Fossella

RESPONSES TO QUESTIONS FROM CONGRESSMAN VITO FOSSELLA

Question No. 1: Your testimony notes how RTOs could go a long way towards improving reliability. Could you expand on this point and discuss whether or not better regional coordination through RTOs would have helped alleviate the effects of the blackout?

Answer: The United States-Canada Joint Task Force is still working to identify the causes of the blackout that occurred on August 14, 2003 and the reasons for its cascading through eight states and parts of Canada. Thus, I cannot state at this time whether better regional coordination through RTOs would have helped alleviate the effects of the blackout. However, the blackout demonstrates that our transmission system operates regionally, without regard to political borders. Once regional planning and coordination with respect to the system's day-to-day operation and system upgrades are fully in place, they should help prevent or minimize region-wide disruptions of electrical service.

As I indicated in my testimony, the Commission noted, in Order No. 2000, that RTOs would improve reliability because they have a broader, more regional perspective on electric operations than individual utilities. Some 130 control area operators currently manage the operation of the transmission grid, whereas a smaller number of regional organizations could more effectively manage the grid. The Federal Power Commission's reports to President Johnson following the Northeast power failure of 1965 called for reductions in the number of control areas to improve system-wide communication and coordination. An excessive number of control areas can impede taking the best corrective actions during emergencies. Further, unlike utilities that own both generation and transmission, RTOs are independent of market participants and, therefore, lack a financial incentive to use the transmission grid to benefit one market participant over another.

To expand upon my testimony, Order No. 2000 recognized that RTOs have unique advantages to assist in both regional planning for transmission infrastructure and the operation of the interstate transmission grid. The Commission required that RTOs have a regional planning process to identify and arrange for necessary transmission additions and upgrades. The Commission also identified the benefits of large, independent regional entities to operate the grid, and strongly encouraged, but did not require, utilities to join together to form such entities. For example, the Commission noted that an RTO of sufficiently large regional scope would, among other things, resolve loop flow issues by internalizing loop flow and addressing loop flow problems over a larger region; manage transmission congestion by more effectively preventing and managing transmission congestion over a larger area; and improve operations by allowing a single OASIS operator to allocate scarcity and reserve and schedule transmission use over a larger area.

In Order No. 2000, the Commission also required that the RTO have operational authority for all transmission facilities under its control and serve as the security coordinator for its region. The RTO's authority to control transmission facilities would include switching transmission elements into and out of operation in the

transmission system (e.g., transmission lines and transformers), monitoring and controlling real and reactive power flows, monitoring and controlling voltage levels, and scheduling and operating reactive resources. In its role as a security coordinator, the RTO would ensure reliability in real-time operations of the power system by assuming responsibility for: (1) performing load-flow and stability studies to anticipate, identify and address security problems; (2) exchanging security information with local and regional entities; (3) monitoring real-time operating characteristics such as the availability of reserves, actual power flows, interchange schedules, system frequency and generation adequacy; and (4) directing actions to maintain reliability, including firm load shedding.

Also as discussed in Order No. 2000, the RTO must have exclusive authority for maintaining short-term reliability of the transmission grid under its control. The four basic short-term reliability responsibilities of an RTO include: (1) exclusive authority for receiving, confirming and implementing all interchange schedules; (2) the right to order redispatch of any generator connected to transmission facilities it operates if necessary for the reliable operation of these facilities; (3) when the RTO operates transmission facilities owned by other entities, the RTO must have authority to approve or disapprove all requests for scheduled outages of transmission facilities to ensure that the outages can be accommodated within established reliability standards; and (4) if the RTO operates under reliability standards established by another entity (e.g., a regional reliability council), the RTO must report to the Commission if these standards hinder its ability to provide reliable, non-discriminatory and efficiently priced transmission service.

Of course, RTOs must be fully operational to meet all of the required characteristics and functions of Order No. 2000 to be effective and bring more centralized control to the regional grids, not only for day-to-day activities, but also to handle emergencies. This will help ensure that transmission facilities are operated more reliably compared to the balkanized operations prevalent in many regions today.

Question No. 2: Along the same lines, could you discuss how FERC's wholesale market platform proposal could help prevent another blackout?

Answer: In a July 2002 Notice of Proposed Rulemaking (the Standard Market Design Rule), the Commission proposed to complete the nation-wide transition to independent grid operators, building upon numerous public hearings on best practices in power markets around the world, and also upon lessons learned from market failures in California in 2000. In response to over 1,000 filed comments to the rulemaking, the Commission issued a White Paper on Wholesale Power Market Platform in April 2003, streamlining the rulemaking effort by identifying the key elements of market design platform for improving the efficiency of wholesale markets. Such a platform would, among other things: (1) require the formation of RTOs with sound market rules and customer protection; (2) provide greater regulatory certainty to promote investment in new transmission infrastructure including new technology; (3) require reliable and efficient management of the use of transmission within the region and between neighboring regions, through day-ahead markets, facilitation of demand response, and the use of price signals.

For the basic wholesale market platform, the Commission intends to build upon the existing rules adopted in Order No. 2000 for RTOs by adding features that the Commission has learned are necessary for effective wholesale power markets. For example, Order No. 2000 did not include market power mitigation measures and does not prevent flawed market designs. Wholesale electric markets will not be able to deliver full customer benefits in the future without the oversight and transparency that regional independent transmission organizations can provide. Healthy and well-functioning wholesale power markets are central to the national economy, and the Commission believes that regional, independent operation of the transmission system, with proven and effective market rules in place, is the critical platform for the future success of electric markets.

In addition, Order No. 2000 did not include a regional view of resource adequacy. The Commission has learned that if one state has inadequate resources, it can create severe problems for the larger region. It is difficult for the Commission to assure just and reasonable wholesale market prices if there are insufficient resources to meet demand. Each region with an RTO or ISO will determine how it will ensure that the region has sufficient resources to meet customers' needs. The approach to and level of resource adequacy will be decided by the states in the region drawing from a mix of generation, transmission, energy efficiency and demand response.

With respect to wholesale market design, the Commission has promoted the use of transparent congestion pricing to better manage congestion on the transmission system. Congestion usually occurs when someone wants to import power into an area, but must use more expensive, local generation because of transmission constraints. While additional transmission investment may ultimately be needed to re-

solve the congestion, such investment could take several years to site and build. In the interim, an efficient congestion management system can manage the use of the transmission system in a way that ensures reliability.

In regions with an efficient congestion management system, such as the Northeast, a transparent pricing process provides real-time information on the level of transmission congestion. These price signals provide both short-term and long-term benefits to wholesale markets. In the short-term, spot prices can pinpoint where a transmission problem exists and provide incentives to adjust schedules to solve the problem. Wholesale market participants (including buyers and sellers) then can respond quickly based on these price signals and possibly prevent a blackout. In the long-term, consistently higher prices can serve as an early warning of potential transmission problems and signal the need for new investment.

BLACKOUT 2003: HOW DID IT HAPPEN AND WHY?

THURSDAY, SEPTEMBER 4, 2003

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ENERGY AND COMMERCE
Washington, DC.

The committee met, pursuant to notice, at 9:30 a.m., in room 2123 of the Rayburn House Office Building, Hon. W.J. "Billy" Tauzin, (chairman) presiding.

Members present: Representatives Tauzin, Barton, Upton, Gillmor, Greenwood, Cox, Burr, Whitfield, Norwood, Shimkus, Wilson, Shadegg, Fossella, Buyer, Radanovich, Bass, Walden, Terry, Ferguson, Rogers, Otter, Dingell, Markey, Boucher, Towns, Brown, Rush, Stupak, Engel, Wynn, Green, McCarthy, Strickland, Doyle, Allen, Davis, and Schakowsky.

Staff present: Mark Menezes, majority counsel; Sean Cunningham, majority counsel; Jason Bentley, majority counsel; Bob Meyers, majority counsel; Andy Black, policy coordinator; Peter Kielty, legislative clerk; Sue Sheridan, minority counsel; and Bruce Harris, minority professional staff.

Chairman TAUZIN. Would the hearing please come to order? Let me set the stage. We are in the second day of the hearings on the Northeast blackout. Today's effort following yesterday's effort, in which we heard from government officials and officials of the reliability councils to get their take on what they understand probably occurred and some of their analysis of what might be done to ensure that it doesn't occur again.

Today we follow up with representatives of the industries and the officers of the entities that were in charge of either producing or transmitting the power involved in the blackout.

We will also hear later on from representatives of the electric industry institutes and other think tanks and consumer advocate groups to get their take on this situation. By the time we are through today, we will have, I think, as good a picture as we can get before the reports are finally issued next week on the definitive findings of the technical staffs that are trying to analyze the tens of thousands of pages of data that will more definitively describe how it occurred and how, in fact, the damage spread across the system before it was finally contained.

In yesterday's hearing, we opened up with opening statements by all of the members. It is the chair's intent to go directly to this panel of witnesses unless I am requested by any member to strike the last word to say anything. But absent that, it is my intention

to introduce the panel and begin immediately the consideration of the testimony of our witnesses.

We have a distinguished panel again today. Let me first thank all of you for being here, for coming the long distances you have to share with us your perspective on this crisis, and also to welcome you all to the Energy and Commerce Committee, the oldest committee of the U.S. Congress and I believe the best committee of the U.S. Congress, in this distinguished room, where so many decisions have been made over the history of our country through one crisis or another dealing with the interstate commerce of our country and, more lately, the energy situation our country finds itself in.

This panel consists of Mr. Peter Burg, the Chairman and CEO of FirstEnergy Corporation; Mr. Eugene McGrath, the Chairman, President, and CEO of Consolidated Edison Company of New York; Mr. Nick Winser, the Group Director of Transmission of National Grid U.S.A.; Mr. Richard Kessel, the Chairman and CEO of Long Island Power Authority; Mr. Linn Draper Jr., the Chairman, President, and CEO of American Electric Power of Ohio; Mr. Joseph Welch, the CEO, International Transmission Company of Ann Arbor, Michigan; Elizabeth Moler, the Executive Vice President for Government, Environmental Affairs and Public Policy for the Exelon Corporation, who has had extensive experience here on the Hill. We welcome you back, Liz, and thank you for your many years of public service before you went into the private sector.

As I said, we have two excellent panels to follow. So we have a lot of work to do. Under our rules, your written statements are all a part of our record. We have, as you can see, stacks of the written statements in front of the members. As they arrive, they are going to be thumbing through it and reading your written statements if they haven't yet read them.

What I ask you to do today is to recognize that we live under what's called a 5-minute rule, which means that each of you has 5 minutes. And we have lights, timing. You see the lights. And if you look behind you, you'll see the members can see the lights as to the timing. We ask you to stay within that 5-minute rule so we can hear all of your testimony and allow members a chance to ask any questions that may arise from your testimony.

So during that 5 minutes, if you will summarize. If you would give us the highlights, the important points of your testimony, and then allow us a chance to maybe get some reaction from you as to what members think are important questions that need to be answered.

We will start with the Chairman and CEO of FirstEnergy Corporation, Mr. Peter Burg.

Peter?

STATEMENTS OF H. PETER BURG, CHAIRMAN AND CEO, FIRSTENERGY CORP.; EUGENE R. MCGRATH, CHAIRMAN, PRESIDENT AND CEO, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.; NICHOLAS P. WINSER, GROUP DIRECTOR TRANSMISSION, NATIONAL GRID TRANSCO PLC; RICHARD KESSEL, CHAIRMAN AND CEO, LONG ISLAND POWER AUTHORITY; E. LINN DRAPER, JR., CHAIRMAN, PRESIDENT AND CEO, AMERICAN ELECTRIC POWER; JOSEPH L. WELCH, CEO, INTERNATIONAL TRANSMISSION COMPANY; AND ELIZABETH A. MOLER, EXECUTIVE VICE PRESIDENT FOR GOVERNMENT, ENVIRONMENTAL AFFAIRS AND PUBLIC POLICY, EXELON CORPORATION

Mr. BURG. Thank you for the opportunity to be here. I'm Pete Burg, chairman and chief executive officer of FirstEnergy. I have submitted written testimony along with time line and power flow charts. Together, these materials provide a picture of conditions that existed on our system and in the region surrounding us, but they are by no means an exhaustive list of the events that occurred on August 14 on the Eastern Interconnection.

Mr. Chairman, I have spent more than 30 years on the electric utility industry. Along with my fellow panelists, the thousands of dedicated professionals with whom we work, we take great pride in delivering safe and reliable electric service to our customers and are concerned whenever an outage occurs, particularly one of this magnitude.

We have already provided a significant amount of information concerning our system and are cooperating closely with the Department of Energy and the North American Electric Reliability Council.

While we are still analyzing data, it is important to recognize that FirstEnergy's 345 transmission system is a top performer in industry reliability measures and that the much reported 345 kV lines that tripped off on our system that day have a history of good performance. We also had experienced and NERC-certified operators manning the system control room that day.

Based upon what we know today, FirstEnergy believes that the August 14 outage can only be the result of a combination of events that occurred across the Eastern Interconnection. We do not believe that events on any one system could account for the widespread nature of the outage.

As my written testimony indicates, on August 14, a number of generating facilities were offline in the region. And others became unavailable during the course of the day. There were significant power sales scheduled in the region, much of which flowed through FirstEnergy.

Following the trip of several generating units in the region in the early afternoon, including our East Lake unit number 5, power flows adjusted, as expected. And our system was in balance. And while a number of transmission lines in and outside of our system tripped off later, power flows into and out of FirstEnergy had not significantly changed as of 4:05 p.m. our time. The system was automatically adjusting to these events.

At 4:06 p.m., FirstEnergy's Sammis-Star transmission line tripped. That's when a small flow reversal with power now flowing

from Michigan into Ohio occurred, but not in a magnitude that would appear to be of particular significance at that point.

Then, at approximately 4:09 p.m., following the trip of two other lines in the region outside of our system, power flow from Michigan to Ohio substantially increased, but much, if not most, of it passed through our system into other systems. After that, additional transmission lines and generating plants begin to trip off to protect themselves from damage.

This all occurred automatically on our system. And, to the best of my knowledge, it happened automatically on other systems throughout the region.

Our interconnections to Michigan and PJM were severed, but we remained interconnected with Dayton Power and Light, Duquesne, PJM West through Allegheny, and with AEP. None of these systems with which we remained interconnected experienced significant customer outages.

While we experienced problems with our Energy Management computer system and we are still evaluating its performance, information about the events of the day were occurring. The events that were occurring throughout the day were available to the group that coordinates electric reliability for our system, the Midwest ISO.

Also during this time, our dispatchers were in communication with other system operators and plant operators, as well as the Midwest ISO.

Mr. Chairman, even though the events of August 14 are complicated and interrelated in ways I think we don't yet understand, we believe that it's not possible for a few isolated events on any individual utility system to explain the widespread nature of this outage.

While no one has all the answers at this point, my written testimony details a number of recommendations that I believe might help as we go forward. These include investments in the grid to accommodate competitive markets; transmission rate reform to encourage that investment; the implementation of new technologies; and maybe most importantly, I think, a comprehensive review of the significance of interstate power flows across the interconnected grids.

Mr. Chairman, thank you for the opportunity to share FirstEnergy's perspectives here this morning.

[The prepared statement of H. Peter Burg follows:]

PREPARED STATEMENT OF H. PETER BURG, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, FIRSTENERGY CORP.

Mr. Chairman: Thank you for the opportunity to testify today. I am Pete Burg, chairman and chief executive officer of FirstEnergy Corp., a registered public utility holding company headquartered in Akron, Ohio.

FirstEnergy's seven electric utility operating companies provide electric service to 4.4 million customers in Ohio, Pennsylvania and New Jersey.

We commend your determination, Mr. Chairman, to understand the events of August 14. Operation of the electricity grid is an extremely complex matter. Knowing all of the facts is vital to arriving at the policy decisions that could mitigate the risk of a repeat of this kind of outage. We are committed to helping determine what went wrong in the Eastern Interconnection on August 14 and are pleased to have the opportunity to tell you directly what we know about our system and our region within the Interconnection.

SUMMARY

Notwithstanding the service interruptions on August 14, the United States has a reliable electric system, and I am particularly proud of FirstEnergy's 345 kV transmission system, which has achieved a top-quartile ranking among companies in the 2003 SGS Transmission Reliability Benchmarking Survey.

FirstEnergy has been the subject of a great deal of speculation during the past three weeks regarding the outage. Clearly, and as we have said from the outset, events on our system, in and of themselves, could not account for the widespread nature of the outage. After much more evaluation, we continue to believe this is true.

We strongly believe that such a widespread loss of power could only result from a combination of events, not from a few isolated events. Industry experts share our view. Dave Nevius of the North American Electric Reliability Council (NERC), an organization charged with working to maintain electric reliability in the country, said, "It's a more complicated problem than just one utility."¹ Alan Schriber, chairman of the Public Utilities Commission of Ohio, said, "This has been the perfect storm of electricity. It's the confluence of a lot of bad things going on that day, and I don't mean just after 4 o'clock. There had been noticeable aberrations throughout the system all day."²

Today, I will highlight for you some of the significant events that we know happened. Bear in mind, however, that no one has all of the information yet, and it will take some time before we do. Much of the information regarding the events of the day is still being collected and analyzed. But from what we do know, a number of events occurred throughout the day, all of which could have combined to affect the Eastern Interconnection's ability to perform.

It is understandable that everyone is looking for the straw that broke the camel's back. But there is no one straw—they're all heaped together. And the camel's ability to support the load cannot be overlooked.

The reliability of the system—maintained by built-in reserve margins, operating protocols, sharing arrangements, communication systems, sophisticated electronics, and human vigilance—is a marvel. However, all those protections were not sufficient to prevent the problems that arose on August 14. The electric system is designed to handle contingencies that are bound to occur. Redundancies and protective devices are built into the system to protect equipment, maintain service to customers, and ensure safe operation. And, the entire interconnected network was built to provide support in emergencies. The interaction of all of these complex elements must be considered.

The role of these protective devices—as well as their automated operation on August 14—should be a focus of the investigation.

In addition, the investigation should take into account the fact that the transmission system was not designed to serve regional wholesale electricity markets as an integrated transmission superhighway. Like other transmission owners, FirstEnergy built and maintains its transmission facilities to reliably meet the requirements of customers in its own service area. While we support federal policies to adapt the existing transmission system to the needs of regional wholesale markets, no one's transmission system was constructed with this purpose in mind.

DATA COLLECTION PROCESS

As I mentioned, August 14 data are still being analyzed.

Our transmission experts are studying millions of data points. We have digital fault recorder data, oscillographic data, analog charts, and other recordings. Some of the computer records have readouts in millisecond intervals, some in two-second intervals, and others in 30-second intervals.

Additionally, the times for this information need to be calibrated and synchronized. The industry calculates the precision of time for its systems relative to the atomic clock. If the grid runs slightly above or below 60 Hertz, clocks will deviate slightly from the atomic clock, so the system must run slightly slower or faster to adjust. In fact, on August 14, the Eastern Interconnection was being run slightly below 60 Hertz to slow clocks.

The relevance of the synchronization is that, when precipitating events occur in rapid succession, it is necessary to establish precise times to gain a clear picture of sequences and interrelationships. This is a tedious and lengthy process that is still being completed.

¹ Reported in *The New York Times*, August 19, 2003.

² "Grid Signaled Breakdown," *The Plain Dealer*, August 19, 2003.

We have shared the information we have gathered to date with the Department of Energy and the NERC, and we will continue to fully cooperate with them and with your Committee.

PERSONNEL AND SYSTEM RELIABILITY

FirstEnergy system dispatchers operating the facilities at the time of the events on August 14 have an average of more than 10 years of experience and are NERC-certified professionals. They are a dedicated group that takes immense pride in ensuring the safe and reliable operation of our system.

From 1999 through 2002, we have spent \$433 million system-wide on transmission operations, maintenance and capital, with nearly \$200 million spent on transmission in Ohio. More specifically, the four FirstEnergy 345 kV lines that failed on August 14 had a history of good performance. There were no sustained outages in 2001, 2002 and through August 13, 2003 on the Chamberlin-Harding, Star-South Canton and Sammis-Star lines. The Hanna-Juniper line had six outages in 2001 ranging from four minutes to 34 minutes but none was tree related. The Hanna-Juniper line had no sustained outage in 2002 or 2003 through August 13.

In short, we have qualified operators and we are consistently making the expenditures necessary to improve and maintain our transmission infrastructure.

GRID OPERATION AND OVERSIGHT RESPONSIBILITIES

The NERC and its affiliated regional reliability councils have the mission to ensure that the bulk electric system in North America is reliable, adequate and secure. That system is designed to maintain the interconnected network in order to provide emergency support and to prevent actions on one system from having unintended consequences on another. Since its formation in 1968, NERC has operated as a voluntary organization, relying on reciprocity and the mutual interest of all those involved. In recent years, NERC has made a significant effort to respond to changes in the regulation of the electric utility industry. For example, NERC has been aggressively seeking passage of legislation, which FirstEnergy also supports, to enable it to become an industry-based, self-regulatory organization enforcing mandatory reliability standards.

Utilities operate their systems and maintain interconnections consistent with standards and guidelines adopted by NERC and its regional reliability councils. The systems are designed to withstand single and multiple outages while still performing reliably. The regional councils conduct assessments of the interconnected systems and continuously revise the standards that utilities and other industry participants observe to enable daily operations and, increasingly, electricity trading to be conducted in a reliable manner.

The Federal Energy Regulatory Commission (FERC) has required that Regional Transmission Organizations (RTOs) take responsibility for regional reliability. The Midwest Independent System Operator's (ISO) role as one of the reliability coordinators for the region is an example of how that responsibility is discharged. While the physical control of the system remains with the control area, the reliability coordinator shares responsibility for assuring that the bulk electric system is reliable, adequate, and secure. The Midwest ISO is the reliability coordinator for our transmission assets in Ohio.

Clearly, a common understanding of the cumulative events of August 14 will contribute very significantly to the consideration of reforms that can and should be made in reliability assessments and standards, and in protocols and procedures for commercial operation. One issue that comes to mind, however, is whether the reliability standards related to protective systems and their interactions with one another should be examined in light of the new ways we are using the interconnected networks to support inter-regional and international trading and marketing of electricity.

For example, according to the Electric Power Research Institute, the number of wholesale transactions has increased by 400 percent over the past decade. The East Central Area Reliability Council (ECAR) transmission systems in particular have been used for increasing volumes of area-to-area and region-to-region transactions, supplying deficit areas within the Independent Electricity Market Operator (IMO), the New York Independent System Operator (NYISO) and the Mid-Atlantic Area Council (MAAC), predominantly from resources south and west of FirstEnergy. To fully understand the events of August 14, and more importantly, to evaluate what needs to be done to redesign the transmission system, these changes in usage of the system must be considered because they impact power flows and add stress to existing facilities.

SYSTEM CONDITIONS AND EVENTS

Attached to my testimony is a chronology of events and summary of power flows that describe, as we know them, the condition of the regional transmission system on August 14, events occurring on that system, and the changes in power flows through FirstEnergy's system. This information has been compiled by a collaboration of our transmission and generation personnel and other company and industry experts. It should be noted that it depicts only a partial picture of that day, because all of the conditions and events that took place throughout the Eastern Interconnection are not available to us. That broader information ultimately will be required to fully understand what happened and what actions will be needed to mitigate the risk of such an outage in the future. However, the following summarizes what we know as of this point.

On August 14, our load was projected to be approximately 85 percent of our estimated peak summer load. Load and weather conditions for the day were typical for a mid-August day. The areas in our service territory affected by the outage experienced seasonable temperatures and no major storms.

The ECAR region had adequate generation available, even with a number of large generating units owned by various companies off-line during the day, including Detroit Edison's 800 megawatt (MW) Monroe Unit 1, AEP's 1,133 MW DC Cook unit and FirstEnergy's 883 MW Davis-Besse unit. AEP's 1,300 MW Gavin Unit 2 was also off-line and was not scheduled to come back online until the afternoon of August 14. FirstEnergy's projected load was 11,958 MW. Our generating capacity for the day was 10,641 MW, and with net scheduled import power, we had adequate spinning reserves.

Power generally was flowing from west to east, and from south to north—its typical pattern. Ontario was importing about 2,500 MW; New York was importing about 1,300 MW; and, the Mid-Atlantic Area Council (MAAC) area was importing about 2,500 MW.³

It is now evident that unusual system conditions, some of which were detected at the time, were occurring during the day. To get a better understanding of these conditions, NERC has taken the right approach by reviewing the events of August 14 beginning at 08:00. FirstEnergy's attached list of events outlines conditions existing within ECAR on August 14 and details certain occurrences beginning shortly after 12:00. Some of the unusual events include oscillations in flow, frequency dips and reversals in power flow between regions along major interconnections.

As the afternoon progressed, a number of generation and transmission facilities in the region became unavailable. In the hours leading up to the outage, generation facilities that went off-line in our region include, in chronological order: AEP's 400 MW Conesville unit; DTE's 600 MW Greenwood unit; and FirstEnergy's 597 MW Eastlake unit. Also that afternoon, Gavin Unit 2, which is a major facility, was coming back online from an outage, though by 16:00 the plant was only supplying 50 MW of power. Conesville also was coming back online later in the afternoon but was not supplying its full load. Greenwood was also being returned to service that afternoon.

Following the trip of the Eastlake Plant at 13:31:34, power systems and flows corrected themselves and FirstEnergy's system was balanced and stable. And even though, as the day proceeded, a number of other events occurred, our system remained in balance and power flows continued to be about the same as experienced earlier in the day.

Between 15:00 and 15:30, we lost our Chamberlin-Harding 345 kV line. After that event and others during the same time frame, our system was still stable and importing essentially the same amount of power as earlier. During this time, our power flows to Michigan were approximately 346 MW.

Between 15:30 and 15:45, a number of transmission lines in the area tripped out of service. These included our Hanna-Juniper 345 kV line, the South Canton (AEP)-Star (FE) 345 kV line, the Cloverdale (FE)-Torrey (AEP) 138 kV line, AEP's East Lima-New Liberty 138 kV line and our Pleasant Valley-West Akron/West 138 kV line. Even with the loss of these facilities, our net imports remained approximately the same, with power flows continuing into Michigan at 215 MW.

From 15:45 to 16:05, the Cloverdale (FE)-Canton Central (AEP) 138 kV line, East Lima (AEP)-North Findlay (AEP) 138 kV line, the West Akron 138 kV bus, and the Dale (FE)-West Canton (AEP) 138 kV line all tripped off. The Canton Central (AEP)-Tidd (AEP) 345kV line tripped and reclosed, although two 345-138 kV transformers remained isolated.

³MAAC includes territory in Pennsylvania, New Jersey, Maryland, Delaware, Virginia and the District of Columbia.

Following these events, our net imports dropped by about 230 MW, reflecting reduced loads within our service area. Even so, about 150 MW continued to flow to Michigan.

At 16:06:03, FirstEnergy's Sammis-Star 345 kV line overloaded and tripped. At this point, 150 MW that had been flowing into Michigan reversed and 155 MW began flowing from Michigan into Ohio. A reversal of this magnitude would not, in and of itself, appear to be of particular significance.

Then, at 16:08:58, AEP's Muskingum-Ohio Central 345 kV line tripped, and at 16:09:06, AEP's East Lima-Fostoria 345 kV line tripped and reclosed automatically after a less-than-two-minute delay.

At this point, flows from eastern Michigan to Toledo increased by 1,855 MW; flows from FirstEnergy into AEP increased by 2,670 MW; and flows from AEP directly into western Michigan increased by 1,630 MW. Also at this time, because we had lost load, FirstEnergy's net imports actually were reduced by 1,100 MW. Then, events began occurring rapidly throughout the Eastern Interconnection.

A critical fact is that the system kept working as it was designed to do, despite all of these circumstances. On the afternoon of August 14, before we began to see unusual loop flows—a result not only of power seeking ways around unavailable lines, but also of the existing power flows between regions—we did not see the system perform inconsistently with its design. When a path started to overload, the circuit breakers performed as designed to cut off flow on the line and protect components from overheating and sustaining significant damage. This all happened automatically.

In fact, to the best of my knowledge, no manual intervention to disconnect from the interconnected network was taken by anyone. Our system remained interconnected with DPL, DQE, APS, and AEP. And, through APS, we remained connected with PJM through PJM West. None of these interconnected systems experienced major service interruptions.

While we also experienced problems with our Energy Management computer system and are still evaluating the functionality of that system that was available to our dispatchers during this time frame, information about our system and the events that were occurring throughout the day were available to our reliability coordinator, the Midwest ISO. Also during this time, our dispatchers were in communication with other system operators and plant operators, as well as the Midwest ISO. The Midwest ISO did not call for any system interventions.

Looking back, however, I do not believe it would have been appropriate for operators to intervene in this event. Again, these systems are designed to protect themselves and interact in a way that keeps power flowing to as many customers as possible. That is how they functioned. The automation in fact did protect facilities and customers in adjoining areas. NERC Policy Number 5, relating to Emergency Operations, states: "When an operating emergency occurs, a prime consideration shall be to maintain parallel operation throughout the Interconnection. This will permit rendering maximum assistance to the system(s) in trouble."

Had the ties been disconnected, the negative impact on these other systems and their interconnections and customers could have been significant.

Once systems were rapidly reacting to surrounding conditions, it was beyond the ability of operators to control. Even recognizing the point at which the automated response began moving too rapidly for operator intervention may have been impossible when the systems are doing what they are supposed to do. Even if such a point could have been quickly recognized, there was no time to react. The Washington Post reported last week that, according to a PJM spokesperson, the blackout spread too fast to employ emergency measures, and that "there were no conclusions reached" about transmission load relief (TLR) measures until it was too late to implement them.

Everyone wants to know: "Why did the blackout happen? What was the precipitating event?" Some might like to say it was the first outage that occurred. If that were the standard, which of the above facilities was the "first" outage? Some might like to say it was the first outage that caused power flows to shift in response. But every outage causes flows to shift. Others might like to say it was the moment the system was "in trouble" and couldn't recover. However, we believe it was the cumulative effect of occurrences in the region that combined to impact the event, not unlike the boxer who gets knocked out in the tenth round. That last punch was important, but the accumulation of all of the previous blows led to his weakened condition.

We need to understand the many small, chance events that played a role on August 14, but more importantly, we need to focus on the larger system conditions that imposed a strain.

OBSERVATIONS

I have several observations about the foregoing that I would like to summarize. First, the events of August 14 demonstrate that the facts are complicated and interrelated in ways that no one yet understands.

Second, the systems appear to have responded as they should have to address successive issues. However, at some point events began to occur so rapidly that, even if human intervention were advisable, it likely would have been impossible to avert the widespread nature of the outage. As mentioned above, this was an automated event in which the system and protective devices appeared to work as designed. However, the broader question is whether the design is appropriate given what we are asking the system to do today. Localized grid conditions do not explain the widespread nature of the event.

Third, competitive markets impact the operation of the interconnected grid. A significant amount of power passes through our area en route to areas that do not have the same generation resources that exist in ECAR. As many have observed, this puts additional stress on the grid. On August 14, this situation resulted in certain areas being left with excess generation or load when individual systems were automatically separating themselves from one another.

In the past, utilities were responsible to match load and generation within their own service territories. The system was designed and constructed with that mission in mind. Interconnections with neighboring utilities were reliability enhancements, not on-ramps to an interstate highway. We support wholesale markets, and in fact strongly rely on them to help serve our retail customers. However, imbalances between regions are a new factor to consider in updating reliability standards for the interconnected grid. This is especially critical when power has to move through several systems to reach customers.

Fourth, grid responsibilities are now in the hands of more entities than ever before. This puts a premium on identifying new designs and devices to better coordinate the operation across a wider region.

RECOMMENDATIONS

I have several recommendations to decrease the likelihood of these kinds of events occurring again.

The first is to make the transmission system more robust to accommodate the growth in competitive markets. This requires investment and the ability to site new facilities.

Transmission owners make regular investments in their facilities to maintain reliability to their utility customers. I have already noted FirstEnergy's investment and excellent performance. But the nation's transmission investment in general is not geared today toward development of facilities to sustain wholesale markets, which can change on a day-to-day or hour-to-hour basis. This will be challenging because, unlike building facilities to serve a relatively stable customer base as was done in the past, investments to meet wholesale market opportunities can be rendered "excess" by a change in those markets.

Transmission rate reform is necessary to encourage investment in the construction of a more robust interstate transmission network. FirstEnergy has been a strong proponent of policies that encourage such investment. We support the applicable language in H.R. 6.

Regarding transmission siting, we support provisions in H.R. 6 that would grant FERC with "backstop" eminent domain authority to help get critical transmission lines built in a timely fashion.

My second recommendation is to establish mandatory reliability standards for the industry. FirstEnergy has long supported such standards as an element of federal legislation, including those in H.R. 6.

Third, consistent with my previous observation, policy makers and the industry need to review automated and control systems to determine whether the right equipment is in place and whether new technologies would prevent this type of event. Over the years, we have supported proposals for the federal government to promote implementation of new transmission technology. It may be too soon to tell what advances in technology would have been necessary to mitigate the outage.

Fourth, the government needs to review the significance of interstate power flows across interconnected grids. Experts agree that a more vigorous grid is needed to accommodate wholesale markets. But what does that grid and its protective equipment need to look like, based on what we see today, and where the market development trends are heading? In the course of reviewing the August 14 event, we may gain a better understanding of the impact of regional power flows, at least in the affected regions. But we must make sure that electric customers in one area are not

burdened by the cost of transmission facilities that are being constructed because another region is not siting sufficient generation. Like in the old days, utilities built generation and the necessary transmission to get it to their customers. Generators should not be able to avoid these costs today.

CONCLUSION

It is not possible at this time to pinpoint the “causes” of the outage. There are many contributing factors. FirstEnergy is committed to working with Congress, the Administration, and industry organizations to promote changes that will decrease the likelihood of this kind of event occurring again.

Chairman TAUZIN. Thank you very much, sir.

The Chair will now recognize Mr. Eugene McGrath, the Chairman, President, and CEO of Consolidated Edison Company of New York.

Mr. McGrath?

STATEMENT OF EUGENE R. McGRATH

Mr. McGRATH. Thank you, Mr. Chairman and committee members. I am Gene McGrath, and I'm the chairman of Con Edison New York. I welcome the opportunity to discuss Con Edison's experience on August 14 and to participate in the investigations and the efforts to learn from this event.

For us, the power outage was a widespread, fast-moving event, and it has not yet been fully analyzed. A number of organizations have initiated investigations, including Con Edison. In time, I'm confident they will paint a picture, a full picture, of the events. But a great deal of data remains, and we should take care not to draw conclusions prematurely.

This morning I would like to talk about what happened at Con Edison on August 14, how we turned the power back on, and then offer some thoughts on broader energy policy.

First, what happened at Con Edison, just before the outage, the Con Edison system was operating with adequate resources, and there were no unusual conditions. Preliminary reviews have indicated that the initiating events occurred hundreds of miles outside of the Con Edison service area.

Just before 4:11 in the afternoon, voltage on our system began fluctuating wildly and declining and frequency began to drop. Low system frequency triggered sensors that actuated an automatic, four-step under-frequency load-shedding program disconnecting approximately 50 percent of our load.

The voltage continued to fluctuate. And by “fluctuate,” I mean it went down to less than 10 percent of its normal voltage and did not recover. There was a loss of generation and transmission, and our system shut down very quickly. After the system shut down, we started restoration efforts immediately using predetermined plans.

In New York City, because of our load density and the complexity of our underground system, restarting has to be done very carefully, thoughtfully, methodically, and in coordination with many others. It requires tight control of system voltage and balancing cable and equipment capacity with customer load and available generation.

The first priority was to establish a stable transmission backbone by sequentially reconnecting parts of the transmission system to

transmission lines that were connected to a source of power and as each new section was energized, picking up the amount of customer load necessary to maintain adequate transmission system voltage. This required close coordination with the New York independent system operator and to make certain the transmission line had the capacity to support the incremental customer load.

Once the backbone became stable and as generation came on line, substations and distribution lines were energized, picking up the remaining load.

Electricity was restored from 2 to 29 hours. And I am glad to report that our restoration effort was completed without injury to the public, company personnel, or significant damage to equipment.

At this point I would like to offer some thoughts on our national energy system. A lot of attention has been focused on the grid and the possibility that interconnections between rate regions aggravated the situation.

The Con Edison transmission system is connected to the Eastern transmission grid that covers large parts of the country from the Northeast to the Rocky Mountains and into Canada.

The interconnection of transmission systems improves the reliability of individual systems. Transmission lines provide access to additional generation when local generating resources are offline or insufficient to meet peak loads.

Transmission lines also provide access to economic sources of electricity. Turning New York or any region into an energy island without significant interconnections might protect us from disruptions that originate outside our service area, but doing so would significantly increase costs and undermine reliability in other ways.

The power outage has also stimulated a lot of debate and discussion about our energy system and about energy policy. I would like to address some issues that we should keep in mind as we approach those challenges.

We all know that delivering electricity is essential to economic growth and it's crucial for energy companies to stay ahead of demand and maintain strong generation transmission and distribution systems.

Day-to-day reliability depends upon redundancy, flexibility, and capacity. To that end, I offer a few comments: one, the planning of electric generation and transmission should be integrated across and within regions. When planning to meet load growth, priority should be given to locating generation at or near load centers. The process for siting electric transmission, generation, and distribution facilities must be improved so that utilities and other investors can install the facilities needed to meet growing loads and support economic development. There must be adequate financial incentive to invest in all elements of the electric infrastructure. Communication among regions must be enhanced.

Mandatory reliability rules established by an electric reliability organization, as proposed in H.R. 6, are an important step toward enhancing national electric system reliability.

The Federal Energy Regulatory Commission should provide oversight. We also believe that local independent reliability organizations, such as the New York State Reliability Council, should be

permitted to develop and promulgate stricter reliability standards when local conditions warrant.

The efforts that this committee is making to examine these issues will improve the Nation's electric system. I thank you for the opportunity to participate.

[The prepared statement of Eugene R. McGrath follows:]

PREPARED STATEMENT OF EUGENE R. MCGRATH, CHAIRMAN AND CEO,
CONSOLIDATED EDISON, INC.

INTRODUCTION

Good morning. Thank you, Mr. Chairman and committee members.

My name is Eugene McGrath and I'm the chief executive officer of Consolidated Edison, Inc.

Con Edison's distribution companies, Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc., deliver energy to 3.4 million electric customers. Our service area includes New York City and Westchester, Orange and Rockland Counties in New York, as well as small portions of northern New Jersey and Pennsylvania. During the restructuring of the electric industry in New York, we sold most of our generating facilities and transformed from vertically integrated utilities into electric delivery utilities. Primarily, we transmit and distribute electricity that is generated by others. Con Edison also distributes gas throughout most of its service area and steam in portions of Manhattan. We are a member of the New York Independent System Operator (NYISO) and the PJM Interconnection (PJM), which administer the wholesale electricity markets and operate the bulk power transmission grid in New York and a multi-state region including Pennsylvania and New Jersey.

I welcome the opportunity to discuss Con Edison's experience during the August 14th power outage and to participate in the investigations and the efforts to learn from this event.

The power outage was a widespread, fast moving event that has not yet been fully analyzed. A number of organizations have initiated investigations, including the U.S.-Canada Joint Task Force on the Power Outage, the U.S. Department of Energy, the North American Electric Reliability Council, the Northeast Power Coordinating Council, the utility regulatory commissions in New York and other affected states, the regional ISOs, and various utilities including Con Edison. In time, I'm confident they will paint a full picture of the events. But a great deal of data remains to be collected and analyzed, and we should take care not to draw conclusions prematurely.

I'd like to talk about what happened at Con Edison on August 14, how we turned the power back on, and then offer some thoughts on broader energy policy.

THE POWER SYSTEM SHUTDOWN: AUGUST 14

On August 14, just before the outage, the Con Edison system was operating with adequate resources and there were no unusual conditions. Preliminary reviews have indicated that the initiating event(s) occurred hundreds of miles outside of the Con Edison service area. Just before 4:11 p.m. EDT, voltage on our system began fluctuating and declining and frequency began to drop. Low system frequency triggered sensors that actuated an automatic, four-step under-frequency load shedding program disconnecting approximately 50% of our load. The voltage continued to fluctuate and did not recover. There was a loss of generation and transmission and the system shut down very quickly. Changes put in place as a result of our experience from the 1965 and 1977 outages allowed our system to shut down without significant electrical or mechanical damage.

At this point, studies are underway to understand what caused these changes in frequency and voltage and to determine the exact sequence of events. We are continuing to analyze all of our own data and will review information from others as it becomes available to us.

RESTORATION, AUGUST 14-15

We started restoration efforts immediately.

Pre-determined system start-up plans were available to the system operators and they were able to begin restoration without having to perform time-consuming analyses and planning. Highly trained and experienced operators staff our control rooms.

In New York City, because of our load density and the complexity of our underground system, restarting has to be done very carefully, thoughtfully, and methodically and in coordination with others. It requires tight control of system voltage and balancing cable and equipment capacity with customer load and available generation.

The first priority was to establish a stable “backbone” by sequentially reconnecting parts of the transmission system to transmission lines that were connected to a source of power, and as each new section was energized, picking up the amount of customer load necessary to maintain adequate transmission system voltage. This required close coordination with the NYISO to make certain the transmission line had the capacity to support the incremental customer load.

Once the “backbone” became stable and as generation came on line, substations and distribution lines were energized picking up the remaining load.

Electricity was fully restored in 29 hours and for many customers much earlier. I’m glad to report that our restoration effort was completed without injury to the public, Company personnel or significant damage to equipment.

CONCLUSIONS

Substantial data is available that should allow the various investigators now at work to determine the causes and sequence of events. I’m optimistic that what we learn from these investigations will enable us to further reduce the small probability of such events recurring in the future.

A lot of attention has been focused on the grid, and the possibility that interconnections between regions aggravated the situation. The Con Edison transmission system is connected to the eastern transmission grid that covers large parts of the country from the Northeast to the Rocky Mountains and into Canada.

The interconnection of transmission systems improves the reliability of individual systems. Transmission lines provide access to additional generation when local generating resources are off line or insufficient to meet peak loads. Transmission lines also provide access to economic sources of electricity. Turning New York—or any other region—into an energy island, without significant interconnections, might protect us from disruptions that originate outside our service area. But doing so would also significantly increase costs and undermine reliability in other ways.

The power outage has also stimulated a lot of debate and discussion about our national energy system, and about energy policy. I would like to address some issues that we should keep in mind as we approach these challenges.

Delivering electricity is essential to economic growth, and it is crucial for energy companies to stay ahead of demand and maintain strong generation, transmission and distribution systems. Day to day reliability depends upon redundancy, flexibility and capacity. To that end, I offer the following comments:

- The planning of electric generation and transmission should be integrated across and within regions.
- When planning to meet load growth, priority should be given to locating generation at or near load centers.
- The process for siting electric transmission, generation, and distribution facilities must be improved so that utilities and other investors can install the facilities needed to meet growing loads and support economic development.
- There must be adequate financial incentive to invest in all elements of the electric infrastructure.
- Communication among regions must be enhanced.

Mandatory reliability rules established by an Electric Reliability Organization (ERO), as proposed in HR 6, are an important step toward enhancing national electric system reliability. The Federal Energy Regulatory Commission should provide oversight. We also believe that local independent reliability organizations, such as the New York State Reliability Council, should be permitted to develop and promulgate stricter reliability standards when local conditions warrant.

The efforts that this committee is making to examine these issues will improve the nation’s electric system. I thank you for the opportunity to participate.

Chairman TAUZIN. Thank you, Mr. McGrath.

And now we will hear from the President and CEO of the National Grid Transco, Mr. Nick Winser. Is it correct, Nick? Proceed, sir.

STATEMENT OF NICHOLAS P. WINSER

Mr. WINSER. Thank you, Mr. Chairman. As an Englishman, I feel particularly honored to address this congressional hearing on this vital matter.

I am responsible for National Grid's electricity and gas transmission networks, both here in the U.S. and in the U.K. National Grid Transco, as is the group company, is one of the world's largest independent energy delivery companies.

We own and operate the high-voltage transmission system in the U.K., in England and Wales, and also the gas transmission and distribution networks. Here in the U.S., we have substantial transmission and distribution systems in New York State and New England. We are also seeking to establish an independent transmission company in the Midwest called GridAmerica.

Most of our 1.5 million customers in New York State were affected by the blackout on August 14. Our New England customers were generally more fortunate. Our customers in New York State were restored in about 7 hours. We are fully cooperating with the various investigations which are going on to establish why the outage occurred.

I would like to confine my remarks to one observation and four recommendations. My observation is that this debate should probably be about how we run large interconnected AC networks, rather than deregulation. I think to talk about deregulation may be missing the point.

All developed countries have large AC networks because they are more economic and generally more reliable. Turning the clock back and fragmenting the grid would be unthinkable.

The three large integrated grids in the U.S. are characterized I think by three things. They are owned and operated in a very fragmented way with thousands of entities involved. Many of those entities also have generation interests. And there have been very low levels of investment for more than a decade.

Following from this, my four recommendations would be that public policy should promote RTO formation to consolidate control of this fragmented grid. I believe it should also promote the formation of independent transmission companies; independence of generation interests, which will bring renewed management focus; and an appetite for investment of this forgotten infrastructure. Reforming tax laws and repealing PUCAs clearly will move toward this goal.

Second, I believe that public policy should establish effective regional transmission planning processes to identify and direct investment in the grid.

Third, I believe that public policy should establish a rational and stable pricing regime, which will give utilities assurance that they will recover investments in the upgrades that are needed. And I think substantial upgrades are needed.

And, fourthly, it should seek to reduce barriers to siting new facilities or, probably, indeed, more importantly, remove barriers to enhancing the existing facilities because we believe that there is every opportunity to get a lot more out of the existing rights-of-way. And we have quite a lot of knowledge of that, we believe. So

some sort of backstop authority for FERC on siting would obviously be a help here.

Thank you very much for the opportunity to make that address and welcome your questions.

[The prepared statement of Nicholas P. Winser follows:]

PREPARED STATEMENT OF NICHOLAS P. WINSER ON BEHALF OF NATIONAL GRID USA

Mr. Chairman, Members of the Committee. My name is Nicholas P. Winser. I am a fellow of the Institution of Electrical Engineers and have twenty years experience as an electrical engineer. I am Group Director for transmission of National Grid Transco plc, which is an international energy delivery business focusing on the transmission and distribution of electricity and natural gas in the United States and the United Kingdom. I am also Chief Executive Officer of National Grid Company, the subsidiary of National Grid Transco that owns and operates the high voltage electricity network in England and Wales.

I am testifying today on behalf of National Grid USA, whose public utility subsidiaries transmit and distribute electricity in New England and New York State. National Grid USA's subsidiaries are no longer active in the electric generation business, having divested substantially all of their generating assets. In addition, National Grid USA's independent transmission company subsidiary, GridAmerica LLC, has executed contracts under which it will undertake certain responsibilities for the management and planning of the transmission assets of three major electric utilities in the Midwest, once all required regulatory approvals are obtained.

Thank you for inviting me here today to address the events of August 14th and their implications for national energy policy. National Grid is pleased and honored to assist you and your Committee in the investigation of these events and in developing a comprehensive set of policies to strengthen the transmission grid.

This inquiry is of particular importance to National Grid, since approximately 900,000 customers served by its New York subsidiary, Niagara Mohawk Power Corporation, lost power during the August 14th blackout. Fortunately, Niagara Mohawk personnel, working closely with the New York Independent System Operator, Inc. (NYISO), were able to restore power to all of those customers within about seven hours. While the immediate impact of the August 14th blackout on National Grid's customers was thus temporary, it was disruptive. The blackout serves as a reminder that electricity consumers are heavily dependent on the integrated interstate electricity delivery system that is straining under the weight of current demands.

National Grid is committed to strengthening and expanding the transmission grid in the United States, not only by adding new transmission facilities, but also by making maximum use of existing facilities and rights-of-way. National Grid hopes that the unfortunate events of August 14th will underscore for policymakers the urgency of developing and implementing policies that will promote the establishment of a reliable and robust transmission infrastructure throughout the United States.

In this statement, I will respond to the specific questions that you have asked. As you requested, I will address the important policy questions that must be considered if we are to enhance the reliability of the electric transmission grid and thereby minimize the risks of a repetition of the August 14th blackout.

The Events of August 14th

We do not yet have a complete picture of the underlying causes and contributing events that led to the August 14th blackout, though it appears that the initial events took place off National Grid's system. National Grid has been cooperating fully with the joint U.S.-Canadian investigation of these events, as well as other investigations, and will continue to do so. Based on preliminary review of available data, we can provide the following description of the "cascading" effects of the initial disruption on National Grid's system.

So that the Committee may understand how events occurring on other utilities' systems, in this instance apparently in the Midwest, could have such profound effects on service to customers on adjoining systems, it is necessary first to explain briefly some of the principles upon which the interconnected alternating current (AC) electric transmission system operates. In order to control power flows on an AC electricity system, the frequency at all locations on the grid must be synchronized. (The interstate AC grid in the United States operates at a design frequency of sixty cycles per second.) This in turn requires that load and generation on the grid remain in close balance at all times. If there is a mismatch between load and generation on a particular portion of the grid, the frequency at that location will attempt to deviate from the desired level. Because the frequency is syn-

chronized across the grid, energy will move across the grid in an attempt to compensate for the local imbalance. This can lead to uncontrolled power flows and severe damage to transmission and generation equipment. System operators keep some generating capacity synchronized as operating reserves in order to enable them respond to relatively small short-term fluctuations in supply and demand, including unanticipated outages of generation.

To prevent damage to equipment when large imbalances between load and generation occur, automatic protective systems are in place (many of them installed after the 1965 blackout) to respond to situations in which the frequency deviates outside of a very narrow band around the acceptable system frequency. Generating equipment has protective systems that disconnect it from the transmission system if frequency deviates outside the tolerable range (whether high or low) in order to prevent damage that could otherwise render the generation unavailable to restore the system and serve load after the incident.

An additional and extremely important measure put in place after the 1965 blackout as a means of restoring the balance between load and supply following a major disturbance, was the introduction of the automatic capability to reduce demand (referred to as automatic under frequency load shedding). While the use of automatic load shedding, as a last resort, plainly inconveniences the affected customers, it prevents the disturbance from spreading and causing equipment damage, which would affect more customers by delaying even further the restoration of service. The need to rely upon automatic protection systems such as programmed load shedding can be reduced by good operating practices, through which the delivery capability of the system is monitored and analyzed on an ongoing basis and actions taken in response to changes in the configuration of the system before extreme and uncontrollable conditions result.

With that brief introduction in mind, I will turn to the August 14th blackout. On August 14th, the systems of National Grid and other utilities in New York State were affected by external events occurring within a very short period of time. From information made available by the North American Electric Reliability Council (NERC), it appears that a significant mismatch between load and generation developed in the Midwest (though we received no notice of the emerging conditions at the time). This caused large and abrupt swings in power flows and frequency, and protective systems tripped several transmission lines in New York State at approximately 4:10 p.m. This was the first indication we received of a disturbance.

The electric system in western and central New York State separated from the system in eastern New York State. The system in western and central New York remained energized, and some load continued to be served throughout the event. In accordance with the under frequency load shedding program implemented by New York utilities in coordination with the reliability councils, automatic protective systems operated and initiated the controlled shedding of customer loads in an effort to bring the load and generation into balance. In eastern and central New York State, service was interrupted to a large number of customers, though some pockets of load were served in areas where generation was available, such as the Albany area. In most of eastern New York State, the balance between load and generation could not be maintained and the system collapsed into a blackout. As noted earlier, these events took place within a very short period of time. Indeed, many of the events occurred within a matter of seconds, well before operators could intervene manually.

The transmission lines connecting the New York electric system and the New England electric system were also opened by operation of their protective systems. This separated the systems of New England and the eastern Canadian provinces from those to the west. Those systems appear to have been affected less severely by the power swings and voltage fluctuations, enabling them to remain stable, without further loss of service. In the end, New England only lost about 2,500 MW of load in Southwest Connecticut, Western Massachusetts, and Vermont for brief periods.

The Operation of Protective Systems

Preliminary analysis indicates that the protection schemes in place in the New York/New England region generally worked as intended to prevent more extensive and long-lasting disruptions. They allowed the system to shut down with minimal damage to key transmission and generation facilities. Most of the transmission system in New York State indeed remained intact. While keeping the key components of the transmission and generation system undamaged did not keep the lights on for all New Yorkers, doing so was crucial to facilitating the restoration of service after the event. Had critical transmission lines or generating stations suffered significant physical damage, the necessary repairs could have extended the restoration

process for days or even weeks in some areas, depending upon the location and severity of the damage.

On National Grid's delivery system in New York State, approximately 900,000 of the 1.5 million customers connected to National Grid's delivery facilities in upstate New York lost service on the afternoon of August 14th. Service was restored as rapidly as the available generation permitted, with all those customers back in service within approximately seven hours. The following day, as part of the restoration process, a small number of customers were again without power for a brief period, while load was being balanced with the generation that was coming back into service.

The transmission control centers in New York also appeared to function well during the event. Back up power supplies to these control centers appear to have worked correctly. As a result, the control system stayed operable during the event, and the operators were able to follow established plans and communicate effectively. This also speeded the restoration process. It allowed the individual transmission owners to give instructions to the generators in their individual control areas while the NYISO coordinated bulk power restoration.

The equipment and processes in place in New York State and New England therefore appear, based on preliminary analysis, to have functioned as they were designed to perform: to isolate the portion of the grid experiencing the disturbance and to protect generation and transmission facilities from serious damage when large, uncontrolled power swings occurred due to events on adjoining systems (which are still being investigated). The automatic systems that protected that equipment did so by disconnecting generation and load from the grid and by opening some transmission lines. Unfortunately, millions of customers lost power as a result. Each of the systems comprising the interconnected AC transmission system is affected by conditions on all other systems and we do not yet know exactly what happened outside of New York to cause the large, unexpected power swings that appeared on the New York State system. Accordingly, there are simply too many variables involved to tell whether the results would have been the same if the events of August 14, 2003 had transpired a year earlier.

Lessons Learned and Policy Recommendations To Enhance Reliability To Guard Against the Recurrence of Similar Events

Because the investigation into the events that led to the August 14th blackout is still underway, it is too early to identify the specific technical and operational solutions that are needed to minimize the likelihood that similar events might occur in the future. It is important nevertheless to recognize that continued employment of sound operating principles will reduce the risks that severe disturbances might occur on the grid in the first place. This will minimize the need to rely on automatic systems that protect equipment from damage by disconnecting components and customers from the network when such disturbances occur. Once the circumstances that gave rise to the August 14th blackout are identified, I would expect that utilities and system operators will identify any shortcomings in existing equipment and operating procedures to prevent those circumstances from repeating themselves.

From a policy perspective, a significant amount of work has already been done and can still be done to address problems like those experienced on August 14th. While the investigation into the specific technical and operational issues that led to the August 14th blackout is not complete, it is critical for policymakers to take the steps necessary to promote a more reliable delivery infrastructure. Those steps cannot be limited to generation, transmission, or demand-side measures in isolation. All of these areas may well form part of an integrated solution to this complex problem.

For some years, National Grid and others have raised the concern with Congress, the Federal Energy Regulatory Commission (FERC), and the Department of Energy that investment in the interconnected transmission system has not kept pace with generation and load growth and that significant upgrades are needed to maintain and enhance reliability and expand competitive markets. We have also underscored the need for active and independent management of the transmission system. As a result, we strongly advocate energy legislation and regulatory policies that address the roadblocks to grid expansion and independent transmission operation. To achieve these objectives, policymakers should focus on the following areas:

- Promoting Independent Transmission Companies. For too long, the electricity delivery system has been the forgotten element of the Nation's electricity infrastructure, largely left to fend for itself while market participants focus on new generating plants. The events of August 14th reveal the dangers of treating the delivery system as an afterthought. Independent transmission companies that will focus their business plans on the ownership and efficient operation of the grid and in making the investments needed to bring it in line with the demands

of the 21st century are critically needed. As proactive managers and operators of transmission assets they will be well-positioned to minimize instances when it is necessary to resort to automatic protective systems. They also will be positioned and motivated to maximize the use of existing transmission facilities and rights of way. They will be able to make the needed investments in the energy delivery infrastructure free of competing demands for generation investments. Moreover, they will promote open and non-discriminatory transmission service because they have no generation interests to favor. For this sector to develop, Congress must reform the tax laws to remove impediments to transfers of transmission assets to new independent owners and must repeal the Public Utility Holding Company Act, which limits the expansion potential of independent transmission companies. FERC also must allow these companies sufficient authority over their assets to enable them to do the job and enable them to employ performance-based rates that reward increased efficiency.

- **Effective Transmission Planning and Expansion Policies.** To ensure that the transmission grid upon which we all rely is adequate to serve current and projected needs, regional transmission planning processes must be established to regularly assess the need for upgrades both to improve and enhance reliability and to remove bottlenecks that limit customers' access to cheaper electricity. To be effective, those processes must be streamlined. They must not afford opportunities for market participants that profit from existing bottlenecks (because they keep competing suppliers from reaching their markets) to delay or frustrate needed expansion projects. In particular, needed upgrades must not be put on hold by requirements that utilities search for voluntary participant funding or regulators resolve debates over cost allocation. Instead, regional planning processes should look to the region's utilities to make the grid upgrades required both to preserve reliability and expand customers' access to lower cost power.
- **Rational and Stable Transmission Pricing.** The transmission grid needs significant upgrades to enable it to handle the increased demands now placed upon it both for reliability and for efficiency. FERC must establish transmission pricing policies that give utilities adequate assurance that they will recover investments in system upgrades. Those policies must recognize, as the events of August 14th make clear, that customers and generators throughout the region rely on and benefit from a reliable and robust transmission system and should bear a fair share of its costs. Policies must also be stable enough that a utility can rely on them to return its investment over many years and be simple enough to apply so that critically needed delivery system upgrades are not delayed by battles to allocate costs to different customer groups.
- **Removing Barriers to Siting Transmission Facilities.** FERC lacks the authority to grant certificates for interstate electric transmission projects, even though it has had that authority for natural gas pipelines for decades. This regulatory gap makes it profoundly difficult to site, construct, or modernize transmission facilities, particularly between states and market regions, even when the need for greater grid capacity is clear. Congress should, at a minimum, grant FERC backstop siting authority for electric transmission projects.

As policy objectives, these are all key steps toward a regulatory and market regime that fosters the development of a reliable delivery infrastructure. FERC's proposed Wholesale Market Platform would make significant progress in implementing the first three of these policies. It consists of a significantly revised version of the so-called standard market design that FERC proposed last year and incorporates many of the comments that FERC received on that proposal from a broad cross-section of the industry, as well as consumers and state regulators. Progress on the policies embodied in the Wholesale Market Platform proposal is essential to the development of independent transmission companies, effective regional transmission planning, and rational transmission pricing policies that would facilitate critically needed grid expansion. From what we have seen, there appears to be no substance to the speculation that electric industry restructuring and FERC's efforts to develop competitive energy markets may have contributed to the blackout. To the contrary, National Grid believes that it is those efforts that will ultimately address reliability concerns, if they are premised on independent operation of the transmission grid and focused on the development of a delivery infrastructure that is both reliable and sufficient to support competitive markets.

Policymakers should also give serious consideration to the content of the reliability standards that govern the design and operation of the interconnected electric transmission system. In general, the current reliability standards call for the transmission system to be designed so that it can withstand the single largest contingency considered by planners. Many other countries (as well as portions of the U.S.

grid) are designed to more stringent standards. Adopting more stringent standards generally for the U.S. transmission system would improve its capability to deal with unexpected power swings without interrupting service. National Grid believes that closely scrutinizing the content of the rules themselves and promoting transmission companies focused on planning and operating to satisfy those requirements is crucial regardless of whether compliance with the reliability standards is enforced with a new regime of mandatory rules and penalties.

While the cost of improving the Nation's transmission infrastructure will have to be borne by customers in their rates, transmission represents only a small portion of the total electricity bill (ten percent or less in most cases). Since an improved transmission grid will not only enhance reliability but will improve the efficiency of energy markets and ultimately lower energy costs to consumers, even modest energy costs savings are very likely to outweigh transmission reinforcement costs. Moreover, a more reliable infrastructure will reduce the likelihood of widespread outages and the resulting costs to the economy.

In short, while the specific technical and operational solutions to solve the problems of August 14th are still being identified and assessed, it is incumbent upon policymakers to continue their work to establish a regulatory environment that fosters the development of a robust transmission grid—one that will ensure reliability of the entire system and deliver efficient competitive energy markets.

National Grid appreciates the opportunity to assist the Committee in its vitally important review of the causes of and solutions to the problems experienced on August 14th.

Chairman TAUZIN. Thank you very much, Mr. Winser. And we do indeed welcome you here. Thank you. I'm just learning a lot more about you and your company. I've got some questions I want to ask you a little later.

We're now pleased to welcome Mr. Rick Kessel, the Chairman and CEO of Long Island Power Authority of Uniondale, New York. Mr. Kessel?

STATEMENT OF RICHARD KESSEL

Mr. KESSEL. Thank you and good morning, Mr. Chairman and members of the committee. I'm Richard Kessel. I'm Chairman and Chief Executive Officer of the Long Island Power Authority, commonly known on Long Island as LIPA. I want to thank you for holding this hearing today.

And I want to commend you, Mr. Chairman, for the work that you have done on behalf of energy consumers throughout the country. I've personally followed your career and know a lot of what you have done. And I commend you for taking this decisive action and holding this hearing today.

Chairman TAUZIN. Thank you very much, sir. You should like Norm Lent, for some reason.

Mr. KESSEL. Oh, I almost ran against him, actually, 1974. But that was a long time ago.

Chairman TAUZIN. Thank you.

Mr. KESSEL. And I wound up running for the State Senate and lost. Democrats from Long Island don't usually do well.

I do want to bring greetings from Governor George Pataki from New York State. He sends his greetings.

I have to say from the outset Governor Pataki just did an extraordinary job, a heroic job in my view, in helping LIPA and the other utilities in this State back to full recovery.

And I have to tell you that if it wasn't for the Governor's efforts, particularly on the night of the blackout, in convincing the Department of Energy to energize the Cross Sound Cable from Connecticut to Long Island, Long Islanders would have experienced

massive rolling blackouts on Friday. I think the Governor deserves tremendous credit for showing very strong leadership in New York State in stepping up to the plate when it mattered.

Chairman TAUZIN. Mr. Kessel, I am going to interrupt just a second because I think you will hear this from more than one member. I want to express to you the admiration of the entire panel, our entire committee, and I assume the whole Congress.

We watched on television the experience in New York and the eerie resemblance to 9/11 and the fact that you came through that with so little injury and so little problem. And the calm and patience of the people of New York and Detroit and the other cities affected—we heard from the mayor of Detroit yesterday—was quite a scene for all of us to watch. There was a lot of admiration around the country for the way you handled this thing.

I want to send my appreciation to both Mayor Bloomberg and to Governor Pataki on behalf of the people of this country for showing us such a good example.

Mr. KESSEL. I appreciate that, and I will certainly tell them that. I have to tell you that I was on the phone with the Governor within a couple of hours. And he was helping us throughout the night. And the next day, he came out to Long Island. I know he went to other utilities around the State and, really, I think did an extraordinary job. I want to talk a little bit about that in a couple of minutes.

I think the Long Island Power Authority did very well. We worked very closely with our partners at KeySpan Energy and the employees, who I think don't get enough credit at the utilities for the great job that they did in synchronizing the grid and bringing it back in record time. In fact, we lost about 1,084,000 customers. And they were all brought back within 25 hours and 21 minutes, 80 percent by 8:30 the following morning.

And it was an extraordinary effort on the part of the employees and all of the management of both LIPA and KeySpan. And with assistance from the Governor and his staff and also from the New York independent system operator and my friend Bill Museler here, it was an extraordinary partnership in getting everyone back together.

I would like to really get to the heart of the matter, in my view, the issue that Congress ought to take a look at. It's the national symbol of what is wrong in my view with the energy grid in the country. This is it, the Cross Sound Cable.

These are two slices of the Cross Sound Cable that was built for the Long Island Power Authority by a private company, TransEnergie, a subsidiary of Hydro Quebec.

Several years ago, at the Governor's direction, Long Island decided that, in addition to new power plants on Long Island—and we have added over 500 megawatts of new generation in the last couple of years.

We wanted to build an interstate transmission line to help the reliability of the grid and the flow from Connecticut to Long Island and vice versa. And obviously that would open up the entire Northeast grid from New England through Long Island and New York.

TransEnergie invested its own money and built what is known as the first merchant transmission line in the United States of

America, the Cross Sound Cable, stretching from New Haven, Connecticut to Shoreham on Long Island.

The transmission line was permanent, by Federal and State authorities received all of its operating permits, was completed right before the Summer of 2002, and lay dormant under the Long Island Sound until the emergency of August 14, when, thanks to the efforts of Governor Pataki and Energy Secretary Spencer Abraham, this cable was energized in order to not only enable Long Island to import electricity over the cable to Long Island but also to stabilize the voltage on both sides of the Long Island Sound.

That cable was energized under an extraordinary emergency audit issued by Secretary Spencer Abraham. And, frankly, I think he deserves a lot of credit for having the guts to do that at the request of our Governor, Governor Pataki.

That line provided 100 megawatts of power on Friday afternoon when we were right here. I mean, we were barely able to keep up with the demand because we were restoring customers too quickly.

The 100 megawatts from that Cross Sound Cable around 12:30-1 o'clock on Friday afternoon was a godsend to Long Island. Had we not had those 100 megawatts, we would have probably had to initiate rolling blackouts all across Long Island.

The energy secretary issued the order. It was effective until Labor Day. Governor Pataki went back and requested that the order be extended because while the event of the blackout is over, the emergency isn't.

We still don't know, really, what caused it or whether or not it can be prevented again. As the head of a utility of over a million customers, there is not a minute in my life that I don't worry that this could happen at any moment. And we don't know that it can't.

The energy secretary was kind enough to and I think correct to issue a new order, which allows for the energizing of the Cross Sound Cable and its use as a normal transmission line during the emergency.

But here is the point and is my one recommendation. I've got a lot in my testimony. If Cross Sound Cable cannot operate because of parochial, petty politics from another State, this grid is in big trouble. The only way in my view to rebuild the grid—and everyone admits the grid needs rebuilding. It needs tremendous investment. It's private capital.

Utilities like LIPA and my friends at Con Ed and National Grid, we can't afford to invest all of that money at once in our grid because our customers would wind up paying significant rate hikes, although I have to tell you that LIPA has invested over a billion dollars in the transmission and distribution grid on Long Island since we acquired the Long Island Lighting Company's electric business 5 years ago.

The issue is, is private investment, are private companies like TransEnergie, willing to step up to the plate and invest their hard-earned money in building transmission lines in this country if individual States and parochial, political interests are going to block transmission lines from operating. This is the national symbol of what is wrong with the grid.

And so I have two recommendations. Recommendation No. 1 is I believe that the Federal Government needs to take control over

the interstate transmission grid in this country. Now, maybe there ought to be some process of one-stop shopping, where local environmental concerns are addressed.

But the notion that environmental concerns, this has been opposed because environmentally it could leak. Where is the leak? There is no fluid in this line. But the Federal Government has the capability of siting transmission.

Second of all, we have to encourage private companies to invest in the grid throughout the Nation. It's the only way to get sufficient capital to bolster the grid without burdening our utility customers with rate hikes.

And I propose two things. No. 1, I propose that utilities be able to invest by entering into power purchase agreements to power purchase off of these lines for a 10 to 20-year period as a way to pay back private companies for their investment.

And, second, I would urge Congress to look at incentives to incentivize those private companies that are willing to invest capital in bolstering the transmission grid as a way to enhance service throughout the country.

[The prepared statement of Richard Kessel follows:]

PREPARED STATEMENT OF RICHARD KESSEL, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, LONG ISLAND POWER AUTHORITY

My name is Richard Kessel and I serve as Chairman of the Board and Chief Executive Officer of Long Island Power Authority (Authority) located on Long Island in New York State. As an instrumentality of the State of New York and a public power agency, the Authority and its operating subsidiary, the Long Island Lighting Company d/b/a LIPA (LIPA), provide electric service to nearly 1.1 million customers, representing approximately 2.8 million people in Nassau and Suffolk counties, and the Rockaway Peninsula in the Borough of Queens, New York City.

Three weeks ago, on August 14, 2003, LIPA and its customers were caught up in the Northeast power blackout which affected much of the Northeast United States and South Eastern Canada. Through the cooperation of LIPA customers who limited their demand and the committed work of LIPA employees and the employees of our service contractor, KeySpan, over 80% of LIPA customers had their power restored by 8:30 A.M. on August 15th and all customers had electric service restored within 25 hours, 21 minutes of the blackout.

The blackout provides a telling example of the fragility of our electric transmission system and the need to continue our efforts to improve system reliability. We at LIPA are as committed as the members of this Committee to analyzing this situation and ensuring the prevention of a similar occurrence. For that reason, I want to thank Chairman Tauzin for calling this hearing and for providing me with the opportunity to speak on behalf of the LIPA's customers regarding what happened on August 14, 2003, and to provide recommendations on actions that can be taken to improve our electric transmission system and overall reliability.

LIPA—PROVIDING RELIABLE ELECTRIC SERVICE TO ITS CUSTOMERS ON LONG ISLAND

The Authority and its operating subsidiary, LIPA, own and operate the transmission and distribution system on Long Island while also providing retail electric service to customers on Long Island. The Authority was established in 1986 by the New York State legislature to resolve a controversy over the Shoreham Nuclear Power Plant and to achieve lower utility rates on Long Island. Created as a corporate municipal instrumentality of the State of New York, the Authority was authorized under its enabling statute to acquire all or any part of the securities or assets of the Long Island Lighting Company (LILCO). In May 1998, the Authority acquired LILCO as an operating subsidiary. This acquisition resulted in an average rate reduction of 20% to the Long Island ratepayers.

LIPA owns 1,344 miles of transmission and sub-transmission lines that deliver power to 175 substations in its electric system. From these substations, 13,075 circuit miles of distribution lines deliver the power to nearly 1.1 million business and residential customers. In addition, Long Island is served by five operating transmission interconnections to neighboring electric systems and a new high voltage di-

rect current interconnection to Connecticut—the Cross Sound Cable—that is ready for full commercial operation which has been delayed for more than a year due to a permitting moratorium enacted by the State of Connecticut in June 2002. Instead, operation of the Cross Sound Cable has occurred only as the result of emergency operating orders issued by the Department of Energy for a short period of August and September, 2002 and since August 15th in response to the Northeast power blackout.

LIPA is committed to finding creative solutions to the provision of economic, environmentally sensitive and reliable electric supply for its customers. Historically, there have been reliability and service issues for the residents of Long Island. As an island with a robust economy, the demand for electricity on Long Island has been growing at a record rate in recent years. On average, for the past several years, our demand has grown at a rate of approximately 100 megawatts (MW) per year. For example, in July 1999, a four-day heat storm produced a summer peak demand record for LIPA of 4590 MW and 4757 MW for the Long Island Control Area. That 1999 LIPA record was 382 MW higher than the previous summer record of 4208 MW set in July of 1998. To provide some perspective, however, at the time of the August 14th system disturbance, all of the Long Island generation was functioning well with a typical summer demand load of 4677 MW—a demand level that, just four years ago, was a summer peak demand record. And this demand continues to grow. The peak demand in the Long Island Control Area for 2002 was 5059 MW.

Meeting this load growth, however, is not an easy task. In many ways, Long Island is a microcosm of the difficulties that face electric utilities today in providing the reliable and cost-effective energy that is critical to our local, state and national economy. Over the past several years, LIPA has taken aggressive steps to maintain and enhance the existing electrical system on Long Island to meet customer demand and improve reliability. The initiatives that LIPA has undertaken include:

- *Initiation of a power supply enhancement program* that has included execution of power supply agreements with developers of new generation units on Long Island (totaling 500 MW in 2002 and 2003) to meet peak energy demands, siting temporary mobile generation units (200 MW in 2002 and 130 MW in 2003) and issuing an RFP for additional baseload energy sources on Long Island and transmission interconnection siting (for operation in 2006);
- *Initiation of conservation and efficiency programs such as LIPA's Peak Load Reduction Partnership and LIPAEdge* which are designed to help us meet and manage our demand obligations with the assistance of our customers. LIPA's Clean Energy Initiative was created in May of 1999 to support energy efficiency, clean distributive generation and renewable technologies. The Authority has spent more than \$180 million in the first five years of the program and has extended it for another five years. Some of the accomplishments include the installation of the largest commercial solar roof in the country, investment in fuel cells and geothermal projects, as well as development of wind turbine demonstration projects. The Authority is currently reviewing responses to a recent RFP for a large offshore wind project. In addition, LIPA's Peak Load Reduction Program and LIPAEdge Program were designed to meet and manage our demand obligations with the assistance of our customers;
- *Upgrading the transmission and sub-transmission infrastructure* to improve energy transfer capability to and from Long Island and neighboring electric systems, increase the internal interface transfer capability and accommodate competition from new merchant generators on Long Island;
- *Fostering the development of the Cross Sound Cable* and, ultimately, entering into a long-term transmission service agreement with the builder of the Cross Sound Cable, TransEnergie U.S., which made the financing of the project possible; and
- *Substation and distribution line capital improvement projects* to provide the capacity to serve forecasted load growth and to improve the overall reliability of the system.

Electric energy is not a luxury. We must ensure that the infrastructure supporting the delivery of electricity to our customers is up to the critical task of ensuring that our homes are lit and our businesses have the electricity necessary to produce the goods and services that support our economy. On October 17, 2002, LIPA released its Draft Energy Plan which details a comprehensive, multi-faceted and flexible approach to providing a safe, reliable, environmentally friendly and cost efficient supply of electricity to LIPA's customers well into the future. In addressing the transmission and distribution components of the Draft Energy Plan, the first and foremost criteria for identification of projects was the ability to *improve system reliability*. In order to meet demand and maintain reliability, LIPA has invested heavily in transmission infrastructure and will continue to do so. Since taking ownership of the Long Island transmission and distribution (T&D) system in May of

1998, LIPA has invested \$1.01 billion in our T&D system. The expenditures have been made on a wide range of projects including new transmission and distribution lines and upgrades of existing lines, new substations and upgrades of existing substations. In 2002, LIPA invested nearly \$332 million in improvements to the T&D system alone. LIPA's 2003 budget commits an additional \$240 million to such improvements. Projected expenditures for 2004 could reach \$216 million, with expenditures for 2005 reaching nearly \$200 million.

As part of its efforts to improve the overall transmission infrastructure serving Long Island, since 1998, LIPA has worked to establish a new interconnection between New York and New England across Long Island Sound—which ultimately became the Cross Sound Cable project. Constructed in 2002 by TransEnergie U.S., Ltd. (TEUS), the transmission line interconnects the New England and New York control areas and is capable of transporting 330 MW of electricity between Long Island and Connecticut. Although LIPA is not the owner or the operator of this transmission line, LIPA's involvement in the project has been critical to its construction and completion. By entering into a Long Term Firm Capacity Purchase Agreement with TEUS in August of 2000, LIPA provided the necessary support for the financing of this project. The development of this merchant transmission line, in addition to LIPA's other efforts, is necessary to continue to serve the growing demand for electricity of the residents of Long Island.

Most recently, as part of our ongoing efforts to improve the transmission system, on August 28, LIPA announced a Research and Development (R&D) project with DOE and a consortium of manufacturers, led by American Superconductor of Massachusetts for the installation of a superconductive cable. This \$30 million project will test the world's first installation of a superconductor cable in a live grid at transmission voltages. Called high temperature superconductor (HTS) power transmission cables, superconductors can transmit two to five times the amount of electricity through the same space occupied by existing cables. The 2000 foot 138kV transmission superconducting cable will be demonstrated as a portion of a circuit located in an existing right-of-way in East Garden City. Project development has already begun, and the superconductor cable will be installed in the fall of 2005 with full operation scheduled for the end of 2005. If the R&D demonstration proves successful, LIPA would look to continue building the superconducting cable to the next substation. Connecting the two substations would provide a capacity of 600 megawatts.

Maintaining system reliability is a key mission for LIPA. LIPA is a founding member of an international public/private R&D partnership to apply new technologies to electric T&D systems to create a "self healing" grid that will detect and correct problems before they occur. Called the Consortium for the Electric Infrastructure to Support a Digital Society (CEIDS), some 15 entities, including the U.S. Department of Energy (DOE), the New York Power Authority (NYPA), Consolidated Edison Company of New York Inc., Cisco Systems, Lockheed-Martin, and Electricite de France have joined in the effort to develop the "self healing" grid technology concept. The CEIDS effort is part of the R&D projects spearheaded by the Energy Innovation Institute (E2I) a subsidiary of the Electric Power Research Institute (EPRI). Development of a "self-healing" transmission and distribution system—capable of automatically anticipating and responding to disturbances, while continually optimizing its own performance—will be critical for meeting the future electricity needs of an increasingly digital society.

LONG ISLAND'S EXPERIENCE DURING THE BLACKOUT OF AUGUST 14

The events and circumstances of the Northeast blackout are still being examined through such efforts as the U.S./Canada Power System Outage Task Force (Joint Task Force). LIPA, as a transmission owner and load-serving entity in New York, has been cooperating with the Joint Task Force. Until the Joint Task Force completes its work, it is difficult to speculate on any one set of factors or conditions that may have caused the system disturbance.

From Long Island's perspective, what we presently know is that in the moments leading up to the blackout, the Long Island transmission and distribution system was operating under normal summer conditions with a load demand of approximately 4,677 MW. There were no major generation facility outages on Long Island. Of the interconnections between Long Island and the rest of New York State and New England, the Y49 and Y50, 901 and 903 Cables were operating and had scheduled power flows. Due to operational rules regarding the interchange of energy between New York and New England, the fifth line interconnecting to Long Island, the Northport-Norwalk Tie had no scheduled power flow moving over its lines. The Cross Sound Cable, however, was de-energized due to the Connecticut siting morato-

rium that has delayed environmental review of a permit modification required prior to commercial operation of the facility.

LIPA has emergency plans to address blackouts like the August 14th event. Consistent with LIPA policies and plans, our emergency plan was immediately put into place when our system operator, KeySpan, called a “Condition Red.” Less than twenty minutes after the blackout, LIPA had put its first “black start” generating unit into service which served as the foundation of the system recovery. At 5:15 P.M., just an hour after the blackout, LIPA’s emergency team was assembled to assess system conditions and determine critical tasks that needed to be undertaken. Attached to my testimony as Appendix A is a presentation that LIPA recently released detailing the power restoration efforts that took place.

The Long Island T&D system and the interties with New England and the rest of New York State were a critical component of the power restoration efforts. During the restoration effort, LIPA’s interties were used to provide emergency energy support and to connect LIPA’s system to the Northeast power grid thus stabilizing system frequency. The interties were a valuable tool during LIPA’s efforts to complete the restoration of its entire system. At 11:45 P.M., August 14th, LIPA received notice from the Department of Energy that Secretary Abraham, acting upon a request from Governor Pataki, had issued an emergency order immediately directing the operation of the Cross Sound Cable pursuant to Section 202(c) of the Federal Power Act. Once active, the Cross Sound Cable provided essential electricity to Long Island and helped stabilize voltage on both Long Island and in Connecticut. Cross Sound Cable transmitted 15,000 megawatt-hours of electricity over the critical three-day restoration period following August 14, enough to repower about 300,000 homes on Long Island.

The ultimate effect of the Northeast blackout on Long Island is still being tallied. Estimates have been made that LIPA, alone, may have incurred an economic loss of \$20,000,000. An assessment of LIPA’s T&D system is still ongoing but preliminary assessments suggest that most of LIPA’s transmission and distribution facilities were unharmed. However, LIPA has already determined that there was damage to a major power station step-up transformer and other facilities on its system, including damage at several transformers and substations.

It is still too early to provide definitive opinions about what went wrong on August 14th or what equipment worked exactly as intended or not. However, in LIPA’s opinion, it is clear that there is a lack of transmission infrastructure—both lines and systems—necessary to address a massive outage such as this one or to facilitate the restoration of service to our customers. There may not be one piece of equipment or hardware that would have prevented such a widespread outage. However, we do know that the Cross Sound Cable, had it been in commercial operation rather than sitting idle due to a politically-motivated siting moratorium in Connecticut, would have, at the very least, reduced the time for restoration of power to Long Island residents. In this case, the Secretary of Energy properly stepped in and issued an emergency order to facilitate the use of the Cross Sound Cable in LIPA’s power restoration efforts. I firmly believe that it did not, and should not, have to come to the issuance of an emergency order to initiate power flows over the Cross Sound Cable. It is the failings of the present system, that has allowed parochial politics to override the legitimate need for additional interstate transmission lines such as the Cross Sound Cable, that we must address if we are to move towards improving the reliability of our electrical grid.

LESSONS LEARNED FROM THE BLACKOUT AND HOW SIMILAR INCIDENTS IN THE FUTURE CAN BE PREVENTED

The Northeast blackout demonstrates the need for improving system reliability through updates to operating protocols, modification of system management software, emergency planning and infrastructure investments. Many of these actions do not require Congressional action. However, other matters surely require Congressional attention—in particular, LIPA urges Congress to consider improvements that can be made in: (1) ensuring the optimization and full utilization of existing facilities such as the Cross Sound Cable to ensure system reliability; (2) facilitating new investment in transmission infrastructure by ensuring that there is certainty in cost-recovery and that all benefits of new transmission investments are captured in the compensation mechanisms; (3) removing obstacles to timely siting decisions for transmission facilities and avoiding multi-jurisdictional in-fighting over interstate transmission facilities; and (4) ensuring the development of effective reliability criteria.

Ensuring Full Utilization and Optimization of Existing Facilities to Support Regional Reliability.

The failure to fully utilize existing transmission facilities to ensure the efficient and reliable delivery of energy is unconscionable. For many of the same reasons that its energization pursuant to Secretary Abraham's emergency order gave LIPA a critical asset in its efforts to restore power to Long Island, the high voltage, direct current, Cross Sound Cable could have provided valuable assistance in efforts to stem the tide of the system disturbance that ultimately blacked out Long Island. As detailed in Appendix B, which describes the history of the Cross Sound Cable, state parochialism in the form of a Connecticut state siting moratorium has kept this cable from being placed into commercial operation—even though it is fully constructed and its operation will not result in adverse environmental conditions in Long Island Sound. Since the blackout, the Cross Sound Cable has been operating subject to an Emergency Order from the Department of Energy.

Last Thursday, the Secretary extended this order, finding that emergency conditions continue to exist since there has been no authoritative determination of what happened on August 14th or why the existing system was unable to stop the spread of the outage. As a result, the Secretary directed that the owners of the Cross Sound Cable continue to energize its facilities to transmit and deliver electric capacity between the New York and New England control areas as well as to provide voltage support and stabilization facilities in accordance with normal operating and scheduling protocols in the NYISO and ISO-NE during the continued existence of emergency conditions.

While the Order allows operation of Cross Sound Cable at this time, it is subject to revocation at any time. We must do more than just recognize the Cross Sound Cable's contribution to removing emergency conditions and allow the facility to be placed into full commercial operation so it can fully support and enhance the reliability of the adjoining New England and New York control areas.

Another example of the lack of full utilization of existing facilities is that, presently, the NYISO and ISO-NE do not allow for separate power schedules to flow over Northport-Norwalk Harbor intertie and routinely set the available transmission capacity of this intertie to zero in favor of sending all flows between New York and New England over AC interties in upstate New York. While the NYISO and ISO-NE certainly have operational responsibility to determine a reliable power flow within their control areas and between the two regions, removing certain facilities completely from the available options does not provide the full amount of flexibility that can and should be present in the New York and New England systems. LIPA has been working with the NYISO and ISO-NE to resolve this matter. However, even under the most optimistic estimates a permanent solution is unlikely to be in place before Summer 2004—at the earliest.

We must ensure that existing transmission facilities are fully utilized. Actions must be taken to immediately direct the operation and full utilization of existing interstate transmission facilities, such as the Cross Sound Cable, to support reliability while ensuring that such operations are conducted in a manner that protects the environment.

Certainty of Cost-Recovery and Recognition of All Benefits Provided by New Transmission System Investments.

At present, transmission owners are faced with a regulatory environment that does not provide certainty in rate recovery and does not fully recognize the reliability and market-related benefits created from transmission system improvements. This issue is not merely a question of what rate of return should be provided to a transmission owner. Rather, there is a more fundamental uncertainty as to whether, regardless of the rate of return applied to the expenditures made, cost recovery would ever actually occur. Further, all benefits of transmission investments must be recognized. Transmission facilities can provide reliability benefits, facilitate additional energy exchanges, improve access to additional installed capability resources, and provide voltage support.

Further, there are innovative, leading-edge and smart technologies, such as high temperature superconductor (HTS) power transmission cables and "self healing" grid technologies that can infuse the transmission system with additional flexibility. Simply providing for cost recovery through a traditional transmission usage charge does not fully recognize the benefits provided by the new generation of transmission investments that electric utilities, like LIPA, are making today. Ultimately, the federal regulatory framework for wholesale transmission service must allow for cost-recovery certainty and fully recognize and capture the multiple benefits to the market and reliability that are created by transmission system improvements.

Removing Obstacles to Transmission Facility Siting.

One of the most glaring issues that must be addressed to ensure future investment in transmission facilities is the complexity of siting multi-state transmission facilities. As a matter of course, transmission lines often cross multiple jurisdictional boundaries. Unlike interstate natural gas facilities (that are subject to siting certificate approval from a single entity, FERC), construction of an electric transmission facility can require the approval of multiple siting authorities. Furthermore, there is no standardization of facility siting review requirements or timelines for approvals. The result is a patchwork of siting authorities, with each one having the ability to fundamentally affect the ability of a particular project to proceed.

LIPA believes that there must be a reconsideration of how siting decisions are made for interstate transmission facilities to ensure that there is not parochial, jurisdictional interference in the functioning of what is truly an interstate market in electric energy. The Mid-Atlantic and Northeast states are too densely populated and too interdependent economically and environmentally to permit one recalcitrant state to block environmentally benign and urgently needed infrastructure. LIPA has no objection to reasonable state oversight of permitting to ensure that legitimate local and environmental concerns are met. However, the fact remains that interstate transmission lines do not serve a single jurisdiction and provide critical bridges for regional reliability.

A federal framework must be in place that ensures that interstate transmission facilities that are needed for reliability are not stymied by conflicts between multiple jurisdictions or political interference. Such a framework may be achieved through a number of different mechanisms, such as a one-stop siting approval procedure before FERC; or allowing the Secretary of Energy or FERC to direct the construction and operation of an interstate transmission facility upon a specific finding that it is required for regional reliability and can be accomplished with all necessary environmental safeguards. Ultimately, what is needed is a clear path by which critical, reliability improvements to the interstate transmission system can be made in a timely manner.

Improving Reliability Criteria and Coordination.

The development of effective reliability criteria is a critical element in transmission system planning. As transmission system investments are made, it is important that such investments in new technologies and facilities incorporate and accommodate the appropriate reliability criteria to ensure a more stable and reliable network. To that end, the current reliability criteria and structure for regional reliability coordination should be reviewed and recommendations made for improvement. Further, reliability benefits of transmission system improvements must be fully recognized through such mechanisms as payments for generation.

RECOMMENDATIONS FOR CONGRESSIONAL ACTION

In closing this testimony, LIPA urges Congress to take the following steps to ensure that our nation can be served by a safe, efficient and reliable transmission and distribution system:

- Actions must be taken to immediately direct the operation and full utilization of existing interstate transmission facilities, such as the Cross Sound Cable, to support reliability while ensuring that such operations are conducted in a manner that protects the environment.
- The federal regulatory framework must support transmission system investments by providing for cost-recovery certainty and fully recognizing and capturing the multiple benefits to the market and reliability that are created by transmission system improvements.
- A federal framework must be in place that ensures that the siting of interstate transmission facilities that are needed for reliability are not stymied by conflicts between multiple jurisdictions or political interference.
- The current reliability criteria and structure for regional reliability coordination should be reviewed and recommendations made for improvement. Further, reliability benefits of transmission system improvements must be fully recognized through such mechanisms as payments for generation and transmission improvements that result in a measurable benefit to system reliability.

LIPA looks forward to working with Chairman Tauzin and all members of this Committee on passage of legislation that enhances the reliability of our electric transmission and distribution systems.

Chairman TAUZIN. Thank you. Thank you very much, Mr. Kessel. By the way, did you personally cut that line? We may have found the problem.

Mr. KESSEL. Yes. This is it. Actually, I should say that the line, by the way, Mr. Chairman, is operating today. And we are hoping that by this afternoon, it will carry electricity from Connecticut across Long Island and back to southwest Connecticut. This is not a one-way street. And the grid is not a one-way street.

Chairman TAUZIN. Thank you, sir.

We are pleased now to welcome Dr. Linn Draper, Jr., the Chairman, President, and CEO of American Electric Power. Dr. Draper, you and I go way back a long time, when you were I think a professor in the 1970's.

Mr. DRAPER. That's correct in the Gulf States.

Chairman TAUZIN. And I believe I called upon you to come as a consultant to the Natural Resource Committee hearings in Louisiana way back then.

Mr. DRAPER. That's absolutely right. You have a good memory.

Chairman TAUZIN. We meet each other in a new life. And I thank you for coming and appreciate your testimony, sir.

STATEMENT OF E. LINN DRAPER, JR.

Mr. DRAPER. Thank you, Chairman Tauzin, members of the committee. I appreciate the opportunity to appear before the committee and provide AEP's perspective on the August 14 outage. I am Chairman, President, and Chief Executive Officer of American Electric Power. We are based in Columbus, Ohio.

AEP is the largest generator and transmission owner in the United States. We have about 5 million customers linked to an 11-State grid. With over \$5 billion invested in our transmission grid, ours is a unique perspective.

From the outset, let me be clear. Our system worked as designed. The AEP system held together, a point in which we take great pride. Our automated systems performed as they were designed to perform and our employees communicated as they should have. Our load and generation remained in balance.

From an operational standpoint, August 14 was a fairly typical August day until we detected a transmission line problem at an interconnection with our neighbor FirstEnergy. AEP contacted FirstEnergy to discuss the problems. And we remained in extensive communication throughout with our reliability coordinator, PJM, and with FirstEnergy.

As the power flows exceeded safe operating levels, our equipment in northern Ohio automatically tripped to isolate the problem. The protection devices isolated our system and prevented damage to equipment. They also stopped the cascade and prevented situations that could have threatened public safety.

AEP's system was not the only one to respond this way. Consumers Power had the same scenario. I don't know why everyone's system didn't, and I won't speculate on the root cause.

I take great exception to the characterization that the United States transmission system is a Third World grid. It's the strongest in the world, although it is being pushed to its limits on a continuing basis.

The grid was designed to get a local utilities generation to its own customers, not to transport massive wholesale transactions across the country. Clearly there is a need to strengthen the grid through greater investments, to support it for the manner in which it is used today.

Several factors will hasten grid improvement. Foremost, we must have regulatory certainty. Today a company's proposing a new transmission line must go through multiple State and Federal hurdles.

We proposed a 765 kV line in West Virginia and Virginia in 1990. After spending more than \$50 million on the approval process, we were cleared to build the line this year, 13 years later.

We respect the interests of all jurisdictions, but we'll never get where we need to be if it takes this long to get permission to build one line.

Second, we must improve coordination and communication among the various entities that oversee the grid. We don't have one single grid owner or operator in this country, nor would it be physically feasible or even wise to do so. We will always have seams. And given those seams, we need to make sure they are in no way obstructive.

We need continuing coordination among the various grid operators to ensure planning and operations and quick response in emergency situations. We must not let the endless controversies over RTOs get in the way of reliability.

AEP has committed \$50 million toward RTO development, chasing the changing Federal policy direction. The key points in the RTO debate, as we see it, our policy should balance both generation and transmission. Transmission owners must receive sufficient revenues to assure adequate investment. Parties that benefit from the competitive markets should bear the costs, including those that use the transmission system.

Some have suggested splitting the AEP system to appease opposing political interests in the RTO debate. We think that is unacceptable and counterproductive. We have the strongest transmission system in the United States, and we don't think it should be split.

AEP's system has been touted as being the backbone of the Eastern Interconnect. Splitting apart a highly integrated system the size of AEP's amidst efforts to increase the Nation's electric reliability flies in the face of reason.

We need consensus on an appropriate use of the grid. The balance between reliability and commerce must be tipped toward reliability.

Additionally, we must approve NERC as the enforcement entity for mandatory reliability standards, not voluntary ones. Our grid is interconnected. We must all play by the same rules, and we must have knowledge of an independent entity, such as NERC, empowered to enforce such standards.

Thanks for the opportunity to address the committee. I pledge that AEP will continue to work with DOE, NERC, and all entities embarking on the investigations of the events of August 14 and look forward to a complete analysis of that day. And at the appro-

priate time, I would be delighted to respond to questions, Mr. Chairman.

[The prepared statement of E. Linn Draper, Jr. follows:]

PREPARED STATEMENT OF E. LINN DRAPER, JR., CHAIRMAN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AMERICAN ELECTRIC POWER

Mr. Chairman, members of the Committee, thank you for the opportunity to appear before this committee and provide AEP's perspective on the August 14th outage. My name is E. Linn Draper, Jr. I am Chairman, President and Chief Executive Officer of American Electric Power, the largest electricity generator and transmission owner in the U.S, with 38,000 MW of generation capacity and 39,000 miles of transmission line. Almost 5 million customers are linked to AEP's 11-state electricity transmission and distribution grid. The company is based in Columbus, Ohio. With \$5 billion invested in our transmission grid, ours is a unique perspective.

From the outset, let me be clear, we did it right. The AEP system held together—a point of pride for us. Our protective systems performed automatically as they were designed to perform, our operators performed and communicated as they should and our load and generation remained in balance throughout the day. Our grid is large, robust and integrated, and can therefore withstand the power swings we experienced that day. Michehl Gent, NERC President and CEO, on Aug. 15 said AEP's 765-kV transmission system is “often heralded as the world's finest transmission system.”

From an operational standpoint, the 14th was a fairly typical August day until our operators first detected transmission line problems at an interconnection point with FirstEnergy, and AEP contacted FirstEnergy's operators. Throughout this event, we maintained extensive communications with our reliability coordinator, PJM, and with FirstEnergy.

Power flows before the event, especially into Michigan and northern Ohio, were high but not unusual, given typical summer loads. It's important to note that Michigan is often a significant importer of power. Power flows on our lines continued to increase because of increased demand outside our system. We still do not know the cause of that increased demand.

As the flows of power exceeded safe operating levels across our lines, our equipment in northern Ohio operated automatically to isolate the problem. This is exactly the way the equipment is designed. To quote the DOE's National Transmission Grid Study, released in May of last year, “electricity flows according to the laws of physics and not in response to human controls, what happens in one part of the grid can affect users throughout the grid.”

The opening of the lines isolated our system and prevented damage to the equipment. More importantly, it avoided cascading outages across the AEP System and probably far beyond, given the central role of AEP's transmission grid in the Eastern Interconnection. AEP's system was not the only one to respond this way—the transmission system serving Consumers Power's load, among others, also isolated from the problem during the event, and their system held. I don't know why all systems didn't perform in a similar manner.

Automatic tripping of lines is not simply a matter of protecting our equipment. There are serious reliability and safety implications if the automated protection mechanisms do not activate.

First, if the equipment is damaged, it can be out of service for an extended time—further burdening other lines that are, as we all know, already stressed. In short, the system holds for as long as it can, but at some point equipment must trip off to prevent further cascading outages. In this instance, tripping off stopped the cascade to the south, enabling AEP's personnel to assist others in their restoration efforts, because we were not busy with restorations of our own.

Tripping off also has safety implications. If current runs as high as it was during the event, it could actually cause the lines to literally melt or to sag beyond design criteria, which can result in safety hazards to the public.

I can't speculate on the root causes for this event, so I can't tell you that it wouldn't have occurred a year ago, or that it will never occur in the future. The interconnected nature of our grid, and the fact that we're now using it in ways that it was not originally intended or designed, mean that these kinds of events can occur in the future, although lessons learned can prevent a reoccurrence of the same magnitude.

I take great exception to the characterization of the U.S. transmission system as “third world grid,” as some have said. The American transmission grid is the strongest in the world, although it is being pushed to its limits on a continuing basis.

The electrical grid in this country was designed in large part to get a local utility's generation to its customers—not to carry thousands of cross-country and regional transactions, as the grid is now called to do. In the five-year period during which wholesale electric competition first gained momentum, the number of wholesale transactions in the U.S. went from 25,000 to 2 million—an 80-fold increase. And many stakeholders are striving for continued growth. Needless to say, transmission infrastructure expansion—which is an expensive and time-consuming prospect at best—did not increase 80-fold in that time frame. In fact, very little expansion has taken place.

Clearly, there is a need to strengthen the grid through greater investments—new equipment, new lines and new technologies—to support the grid for the manner in which it is used today.

Several factors will hasten grid improvement:

First and foremost, we need regulatory certainty. If we need to build new transmission facilities today, we must navigate through multiple state and federal regulators to get that done. Processes vary in every state. For permits and siting, for instance, we must get approvals from multiple state regulators, and probably multiple federal regulators as well. We proposed a 765-kV line in West Virginia and Virginia in 1990. After an expenditure of over \$50 million, we received final clearance to build the line this year. While we respect the interests of all jurisdictions in siting decisions, we'll never get where we need to be if it takes 13 years to get permission to build a power line.

And for every dollar we spend—and the National Transmission Grid Study quoted a price of \$1.8 million per mile for a new 765-kV line—we must go back to those multiple state and federal regulators to receive full recovery. In this context, it is difficult to understand recent actions by the FERC to eliminate transmission revenues from third party or wholesale customers. If what FERC is proposing comes to pass, power can move from St. Louis to New Jersey for the same fee as moving power from Pennsylvania to New Jersey. Such scenarios not only jeopardize existing investments, they create a disincentive for future investments since full and fair cost recovery is even more difficult.

Second, and also critically important, we must improve coordination and communication among the various entities that oversee the grid. The reality is that we don't have one single transmission grid owner and operator throughout the country, nor would it be feasible or wise to do so. It's a given that there will always be seams—or boundaries—between various grid operators.

What's required is continuous improvements in the coordination among the various grid operators to ensure coordinated planning and operations, and quick response in emergency situations. On Aug. 14, our operators did coordinate and communicate with other operators, which helped to prevent this from spreading even further across the country—but we can all strive to improve. Those who are using this event to promote their desire for a single RTO administering a spot market are not only missing the boat, but misleading you and others into thinking that simply installing such an RTO would answer the reliability issues that have been raised by this event.

Next, I fear that the current controversy and seemingly endless debate over the role of RTOs is hindering our ability to make progress and create an environment that is conducive to investment. While AEP has committed \$50 million to RTO development, many states now are opposing an expansive role of RTOs, including a number of AEP's 11 states, while others fully support a broad role for RTOs and more federal control over the grid and the wholesale market.

While debate about RTOs rages on, let's not forget some key points:

- AEP is at the center of the current debate largely because of the quality and the scope of our system, which is at the crossroads of many markets—that's one big reason we're coveted by market stakeholders in their attempts to expand.
- Policies should balance both generation and transmission. Transmission owners must receive sufficient revenues to assure adequate investment.
- Parties that benefit from competitive markets should bear the costs. Those that use the transmission system to receive those benefits should pay for it.
- While some have even suggested splitting up the AEP system, that's unacceptable and counter-productive. AEP's system has been touted as the backbone of the Eastern Interconnect. Splitting it apart amidst efforts to increase the nation's electric reliability flies in the face of reason.

We need consensus on an appropriate use of the grid. If we focus solely on competitive markets and economics, serious implications for reliability and security arise. We need a balance, but that balance must be tipped toward reliability—the fundamental foundation of the transmission grid. Without reliability, we have no market to structure.

The benefits of competitive markets should not only flow to generation owners or electricity users, as seems to be the present policy, but also to the transmission owners who need to receive a sufficient share of benefits to assure investment in the transmission infrastructure necessary to support competitive markets.

Additionally, we must approve NERC as the enforcement entity for mandatory reliability standards. Our grid is interconnected. We must all play by the same rules, and we must have a knowledgeable independent entity—such as NERC—empowered to enforce such standards.

Thank you again for the opportunity to address this committee. We will continue to work with DOE, NERC and all entities embarking on investigations of the events of August 14th and look forward to a complete analysis and answer to what happened that day.

I encourage you to wait until the NERC/DOE investigation is complete to draw conclusions. Thank you again and I will be happy to respond to any questions from the Committee.

Chairman TAUZIN. Thank you very much, Mr. Draper. Doctor, we deeply appreciate your testimony.

We are going on now to Mr. Joseph Welch, the CEO, International Transmission Company of Ann Arbor, Michigan.

STATEMENT OF JOSEPH L. WELCH

Mr. WELCH. Mr Chairman and members of the committee, thank you for this opportunity to appear before the committee to present my company's views on the electrical blackout that began on August 14, 2003.

My name is Joe Welch, and I am President and Chief Executive Officer of International Transmission Company, headquartered in Ann Arbor, Michigan.

Regardless of the cause of this occurrence, all of us in the electric power industry need to commit to take whatever action is necessary to prevent such a widespread event from happening again.

We designed this vast interconnected grid to increase the reliability of service to our customers. And on August 14, that system failed us. While we await the outcome of the investigation into the cause of the blackout, I believe it is not too soon to begin thinking about steps we can begin taking to prevent its reoccurrence.

Much of the problems associated with this blackout have been discussed and debated over years. The ITC staff is cooperating fully with the investigative teams. And we have shared much of this data in my written testimony.

This morning I would like to focus on next steps. The letter inviting my testimony correctly notes that all indications are that the electric power supplies in the region affected by the blackout have generally been more than adequate to meet the peak summer demands.

This blackout did not arise from a lack of electric generation supply. Rather, this blackout was rooted in a disconnect between the use of and the capability of the transmission system to deliver that supply. This disconnect, in turn, is rooted in institutional failures to properly regulate and monitor transmission usage such that the transmission system stays within its physical limitations.

Ultimately, more transmission infrastructure will be required to accommodate increased usage of the transmission system, but until it can be provided, the proper and safe use of the transmission grid must be enforced.

Ultimately, the safe and reliable operation of the grid can be restored by ensuring that the standards and procedures required to

do so are developed and enforced, independent of market participants.

Where the market desires transactions which the current grid cannot safely accommodate, new infrastructure investments must be made, rather than relying on complicated operational protocols. Some required infrastructure improvements will span multiple traditional utility footprints.

Regulatory and rate changes will be required to get those facility investments made. Some of these investments will require significant time to obtain rights-of-way and address environmental issues.

Let me identify some next steps I would hope this Congress would consider. First, mandatory reliability standards developed and enforced by non-market participants and funded independently of market participants is absolutely critical.

Second, mandatory RTO participation is essential. And these RTOs must be tasked with the elimination of unscheduled loop flow. No seams which overlap natural markets can be tolerated.

Reliability plans, such as the proposed MISO-PJM plan, which embeds loop flows on transmission systems, such as Michigan companies, will virtually assure additional blackouts.

The August 14, 2003 blackout highlights the fact that loop flows have undesirable reliability consequences. These standards and protocols, coupled with investments in transmission infrastructure, must address the severity of loop flow to avoid events like this from happening again.

Third, transmission pricing must reflect the actual flows on the system. FERC has provided sufficient ROE incentives, but without a pricing system that aligns cost recovery with real usage of the system, we will have a disconnect between incentives and the ability to recover costs.

Finally, in addition to reliability standards, RTO participation and transmission pricing, the communication mishmash underlying the August 14 blackout must be unwound. As has been discussed throughout this hearing, there is a confusing array of entities with responsibility for different parts of the transmission grid.

Governor Graham, Home, and others have talked about the lack of accountability in transmission operations. Accountability extends beyond any single identity or owner.

The interconnected grid crosses State and National boundaries. And we need to develop structures that can control this interconnected grid and ensure single point accountability. I commit my company to work with you on implementing these suggestions and others that will prevent a reoccurrence of severe problems, such as those we experienced on August 14.

We have shared data with you on the committee and with others investigating this. We encourage others to share as well. While respecting sensitive commercial information, we hope that all investigations are conducted in the open so that we can avoid the appearances of manipulation to preserve market positions.

Thank you very much. And I'm pleased to answer questions that you may have.

[The prepared statement of Joseph L. Welch follows:]

PREPARED STATEMENT OF JOSEPH L. WELCH, PRESIDENT AND CHIEF EXECUTIVE
OFFICER, INTERNATIONAL TRANSMISSION COMPANY

INTRODUCTION

My name is Joseph L. Welch. I am President and Chief Executive Officer of International Transmission Company.

ITC is a truly independent stand alone transmission company with no ties to any market participant or company that brokers electricity, owns electric generating facilities, or has an obligation to serve end-use customers. Our sole mission is to provide the transmission infrastructure necessary to reliably support the electric market in a fashion that minimizes the total delivered cost of electricity to customers.

ITC, jointly with the Michigan Electric Transmission Company (METC) (which is another independent transmission company), operates the Michigan Electrical Co-ordinated Systems (MECS) Control Area in Ann Arbor. This Control Area is responsible for ensuring that generation and load within the Michigan peninsula remains in balance and reports when it is not.

ITC is also a member of the Midwest Independent Transmission System Operator (MISO) Regional Transmission Organization (RTO). MISO is the Transmission Provider for the Michigan transmission systems, and is the Security Coordinator responsible for the safe operation of the transmission grid. As Transmission Provider, MISO also schedules the use of the Michigan transmission grid (within its physical limitations) and bills the transmission customers for their use of the transmission grid.

ITC became the sole owner of the transmission lines formerly owned by DTE Energy in southeast Michigan on February 28, 2003. DTE Energy's distribution utility subsidiary, Detroit Edison, physically operates, repairs, and maintains all of the ITC transmission assets under contract for a period of one year which began on February 28. On February 28, 2004, ITC will be solely responsible for such physical operation and maintenance in accordance with the February 20, 2003 Federal Energy Regulatory Commission (FERC) Order in Docket Nos. EC03-40-000 and ER03-343-000 which approved the sale of ITC.

On August 14, 2003, with absolutely no warning, the ITC transmission grid experienced severe electric flows (which were a result of energy demands of electric customers other than those residing in Michigan) which collapsed our grid and the grids of our interconnected neighbors, ultimately blacking out over 50,000,000 customers. This event is akin to a "tsunami" hitting an unsuspecting coastal community. These severe electric flows described above are known in the electric industry as loop flow which is electric energy flow that travels over a transmission system without that flow being scheduled on the transmission system. It can be the results of another transmission provider scheduling and selling more capacity than its own transmission system(s) will accommodate without regard for its impacts on other interconnected transmission systems. Such loop flows also occur when an entity fails to curtail its transactions (imports and/or exports of power) when the transmission needed to support those transactions is no longer available.

The letter inviting my testimony correctly notes that "all indications are that the electric power supplies in regions affected by the blackouts have generally been more than adequate to meet peak summer demands." As I will discuss in my testimony, this blackout did not arise from a lack of electric generation supply. Rather, this blackout was rooted in a disconnect between the use of and the capability of the transmission system to deliver that supply. This disconnect in turn is rooted in institutional failures to properly regulate and monitor such transmission usage such that the transmission system stays within its physical limitations. Ultimately, more transmission infrastructure will be required to accommodate increased usage of the transmission system, but, until it can be provided, the proper and safe use of the transmission grid must be enforced.

1. What exactly were the specific factors and series of events leading up and contributing to the blackouts of August 14th?

See Attachment 1.

2. At what time did your company first become aware that the system was experiencing unscheduled, unplanned or uncontrollable power flows or other abnormal conditions and what steps did you take to address the problem? Were there any indications of system instability prior to that time?

August 14, 2003 began as a typical summer day in Michigan. The only notable generation event was that Detroit Edison's Greenwood #1 unit shut down in a controlled fashion at 1:14 pm EST and returned to service at 1:57 pm EST later that

day Electric system metrics such as system voltages and frequency, as seen from Michigan, were completely within normal limits. Attachment 1, slides 19 through 21, are plots of voltage beginning at 7 am, and Attachment 1, slide 15, is a plot of system frequency for the same time period. Likewise, tie line flows across Michigan's three interfaces with the Eastern Interconnection (METC lines connecting to American Electric Power (AEP), ITC lines connecting to FirstEnergy (FE), and ITC lines connecting to Ontario) were all within normal parameters (Attachment 2) throughout the day, up until the blackout event (Incident).

The MECS Control Center has a disturbance monitoring system which collects large amounts of data related to the operation of the transmission system. When the Incident occurred, this system was triggered and began collecting very comprehensive data throughout the Incident in very small time increments, tracking power flows, voltages, frequency, and generator outputs and status. This data enabled ITC to determine:

- a. A very large demand (2200 MW plus voltage support demand) was suddenly thrown on the ITC's three 345 kV interconnections to FirstEnergy.
- b. This sudden demand forced power flows to drastically increase across the entire state of Michigan and to a lesser extent, via the ITC-Ontario 230 kV interconnections. This in turn caused depressed voltages on the ITC transmission system (leading to the total voltage collapse).
- c. These extreme power flows caused the four METC 345 kV lines connecting the METC transmission system to ITC's transmission system to disconnect resulting in the disconnecting of the remaining lower voltage connections between METC and ITC as well. This occurred in a matter of seconds.

With METC and ITC disconnected, there was no other supply route for the sudden demand on the (FE) ties except for Ontario. The power demanded by FE subsequently caused the existing flow across Michigan to reverse and flow around First Energy and then through systems such as AEP, Pennsylvania—New Jersey—Maryland (PJM), New York, then into Ontario, Canada via the Ontario-New York ties.

- d. The voltage collapse within Michigan in conjunction with the power swing through Canada was accompanied by the sudden loss of generators connected to ITC's grid.

All of these events and consequences were viewed from within Michigan and I can attest to the data that documents the event which we witnessed.

Subsequent reports from various entities including AEP, the MISO RTO, the PJM RTO, and the North American Electric Reliability Council (NERC) indicate that areas in northern Ohio were experiencing serious internal problems for some time prior to the event (approximately two hours before the Incident). AEP and PJM reported they were also experiencing problematic high electricity demand on their connections to FE. While FE is connected to the three different transmission systems of ITC, AEP, and PJM, system flows and voltages within ITC and the rest of Michigan were well within nominal limits all day, notwithstanding the problems to the south.

When the AEP and PJM systems disconnected from FE without warning to Michigan, the electricity demand that appeared to have been overloading the AEP-FE connections was thrown onto Michigan. Michigan is a peninsula and the Michigan transmission system was never designed to support northern Ohio on its own, and the results were devastating.

The Michigan system collapsed under the strain, followed by the Ontario system shortly thereafter. PJM reported it had disconnected itself from the trouble areas to its west and north, which would make New York and New England a peninsula, isolating them from the Eastern Interconnection. When isolated in this fashion, portions of New York and New England were unable to avoid collapsing when the Ontario system disconnected.

3. What systems operated as designed and which systems failed?

Physical systems within ITC operated substantially as designed. I cannot speak to the systems belonging to other entities.

The protective relays on transmission lines are designed to disconnect lines for "faults" (for example, a wire touching the ground). Great care is taken to set them so that they do not inadvertently disconnect when there is no such fault (known as "overtripping"). They are also set to reclose automatically, following a safety check, to ensure that the overall grid remains reliable. However, these relays will disconnect lines when voltage collapses, as occurred within Michigan, because voltage collapse presents conditions which are similar to a fault. Transmission line protective relays within ITC appear to have operated properly in response to the conditions presented.

The earlier NY blackouts of the mid-sixties resulted in the installation of technical safety devices (“underfrequency relaying”) throughout the transmission grid, which undoubtedly have protected the security of the grid in many cases in the past. Unfortunately, in this instance, such equipment was designed to address an imbalance in load and generation (a frequency event), not overuse of the system resulting in voltage collapse as we saw within Michigan, and had little value in mitigating the August 14 event.

Black start procedures were generally effective in restoring operation of the grid after this blackout. Protective relays on generators largely disconnected generators before they were seriously damaged. I cannot speak for systems outside of Michigan but ITC transmission lines were undamaged and ready for restoration when the generation needed to supply the load was brought back on line.

The systems which did fail were the ones underlying communication. (The communication failures were themselves a predictable outcome of new institutions even now being promulgated by a few parties, notwithstanding substantial objections.)

Had Michigan been warned of the problems, a number of actions which would have forestalled the blackout were available.

Michigan, in concert with AEP and PJM, could simply have opened its ties to FE as well. The FE system may have survived with some load loss, but more importantly, no cascading would have occurred as the problem would have been localized to the FE system.

A better option, given advance warning, would have been for Michigan to prepare for the oncoming tsunami by interrupting air conditioner load in Detroit Edison, by interrupting the large voluntarily interruptible industrial load in Detroit Edison’s area, starting Michigan peakers and other available generation), all basically reducing the initial loadings on the Michigan grid and bolstering the voltage support. The Michigan system would not have collapsed, and the cascading blackout would not have occurred. The worse case would have been the collapse of the FE system but FE’s problems would have been localized.

The best option of all, given an appropriate advanced request, would have been for Michigan to take the same steps outlined above; these steps could have strengthened FE sufficiently that FE may have survived; it would not have been necessary for AEP and PJM to disconnect their systems to save themselves. However, no such call was made or warning given. I have confirmed that by having my staff listen to control room operator tapes. I hope that the DOE task force will review all control room tapes for all the systems that were involved in any way.

Phone calls are not the only means of communication. Within MECS at least, there are three electronic systems through which Control Area Operators and Security Coordinators communicate system status, convey warnings, etc. I asked my staff and MECS operators to determine what information was conveyed via that route. They informed me that there were no records or reports of the line outages which were so critical to this event. Without such information, there is no way for Control Area Operators or Security Coordinators to take actions necessary to mitigate problems, especially those events in other systems which could affect our system. I would expect that DOE will review this matter and determine why information was not communicated via those systems.

The fact that no such calls or communications were undertaken or warnings extended or even properly reporting of the (subsequently reported) line failures in FE and AEP and PJM illustrates the number one cause of the blackout in my opinion.

4. If events similar to those that occurred on August 14, 2003 had happened a year ago, would the results have been the same?

Yes. The infrastructure components underlying this event were the same a year ago.

5. If similar events occur a year from now, do you anticipate having in place equipment and processes sufficient to prevent a reoccurrence of the August 14 blackout?

ITC will proceed immediately to implement a plan that will protect ITC and its users, and Michigan as well, from further blackouts. It is unlikely that the physical infrastructure will be implementable within a single year, but we will proceed as soon as possible. The external processes necessary to avoid a reoccurrence will have to be undertaken at the national level; at the moment, a number of entities are attempting to institutionalize the underlying structure which sets up conditions which led to the blackout.

6. What lessons were learned as a result of the blackouts?

On August 14, it was apparent that parties were choosing to operate the grid within their sphere of influence for their own purposes without regard to rules, pro-

cedures, or the impact of their actions on other users of the grid. Further, the convoluted RTO configurations which major entities have contrived to create virtually guarantees that communication, when it occurs, will be a matter of luck. As MISO Market Monitor Dr. David Patton warned in a March 2003 MISO market monitor presentation to FERC, “The electrical configuration between the PJM and the MISO also raises substantial gaming concerns.”

Entities will have the means to game the system to their own ends to the disadvantage of all other users.

The regional RTOs have proposed to “paper over” this “seam” which is the focal point of the blackout with even more convoluted operational procedures and protocols, when there is insufficient evidence that even the current more elemental protocols have been followed.

The result of the 1965 and 1977 blackouts in the Northeast resulted in many fine reliability standards of operation and planning that were followed with very good results until relatively recently. Loop flows such as those onerously imposed on Michigan allow over scheduling of the grid on fictitious contract paths without regard to the consequences. Operational practices such as “parking” and “hubbing” of transactions (scheduling of transactions using intermediary third parties rather than transacting directly between buyer and seller), cause actual use of the grid to be cloaked. This is because the park/hub transaction, with its fictional flow of electricity, can fall beneath the screen whereas the original transaction would have been visible. Entities responsible for ensuring proper use of the grid ignore threats to reliable operation in response to pressure from market participants wishing unfettered use, regardless of actual infrastructure capability—to substitute operational procedures for infrastructure—to ignore the rules when it is advantageous.

7. How can similar incidents in the future be prevented?

Mandatory reliability standards, developed and enforced by non-market participants, and funded independently of market participants are absolutely critical.

Mandatory RTO participation is essential to ensure elimination of unscheduled loop flow. No seams between RTOs can be allowed, and no seams which overlay natural markets can be tolerated. Reliability plans such as the proposed MISO-PJM plan which embeds loop flows on the transmission systems of Michigan companies will virtually assure additional blackouts.

The communications mishmash underlying the August 14 blackout must be unwound. MISO is Michigan’s and FE’s Security Coordinator, and PJM is AEP’s Security Coordinator. Michigan companies are members of MISO but FE is not. (The Security Coordinator is the entity which oversees the reliability of the grid within his footprint, acts to ensure that action is taken to maintain safe and reliability operation, and communicates to other Security Coordinators within other regions to ensure overall safe operation of the grid). AEP is not a member of any RTO but the Southwest Power Pool (SPP) is AEP’s transaction scheduler. PJM does not report its internal flows and circuits to the systems which allow tracking and unwinding of transactions when necessary to resolve overload problems; MISO does, but only within its footprint. Unfortunately, Commonwealth Edison (an Exelon operating company) (ComEd), for example, is embedded within the MISO grid, so that ComEd transactions across the AEP grid into its affiliate in PJM are not subject to MISO oversight. As part of PJM, ComEd flows are no longer visible to the entities outside PJM. While these flows contribute significantly to the loop flows through Michigan, they are no longer curtailable through the current TLR (NERC’s Transmission Line Loading Relief) process.

When these RTO configuration issues were first raised at the July 17, 2002 FERC meeting, NERC’s Mr. Gent, in discussing the concerns raised, stated “is this the configuration as you would have designed it? Probably not. Is it the configuration that I would have designed? Probably not. But it is the configuration that the participants have chosen, . . . Therefore, our recommendation to you is that you condition your approval of any configuration on the participants successfully convincing the industry, through our NERC Operating Committee, that reliability is not impaired.” However, notwithstanding the forceful, unanimous, and continuous objections of the Michigan companies, the NERC Operating Committee and NERC regional council, ECAR, have approved, and continue to approve the proposed reliability plan. In fact, ECAR voted to approve the plan on August 15, 2003, while major areas of Michigan were still blacked out, when none of the Michigan companies were present.

Ultimately, the safe and reliable operation of the grid can be restored by ensuring that the standards and procedures required to do so are developed and enforced, independent of market participants. Where the market desires transactions which the current grid cannot safely accommodate, new infrastructure investment must be made, rather than rely on luck and prayer. Some required infrastructure improve-

ments will span multiple traditional utility footprints. Regulatory and rate changes will be required to get those facility investments made. Some of these investments will require significant time to obtain rights of way and address environmental issues. The institutional and regulatory changes I have described must come now so that the existing infrastructure can be optimized within its capabilities without repeating August 14.

My findings are based on the data that we collected within Michigan which I will make publicly available. I urge that others do the same. At ITC, we chose to work in the open because our job is to serve the market to the benefit of all electric users.

Attachment 1

Background

- Control Area Operation in most of Michigan is performed by Michigan Electric Coordinated Systems (MECS)
- MECS is comprised of the two independent transmission companies that own most of the Michigan Grid:
 - > International Transmission Company (ITC) and
 - > Michigan Electric Transmission Company (METC)
- Transmission Operations in the ITC system are performed by Detroit Edison on behalf of ITC under a FERC approved contract that expires on February 28, 2004
- The Midwest Independent System Operator (MISO) is the Reliability Coordinator for the ITC and METC service areas

Operating Outlook for 8/14/2003

- Temperature Forecast : 87
- Load Forecast : 19,000 MW
- Scheduled Imports: 800 MW
- Generation Reserve Forecast: 4%
- Unit Outages:
 - > River Rouge 2
 - > Monroe 1
- Transmission Outages:
 - > B3N (1 of 4 ties to Ontario)
- No anticipated transmission constraints or problems

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Operating Timeline on 8/14/2003

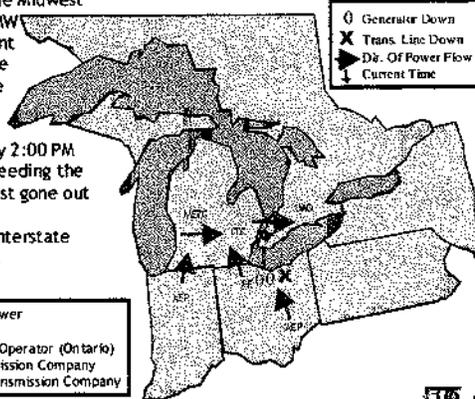
- 11:00 Upon notification from MISO, MECS begins Time Error Correction protocol "K" with a scheduled frequency of 59.98 Hz
- 12:27 Peaking units are brought online as a pre-contingency action to provide voltage support in the event of an outage on the Ludington-Keystone line
- 12:27 Transfers to the City of Holland are restricted through 19:00 as a pre-contingency action to protect the system in the event of an outage on the Campbell-Black line
- 13:14 Greenwood Unit 1 goes offline in a controlled shut down due to fuel problems
- 13:34 FirstEnergy initiates Automatic Reserve Sharing in response to the loss of Eastlake-MECS supplies 90 MW
- 13:57 Greenwood Unit 1 goes back on line smoothly



Precondition

8/14/03 3:06 PM

- High temperatures in the Midwest
- FirstEnergy's (FE) 870 MW Davis-Besse nuclear plant is down for maintenance
- The 550 MW FE Eastlake generating unit in Northern Ohio went offline at approximately 2:00 PM
- A FE transmission line feeding the city of Cleveland has just gone out of service
- Flows over Michigan's interstate connections are normal



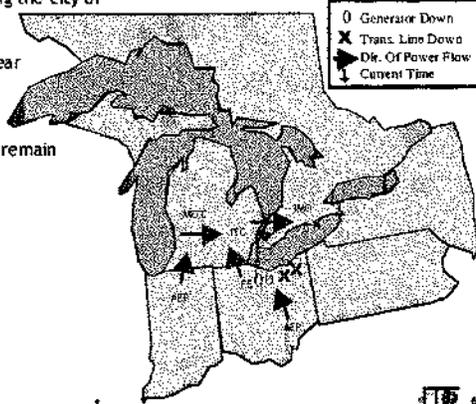
Time to Blackout
 t = -1:05:00

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25 Minutes Later...

8/14/03 3:32 PM

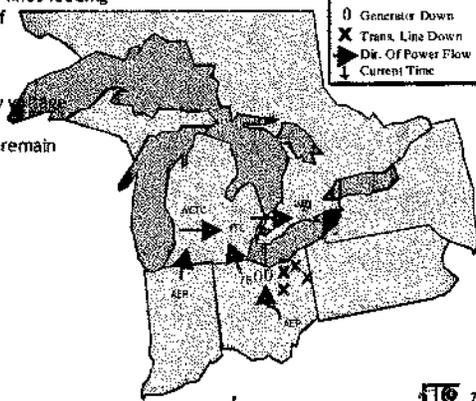
- A second line FE feeding the city of Cleveland goes out of service
- Transmission system near Cleveland experiences low voltage
- Flows on Michigan's interstate connections remain steady



10 - 15 Minutes Later...

8/14/03 3:41 - 3:46 PM

- Two more transmission lines feeding Northern Ohio go out of service
- Transmission system near Cleveland experiences severe low voltage
- Flows on Michigan's interstate connections remain steady

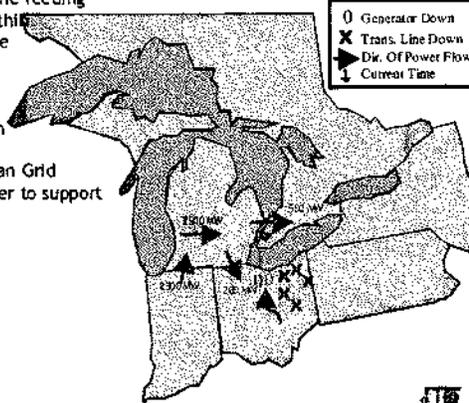


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20 Minutes Later...

8/14/03 4:06 PM

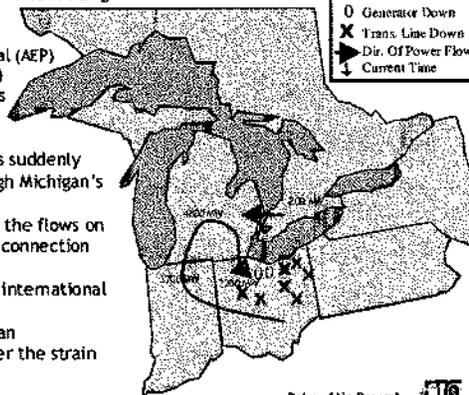
- Another transmission line feeding Northern Ohio from within Ohio goes out of service
- Flows on the ITC - FE interstate connection reverse and FE starts pulling 200 MW through Michigan
- Voltages on the Michigan Grid begin to decline in order to support Northwest Ohio



3 Minutes Later...

8/14/03 4:09 PM

- Two more transmission lines feeding Northern Ohio go out of service
 - > Muskingum-OH Central (AEP)
 - > E.Lima-Fostoria (AEP)
- Northern Ohio becomes electrically isolated from the rest of Ohio
- The First Energy Grid is suddenly pulling 2200 MW through Michigan's Grid
- In less than 10 seconds the flows on the ITC - FE interstate connection jump by 2000 MW
- Flows on the ITC - IMO international connection reverse
- Voltages on the Michigan Grid decline more under the strain

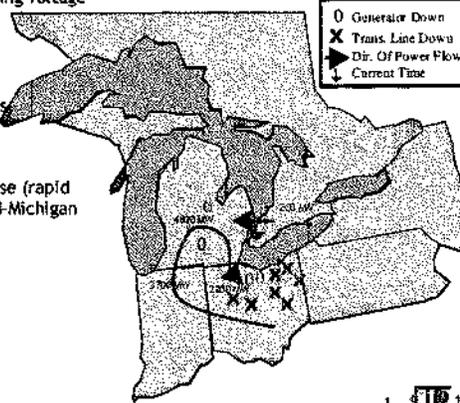


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About 30 - 45 Seconds Later...

4:09:31 - 4:09:46 PM

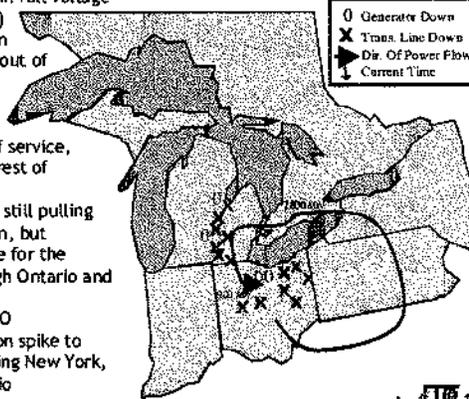
- As a result of the declining voltage two power plants in mid-Michigan with an aggregate capacity of approx. 1800 MW go offline within 15 seconds of one another
 - > Kinder-Morgan
 - > MCV
- Voltage begins to collapse (rapid decline), starting in mid-Michigan



About 1 Minute Later...

4:10:40 - 4:10:46 PM

- The ITC system is now in full voltage collapse (rapid decline) causing 30 Transmission lines in Michigan to go out of service in less than 8 seconds
- Connections between METC and ITC go out of service, isolating ITC from the rest of Michigan
- The FirstEnergy Grid is still pulling power through Michigan, but suddenly the only route for the power to flow is through Ontario and Michigan
- Flows over the ITC - IMO international connection spike to nearly 2800 MW affecting New York, other states and Ontario

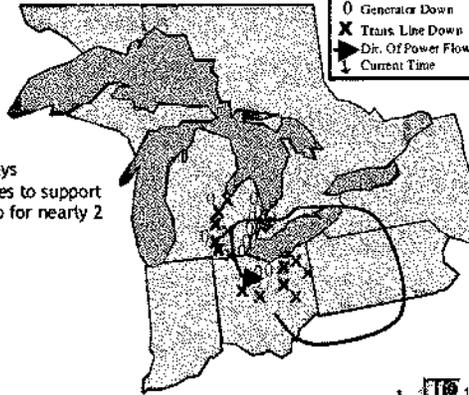


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Seconds Later...

4:10:46 PM - Blackout

- During the next minute the following Michigan generation units go offline:
 - > St. Clair 7
 - > Judd
 - > Monroe 1, 2 and 3
 - > Greenwood
 - > St. Clair 2, 4 and 6
 - > Trenton 7, 8 and 9
- The Ontario system stays interconnected and tries to support both Michigan and Ohio for nearly 2 minutes to no avail



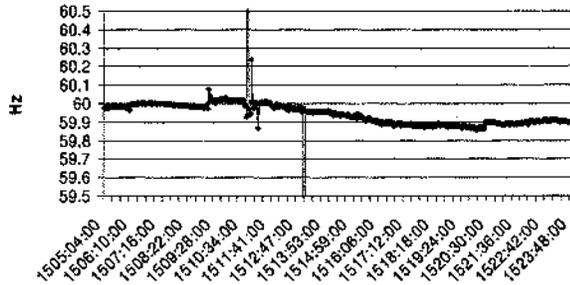
Time to Blackout
 t = 0:00:00



Frequency Chart for ITC Facility In Ann Arbor, MI

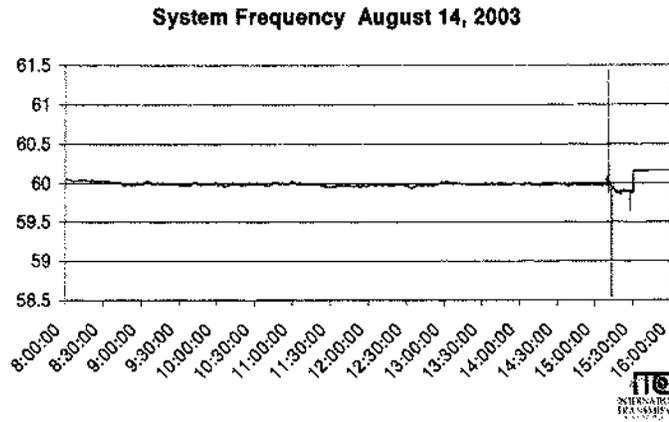
MECS Building Frequency
 8/14/2003 EDT

Note: This is the internal building frequency at MECS, including any impact of the local back-generator

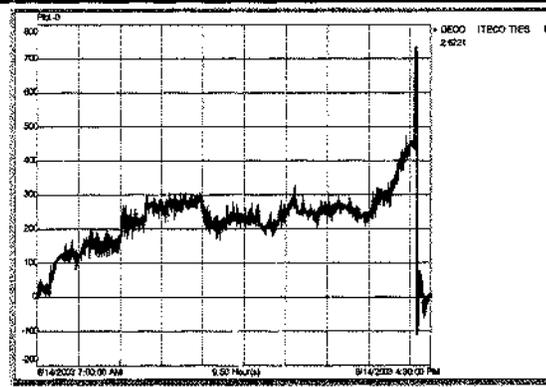


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ITC System Frequency



ITC to First Energy MVAR Flow

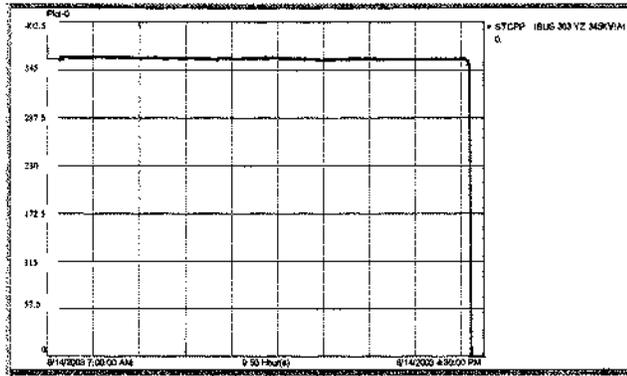


Eastern Daylight Time

ITC 17
INTERNATIONAL
TRANSMISSION
CORPORATION

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Committee on Energy and Commerce
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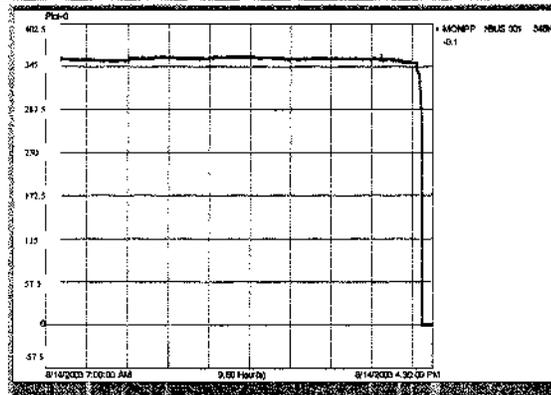
St. Clair Bus 303 Voltage (Near IMO Interconnection)



Eastern Daylight Time



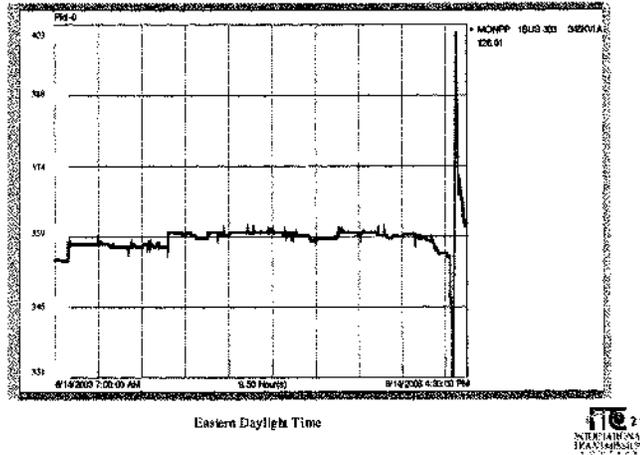
Monroe Bus 301 Voltage (Near First Energy Interconnection)



Eastern Daylight Time

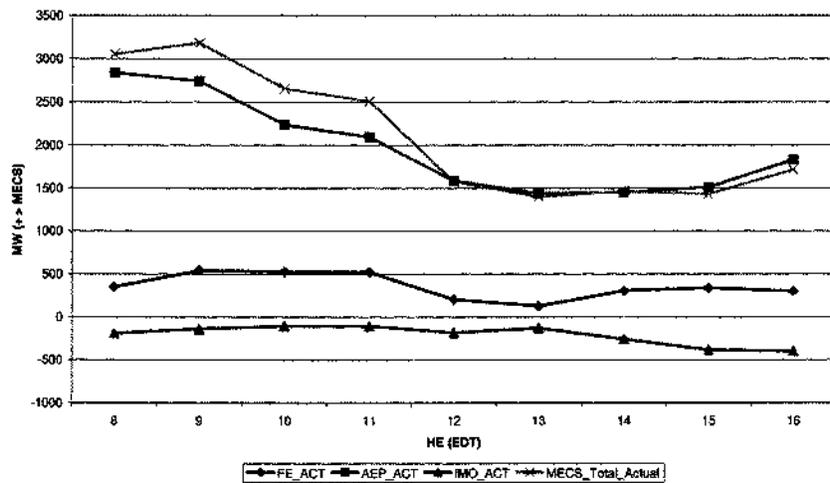


Monroe Bus 303 Voltage (Near First Energy Interconnection)



Attachment 2

MECS Interface
Actual Flows
August 14, 2003



Chairman TAUZIN. Thank you very much. I hope you notice the cameras are going in this room. Everything we do is in the open.

Before I introduce the next witness, I want to announce that I will be putting Joe Barton, the chairman of the Energy Subcommittee, in the Chair temporarily. I have been summoned by the speaker, I believe, to have a meeting on the appointment of conferees on the energy bill. So I need to get over to his office just now.

I wanted to introduce our next witness before that, Joe, because I wanted to especially honor and respect her service to this country. Betsy Moler is a very familiar face to all of us who have served in government for as long as I have.

She obviously served this country in an enormous capacity as counsel to the Senate Energy Committee for my colleague and friend, J. Bennett Johnson, who was a senior senator from Louisiana, who served as junior senator then with Russell Long, who served as chairman of the Energy Committee on the Senate side and did enormous work in the energy bills that flowed from those years of his chairmanship.

She then went on to chair the Federal Energy Regulatory Commission, which I know is fond memories for you, Betsy, doing that work—

Ms. MOLER. Absolutely.

Chairman TAUZIN. [continuing] and then, finally, to serve our country as deputy secretary of the Department of Energy itself. So she brings enormous experience to the table when she now comes as an executive vice president for government and environmental affairs and public policy for the Exelon Corporation.

I should point out that there are few women in this industry who have risen to the rank that Betsy Moler has risen to. And I think with the exception of Hazel O'Leary, she is probably one of the pioneers of women in the electric industry.

And I wanted to say all of this, Betsy, to again honor and respect all of the work you have done and the pioneering work you have done in this industry and to particularly honor you for your service to our country. Will you please all join me in welcoming Betsy Moler, the Executive VP of Environmental Affairs and Government Policy for the Exelon Corporation. Betsy?

STATEMENT OF ELIZABETH A. MOLER

Ms. MOLER. Thank you, Mr. Chairman, for that very warm welcome.

I will not reintroduce myself, but let me talk a little bit about Exelon. While Exelon is not a household word, our two subsidiaries, PECO Energy of Philadelphia and Commonwealth Edison of Chicago, serve the largest electricity customer base in the United States with over 5 million customers, 12 million people. We also have one of the industry's largest generation portfolios, with 40,000 megawatts of capacity, either owned or under contract.

PECO was one of the founders of PJM. The PECO transmission system is in PJM. And we expect the ComEd transmission system will join PJM later this year or early next year.

I would also say that it is my privilege to serve as a member of the Secretary of Energy's Advisory Committee on Electricity and chair its Transmission Subcommittee.

During last month's blackout, ComEd and PECO were far enough away from the origin of the problem and fortunate enough to escape the blackout. We were not as lucky in 1999, when ComEd had its own problems. Since then, we have spent more than \$2 billion upgrading our system.

There are three primary actions that I believe Congress must take to improve the reliability of the Nation's electric grid: first, authorize the establishment and enforcement of mandatory reliability standards; second, provide incentives for and remove barriers to construction of transmission capacity, both by addressing barriers to siting and by clearing the way for increased investment in the transmission system; and, third, to facilitate the development of regional transmission organizations to oversee competitive wholesale markets.

As you heard yesterday, there is near universal agreement that mandatory reliability standards are needed to improve the reliability of the Nation's electric grid. This panel concurs with that. And I will not belabor the point.

However, as an aside, I vividly remember in 1996, following the August blackouts in the West, that Hazel O'Leary called a meeting in Chicago to talk about mandatory reliability rules. We're still talking.

This committee should be applauded for its consistent support of those rules. And we certainly hope that the soon-to-be-convened conference will adopt that.

But reliability standards alone are not enough. Expansion of the Nation's transmission infrastructure is critical. We have talked a lot about the interstate highway being the electric transmission system. It's got too many cars on it. And we need to expand the grid. It's that simple.

H.R. 6 does contain a number of provisions to address the need for additional transmission facilities, including accelerated depreciation for transmission facilities and tax provisions to remove barriers to selling transmission to independent entities.

Critically, H.R. 6 also addresses the siting issues. And we are pleased to support all of those provisions. The energy legislation passed by the Senate in August is not nearly as comprehensive. And we hope that the conferees will adopt the House-passed provisions.

Since the blackout, we have heard a lot about——

Mr. BARTON. I didn't hear that. Would you repeat that, please?

Ms. MOLER. How many times? Yes, sir.

Since the blackout, we have heard a lot about the need for mandatory reliability standards and additional transmission facilities. However, largely ignored have been the important rules that RTOs and wholesale market rules can play in assuring a reliable grid.

Some have urged Congress to quickly pass reliability legislation, reliability legislation alone, and to forego efforts to address the broader range of electricity policy issues. We think that is a bad idea.

Lack of rules and reliability are, in fact, inextricably linked. Let me emphasize and reemphasize we will not have a reliable system unless we get the wholesale market rules right.

Some have blamed RTOs for contributing to last month's blackout. I believe that we need to strengthen RTOs and have a much more seamless approach from RTO to RTO. The folks in New England have to coordinate closely with New York. New York has to coordinate closely with PJM, PJM with MISO, et cetera.

In addition, a properly designed energy market, such as that operated by PJM, enhances reliability. Arcane, need I say geeky issues, like congestion management and generation redispatch, really matter and affect reliability. My prepared testimony addresses this in some detail.

But I cannot overemphasize this point. Regional transmission organizations with well-functioning wholesale markets are essential for assuring the long-term reliability of our Nation's electric grid. We should not make it impossible for FERC to do its job by taking away its authority to do both.

Thank you.

[The prepared statement of Elizabeth A. Moler follows:]

PREPARED STATEMENT OF ELIZABETH A. MOLER, EXECUTIVE VICE PRESIDENT, GOVERNMENT AND ENVIRONMENTAL AFFAIRS AND PUBLIC POLICY, EXELON CORPORATION

Mr. Chairman and Members of the Committee: Thank you for the opportunity to testify today on the recent blackout and its implications for our national energy policy. I am Elizabeth A. (Betsy) Moler, Executive Vice President, Government and Environmental Affairs and Public Policy for Exelon Corporation. Exelon is one of the nation's largest electric utilities and is a registered utility holding company. Our two utilities, Commonwealth Edison (ComEd) of Chicago, and PECO Energy of Philadelphia, serve the largest electric customer base in the U.S. with over 5 million customers, a combined service territory of over 14,000 square miles, and a population of nearly 12 million people.

Exelon owns and operates transmission lines in Illinois, Indiana and Pennsylvania. Our transmission facilities in Pennsylvania are part of the PJM Regional Transmission Organization (PJM), which provides operation, planning and reliability coordinator services. In Illinois and Indiana, ComEd provides these services working closely with neighboring transmission operators to comply with reliability rules and to manage daily operation the grid. Since February, PJM has also been the reliability coordinator for our Chicago area transmission system. We plan to fully incorporate the ComEd transmission system into the PJM system later this year.

Exelon also has one of the industry's largest generation portfolios—more than 40,000 megawatts of owned or controlled capacity resources—with a nationwide reach. Exelon Power Team, our wholesale power marketing division, markets the output of our generation throughout the continental United States and Canada with a perfect delivery record.

At Exelon, "Keeping the Lights On" is job number one. It is a commitment that is engrained in our corporate vision statement and is shared by each of our 20,000 employees. During last month's blackout, Chicago and Philadelphia were far enough from the origin of the problem, and Exelon's transmission system was strong enough, well managed enough, and—above all—fortunate enough, to escape the cascading outages of transmission lines and power plants that struck much of the Northeast and Midwest regions of the country. Nevertheless, there are important lessons to be learned by us from this experience.

The primary lesson learned is that the wholesale electricity grid is highly interconnected and interdependent. Given this physical reality, the electricity system requires carefully designed and consistent rules of the road so any investment will bring the maximum benefit to consumers throughout the region.

The Committee has requested that I address several issues related to the cause of the blackout, its impact on Exelon and actions that can be taken to avoid such

events in the future. Exelon's views on these issues are contained in our response to a separate letter from Chairman Tauzin that I have attached to my testimony.

I would like to focus my remarks today on the primary question facing Congress and other Federal policymakers: how to improve the reliability of the nation's electric transmission grid to prevent a recurrence of last month's blackout.

There are three primary actions that Congress must take to improve the reliability of the nation's electric grid:

1. authorize the establishment and enforcement of mandatory reliability standards;
2. provide incentives for, and remove barriers to, the expansion of the nation's electric transmission infrastructure, both by addressing barriers to siting new lines and by clearing the way for increased investment in the power grid;
3. facilitate the development of regional transmission organizations to oversee competitive wholesale power markets.

MANDATORY RELIABILITY STANDARDS

In the aftermath of last month's blackout, there is near universal agreement that mandatory reliability standards are needed to improve the reliability of the nation's electric grid. The nation's transmission grid is really three separate systems: the Eastern Interconnection, which was the site of last month's outage; the Western Interconnection, which suffered a serious outage in August, 1996.; and the Electric Reliability Council of Texas, or ERCOT, which is virtually an electric island. While our nation's transmission system's reliability is the envy of the world, the grid is suffering growing pains. Compliance with the North American Electric Reliability Council's (NERC) reliability standards is entirely voluntary. Expert after expert has called upon Congress to give FERC authority to oversee an enhanced NERC with authority to make compliance with its rules mandatory for all market participants. It is time to heed those calls. As an aside, I vividly remember attending a meeting in Chicago that then-Secretary of Energy Hazel O'Leary called in September 1996, following the Western blackout, where all in attendance recognized the need for mandatory reliability rules. The mantra at that meeting was, "We are only as strong as our weakest link." That was true then; it has been demonstrated again today, but we are still waiting to see this much-needed legislation enacted.

This Committee should be applauded for its repeated support for legislation to address the reliability of the electric grid. The Energy Policy Act of 2003 (H.R. 6), approved by the Energy and Commerce Committee and passed by the full House of Representatives in April of this year, includes provisions that would create an electric reliability organization to develop and enforce mandatory reliability rules. I urge the Committee to work with the Senate to assure these provisions are included in comprehensive energy legislation that must be enacted as quickly as possible.

EXPANSION OF TRANSMISSION INFRASTRUCTURE

While it is essential for Congress to empower an electric reliability organization, reliability standards alone are not enough. Expansion of the nation's transmission infrastructure is critical to ensuring the reliability of the electric grid. The nature of the electric power industry has been fundamentally transformed in the decade since Congress passed the Energy Policy Act of 1992, from a system of largely local electric utilities that relied on the transmission grid to engage in transactions with neighboring utilities to a complex system of utilities and merchant power generators that regularly buy and sell large blocks of electricity on a regional basis.

It is clear that last month's blackout was *not* the result of an inadequate supply of electricity. Mr. Chairman, as you noted in your letter soliciting testimony at today's hearing, electric power supplies in the regions affected by the blackouts have generally been more than adequate to meet peak summer demands, with capacity margins exceeding 20 percent or more. The policies put in place by Congress in 1992 have been successful in spurring the construction of electric generating capacity in many regions of the country.

Having adequate generation resources in place, however, is not enough to keep the lights on. To provide a reliable supply of electricity to homes and businesses, companies must be able to get power from where it is generated to where it is needed. Unfortunately, the nation's transmission infrastructure has not kept pace with the changing nature of the electric power markets.

If you think of the electric transmission grid as being similar to the nation's interstate highway system, it is easy to understand why we need to expand our transmission infrastructure: we have a lot more "cars" on the "road" today than we did 10 years ago. While we can, and must, build distributed generation and embrace conservation to give people incentives to stay off the road. That alone will not do

the job. We simply must build new roads and expand the highway from two lanes to three in parts of the country where the grid is inadequate.

H.R. 6 contains a number of provisions to address the need for additional transmission facilities. The legislation includes provisions to attract capital investment by directing FERC to utilize innovative transmission pricing incentives and by repealing the Public Utility Holding Company Act of 1935, an antiquated law that effectively prevents many potential investors from investing in the construction of transmission facilities. The bill also amends the Internal Revenue Code to provide for accelerated depreciation of electric transmission assets from 20 to 15 years and to remove barriers for companies to sell their transmission assets to FERC-approved RTOs or independent transmission companies.

H.R. 6 also addresses siting issues by granting FERC backstop transmission siting authority to help site transmission lines in “interstate congestion areas” designated by the Department of Energy if states have been unable to facilitate such siting and by reforming the transmission permitting process on federal lands. Some have been leery of embracing these vital transmission siting provisions, arguing that states should remain supreme in the siting area. Simply put, that will not work any more. As we saw vividly last month, blackouts do not stop at a single state’s border. We must recognize that an adequate transmission network is a national priority that requires a national perspective. Frequently you need to enhance transmission in State A to serve customers in State B or even C, D or E. Authorities in State A may be loath to act to approve a transmission enhancement to serve State B if they see no benefit to their citizens. Indeed, they may not have authority under state law to approve facilities that benefit customers in another state. FERC, working with DOE, must be given the tools to ensure that the transmission grid infrastructure is adequate to the task or we will undoubtedly have recurring outages. We at Exelon congratulate this Committee, and the House Ways and Means Committee, for their support of these critical initiatives.

Energy legislation passed by the Senate in August includes some, but not all, of these provisions. We strongly urge the conferees to adopt the House-passed provisions.

REGIONAL TRANSMISSION ORGANIZATIONS

Since the blackout, we have heard much about the need for mandatory reliability standards and additional transmission facilities. Largely ignored, however, has been the important role that RTOs can play in assuring a reliable grid.

Some have urged Congress to quickly pass electric reliability legislation and to forgo efforts to address a broader range of electricity issues as part of the comprehensive energy legislation. While electric reliability and the structure of wholesale electric markets may appear at first blush to be separate from one another, these issues are, in fact, inextricably linked. Policy decisions regarding reliability will ultimately affect the operation of competitive wholesale markets; similarly, decisions about the structure of wholesale power markets will have significant implications for the reliability of the grid.

The Secretary of Energy’s Electricity Advisory Board considered the reliability of the power grid last year. I had the opportunity to Chair the Board’s Subcommittee on Transmission Grid Solutions, which examined in detail many of the questions facing this Committee today. The Subcommittee’s *Transmission Grid Solutions Report*,¹ in addition to identifying many of the initiatives included in H.R. 6, highlighted the importance of Regional Transmission Organizations. The Subcommittee unanimously concluded, “RTOs can provide the key to the success of a long-term, dependable, reliable and competitive wholesale energy market.”

Exelon’s PECO Energy affiliate is a member of the PJM RTO, which serves 25 million people in 8 states. Unlike some regional organizations, PJM operates the entire system under its control and is the control area operator, balancing load and generation on a real-time basis. As a result, there is a single decision-maker who sees everything that happens in the region as it happens and who can take actions necessary to effectively manage the grid. PJM experienced only minor outages on August 14, when neighboring systems in the Northeast and Midwest crashed.

Some have blamed RTOs for contributing to last month’s blackout, citing the fact that the blackout appears to have begun in an area within the Midwest Independent Transmission System Operator (MISO). It is important to note that, in contrast to PJM, MISO does not control the transmission operations of its member companies. There are 23 separately operated Control Areas in MISO, an area that includes portions of 15 states and serves 20.5 million people.

¹ The Subcommittee’s report is available at <http://eab.energy.gov>

A properly designed energy market, such as that operated by PJM, enhances reliability. In a PJM-type market, congestion is relieved in real-time by generators and load reacting to price signals, effectively preventing the types of system overloads that threaten reliability. In non-market systems, the system operator must deal with congestion by canceling transactions—a process that can take up to 30 minutes and divert the attention of the operator from other matters. PJM redispatch occurs every five minutes, allowing congestion issues to be addressed as they arise. Currently, MISO does not operate an energy market; nor does it redispatch generation.

Operating facilities in multiple states has taught Exelon the value, security and strength of regional coordination and planning, especially in times of crisis. RTOs offer a sound mechanism for addressing many of the barriers to the expansion of the nation's transmission grid. You cannot plan a viable, efficient transmission system on a state-by-state basis. Nor can you make the best decisions about the need for additional generation. RTOs can assess transmission needs on a regional basis, work with states to coordinate transmission planning and siting, and manage the daily operation of an energy market and regional transmission assets. Thus, while Congress must act to authorize mandatory reliability standards and to facilitate expansion of the transmission infrastructure, it is equally important to ensure that the structure of power markets will facilitate the effective operation of the electric grid and allow reliability standards to be enforced in an appropriate manner.

I cannot over-emphasize this point: electric power markets are regional. *Regional Transmission Organizations are essential for assuring reliability of electric power grid.* Properly functioning RTOs operate as multi-state electrical regions. RTOs must closely coordinate with each other, and the borders between RTOs must be seamless. The market rules in New England must be compatible with those in New York and PJM; MISO and PJM need to work closely together, too. Given the catastrophic events of August 14, it would be irresponsible for Congress to halt progress towards the establishment of a wholesale electricity system that would better ensure reliable operations and provide the regulatory certainty essential to encouraging investment needed to modernize our wholesale electricity infrastructure.

Thank you for the opportunity to appear today. I look forward to working with the Committee on these important issues.

Mr. BARTON. Thank you, Mrs. Moler. The Chair would recognize himself for the first round of questions. I think that it's 5-minute rounds.

My first question is for you, Mr. Draper. I understand that your company is headquartered in Ohio, but I understand you have a football team and college that is your favorite football team and it's not from Ohio. What is it?

Mr. DRAPER. That's correct, Mr. Chairman. The University of Texas paid my salary for a good many years, and I have remained loyal to them as a football team.

Mr. BARTON. I just wanted to get that on the record. There are some fans in Ohio that are not Ohio State Buckeyes all the way.

Mr. DRAPER. I think there are a good many here on the committee that are from Ohio—

Mr. BARTON. There are.

Mr. DRAPER. [continuing] that are Buckeye fans. And I must say that they have had a terrific—

Mr. BARTON. He is not running for office in Ohio.

I want to ask you, Mr. Kessel. You talked quite a bit about petty parochial politics, stopping that underground and underwater transmission line from being energized. What petty parochial State or locality was it that stopped that line?

Mr. KESSEL. The petty parochial policy came from the State of Connecticut.

Mr. BARTON. Connecticut?

Mr. KESSEL. Yes.

Mr. BARTON. In all seriousness, now that you have had the August 14 incident, what do you think Connecticut's view would be today? Would they be approving of that line being energized?

Mr. KESSEL. Well, they are continuing to oppose the Cross Sound Cable. In fact, it's my understanding that they have asked the energy secretary to rescind the order that was issued.

The three issues—and I just should mention this. The three points of opposition from Connecticut are, No. 1, that this poses an environmental hazard and somehow would leak. There is no fluid whatsoever in this cable. It is the most modern technology available.

The second argument against the cable is that in some way, New York Long Island would be stealing Connecticut's electricity, not recognizing the fact that the line flows both ways. In fact, New York exports more power to Connecticut than Connecticut exports to New York and Long Island.

The third issue—and it's interesting when you look at these issues—is that Long Island hasn't done enough for itself, that Long Island should really add more generation. But we have added in the last decade or so over 600 megawatts of new generation on Long Island net. Connecticut when you include the decommissioning of all of the facilities has netted 18 megawatts. And so these are arguments in my view that aren't really relevant.

In my view—and, listen, I used to be in the consumer movement. I am in a very unique position. I headed a consumer group on Long Island for many years. I headed the State's consumer protection agency. We consumer advocates know how to get before the public.

But these arguments are—in my view, if a State can step in and because of local political issues or grandstanding to the public step a major transmission intertie from operating that is so critical to the Northeast regional grid, there is something very wrong with the system.

Mr. BARTON. The members would like if you could pass the samples up to the dias so that they could actually look at them.

Mr. KESSEL. Sure.

Mr. BARTON. You don't have to do it yourself. We have people that will do that. I want to point out that the bill that passed the House on a bipartisan basis, we don't preempt the States from having a row in this process, but we do have Federal backstop authority so that if you did have a deadlock or a stalemate, the Federal Government could step in and say that was a critical path element that needed to be built. But we would not preempt any of the State and local authority until there was a stalemate.

So we are not trying to totally tell the States. We are not trying to Federalize this.

Mr. KESSEL. I think, congressman, just to say one other thing about this cable, what is so frustrating is that the cable was ready to operate over a year ago. And it took an emergency to wake people up. And despite efforts by the Governor and a number of other officials in New York, it just kind of stayed there dormant. And that is a tragedy.

Mr. BARTON. And I need to ask Mr. Draper a question. Some have said that we need to go back to the old way, that this black-out for 50 million people proved that what is called restructuring

the deregulation has gone too far and the problem was there was too much interconnectivity. And we just really need to go back to the old system. What is your view on that?

Mr. DRAPER. Mr. Chairman, I don't believe we need to go back to the old system. I believe that we can have a reliable system under a variety of market conditions. I disagree with Betsy Moler a bit on that. I think if you have the wrong market structure, it will hamper reliability.

But I believe that you can have a reliable system either in a regulated environment or one in which there is open and free wholesale commerce. And I think that our system is an example of such a situation. We have a system. In some States, there is retail choice and some there is not. But we have been able to maintain our system in a quite reliable situation.

It is clear that we need to do things to further enhance the national grid. We need additional investment, but I don't believe it is necessary to either roll back to where we were or to dramatically change the situation that we now have. I think—

Mr. BARTON. My time has expired, but I want to ask one question, Mr. McGrath. Your service area, as I understand it, is principally New York City. Is that correct?

Mr. MCGRATH. New York City, Westchester, Orange and Rockland Counties in New York, a little bit of New Jersey and Pennsylvania.

Mr. BARTON. Is it possible in your service area to build new generation next to the customer base or are you pretty much now having to get the transmission capacity to import it from outside your service area?

Mr. MCGRATH. Well, we have a requirement in New York that 80 percent of the capacity needed to meet the estimated peak has to be physically located in New York. It's very difficult to locate power plants in New York, but that is absolutely the right direction to go in.

I really believe as an engineer you want to have a generation at the load. When you start separating generation and load, you introduce another component which has the potential to impede reliability. You can't always do that, and there are economic reasons, transmission. But the first priority ought to be to locate the generation—

Mr. BARTON. When is the last power plant that was sited, permitted, and actually built in your territory?

Mr. MCGRATH. Well, we built some gas turbines very recently, within the last few years. New York Power Authority built about 400 megawatts of gas turbines. And we have an RFP out now to build a 500-megawatt unit in Queens that will come on line in a few years.

Mr. BARTON. Very good.

Mr. MCGRATH. We still need more. We need about 3,000 more megawatts of generation over the next 5 years in this city.

Mr. BARTON. My time has expired, and I apologize for going over. We would next recognize Mr. Stupak. I think he is first in line on the minority side.

Mr. STUPAK. Thank you, Mr. Chairman.

Mr. Burg, you flow your energy or some of it up through Michigan to ITC. Is that correct?

Mr. BURG. Well, we're interconnected with Michigan. And it goes through ITC at our power that's going there. But yes, power goes that way.

Mr. STUPAK. When you testified, when you mentioned power flowing to Michigan, that would be through ITC?

Mr. BURG. Yes.

Mr. STUPAK. Yes. The first event appears to be after East Wake, you testified, after about 1:30. And then it appears from about 3 o'clock to 4 o'clock, there are a number of failures or tripping of plants, as they call it, right?

Mr. BURG. My testimony indicates that we had some lines tripping as well as some other power plants going out in the general area as well as some other transmission lines going out in the area.

I really don't have information with respect to—

Mr. STUPAK. Let's go to page 2 of your testimony. I think you lay it out there pretty well between 3 o'clock and 3:30. You lost the Chamberlain-Harding line. And then you go on to 3:33-45, Hanna-Juniper, South Canton, Cloverdale. You are familiar with all of that, right?

Mr. BURG. Yes, sir.

Mr. STUPAK. Okay.

Mr. BURG. I was just referring to the fact that other events were going on as well. That's all I meant.

Mr. STUPAK. Right. I'm talking about your testimony, what you testified to. The point I am trying to make, what should have happened when all of these things started tripping?

Mr. BURG. Well, I think what should have happened happened. A number of the—

Mr. STUPAK. Wait a minute. You mean when they started tripping, we have these blackouts?

Mr. BURG. No, sir.

Mr. STUPAK. What should have happened?

Mr. BURG. The automatic nature of the system took over.

Mr. STUPAK. Explain the automatic system for those of us—

Mr. BURG. In other words, if a transmission line trips out, the megawatts get rerouted on the system, if you will. That's all I was referring to.

Mr. STUPAK. Did that happen here, it got rerouted on the system?

Mr. BURG. I believe so. Yes, sir.

Mr. STUPAK. Why do we have all of these problems, then?

Mr. BURG. Sir, that's obviously a very complex issue. I don't know that we know all of the facts yet. We are cooperating with the parties that are trying to obtain those facts. And hopefully we'll get to that position.

Mr. STUPAK. Let me ask it this way because we're still stuck with this system. Everyone has testified about things we should be doing in the future. And that's all great, but right now we are still with this system.

Once it started tripping—and I am looking at your testimony because you sort of lay out all of these trips that go on. Who did you notify? Should you notify people? At what point in time does it ap-

pear to you and who makes the call, the responsibility here, that this is out of our control, things are going haywire here? Is there someone you have to call?

Mr. BURG. Sir, we were in contact, as Dr. Draper said, with AEP. They called us, in fact, on a few occasions. We were in contact with the Midwest ISO during that timeframe.

I would also tell you that the first line that you are talking about was a line in, really, eastern Ohio, northeastern Ohio, had really little, if any, effect on our system. Our voltage remained as—

Mr. STUPAK. I agree. One-thirty made the difference, but about 3:30-4 o'clock gets to be a critical time when a lot of things have started to trip. It had to be a point in time when someone had to realize, "We can't control this anymore."

And who do you call? Who do you send it to? That seems to be the problem here. There is no accountability or responsibility when things started going haywire in this. The Governors talked about it yesterday.

I've got some other questions for other panel members because they also have responsibility to monitor as well as being communicated to. It seems like we have a system that is put together in bits and pieces. When one thing starts going wrong in one part of the system, it is going to affect the whole system.

Where is that legal, ethical, or moral duty when we have to start saying, "Hey, this is out of our hands. We need some help here"? I guess that is what I am trying to look for. I don't see that anywhere in all of the testimony I have read for the last couple of days. There is no point in time when we say, "We have to get other help."

Mr. BURG. Well, again, as I think my testimony indicated, as you indicated, as late as 3:45 p.m. or so, when we had a number of transmission lines out of service, as did others, the flows into and out of our system were remaining stable. The Midwest ISO was in contact with us. They were doing contingency planning to look at what would happen if additional lines went out of service.

It would appear that based upon what they are saying and what was flowing through our system at the time, we were not at a critical situation at that point in time, at least in hindsight. Once again, all of these things are being done and talked about in hindsight.

Mr. STUPAK. In the testimony from AEP, they said that their system worked—I'm looking at page 3 of theirs. It said, "avoided cascading outages across the AEP system"—and you are interconnected there with AEP on some of these—"and probably far beyond, given the central role of AEP's transmission grid in the Eastern Interconnection. AEP's system was not the only one to respond this way."

If theirs responded appropriately, I guess I have to ask why didn't FirstEnergy's respond this way?

Mr. BURG. Congressman, our generation on the Ohio River, which is where the bulk of our generation is located, it remained on beyond the event. At least half of our customers in Ohio, unfortunately, went out, but the other half stayed on.

We remained interconnected, as I said in my testimony, on certain lines at least, with AEP, with Duquesne, with Dayton, with

PJM-West. So in many ways our system did work. It also protected our facilities, as others have said on this panel, in such a way that we were able to get those unfortunate customers that were out of service back on within in some cases 12 to as long as 36 hours. But they were back on.

Mr. STUPAK. Let me ask one more, if I may, Mr. Chairman.

Mr. BARTON. This will have to be the last one.

Mr. STUPAK. Yes. Mr. Welch, FirstEnergy's power flows on ITC's on your system into Michigan, and we had some problems in Michigan. So I guess what I am asking here, is what is the balance between ITC's own monitoring and information it relies on from FirstEnergy, as this problem goes on? How do you balance it?

Whose responsibility is it here? Is it your responsibility to monitor to make sure this doesn't happen? Do you need more monitoring equipment or do you feel FirstEnergy should have let you know earlier? Where is the balance here, if you can, Mr. Welch?

Mr. WELCH. I'm sorry. First of all, it's the role of the system security coordinator to take into effect the continual outage of lines and loss of generation, to then monitor and remodel the system to make sure that there are no abnormal flows that are going to exist.

One of the things that our post-examination found is that we can find nowhere in the SDX, which is the system data exchange, or in the interchange distribution calculator that any of these outages were accounted for.

Had they been accounted for, the normal response of the system through the system security coordinator is to then issue under the MISO rules a transmission load relief, which we call a TLR, to start to curtail transactions or bring on other generation and redistribute the flow to prevent future overloads and any other abnormal event from happening.

On that day in question, on the western side of Michigan, there was one TLR event for some outage way over by Holland, Michigan, which they said there are going to be no more transactions. In the ITC Michigan system, both METSI and ITC, all of that information is automatically telemetered on a real-time basis to MISO on an ongoing basis.

I don't know how others do it, but we send our data straight through the computer system as quickly as it comes in through our supervisory control and data acquisition system.

Mr. STUPAK. Thank you.

Mr. BARTON. Thank you for those questions. The Chair would recognize the gentleman from Georgia, Mr. Norwood.

Mr. NORWOOD. Thank you very much, Mr. Chairman. Glad to have you back.

Mr. McGrath, I found some of your comments very refreshing, and I want to just briefly explore it a little further. You implied that someone insists that Con Ed have 80 percent of its generation within reasonable reach of your end-users. Is that what you said?

Mr. MCGRATH. That's correct. Eighty percent of the capacity we need to meet New York City load has to be physically located in New York City.

Mr. NORWOOD. Is that a State law?

Mr. MCGRATH. That's a requirement with the New York ISO. And I believe it's under NPCC criteria also.

Mr. NORWOOD. Is that fairly typical of other ISOs?

Mr. MCGRATH. No. It's one of the reasons we think that mandatory reliability standards are absolutely essential, but also local localities need to have the flexibility to impose stricter standards where it makes sense.

Mr. NORWOOD. Do you think mandatory reliability standards would include having generation closer to the end-use?

Mr. MCGRATH. I think as an engineer and as an operator, having the generation as close to the load center as it can be done is in the best interest of everybody.

Mr. NORWOOD. Why do you say that?

Mr. MCGRATH. Well, because as you separate generation from load, you introduce another component. And as you introduce other components, you can introduce cost and you can introduce reliability problems.

On the other side of the coin, transmission is very helpful in cases where the generators, for example, are offline and you need to bring in power from somewhere else.

And in New York, for example, for a summer peaking company and Canada is a winter peaking company, through the transmission system, we are able to build the capacity we need to meet the load in the summer in New York and Canada builds the capacity needed to meet the winter peak. And there's excess capacity in Canada in the summertime that we can use in the city.

So transmission certainly is economical and does help with reliability in some cases. Plus, as a general rule, I think generation ought to be located at the load center.

Mr. NORWOOD. I wonder if typically you have been able to increase your generation to be able to meet the increase in demand.

Mr. MCGRATH. We have in New York State an 18 percent reserve requirement. We meet the 18 percent reserve requirement. That's probably tighter, is tighter than it was 10-15 years ago. We probably have had 20-25 percent reserve. We still meet the criteria, but the gap is getting narrower.

Mr. NORWOOD. So back to reliability, my impression is—and I am here for you to correct me—the most reliable thing is less day-to-day long distance hauling of electricity versus having generation close to the end-user. That's more reliable.

Mr. MCGRATH. It's not always possible to have the generation right at the load center for environmental reasons and for physical location reasons. So to that extent, it has to move away a bit.

My point would be that ought to be a very high threshold. We ought to have it located there. If we can't, then separate it, but it ought not to be our first approach.

Mr. NORWOOD. And there probably are some political reasons, too.

Mr. MCGRATH. There are always political reasons.

Mr. NORWOOD. Yes.

Mr. MCGRATH. Yes, sir.

Mr. NORWOOD. Well, I wonder if other members of the panel could just, anybody who likes, briefly describe your situation about that. If reliability is at its best being close to the end-user, hadn't we ought to look at reasons in order to help with that and make certain that that occurs, which doesn't necessarily mean in my

mind you can't haul long distances? There are times and situations in which to do that, but generally speaking, do we need to deal with the problem that many States have not kept up with their generation, many States are wishing to import their electricity over long distances? Anybody?

Mr. DRAPER. I would be glad to address the AEP situation.

Mr. NORWOOD. I'm glad. I can understand somebody from Texas.

Mr. DRAPER. We are a quite different system from Gene McGrath's. He has a principally urban system. Ours is principally rural. We serve customers in 11 States, stretching from Michigan down to Texas.

We have a very extensive network of power plants. Our system generates about 25 percent more electricity than our own customers use. And we sell that in the wholesale market. So we have plenty of generation capacity, but we also have a very robust, very strong transmission network that has the largest collection of extra high-voltage transmission in North America.

Mr. NORWOOD. You have invested heavily in your transmission?

Mr. DRAPER. Yes. We have over \$5 billion in book value in our transmission and invested in the last 10 years close to \$2 billion.

Mr. NORWOOD. Well, everybody yesterday said you didn't want to do that because it was only a 12 percent return. Why are you settling for a 12 percent return?

Mr. DRAPER. We have routinely invested in transmission because we do have a large, strong system. We believe it's in the best interest of our own customers to have that strong transmission system and the reliability that comes with it.

Mr. BARTON. The gentleman's time has expired.

Mr. NORWOOD. Yes, sir.

Mr. BARTON. The Chair would recognize the ranking member of the Energy and Air Quality Subcommittee, Mr. Boucher of Virginia.

Mr. BOUCHER. Well, thank you very much, Mr. Chairman. I want to join with you and Chairman Tauzin of the full committee in welcoming these witnesses today. This is a very distinguished panel, and we very much appreciate the time you have taken to prepare your informative testimony.

Ms. Moler, let me begin my questions with you. I know that much has been said about the fact that some regional transmission organizations have greater authorities than others. Some have authorities to manage the transmission lines that are entrusted to them. PJM is an example of that. The MISO regional transmission organization does not have that authority. I noticed in your testimony, in particular, you make reference to that distinction.

My question to you is this. Had the MISO had management responsibility and authority for the transmission lines in the territory that it serves, do you think that would have made any difference in terms of either eliminating this blackout or perhaps diminishing its effects?

Ms. MOLER. Congressman, no one yet knows the reasons the blackout occurred in any detail. So I cannot possibly speculate on whether if MISO had been a single control area and had complete authority over the transmission system, that it would have been avoided.

As a policy matter, though, I think for the members of this committee, you should want fewer control areas, rather than more, and you should want fewer organizations with fewer conflicts between those organizations, rather than more.

So the trend toward large regional transmission organizations with authority to actively manage the grid, do congestion management, re-dispatch, et cetera, is a very positive one and something that we believe this committee has and should continue to support.

Mr. BOUCHER. Now, I believe the standard market design proposal as put forth by the FERC does have elements that would require that the regional transmission organizations have overall management and control responsibility for the lines. Is that correct?

Ms. MOLER. Yes, it does, though the wholesale market platform, as it was called in the April white paper, would respect regional differences to the extent that folks in a region want to do something slightly different.

Mr. BOUCHER. Well, if the SMD went forward in accordance with the terms of the white paper released subsequent to the original standard market design proposal, do you believe that would be adequate in meeting the goal that you have established in your statement to the effect that control through the RTOs would be appropriate?

Ms. MOLER. Yes, we do. We support the implementation of SMD as refined in the white paper.

Mr. BOUCHER. My question for this entire panel relates to the reliability standards that have been published so far on a voluntary basis by the North American Electric Reliability Council. These standards may be followed or not by the owners of transmission. If they're not followed, no formal penalty can result. And we have evidence submitted by the NERC that there have been more than 400 violations of these voluntary standards within recent history.

Many of those have been resolved through the voluntary action of the various transmission owners, but they're not all resolved. My question to you is this. If the reliability standards had been mandatory and if appropriate enforcement powers had been conferred upon the NERC and also the FERC to make sure that these standards are followed, what difference, if any, would that have made with respect to this blackout either in eliminating the blackout or diminishing its effects?

And a second question to each of these panel members is this. Do you believe that it is so important that we adopt these consensus-based standards, to which, as far as I know, no opposition has been expressed from any quarter, that if the overall energy bill, which is now in conference and contains a section that would make these standards mandatory and confer appropriate enforcement authority gets bogged down—many elements of it are controversial and there is certainly the potential that that energy bill would not be approved in the conference committee this year. If it does get bogged down, do you believe that it is sufficiently important that the Congress adopt the reliability standards and confer enforcement powers upon the NERC and the FERC, that we should pull that provision and pass it separately and make sure that that happens this year?

So two questions. If the standards have been in effect, would it have made any difference in this blackout? And, second, should we act on those separately in order to make sure that they are passed this year? Who would like to respond? Yes, sir, Mr. Winsler?

Mr. WINSER. Sir, I believe that the question of mandatory standards is an important one, but I would further believe that it's not only a question of whether they are mandatory or voluntary but also whether they're at the right level, whether they are conservative enough.

I think, indeed, that leads back to a question of how much investment there is in the system because, of course, one could adopt. In various places around the world, there are more conservative standards for operating these sorts of grids.

Mr. BOUCHER. Well, let me say we know what the standards are basically. They have been published by the NERC for some time. Let's suppose that the NERC would promulgate these very standards that are voluntary today for mandatory application. Do you believe that that would be a valuable step? And should we pass the legislation independently, if necessary, in order to make that possible?

Mr. BARTON. This will have to be the last answer to that question. I am sure every other member of the minority is going to ask the same question in some shape, form, or fashion, but at least this particular questioner. Then it will be the last time before we go to Mr. Greenwood.

Mr. WINSER. Sir, I believe it would be a valuable step but not on its own. I believe a whole raft of measures, as I outlined—

Mr. BOUCHER. I understand. Thank you very much. Thank you, Mr. Chairman.

Mr. BARTON. Mr. Greenwood of Pennsylvania?

Mr. GREENWOOD. Thank you, Mr. Chairman.

I would like to address some questions to Mr. Burg, if I could. Mr. Burg, what can you tell me about the timing of when the Perry nuclear power plant went down and when East Lake power plant went offline?

Mr. BURG. Well, I can tell you with respect, first of all, to the East Lake power plant, I believe it was early in the afternoon on the day of the event.

Mr. GREENWOOD. Was it about 1:30?

Mr. BURG. About 1:30 in the afternoon, a voltage regulator, as I understand it, acted, if you will, on some impulse. And it began to back down to a manual mode, if you will, to reduce the voltage in the plant.

Mr. GREENWOOD. When that happened, did the operators out at East Lake call into the SCC? And would you explain what the SCC is?

Mr. BURG. The SCC I believe you're referring to would be our system control center.

Mr. GREENWOOD. Right.

Mr. BURG. I'm not sure, sir, whether they called in directly there or they would have called in to our generation dispatch area, which is a separate component. The generation dispatch is in one area, system control in another.

But they were in contact, I'm sure, in some ways with both of those, either—

Mr. GREENWOOD. Did the SCC computers corroborate what they were hearing from the plant?

Mr. BURG. I don't know the answer to that question. I know that an automatic reserve-sharing procedure was put into place at that time, which is a procedure that is used on the interconnection where other systems use some of their reserves to make up for lost capacity. I know that was done at just after 1:30 p.m. And the plant stayed off. And our system remained stable from that point on.

Mr. GREENWOOD. When did the Perry nuclear power plant go offline?

Mr. BURG. Sir, I believe the Perry plant was one of the last units to go off. It may have been as late as 4:10 p.m., plus or minus, and some seconds. So it was one of the last units to go down.

Mr. GREENWOOD. Well, the information that I have is that there were massive voltage swings in the 345-kilovolt system. And operators from the field were calling in to your SCC reporting these problems and that the guys at the SCC were looking at their computer screens. And the computer screens were not reflecting these problems in the field. And they were tending to believe their computer screens, instead of what the guys were calling in and telling them who were sitting in the power plants. Is there truth to that?

Mr. BURG. Well, there is no question that we had, as we said on I think the day after the event happened, that we were having some problems with our computers at our system control center.

Mr. GREENWOOD. Well, you and I spoke yesterday in my office. And you talked about having problems with your computers in terms of the alarms not functioning.

Mr. BURG. Right.

Mr. GREENWOOD. But I am not sure and it may well have been that we discussed this, but I don't recall hearing from you that, in fact, a significant part of the problem here was that the guys in the fields out in the generators were calling in reporting very unusual massive swings, problems in the field, and that the folks at the control center were essentially flying blind because they weren't seeing this in their computers. Therefore, they didn't respond. Is that a fair analysis?

Mr. BURG. Well, we know that the manual alarm system was not working at some point in the afternoon.

Mr. GREENWOOD. Right, but I am specifically getting at the fact that here is a guy out at the power plant calling in and saying, "My God, we've got these huge problems out here. What is going on?"

And your guy is staring at the screen saying, "We don't see anything" and, therefore, not reacting. Is that an overstatement?

Mr. BURG. What they were seeing—and, again, we're investigating this to the nth degree. We want to know as much as you do about what was on that screen and what was not. The screens were not black. The screens were on. The question is whether or not they were updating themselves as they should have been doing during that sequence.

Mr. GREENWOOD. Would you explain what a SCADA is?

Mr. BURG. A SCADA is really a supervisory control and data acquisition kind of a program that both our distribution as well as our transmission operators use in—

Mr. GREENWOOD. Am I correct when I say that the SCADA system is supposed to look at every power plant and various components of the system once a second to get real-time feedback on voltage, amperage, et cetera? Is that pretty much what it is doing?

Mr. BURG. I think the SCADA system is used for that purpose as well as actually controlling the system.

Mr. GREENWOOD. Was part of the computer problem that the SCADAs were not communicating with the substations, that they weren't getting this information?

Mr. BURG. I don't know that part to be true at this point in time. As I've said, we are going through everything we can to find out what was going on with that computer system.

Mr. GREENWOOD. You don't know it for sure, but have you heard about it? Has anybody reported this to you?

Mr. BURG. We really haven't discussed the SCADA system as such. We were discussing more what kinds of information did our operators have in front of them at various points in time.

We do know that the system was going directly to the Midwest ISO, who is our security coordinator. We also know that the information was going to what is called the inter-regional security network, which was set up after the 1965 blackout for this very reason, where data points would go to other entities in the region so they could see what was going on in other systems.

Mr. GREENWOOD. My time has expired. Correct me if I'm wrong, but it seems to me that the problem with your computers was a lot bigger than the alarms just not functioning. The problem with your computers was that your computer system in your central control center was not reflecting the reality out with your reactors in your system. And the guys that were out in the system were calling into the control center and saying, "We've got big problems out here." And the guys in the control center were saying, "Well, we don't see it." And the question is, "Since they didn't see it on their computers, did they, therefore, not believe it and not respond?"

Mr. BURG. They were in—

Mr. BARTON. This will have to be the last answer to this question.

Mr. BURG. They were in communication with the Midwest ISO. So they were in consultation with them. We don't see any changes on our system until the very end in terms of voltage flow—

Mr. GREENWOOD. I understand you don't see the changes—

Mr. BURG. [continuing] megawatts coming in.

Mr. GREENWOOD. [continuing] but you're hearing the guys—

Mr. BURG. Even now. But I'm saying even now, in hindsight, our system was relatively stable until the very end. And I wish they had. Had our system operators had perfect knowledge at that point in time, I don't know that they would have done anything differently than what was done. No one else intervened. The system shut down automatically and so forth.

But we are trying to find that out, Mr. Greenwood. And we will provide that to you when we do.

Mr. GREENWOOD. Thank you, Mr. Chairman.

Mr. BARTON. We have a series of either two or three votes on the floor. We're going to go to Mr. Dingell for his 5 minutes of questions. Then we're going to recess. When we come back, Mr. Buyer will be the first questioner on the Republican side.

So Mr. Dingell is recognized for 5 minutes for questions. And then we will recess after Mr. Dingell's questions.

Mr. DINGELL. Mr. Chairman, I thank you. You are very gracious.

Mr. Draper, you found that there were peculiar events which were transpiring in connection with the events of August 14, did you not? Just say "Yes" or "No."

Mr. DRAPER. Yes.

Mr. DINGELL. Mr. Burg, did you find that there were events that were curious which occurred on and around the 14th with regard to both cycles and voltage? In your system, did you find that?

Mr. BURG. Some was going on at the time. We see more of that now in hindsight, sir, yes.

Mr. DINGELL. Okay. Ms. Moler, did you at Exelon?

Ms. MOLER. No, sir. We were—

Mr. DINGELL. Did not. Now, Mr. Draper, you were able to separate from the system. Why were you able to separate and others were not?

Mr. DRAPER. You give us more credit in terms of physical actions. In fact, we separated automatically. The protective systems that are designed into this transmission system operated as they should and automatically separated. Why others did not, I don't know.

Mr. DINGELL. Now, were they all supposed to separate automatically?

Mr. DRAPER. Ours are supposed to separate when certain conditions detect a fault on the line; that is, the line short-circuits, goes to ground. They are supposed then to trip out. And they did.

Mr. DINGELL. Now, Ms. Moler, did yours separate automatically?

Ms. MOLER. There was no need for ours to separate.

Mr. DINGELL. Then somebody to the east of you must have separated to save you that trouble. Is that right?

Ms. MOLER. We did not have the kind of voltage fluctuations that occurred on other systems.

Mr. DINGELL. You did not?

Ms. MOLER. No, sir.

Mr. DINGELL. But you were able to—you did not have to separate. That means somebody to the east of you must have separated. Mr. Welch, did you separate?

Mr. WELCH. At the time that there was a voltage collapse that basically happened in the center of the State of Michigan, there were 30 lines that all operated automatically within an 8-second period that isolated the eastern and the western side of the State.

Mr. DINGELL. Okay. They were separated, but the others were not.

Mr. WELCH. The thing that I want to lay out here is that the only reason those lines operated is that there was a voltage collapse, which may—

Mr. DINGELL. Voltage but not a variation in cycles?

Mr. WELCH. No. I supplied in my pre-filed testimony the frequency charts out of the MEPCC, which showed that, actually, at the time that this event occurred, the region, not just Michigan, the

region, was in a time error correction, which means we were actually beating the system up. And there should be no frequency drag anywhere. That means there was adequate capacity, and we were bringing the system back up because the system had dropped down a little bit through the day. It has nothing to do with frequency.

Mr. DINGELL. Okay. Now, I'm trying to figure out, Mr. McGrath. You found that there were strange events affecting the operation of your system. Did you warn any of those to whom you are intertied or to the independent system operator that you were seeing these kinds of things?

Mr. MCGRATH. We saw the lights blinking, voltage swinging rapidly. And our system shut down within seconds.

Mr. DINGELL. Did you warn anybody—

Mr. MCGRATH. No time to warn—

Mr. DINGELL. [continuing] about error curiosities in the operation of the system?

Mr. MCGRATH. There was no time to warn anybody. It happened—

Mr. DINGELL. But you had seen earlier events, had you not, which indicated that there were some aberrant events occurring in the system? Had you not?

Mr. MCGRATH. The swings occurred somewhere between 4:10 and 4:11. And within a minute, our system was shut down.

Mr. DINGELL. All right. Mr. Burg, do you have a comment on that?

Mr. BURG. Well, sir, our system did appear to be stable until the very end, as Mr. McGrath just said. We were importing about the same amount of megawatts as we had been during the whole day. And the power flows into Michigan, in fact, were fairly stable until maybe 4:09 p.m. or so.

Mr. DINGELL. Some witnesses suggest that there was an inadequacy in NERC's rules for operating the system or noncompliance with NERC's rules. Do any of you gentlemen desire to comment on that fact?

Mr. WELCH. That there may have been noncompliance?

Mr. DINGELL. Either that there was an inadequacy in NERC's rules or there was noncompliance with NERC's rules.

Mr. WELCH. I would like to respond to that.

Mr. DINGELL. Please.

Mr. WELCH. As has been documented in all of the time sequences that have been published by ourselves and other people, there was a sequence of line outages that took place. And, as I stated earlier, I can find nowhere on any document that we have checked, either during the event or post the event, where the record of these line outages was put into the system data exchange system, where these line outages were accounted for in such a way that when a line goes out of service, we know that the power is going to continue to flow on other portions of the system.

So at that point, you need to check with and re-look at the system, model the system to say, "Okay. Do we have any overload contingencies? Is there anything that we are doing out there that we need to be very careful on?"

And we have a sequence of several lines that go for—in this case, it starts in our time line at an hour and 5 minutes before the

blackout with a sequence of lines that go out. And we can find no recordings anywhere where these were taken into account for by the system security coordinator. And the way that you would see that later is there would be some kind of issuance of a transmission load relief, meaning that some transactions out there have got to be curtailed in order for the system not to do what it did. We can't find that.

So I don't know if there is a violation. I just didn't find it.

Mr. DINGELL. I don't mean to be discourteous, but our chairman has got his gavel in his hand. I am using more time than I should, but—

Mr. BARTON. We also have 5 minutes and 24 seconds in which to vote on the floor.

Mr. DINGELL. There's one question I would like to have anyone at the table address. And that is, what notices were given to anybody by anybody else with regard to the impendency of the events of August 14, including irregularities in the functioning of the different systems?

Why, for example, was Ms. Moler's system able to not shut down, the New York systems able to not shut down, portions of Michigan able to not shut down while others did not and while people complained to me that they received no notice? Can somebody give me an answer to that question?

Mr. BARTON. And it needs to be a quick answer, unfortunately.

Mr. DINGELL. This is a question I think—

Mr. BARTON. It is an excellent question. I understand. We may have to have them respond to it in writing, but—

Mr. DINGELL. I will respect the wishes of the chair.

Mr. BARTON. Mr. Burg, do you want to give us an attempt at a verbal answer in about 30 seconds or less?

Mr. BURG. I don't know that there would be the occasion for one major communication. I think there were a series of communications, whether oral or telephonic or through computers. I think those were the kinds of communications in terms of data that—

Mr. DINGELL. Did those occur, though? I'm gathering that they did not occur and—

Mr. BURG. Again, this is part of the setting that we have to find out about.

Mr. DINGELL. And, yet, Exelon was able to separate itself. The New York folks were able to separate themselves. Others were not. Mr. Kessel, I apologize—

Mr. BARTON. Each of you all that chooses to answer that question, if you would do so in writing and try to get it to us as expeditiously as possible.

We have 3 minutes and 55 seconds in which to go vote on the floor. So we are going to take a brief recess, try to reconvene at approximately 11:30.

I can announce that the speaker and the chairman have met on conferees and conferees have been decided upon. I am going to leave it to the chairman to make those announcements. But we do have conferees scheduled to be announced or voted on in the House sometime this afternoon. We are in recess until approximately 11:30.

[Brief recess.]

Chairman TAUZIN. The meeting will please come to order. Apparently we do have votes being called, but we'll try to get in a few more members. Mr. Buyer is ready to go. I think Mr. Towns is on his way or can he be here? If you can get him here, we will try to get Mr. Buyer and Mr. Towns a chance to do a round of questions. And then we will take some more votes and come back. Just want you to know we are all working hard for you out here. Mr. Buyer is recognized for 5 minutes.

Mr. BUYER. Thank you. Mr. Chairman, I want to thank you for holding the hearing and all of the witnesses for coming today.

A word that has been used often here is the word "incentivized." I suppose it can be inferred from that work it's defined subjectively, but let me use it in two questions.

The question I have, I am quite interested in distributive generation. So Congress over the years—

Chairman TAUZIN. Steve, I am told we only have 3 minutes on this vote, that it's a motion to recommit or something and we have 5 minutes on it. So Ed, Steve, Mr. Towns, I think we had better all go make a vote. So we will take a recess, make a vote, and come right back.

[Brief recess.]

Chairman TAUZIN. When last we recessed, we were questioning our witnesses. And the Chair now again recognizes Mr. Buyer for 5 minutes for a round of questions.

Mr. BUYER. We have used the word "incentivized." And I have two questions, one dealing with distributive generation. Over the years, Congress has turned to incentivize the use of wind; solar, whether it's bioenergy; fuel cells; gas micro turbines; hydrogen; combined heat and power; hybrid power systems.

I had held an energy forum in Indiana. And in Indiana, we have two very large manufacturers, not only Cummins but also Caterpillar, who built a lot of these very large generators. They had brought the issue about gaining greater access to the grid to me.

As we were putting together the blueprint for a national energy policy, I was really focused on the incentives of how we upgrade the grid, not so much on backup systems. I think that Cummins and Caterpillar were thinking correctly. And, as it turned out, issues with regard to how we incentivize or get better access to connectivity to the grid really isn't part of the energy bill.

In 2001, to help increase electricity supplies in the Western States, FERC even waived its prior notice requirements for businesses with onsite power generators that sell wholesale power to the grid. It was intended to encourage more generation from distributed renewable energy power sources.

I ask unanimous consent to place in the record a letter from the vice president of Cummins addressed to me regarding issues on distributed generation.

Chairman TAUZIN. Do we have the letter?

Mr. BUYER. Yes.

Chairman TAUZIN. Without objection, it is so ordered.

Mr. BUYER. I'll submit it to you.

[The letter follows:]

CUMMINS POWER GENERATION
 MINNEAPOLIS, MINNESOTA 55432-3796
August 28, 2003

Congressman STEVE BUYER
 2230 Rayburn House Office Building
 Washington, D.C. 20515-1404

DEAR CONGRESSMAN BUYER: I am writing to update you on the role Cummins Inc. played in the recovery from the recent East Coast blackout. I am also requesting your assistance in gaining an opportunity for Cummins Power Generation to testify at hearings regarding the blackout or participate in any Task Force considering the cause of the blackout, its impact and the recovery. Further, as Congress considers energy legislation in response to the blackout, I ask that you consider policies, such as uniform interconnection standards, that allow customers to invest in distributed generation systems that can protect them from outages and provide some relief to a clearly congested grid.

Earlier this year, Jack Edwards, past President of Cummins Power Generation, testified at your Energy Forum in Indianapolis. In his testimony he discussed the important role distributed generation can play in the event of a blackout and the need to develop policies allowing distributed generation to more easily interconnect to the grid. Although it seemed unthinkable at the time, that blackout did happen. The massive power failure August 14-15 in parts of the East, Canada and around the Great Lakes forced more than 50 million people to cope without lights, public transportation, refrigeration and air conditioning for more than 24 hours. Although the public stayed remarkably calm, most businesses and factories shut down, transportation systems screeched to a halt and communications systems stopped working. Normal life was disrupted for just about everyone in the affected areas—except those with distributed generation systems.

Throughout the cities affected by the power grid failure, Cummins Power Generation's commercial power systems kept the lights and equipment operating for our customers. Our customers not only avoided the inconveniences associated with the loss of electric power, they were also able to stay in business and avoid serious financial losses during the outage.

- New York Mayor Michael Bloomberg was able to quickly respond to the blackout because New York City Hall was powered by a Cummins Power Generation power system.
- At a New York City hospital, doctors reportedly completed four operations that were underway at the time of the blackout thanks to a standby power system from Cummins Power Generation.
- In upper New York State, a Cummins Power Generation standby power system at Buffalo General Hospital kept the lights on and patient treatments on schedule.
- All airports have standby generation to power air traffic control systems and runway lighting, but at Newark Liberty Airport, a Cummins standby power system provided uninterrupted power to the entire airport terminal throughout the outage.
- Water systems and sewage treatment facilities stopped working in Detroit, Cleveland and several other cities in the affected area, but in Mississauga, Ontario, outside of Toronto, a Cummins Power Generation prime power system kept the sewage and water system operating for the city's 800,000 residents.
- While people whose cell phones stopped working waited in long lines to use a public phone, Verizon Wireless customers throughout upper New York State enjoyed uninterrupted service because of a cellular system backed up with Cummins Power Generation equipment. According to Rick Polatas, director of network services for Verizon Wireless, "The outage had no impact whatsoever on service to our customers. Every Cummins generator at our remote cell sites and switching stations started and ran perfectly."

As Congress begins to consider legislation in response to the blackout, there will be a lot of focus on large power plants and transmission lines, as is appropriate. But I believe Congress should not end its consideration there. The above examples demonstrate not only the significant role we played in supporting our customers, but also show the national importance of distributed generation and having diverse resources of generation on the grid. We would very much like to testify at Congressional hearings or serve on any outage Task Force to help inform the debate on the national benefits of distributed generation. Further, I hope Congress will consider these issues and adopt policies that will encourage this type of investment in the system.

Please do not hesitate to contact me if you have any questions or comments regarding this letter.

Sincerely,

TOM LINEBARGER
Vice President—Cummins Inc.
President—Power Generation

cc: Dan Garcia

Mr. BUYER. Thank you.

My question to this panel is, should we make part of this national energy bill the development of uniform interconnection standards to make it more possible for small generators to be considered a power generation choice for electricity and energy customers, especially given the fact that when it went to the blackout, what was there to provide backup, not only for the self-systems and the hospitals and et cetera? I am interested in your opinions, please.

Mr. KESSEL. Yes. Thank you, congressman. I think that is an excellent question. When looking at that issue, first of all, New York State is pretty much a leader in terms of distributive generation. Under Governor Pataki's leadership, actually, the State has spent about \$50 million on distributive generation. And that has leveraged about \$150 million in private capital. We have got about 12 megawatts online, 20 megawatts in the State by the end of the year, 90 megawatts in the pipeline.

Interesting, on Long Island, Long Island has the largest collection of individual fuel cells grid-connected of anywhere in the world at our West Babylon substation. And we think that this is a major solution to the problem.

Ultimately when you look at the grid, you can't just look at generation and transmission. Those are critical. And there is no question generation is critical for reliability. Transmission is important to open up access to be able to move power back and forth. But distributive generation and clean energy and energy efficiency, reducing demand at critical hours if very important.

I believe that we need to have some kind of uniform, simple standards of interconnection for devices like fuel cells, solar roofs, and micro turbines.

I will tell you just one quick thing. On Long Island, one of the problems we have is that each town has a different policy about how to put up a solar roof. The bottom line is people can't even connect—

Mr. BUYER. I don't have a lot of time. So I guess I have got about a minute left. We can go right down the line. I am interested. Give me 10-15 seconds. Should we have uniform interconnection standards? And should we make this part of the energy bill, even though it's an out-of-scope provision, meaning the chairman would have to introduce that at the conference? Just go right down the line, please. Mr. Draper?

Mr. DRAPER. I think there should be uniform standards. I think there also ought to be consideration to how we pay for the connections that occur.

Mr. BUYER. Thank you.

Mr. MCGRATH. Yes, I think we should.

Mr. BUYER. Thank you.

Mr. BURG. We have no problems with uniform standards. I think we also, though, have to look at unintended consequences with respect to the whole issue you are talking about. I think that is another issue that should be—I don't know what those are. I'm just saying look at those.

Mr. BUYER. All right. You could develop that further in a letter to us, sir, or follow-up, please.

Mr. BURG. Glad to.

Mr. BUYER. Thank you.

Mr. Welch?

Mr. WELCH. I believe that we should have uniform standards for interconnection. I think, however, our focus is to try to get this reliability plan straightened out and don't want to bog it down.

Mr. BUYER. I understand. Mr. Winser?

Mr. WINSER. I think, speaking as a transmission engineer, what is important is to have a good transmission planning process so that it can play its part in stable tariffs so that the people, at best, can get their money back.

Mr. BUYER. Ms. Moler?

Ms. MOLER. I agree with Nick Winser's comments. I would also point out that FERC has just adopted uniform interconnection rules. And they are now exploring what you have to do for small generators as well. So maybe that will be done sooner, rather than later.

Mr. BUYER. Okay. Thank you. Thank you, Mr. Chairman.

Chairman TAUZIN. The Chair recognizes Mr. Allen for 5 minutes under the rule.

Mr. ALLEN. Thank you, Mr. Chairman.

Mr. Burg, what I would like to be talking to you today about I am going to pass. What I would really like to talk to you about is new source review and the weakening of the Clean Air Act by the Bush Administration because in my home State of Maine, Republicans, Democrats, all of us are very, very concerned about those issues. But I am going to stick to the ones that are the subject of this hearing.

I wanted to follow up on Mr. Boucher's questions. He asked if mandatory standards and enforcement powers would have made a difference. I want to rephrase that question but basically go down the line and ask you essentially this. The underlying assumption is that the Midwest ISO, MISO, as not able to control events on August 14 because they didn't have operational control of the grid. If you disagree with that, that view, you can state it.

But the question to each of you for whom this is relevant is, for those of you who have facilities in the Midwest, would you be willing to cede operational authority over the transmission system to a single reliability authority, such as an RTO, which would be fully accountable for system operation? Another way of saying that is, would you agree to support the restructuring of MISO as an independent RTO, however you want to begin? But I would like to have all of you answer that question.

Mr. WELCH. I'll go first. The simple answer to the question is yes, we support having a single RTO in the Midwest, but it's not just a simple "Yes" or "No" answer. There are reliability rules and seams issues.

And right now the Midwest is bifurcated, and it is not cohesive, nor connective in the communicative sense. Unless all of those other things are put in place, there is nothing that having MISO do or not do would change the events that happened. It has to be one large RTO with all of the information and unilateral control. At that point, yes.

Mr. ALLEN. Mr. Burg?

Mr. BURG. I would just say that I don't know the number is what is important. I think it is the interconnectivity, the knowledge, and the flow of information, the ability to act and react.

And I think, even more fundamentally, we talk about mandatory standards, but I really believe we have to go back and find out, do we have the right rules and processes in place?

We could all follow the rules. But if the rules maybe need to be changed because we are operating systems in ways for which they were never intended, then we have to go back and look at the fundamental rules. I think that is important.

Mr. ALLEN. Okay.

Mr. DRAPER. At one time several years ago, there was a group of utilities that were contiguous that were proposing an RTO called the alliance. We thought it made good sense to have that collection of utilities in a single entity. The FERC found that that was not the appropriate configuration and, rather, there should be the PJM and the MISO.

From AEP's point of view, the logical RTO to be a part of is not the MISO but the PJM system just to our east. We have more transactions in that direction. And so that is the one we have chosen to become a part of.

Mr. ALLEN. Is the question appropriate for anyone else? Does anyone else want to answer?

Ms. MOLER. Mr. Allen, PECO was a founding member of PJM. We are working very hard to get ComEd in PJM. I agree, though, that whether you have one RTO or two RTOs, the critical thing is that they talk to one another. PJM and MISO have been working on a reliability coordination agreement. We are happy to turn over, we are anxious to turn over control to PJM, but they need to have well-coordinated, well-understood protocols with one another.

Mr. WINSER. In a general sense, I would say that the sector is very, very fragmented, both from the perspective of control, operation, and ownership. I think a very useful first step is to try to consolidate and control into larger groupings. Therefore, I would certainly support RTOs doing that job.

Mr. ALLEN. And having the operational authority or with the transmission grid?

Mr. WINSER. Yes.

Mr. ALLEN. Anybody else?

Mr. MCGRATH. We don't have any facilities in the Midwest, but I would support the idea.

Mr. ALLEN. Good. Thank you very much. Thank you, Mr. Chairman.

Chairman TAUZIN. Thank you, Mr. Allen.

Mr. Whitfield, are you prepared, sir? Mr. Whitfield is recognized for 5 minutes.

Mr. WHITFIELD. Thank you, Mr. Chairman. I had to leave earlier today, but I did understand that Mr. McGrath made a comment in response to Charlie Norwood that not too long ago, you had a reserve of like 25 percent and you are down to about 18 percent now. Is that correct?

Mr. MCGRATH. Yes. I've been around a long time, though. So I have been 40 years in the company, not too long ago, maybe longer than you think it is. Ten, 15 years ago or so, we went through cycles, but we had periods where we had 25 percent reserve capacity. Now we're right down about the 18 percent.

Mr. WHITFIELD. You know, we have all been focusing on the transmission side of this equation. There is basic agreement on how we can improve that. It is in the energy bill. Charlie's comments raised another question, at least in my mind, which I guess was in his as well. And that is, should we also be focused on the generation side?

The comment was made, obviously, the closer the generation is to the end-user, the more reliable it is. And I know from experience in my district that a company trying to locate a generating plant, it is going to take years and years and years.

Do you think there is a need or will be a need for legislation to streamline the entire process of generating plant locations and whether or not the Federal Government should be involved in helping make decisions on where those plants should be located more so than—I mean, today my understanding is that outside the environmental aspect of it, there is not an extensive amount of Federal involvement.

Mr. MCGRATH. I think as we restructure the industry, the bogey that we need to look back on is, how did this work under the old rules? We are trying to improve, improve this industry. And under the old rules and the old regulated industry, the utility had the responsibility for integrated planning, looked not just at transmission or not just at generation or not just at distribution but looked across the whole spectrum and decided which was the best solution for the particular problem. Was it put a generator at this area or put a transmission line or whatever?

I think we need to be very careful going forward that what we replace the old rules with has the same ability to make that judgment as to what the appropriate way to deal with load growth is. And we have to monitor and watch the market mechanisms that have sent people to do that to see that they're working properly to come up with the—so we have great difficulty with siting; we are no longer in the generation business, but in the distribution transmission business a great difficulty siting substations in our service territory. And I think that is an issue that needs to be dealt with.

We brought some property in 1965, I believe it was, in the 1960's for a substation in Chelsea, in Manhattan that we knew eventually we would need.

Along around 1990, the zoning was changed for that area, but we were kind of grandfathered because we were on notice that we were going to use it for a station.

Then around 1995, they redid the streets. So as not to dig it up again later on, we put our facilities under the streets in the area.

Then last year, we said, "Okay. We want to build a station." And we were turned down. That's pretty far ahead of the curve.

So I think this whole siting issue, not just transmission, distribution generation transmission needs to be dealt with.

Mr. WHITFIELD. Is there anyone else who has any comments about it on the generating side?

Mr. BURG. I was going to say, sir, that I agree with you totally, but, on the other hand, there are places where there is good news. We located a peaking unit in the State of Michigan in the last few years and a couple of peaking units in the State of Ohio. I would say in both of those jurisdictions, the various parties were very responsive, very helpful, went through all the proper protocols but allowed us to get those built in a very reasonable period of time.

Mr. DRAPER. Our situation is a lot like Pete's. We have had success where we wish to build. We do business in 11 States. In some of those States, the generation has been separated from the distribution and transmission business. In others, like yours, they are still integrated utilities. And we have had relatively little difficulty building adequate generation in any of the 11 States in which we do business.

Ms. MOLER. Mr. Whitfield?

Mr. WHITFIELD. Yes?

Ms. MOLER. The DOE Electricity Advisory Board looked at this. We found that there had been a lot of difficulties with transmission siting. And we did not conclude that you need similar Federal involvement in generation.

Mr. WHITFIELD. Okay. Thank you. Mr. Chairman, I will yield back the balance of my time.

Chairman TAUZIN. The gentleman yields back. Mr. Dingell has a question he would like to pose to each one of the witnesses. And I would like to recognize him for that purpose.

Mr. DINGELL. Mr. Chairman, I thank you.

Gentlemen, starting with Mr. Draper, if you please, this is going to be kind of a long question. It is in several parts. One, when did you become aware of the different aberrations in the operation of the system?

Two, how did you become aware?

Three, when did you see signs that indicated that there was a shutdown, and what were those signs? Did any of you receive calls, either from your neighboring systems by phone or by other mechanism, electronic device, or something which would warn you that there was an aberration in the system which was leading to a shutdown? Mr. Draper, if you please?

Mr. DRAPER. We saw signs on the system in the early afternoon. And I can't tell you with—

Mr. DINGELL. Early afternoon of the 14th?

Mr. DRAPER. Yes.

Mr. DINGELL. Like about when? Shutdown was about 4:08, if I remember. I was—

Mr. DRAPER. Hours before that, we saw that the lines tripped off, no big deal. We called FirstEnergy to talk about it. Later we saw more and more lines trip off.

We were not aware that the system was in peril of collapse until it did. At the time it did, we automatically separated.

Mr. DINGELL. You did talk to FirstEnergy?

Mr. DRAPER. Yes, sir.

Mr. DINGELL. Okay. Mr. McGrath?

Mr. MCGRATH. The first indication we had of abnormalities on the system that could lead to a shutdown was between 4:10 and 4:11 on the afternoon of the 14th. The first indication to us was lights flickering, shortly followed by severe voltage swings on our system, followed very quickly with a reduction in frequency from 60 cycles on down.

Our system is designed as frequency comes down, frequency is a proxy for a misbalance between generation and load. If there is not enough generation to meet the load, frequency starts to slow down.

What we do on our system then is automatically rely sense data and start stripping load. In a matter of seconds, a half a load was stripped off. And the frequency continued to go down, as did voltage. And the whole system shut down.

Mr. DINGELL. Did you see any aberrations in the system prior to that time?

Mr. MCGRATH. Nothing that would be outside the whole ranges.

Mr. DINGELL. Did you notify anybody, Mr. McGrath, that you were seeing these aberrations or anything of that sort?

Mr. MCGRATH. The aberrations happened so quickly the operator did two things. He pressed the backs generation button, started up the gas turbines that weren't running. And by that time, the system was down.

Mr. DINGELL. Thank you. Mr. Burg?

Mr. BURG. Well, again Mr. Dingell, during the afternoon, we obviously had lines going down, but we did not see any real changes in voltage conditions to speak of or in power flows into our system. We had lines going down, but basically I would say our system was stable.

We were in contact, as Dr. Draper said, with AEP. We were in contact with the Midwest ISO. They indicated that our system was stable. So, really, until after 4:05 p.m., something in that nature, maybe even 4:09, that's when the flow reversals and so forth, and things really started to happen at that point in time.

The power plants remained on. Except for East Lake 5, which went off at 1:30 in the afternoon, all of our power plants remained on until around 4:10, in that range.

Mr. DINGELL. Did you warn any adjacent systems that you were seeing these aberrations in the functioning of your system or did you receive warnings from any of your neighboring systems that they were seeing similar events in their systems?

Mr. BURG. Well, again, we were in contact with the Midwest ISO, but our system was really, we felt, stable. So maybe there was no reason to do anything beyond what was done.

Mr. DINGELL. Mr. Welch?

Mr. WELCH. Basically I became aware of the system aberration when the lights in my office went out. Immediately I was on a telephone call. I got up from my chair, went downstairs, which is where the control center is physically located in our office building. And I asked what had happened. By that time, I was told that we were on emergency backup generation in the control center and that all the generation had tripped offline.

Three minutes prior to this happening, every system that our control center sees, which is essentially the lower peninsula of Michigan, everything, every flow, all voltage readings were totally normal. And I've provided those in my pre-filed testimony and exhibits.

Frequency? As I said earlier, we were in the process of doing a time error correction, which means we were actually speeding the system up, which means there are no capacity problems. There are absolutely no warning signals, no transmission load relief called to give warning that there is anything.

We see 3 minutes prior to the event that we see a flow reversal on the lines, which would be normally consistent if you're sitting here just looking at the world out, that something had tripped or opened in the outside world.

The job then of the control area operator is to make sure that everything is in balance. Our system was totally in balance. The flows were normal. So we would expect to see someone else if this was causing an imbalance somewhere else to do their normal thing. Their job is to get that back in balance in 10 minutes.

Chairman TAUZIN. Let me interrupt. We have a vote on the floor. By unanimous consent, the gentleman's time is extended to allow the other witness to respond.

Mr. DINGELL. You have been very gracious, Mr. Chairman.

Mr. KESSEL, can you give us an answer on this?

Mr. KESSEL. Yes. Just very quickly, people in our control room had about 9 seconds on advance warning. No calls were made to us. The entire system dropped about 1,084,000 customers within 2 minutes. Immediately after this occurred, within a minute or 2, we reached out to the New York independent system operator to inform them and to find out what was going on.

Mr. DINGELL. Mr. Winsler?

Mr. WINSER. We had no prior knowledge either. The first thing that was really witnessed was lots of the circuit breakers opening. Our New England assets were obviously unstable because there was a balance of generation demand. The New York upstate assets, mostly low frequency, load shedding came into play. And that was the first we knew. We didn't receive any calls.

Mr. DINGELL. Now, Ms. Moler, your system did not go down. How is it that you were able to protect your system from the events that transpired that affected everybody else?

Ms. MOLER. Mr. Dingell, when you asked me the question earlier, I was in the Midwest in my answer for our Commonwealth Edison, our Chicago-based utility. We had some low-voltage variations. We learned of them at approximately 4:10 Eastern time, 3:10 Central time. They were just very short-lived frequency aberrations. Then the system returned to normal.

From the PECO point of view, though, Philadelphia, we did have one nuclear generating plant trip. And we saw some automatic alarms as early as 4:06 p.m. And there were extensive communications through PJM.

In Chicago, I also want to tout the fact that we do have a very good working relationship with the city of Chicago. We have what's called a 911 center. We man the 911 center. It's cooperative with

the city of Chicago. And we worked extensively with the local officials there as well.

Mr. DINGELL. How was it that your system separated? Was it automatic or was it somebody to the—

Ms. MOLER. It didn't really separate. Nothing bad happened is the best way to think of it.

Mr. DINGELL. It happened to the folks to the east of you or in your Pennsylvania operation, it happened to the folks—

Ms. MOLER. Right. And it just happened automatically with a trip at one of our nuclear generating stations called Oyster Creek.

Mr. DINGELL. Mr. Chairman, I thank you. You have been very gracious.

Chairman TAUZIN. I thank the gentleman.

We have less than 10 minutes on the vote. My suggestion is that we take a break again. My apologies to the witnesses, but I know members do have additional questions. So maybe you will take this break and use it wisely. And we will be back in a few minutes.

[Brief recess.]

Chairman TAUZIN. May we please come back to order? Let me thank our witnesses for their patience again. The Chair recognizes Mr. Ferguson for a round of questions.

Mr. FERGUSON. Thank you, Mr. Chairman.

Mr. Welch, I had a question, I think just one. One of the repeated themes that we heard over and over and over again yesterday that we have heard from Secretary Abraham right on down is that the answers to the questions that many of us have are simply not in yet. We don't have the data. We haven't done the research. We just simply don't know a lot of the answers yet. And to speculate or to jump to conclusions would be premature at best and irresponsible at worst.

I've heard it loud and clear. I think most of us have heard it loud and clear. I think it's good advice. And I have read and listened to the testimony that I have heard today. It seems that you seem to be the one who is most willing to kind of begin to start drawing conclusions in coming up with some of these answers.

Yesterday the committee released the operator transcripts that came from the Midwest ISO. These transcripts by any measure show a great deal of activity, significant operator concern, lines tripping, overloading, voltage regularities in an area broader than the area that your testimony addresses. Have you seen the transcripts that I have referring to?

Mr. WELCH. I've only looked at the stuff that was on CNN's news release. So I have not looked at those tapes.

Mr. FERGUSON. Okay. In the preparation of your testimony, did you consider the information from these transcripts that I am talking about yesterday when you prepared your Powerpoint presentation that was—obviously we're all familiar with the media. It has drawn a great deal of media attention. Were you familiar with these transcripts when you prepared that information?

Mr. WELCH. I just stated that I have not seen those transcripts, and I only read what was on the CNN newscast yesterday.

Mr. FERGUSON. Okay. It just seems to me that when we are going through looking at data that the DOE is still compiling, to study it, to consider it, to try and take it in its totality in regard

to what is happening, what did happen, what is continuing to happen, before we start drawing conclusions and coming up with answers and pointing fingers, it seems to me it would be a more responsible way to go.

Mr. Burg, I have a question for you. We have talked about PJM. I am from New Jersey. We have talked about PJM. I am, frankly, proud of the way our RTO in New Jersey helped to stop, helped to control the blackout from the 14th.

Regarding the questions from my friend from Michigan before, Mr. Stupak, the line of questioning that he was addressing with you, wouldn't it have helped to have solved some of the problems from August 14 and wouldn't some of those problems have been avoided if your RTO, Midwest ISO, was communicating with everybody more effectively?

Mr. BURG. Well, Mr. Ferguson, again, I have tried very hard in this whole endeavor not to try to throw stones or blame anybody else. I think we have to find out all the facts here. I do believe in the end, though—

Mr. FERGUSON. The question was, who did you call? Where was the communication? My question is, doesn't the Midwest ISO have some responsibility for making those calls?

Mr. BURG. Well, again, I think the important thing to keep in mind as we go forward here is that the fundamental communication system I think probably needs to be upgraded across the region. What is important, though, from my standpoint with respect to your question is, the information from our system, the information from our system, was going real time to the Midwest ISO all through the day. They have corroborated that. They saw our system. That is No. 1.

No. 2, I mentioned this. I just touched on it before. There is a another real-time system called the inter-regional security network. It was established after the 1965 blackout to, really, get at the kind of question or the answer to the question that you are asking.

We have 2,100 different nodes on our sites, on our lines and so forth that send out information real time on our system, what kind of voltage is going on, are generators tripping, et cetera. That information went out real time to that inter-regional service, if you will, all through the day.

Mr. FERGUSON. Okay. Thank you. My time is very short.

Ms. Moler, in your testimony, you talked about the need for mandatory participation within RTOs. How do you feel like mandatory participation could have protected some of the events or helped the situation on August 14?

Ms. MOLER. My hope is that there would be much better communication and coordination through the single entities, larger entities, rather than the multiplicity of smaller entities.

PECO and ComEd both communicated extensively with PJM. We also talked to NERC in Maine during the relevant time line. But I think fewer chefs in the kitchen would be better.

Mr. FERGUSON. My time has expired. Thank you.

Mr. SHIMKUS. Yes. Your time has expired. Thank you.

Just for a public announcement, I am going to miss the vote so we can keep the panel moving forward for folks on this side. Now,

in the order of identification, we have Mr. Strickland is recognized for 5 minutes.

Mr. STRICKLAND. Thank you, Mr. Chairman. I will be brief because the panel has been very patient. And we appreciate the fact that they have given us so much of their time.

I said yesterday as Governor Taft and the good Governor of Michigan were seated there side by side that it was good to see them in that position. I have been very pleased with this process so far in that, as Mr. Ferguson indicated was his preference, I think there has been a minimum of preliminary or inappropriate finger-pointing. I think the fact is that there is much we don't know and there is much more we need to find out. And that is a part of this process.

I had two goals for these hearings. One was to try to find out what happened and to identify steps we could take to keep it from happening again. And the second one was to try to make sure the process was focused on the broader problem of our transmission system, rather than simply trying to lay blame.

Mr. Welch, I have a question for you. As I understand your testimony thus far, you have indicated you had no warning of what was going on with FirstEnergy. I point this out because, as all of us know, FirstEnergy has in the past few days been a focal point of interest.

Doesn't the Michigan electrical coordinating system receive computerized information? The reason I ask there, there have been discussions about courtesy calls and, even today, there have been questions about "Did anyone call someone?" You know, if that is what it takes, then I think we have got serious problems.

Do you receive computerized information regarding what is going on with those facilities that you are interconnected with?

Mr. WELCH. Yes.

Mr. STRICKLAND. And did you receive this information from FirstEnergy?

Mr. WELCH. We did not receive any information from anyone.

Mr. STRICKLAND. Well, then, Mr. Burg, can you tell me whether or not FirstEnergy provided this computerized information that should have been available to Michigan or in Michigan?

Mr. BURG. Mr. Strickland, as I understand it, the data from our EMS system, our energy management system, was working properly to the Midwest ISO. So they had it.

In addition, there is this inter-regional security network. We have like 1,200 analog devices and 900 digital devices throughout our system that automatically collect data real time and send it directly out under this system. Now, if Mr. Welch or others on the panel have access to that data, which I assume they do, and they use it, they receive it.

I mean, we send it out. It's out there. The whole process was set up after the 1965 blackout to really get to your point. You just can't be relying on telephone calls. There has to be some kind of automated information out there. That is my understanding.

Mr. STRICKLAND. Does everyone agree that before we reach conclusions, we should find out, first of all, whether or not the information just shared by Mr. Burg did, in fact, go out; if it was re-

ceived, was it attended to; if it was not received, why wasn't it received?

It seems to me that that is absolutely critical to any conclusions that we may reach before we start pointing fingers at any particular entity or point in this process. Is that something that we can all agree on or does anyone take issue with that conclusion on my part?

Ms. MOLER. I agree.

Mr. STRICKLAND. Mr. Kessel?

Mr. KESSEL. I definitely agree that we need to know that information. Obviously we are on Long Island. We're kind of like at the end of the system.

Mr. STRICKLAND. Sure.

Mr. KESSEL. And I think one of the questions that I have is, why did our operations room not really know about it? Basically the entire system collapsed in 9 seconds. And there should be some way that there can be communication between the various regional transmission organizations. I am not sure, frankly.

One of the questions I get asked by our customers all the time is, "Why didn't you disconnect? Why couldn't you just disconnect?" And it's a question I have. You can't just disconnect. First of all, in 9 seconds, you can't do anything.

Mr. STRICKLAND. Sure.

Mr. KESSEL. But, even if you had time, you know, you would need at least an hour notification. It seems to me pretty shocking that somehow this is the sequence of events without assessing any blame to anyone. And somehow that is not communicated throughout the system.

Mr. SHIMKUS. I am out of time. I want to thank you for your information that you have all provided to us today. Thank you all.

And I thank my colleague. I am going to go out of order and let my colleague from Texas go since I decided to stay here. So I now recognize Congressman Green from Houston.

Mr. GREEN. Thank you, Mr. Chairman. I appreciate the time of the panel. I know it's been a long morning. I apologize for all of us for having to run back and forth to vote, but that's the nature of the beast that we have to deal with.

Mr. Kessel, your experience with that underwater line from Long Island to Connecticut, I think generally all of the testimonies talked about it, but Mr. Draper in his testimony talked about the electrical grid and our country was designed in large part for local utility generation to their customers, from the plant to the customers and, yet, because now we're doing so much more interstate, we just haven't kept up with the grid. I wish that was a silver bullet. It may be, but I think there are so many other ways of communications, as we just heard from my colleague in Ohio, that also helps.

Mr. Draper, in the energy bill that is in conference committee now, and each of you, there are provisions in there that would solve some of the problems that we are identifying now? H.R. 6 or the energy bill that was passed by the House, not the Senate necessarily because I know the Senate adopted what they had last year, but from the House side, anything that would help with some of the problems with both siting, and also with leveling the playing

field for permitting so it doesn't take 10 years, for example, to get a permit?

Mr. DRAPER. I think it would help. It is clear that one of the issues is that, unlike the natural gas business, the electric business doesn't have the right of imminent domain for transmission lines. We still will have the issue of coordinating activities among multiple jurisdictions if a transmission line goes through several States. But I believe that there is no question that the proposals will help.

The idea of having a greater ability to site transmission will be extraordinarily helpful, as will some of the other provisions that would include the mandatory standards.

Mr. KESSEL. Congressman, though, let me add that one of the issues that you kind of are getting to that is important to point out is that the Connecticut State legislature enacted a moratorium on all lines emanating from Connecticut through the Long Island Sound. Now, that just doesn't include this Cross Sound Cable, which, by the way, received all permits from the Federal and State government. The Connecticut Department of Environmental Protection said that this would not harm the environment and permitted the cable.

But the moratorium also blocks other lines. As an example, there is a proposed Islander East gas pipeline that would bring natural gas from New England to Long Island and allow for the construction of new natural gas-fired generation plants on Long Island. That moratorium is stopping that Islander East line from connecting to Long Island.

And if we want to build new generation on Long Island, we are not going to go nuclear. I mean, no one is. Coal is out of the question for us on Long Island. Natural gas is the preferred technology. Yet, we can't get enough gas to Long Island because, again, one State is able to stop interstate commerce of natural gas in order to fire up new generation. That is very frustrating.

Mr. GREEN. And, obviously, if you can't tell from my accent, I understand. And I understand that natural gas is awfully important.

Mr. KESSEL. I like oil, too, though. I love oil.

Mr. GREEN. We actually have more natural gas in the Gulf of Mexico than we do anything else, which gets me to the next question.

Mr. Museler, I know we are speculating all sorts of things on the blackout, but I know New York State has to import so much more of their energy. Do we see any assistance in trying to actually build some generating plants so the New York ISO would have generating facilities, instead of worrying about cross-State transmission?

Mr. KESSEL. I'm Richard Kessel, but I'll speak for Bill Museler because he's my buddy back there from the ISO.

Let me point out that I think we have had some success in New York State. In fact, several years ago, Governor Pataki had the New York Power Authority construct 11 new small generators that, frankly, in my view saved the city of New York from blackouts 2 summers ago. And on Long Island, we were able to construct 13 new of these smaller generators on Long Island that avoided rolling blackouts on Long Island as early as the Summer of 2002.

I'm not speaking for Gene, but both Con Edison and the Long Island Power Authority have issued requests for proposals for new generation. We just received 15 very solid proposals back on September 2, just 2 days ago.

This is a unique opportunity, congressman, for the public and the people in this country, who do resist many times the siting of new generation and even transmission, to recognize that if we want to keep the lights on, we can't have all this nimbiism. We've got to be very careful about environmental concerns. We have to reach out to the public beforehand. We have to work with communities. But at the same time, I think there is a unique window for America and certainly in New York State in my view to be able to convince people that if we want to avoid blackouts and brownouts, we need new generation to meet that need.

Mr. GREEN. Mr. Chairman, I apologize. I've got to run to go vote, but I apologize for asking the question of you from the second panel.

Mr. MUSELER. That's okay.

Mr. GREEN. Obviously I got the answer I wanted.

Chairman TAUZIN. You had better run. You have got 10 seconds.

The Chair recognizes himself just briefly. Mr. Winsler, I want to visit with you a second on exactly a little bit more about your company. Your company manages the transmission system pretty much for Great Britain, doesn't it—for England, I should say?

Mr. WINSER. For England and Wales.

Chairman TAUZIN. England and Wales?

Mr. WINSER. Thank you. For England and Wales.

Chairman TAUZIN. You are it? Is there any competition or you are the transmission operator there?

Mr. WINSER. We are it.

Chairman TAUZIN. You are it? Are you regulated as a monopoly? Are you—

Mr. WINSER. Yes, indeed. We have 5 yearly discussions with the regulator. And he allows us some revenues to fund our operational—

Chairman TAUZIN. But you have one regulator, I understand, in England, right? You have one regulator, right?

Mr. WINSER. That is correct.

Chairman TAUZIN. Now, here in the United States, you have invested or bought transmission facilities as well, right?

Mr. WINSER. Yes.

Chairman TAUZIN. And you operate them in this country, and your intent is to continue to acquire transmission facilities and grow in this country?

Mr. WINSER. Yes. It's an opportunistic thing, but we certainly feel that we bring some value to transmission in this country. And we have got a model which I think will help customers. So we are certainly very interested in that.

Chairman TAUZIN. The reason I am asking that is, to follow up on this conversation, there is a lot of puzzlement on this panel and I'm sure around the country with people who may be watching this hearing as to why, in fact, incentive of a guaranteed rate of return has not generated more investment in transmission facilities, why someone like you would be visibly expanding your business in

transmission when others are not willing to make investments when we learn of a 13-year effort to try to get a transmission line sited, by the way, not in New England but in Virginia and West Virginia, where you would think siting would be less of a problem than it would be in an urban New England setting?

Tell me a little bit about it. What is your take on this? Why don't we have more investment in transmission facilities? Why is transmission attractive to your company and perhaps not to other investors?

Mr. WINSER. Well, sir, we would be and are very interested in building transmission in this country. This is the core to our business. But that would be on a case by case sort of basis. And as it stands at the moment, we would and do, indeed, negotiate with the State regulatory authorities and, indeed, with the FERC. The particular footprint that we're operating in here has rate plans that give adequate remuneration. We think—

Chairman TAUZIN. In other words, you are buying existing transmission facilities. You're expanding by acquiring existing facilities, rather than going through the hassle of trying to get approval to build new ones, right?

Mr. WINSER. Well, we are buying existing systems. We are also reinforcing them.

Chairman TAUZIN. Right.

Mr. WINSER. We are spending quite substantially above the average spent of a—

Chairman TAUZIN. But modernizing a facility, as opposed to building a new transmission facility, right?

Mr. WINSER. Well, one of the great opportunities we think is to take existing rights-of-way and really pump them up and get more power through them.

Chairman TAUZIN. Out of existing rights-of-way. So where a line has already been approved?

Mr. WINSER. Yes.

Chairman TAUZIN. That's my point. There seems to be a big difference between the willingness of investors to put some more money into an existing right-of-way than there is to go out and finance the construction of new facilities where, in fact, transmission lines probably should be built in order to complete the capacity of these grids to handle the increased demand.

I see a lot of you shaking your head. Does anybody want to jump in here? Dr. Draper?

Mr. DRAPER. I think there are two issues, Mr. Chairman. One is the ability to site or even upgrade existing transmission lines. And that's a siting hassle. It's not an economic question particularly.

There is a separate question, which is the willingness to invest funds in transmission facilities, where you are quite right there are adequate rates of return set by the Federal Energy Regulatory Commission. But for most companies, only about 10 percent of the use of the transmission system is in the wholesale realm. The other 90 percent is at the State level. And those rates are set by State commissions. In virtually all of the States we—

Chairman TAUZIN. I want to stop you there. That is an important point to make. All these folks have been talking about this great rate of return. We are only talking about whole sale rates set by

the Federal Government. The States themselves set transmission rates for distribution within the State at retail. Is that correct?

Mr. DRAPER. For about 90 percent of our transmission revenues, we are dependent on actions by the State commissions.

Chairman TAUZIN. And that may be quite different than the rate of return predicted by FERC?

Mr. DRAPER. It's even worse than that because in most States, in all the States in which we do business,—and that's 11—we have relatively long-term rate freezes.

Chairman TAUZIN. Yes.

Mr. DRAPER. So if we make an investment, there is no way to recover those costs until that rate freeze expires.

Chairman TAUZIN. You were shaking your head, Mr. Kessel? You wanted to—

Mr. KESSEL. Well, I think you were making a couple of very important points. Uniquely, Long Island Power Authority is a State authority. And we actually set our own rates. But at the direction of Governor Pataki, who has been very interested in the transmission system within the State and on Long Island, we have been able to spend a little bit over \$1 billion in 5 years on the system.

I think the issue, though—and I have heard it said before—is that the public needs to be more aware of the siting issues because when you want to do a local transmission line somewhere, people get nervous about it, even if you take an existing line and you need to upgrade that line, you have a line there. You have got the rights-of-way and all you want to do is double that line, double the ability of that line, or to carry more electricity. And then if people hear that, they get nervous.

I know on Long Island, we have that situation right now in the great Town of Riverhead, where we need a new line. There is tremendous growth out on the east end of Long Island in the Hamptons and the North Fork. We need a new line to sustain the growth.

Do you know what the public says? No. Take the line that you have and bury it. And then you can double it. So I think there are perception issues that really have to be dealt with.

The other thing I have to say to you, congressman, is that transmission isn't as sexy as generation. Everyone focuses on power plants. People don't really pay a lot of attention to wires.

Chairman TAUZIN. I think you're right.

Mr. KESSEL. And I don't think there is enough interest.

Chairman TAUZIN. Just one other quick—you don't have to answer because my time is up. I just want to know if anybody disagrees with me. Does anybody in this panel disagree with the Secretary's decision to withhold the findings on this investigation until all of the facts are in? Do any of you want to criticize him for not yesterday telling us exactly what happened because he doesn't quite yet know?

Ms. MOLER. No, sir.

Chairman TAUZIN. Anybody?

[No response.]

Chairman TAUZIN. Thank you. The Chair recognizes Mr. Brown.

Mr. BROWN. Thank you, Mr. Chairman. And thank you all for your testimony.

Mr. Burg, you testified that FirstEnergy noticed unusual, your word, system conditions on that day in August 14. Tell us more about those conditions. Why were they unusual? Were they unusual conditions limited to FirstEnergy facilities? What was the status of power flows between Ohio and Michigan around the time of the blackout, that sort of thing?

Mr. BURG. Well, again, for most of the day—I shouldn't say "most of the day." During the afternoon, as we have documented, at various times, we lost some transmission lines, not necessarily to overloading, but we lost some transmission lines. Other players in our general vicinity that we knew about also lost some transmission lines.

There were two or three generating units in the region, I'll say, that went down. So all of these events were happening. And that's why I guess we said maybe some unusual occurrences were going on.

We also at this time still don't know what else might have been going on, really, in the Eastern Interconnection. And maybe that had something to do with what ultimately happened.

Anyhow, those things were going on. However, for the most part, our voltages, our power flows, our imports, if you will, were really stable, all the way up to maybe 4:06 or so in the afternoon. So while all of these things were going on around us, we were virtually stable at 4:06 and beyond even and as late as—I just looked at my time sheet here—I don't know—15:48, the MISO reliability coordinator for us and PJM another reliability coordinator were looking at some of these outages on our system.

And we're looking at what they call the next contingency. In other words, they were doing studies to see what else should happen if another line went out.

So I won't say they weren't concerned, but they weren't overly concerned at that point in time.

Mr. BROWN. Thank you.

Mr. Welch, you testified "a very large demand, 2,200 megawatts plus voltage support demand" was suddenly thrown in the ITC's interconnections to FirstEnergy. That makes it sound like FirstEnergy was demanding power from you. Earlier today in his written testimony, Mr. Burg testified that FirstEnergy was actually sending you power right up until 4:05 or so. Can you clarify that? Was their system, the FirstEnergy system, delivering power to you up until that time at least?

Mr. WELCH. You can see it in my testimony, too, that I have a sequence of the power flows. For an hour up to the blackout—and you can see that in the sequence of pictorials there.

What we see—and I can reference my testimony so I can get the time on its right—is that there were flows from Ohio into Michigan on the FirstEnergy tie. And it was in the direction of Michigan at 3:41 to 3:46 p.m. Okay?

At 4:06 p.m., we see for the first time a reversal of flow, not only on the FirstEnergy interconnection—I have to check that. Yes. We see a reversal of flow on the FirstEnergy interconnection. And we see an increase, a slight increase, in the flow across Michigan. And that's the 2,900 megawatts and that arrow going across the top.

At 4:09 p.m., then we see the other two lines that we were talking about. They go out of service. All of a sudden, there's a sudden in-rush of power from the western side of the State that takes the cross-State flow from 2,900 to 4,800 megawatts, which then sets the whole cards up which causes the cascading voltage problems in Michigan, which led to the blackout.

Mr. BROWN. So, after 4:05, when things reversed and Michigan began sending power to Ohio, my understanding is FirstEnergy wasn't using most of that power. It was moving through the FirstEnergy system, through AEP, and back into Michigan. Is that your understanding?

Mr. WELCH. I have no knowledge of where that power was coming from or going. Our job as a control area operator is to balance the needs of the State and make sure that everything that appears at the import that is not accounted for via contract inside the State is exported. In other words, we make sure that there is a net energy balance in the State. That's all we do.

Mr. BROWN. Mr. Burg, was that your understanding, that it went back through AEP back—

Mr. BURG. Again, all I know is this. Some allegations have been made, and I read about them in the newspaper. I don't know who makes them all the time. Somehow we were sucking power from Michigan. What we're saying is power was flowing at the very end, before the event.

Power was definitely flowing from Michigan into our system, but it was going right out the other end. I don't know where it went either, quite frankly. This is part of what we have to find out in this investigation.

Mr. BROWN. And last, Mr. Chairman, real quick. Dr. Draper, would you know that?

Mr. DRAPER. No, I don't know the specific answer to that question. We are interconnected with FirstEnergy. And to the western part of Michigan, we are not directly interconnected with Mr. Welch's company. So we don't know what flows to his company and from where.

Mr. BARTON. The gentleman's time has expired. The gentleman from New York, Mr. Fossella, is recognized for 5 minutes.

Mr. FOSSELLA. Thank you very much. Thank you for your patience, all. And, Mr. Chairman, if I could submit in unanimous consent the statement of Governor Pataki—

Mr. BARTON. Without objection, so ordered.

Mr. FOSSELLA. [continuing] and questions from witnesses that appeared yesterday.

Thank you again, all.

My question will be directed to Mr. McGrath. Thank you for coming. Separate and apart from the big blackout, as you might be aware, there was a separate blackout on Staten Island specifically, about 42,000 customers on the south shore of Staten Island.

As I understand it, NYISO ordered you at approximately 9:30-9:45 to shed load on the system for an hour. And, as a result, there were some portions of Staten Island and I'm told some portions of Westchester that were shut down for a period of time upwards of 8 hours, in some cases longer than the first blackout.

There are a couple of questions on the point that I would like to bring up. The questions are, when Con Ed was ordered to shed load for an hour, did it anticipate that the power in these 42,000 or so customers would be shut down for upwards of 8 hours?

Throughout the day, what led Con Ed initially to make the determination to shed load on those customers in Staten Island? And throughout the day, as power was being restored in other parts of the region, what types of decisions were being made to sort of keep the lights off in those areas because those lights had been turned back on, the power had been turned back on during the night?

Mr. BARTON. Would the gentleman let me interrupt? We are going to keep this hearing going. We are not going to suspend the hearing. So those who want to go vote and come back, do so.

Mr. FOSSELLA. Okay. So I am just curious in a layman's point of view how these decisions were reached and then throughout the day, in effect, what were so-called going to be rolling blackouts out, but in these areas of Staten Island, they weren't rolling at all. They were just the blackout.

The third—and this may be an area of perhaps constructive relief down the road. In terms of notifying the public, many folks thought that the lights and the power were going to be back on indefinitely.

And then in trying to elicit information from those, whether it's Con Ed or someone else, it was very difficult to convey or communicate that information to the public, at least initially, that their lights were turned off again. Whether it's Con Ed or NYISO, in the future, is there a better way to provide adequate communication and/or notification to the people who will be affected? A lot of questions, but I apologize.

Mr. MCGRATH. Okay. Thank you.

Our first priority in restoring New York City was to get access to power through transmission lines that had already connected up to power. So we worked from the south end of our system through Staten Island and the north end of our system through Westchester County. And we energized section by section of our 345 kV, 345,000-volt transmission system.

As you energize a section of unloaded transmission line, it tends to rapidly raise voltages. So, for example, Buchanan at one point on our 345 kV system, when we energized it without load on it, it jumped up to about 412 kV.

So one of the very important issues that the system operator is wrestling with is how to energize these sections and how to control voltage. A way to control voltage as you energize a section is very quickly put the appropriate amount of load, pick up the appropriate amount of customer load to balance that and bring the voltage down to normal ranges.

Now, you can only pick up customer load to the extent that you have generation available to support it. So it's a kind of a balancing act. So early on in the process, we started working our way from the south and from the north section by section, very meticulous approach, picking up sections, picking up load, to support the continuation of connecting up our transmission grid.

All the while until they came together, the north and south transmission came together, they were, in effect, a radial system,

not very stable. Any event on a system could have taken everybody out. So our priority is to get an established transmission system.

Early on, we energized parts of Staten Island to provide that voltage control for the transmission system. As you said, about 9:30 in the morning, we were still going through that process and hadn't yet brought the transmission system together so it was stable. There was an event upstate. I believe a generating station dripped out. And the ISO Statewide asked for the utilities to shed load.

The only place, of course, we could shed load was those places we had already energized. We couldn't shed load where we didn't. So Staten Island and Westchester were energized. We took pieces of a load out of Staten Island and Westchester in response to that order to bring the load down.

Meanwhile, we're doing switching and whatever to continue to connect up sections of transmission. Our ultimate priority is to get the transmission system together. As the day went on, the load that was already connected at Staten Island grew. As people went to work on the remaining areas that stayed energized, that load continued to grow. And we could satisfy that voltage constraint that we had and enable us to go to the next sections of transmission.

To energize those, we had the same problem. We had to pick up local load where those transmission lines connected to keep the voltage under control. It didn't do us any good to put more load on Staten Island at that point. We needed to put it where we were energizing the new transmission connections.

We went through that process until we synchronized the transmission from the south to the transmission from the north. We then brought in separate other lines. And now we had a stable system where we could bring up and load up the distribution system.

So that was kind of our whole intent there and whole approach. I think Staten Island area went back in the afternoon, on Friday afternoon, as we were picking up other areas that had been connected through the transmission system.

Now, with regard to communication, all of these events are enormous communication issues. We made almost 14,000 phone calls to customers that are on life-sustaining equipment, medical hardships. We contacted all the hospitals, nursing homes, housing projects. We contacted all elected officials throughout our service territory. We had 1,000 press calls. Our first media announcement went out at 4:25. This happened at 4:11. We had nine of those through the day. We attempted to keep up communicating with all parties.

That's an area that can always be improved. We'll look at this event and see how we can do better with that the next time.

Mr. BARTON. I'm going to have to cut this off. We have got 9 minutes into the vote. I need to let Mr. Rush ask his questions so he can go vote. So the gentleman from Illinois is recognized for 5 minutes.

Mr. RUSH. Thank you, Mr. Chairman. You are so kind. Mr. Chairman, I want to welcome all of the panelists here, the witnesses here. I certainly want to take a moment to welcome Mrs. Betsy Moler from Exelon to this panel and look forward to hearing her testimony.

And I'll begin by making a statement. Ms. Moler, today in the Chicago Sun Times, there was an article in the Business section entitled "ComEd President Says Blackout Less Likely Here." The article says that since the 1999 Chicago blackouts, your subsidiary Commonwealth Edison has invested \$2 billion in its high-voltage power lines and distribution system. It goes on to say that, in addition, ComEd will spend another \$2 to \$2.5 billion over the next 5 years on its transmission system. It concludes that, as a result of these improvements, the article says that Exelon is less vulnerable to blackouts compared to other utilities.

Can you tell us why ComEd is able to make these sorts of important investments? And upgrades and what can other utility companies learn? And what can the Congress itself learn from your experiences?

Ms. MOLER. Mr. Rush, our \$2 billion investment began, had its infancy, in a 1999 blackout in Chicago that I mentioned in my written comments and in my opening statement. We obviously had system issues we had to address. Our system was not well-designed.

We have built both transmission and distribution and basically rewired, if you will, big parts of downtown Chicago as to the way the system is designed. We have an obligation under the Illinois statutes to provide reliable service. And we had problems in 1999, and we fixed them.

I will say that we have not recovered big parts of that investment because we have frozen rates in Illinois. So we just had to do it.

Mr. RUSH. I just want to say that I remember the blackouts. I was there. And I remember the contrasting picture. I remember the mayor of the city of Chicago—and I mentioned this in my opening statement—taking ComEd to the woodshed. I mean, he really—and I was proud of the way he was able to speak on behalf of the citizens of the city of Chicago.

What was also illuminating to me and fairly remarkable was the response of John Rowe in terms of he wasn't defensive, he was very agreeable. And he displayed an attitude that I thought was very progressive, illuminating, and enlightening because he assumed the responsibility and he said, as you indicate, "We will fix this situation." That was met with some skepticism.

But now I am just delighted to know that he has kept his word and he is really moving to rebuild the transmission system there in the city of Chicago.

I just want to say to you that I am proud of what ComEd has done in the city of Chicago—I really am—in regards to rebuilding the grid system.

Ms. MOLER. Thank you.

Mr. RUSH. You have indicated that the rates, the retail rates, are frozen in the State of Illinois. Is that correct?

Ms. MOLER. Yes, sir. Thank you for your comments. I will certainly tell him. He will be delighted. We were humbled. We can't say it won't ever happen again, but we have certainly done the best we can.

Mr. RUSH. So you assume the responsibility for the investment? You didn't place the responsibility solely on your retail customers; is that correct, to finance it?

Ms. MOLER. That's correct.

Mr. RUSH. Mr. Chairman, thank you very much. I yield back the balance of my time.

Mr. BASS. Thank you very much. Thank you very much.

The Chair will recognize himself for 5 minutes. I want to start with an apology. Due to the situation going on this afternoon, I haven't been able to hear the other questions, the other answers. I hate to be too repetitive. So, if I am, please just say, "Keep it brief" so we don't repeat too much.

If part of the solution to preventing a recurrence of what happened on August 14 requires investment in electric transmission systems, what can and should Congress do to encourage the needed investment in the transmission grid? Do any of you wish to address that? Go ahead, sir.

Mr. KESSEL. Well, I'll just quickly repeat what I said before. I think that the Federal Government needs to take a role in siting interstate transmission lines and encourage private industry to partner up with utilities to make investments in that system.

And I think the Congress can help by having some kind of financial incentives for interstate transmission by private companies whereby a private company would construct a transmission line for a utility, the utility would then enter into a power purchase agreement for a period of time to purchase the power off that line to repay the private company for their investment.

If this is all left to the utilities, I don't think there are too many utilities that ultimately wouldn't have to raise rates significantly and quickly to catch up with the grid.

I mentioned—and I said this before, and I am not going to repeat myself; I've said it many times—I think that when you have a situation like you have where the Cross Sound Cable was built between Connecticut and Long Island and was not allowed to operate, even though it was sound—

Mr. BASS. Right.

Mr. KESSEL. [continuing] that does not give an incentive for private industry to act.

Mr. BASS. In fact, I was impressed by your opening statement.

Again, another general question. There had been barriers to installing infrastructure. And there are obviously indications that we haven't met those requirements in investment and transmission facilities during the last decade.

What specifically do you think Congress can do to remove barriers to siting transmission facilities outside of what we currently have in the energy bill that is in conference? Any other ideas?

Ms. MOLER. I believe that providing a regional planning process where you bring the relevant folks in to discuss the infrastructure needs so that there can be agreement, to the extent it is possible, on what the infrastructure needs are, that needs to be done through an RTO planning process. An open RTO planning process would also help.

Mr. BURG. Congressman, we have talked about a lot of elements that would be helpful. One we may not have talked about as much as maybe we should have has to do with what some call participant funding. In other words, the people that benefit from the trans-

mission lines should help pay for those transmission lines, possibly even in some up-front way.

So I think that is an important element that it is easy to say, "Well, a company like ours, we build a transmission line, say, across Pennsylvania, but generators in Ohio use it to transmit power across Pennsylvania. It may not help many people in Pennsylvania." So I think that is an important element as well that we need to look at.

Mr. WELCH. I think that as an alternative to that, we have to look at the pricing issue itself and how transmission is paid for. And we have supported that it should be done on a flow-type basis, just like it's done in the gas pipeline and where the gas in the pipe is what pays for the transmission charge. We think that the flow, the energy flow, in the wire should pay for that.

Then you don't have to worry about whether there is a benefit study or not. The actual flows are going to be who are the recipients of it because in an interconnected grid, it will ultimately start to pick up all of the flow. And so it benefits the grid. And so let the flow pay for it.

Mr. BASS. One last question. Do you think there is a point at which a grid is too big, can't be controlled, too complicated, more than can be understood by the human mind, even with the aid of computers? Is there such a thing?

Mr. MCGRATH. I think, congressman—

Mr. BASS. Too large an RTO, let's say.

Mr. MCGRATH. I think we have to be careful until we look at the whole picture. You know, the focus is on transmission here. And whatever we do on transmission, we have to do that in the context of what is best considering transmission, generation, and distribution.

We can't go off and look at one piece of the equation and optimize that and optimize the whole. So I think what we have to be sure to monitor and make work is, are the market mechanisms working to optimize the whole picture, not just one segment of it?

Mr. WELCH. I don't think that you can actually build a transmission system to be too complex to operate. Actually, as the transmission system gets larger and more robust, it actually becomes easier to operate. I mean, if you look at what we have here today, it is that we have a very complex set of operating rules that were all put in place as a substitution for infrastructure investment.

And what we will ultimately uncover is that there was some breakdown in communication, some breakdown somewhere that allowed flows to happen where they couldn't be supported.

Mr. BASS. But the underlying system was inadequate in your opinion?

Mr. WELCH. The underlying system was inadequate. And if you undo the underlying inadequacies, you don't have to have the complex operating protocols.

Mr. BASS. Thank you very much.

Mr. Doyle?

Mr. DOYLE. Thank you, Mr. Chairman. And I thank you to the panel for your patience. I know you have been here a long time.

I am sure you have been asked every which way possible about how you think this happened. I want to just take a slightly dif-

ferent tact. You know, as we have tried to pass an energy bill in this Congress, the electricity title has been one of the more controversial ones. And it seems to break down along regions, not parties.

I am just curious. Secretary Abraham was here yesterday and told us that the administration would support a delay in FERC's SMD rulemaking until 2007, along the lines they had a negotiation with the Senate.

And my question is—and this is for all of you—what impact would such a delay have on reliability and on the functioning of existing RTOs if we were to delay that rulemaking until 2007?

Mr. WELCH. I believe that if we delay the rulemaking, we are going to start to take steps backwards. The whole issue is about the enforceability of reliability standards. It's clear that we have to get one point of accountability in one identity that says, "Look, this is the information we have to have. This is the form we have to have it. This is what we are going to do with it. And these are the circumstances under which it operates."

What we have today is reliability counsel spread around, RTOs spread around, seams between RTOs. Standard market design will start to bring that under one roof. And it is absolutely the direction we need to go. To delay it means that we are going to have a lot more of this in between. And I, for one, think that it is not the right move.

Ms. MOLER. Mr. Doyle, if I could comment on that? It was my privilege to chair FERC for a number of years. I believe that the FERC needs to have authority to oversee the grid and energy markets.

The unintended consequences of the delay are significant. They would make it impossible to have price caps, for example, because of the way the language is written. They would make it impossible to have market monitors. It would make it impossible to have mitigation when necessary.

The rulemaking would put into place cyber security standards, for example. Because of the language of the delay, that would be impossible to do. There are just numerous unintended consequences from the delay. And I think it would be a very bad thing.

Mr. WINSER. To save time, could I just say that I agree with both of those points of view?

Mr. DOYLE. Thank you.

Mr. Burg?

Mr. BURG. Congressman, I was just going to say that I would encourage you to focus on reliability over markets, No. 1. I think Dr. Draper's testimony even talked, we have both. We have to balance them, but I would put the balance to reliability over markets.

The other thing in the standard market design, we're not opposed to it, but I think it's important to recognize that one size may not fit all areas of the country.

The country is different in some respects in terms of how far they have deregulated or where they are at with generation or capacity. So one size may not fit all. I think that is something that has to be looked at.

Mr. DRAPER. I agree with what Mr. Burg just said. We do business in 11 States. Those 11 States have very different views about

whether standard market design is desirable or not. We would hope that—

Mr. DOYLE. We've heard that on this committee, too.

Mr. DRAPER. We would hope that the FERC and the States would get together and get this worked out so that we're not caught in the middle. But we do believe that it is important that we have mandatory NERC standards, that we get the reliability issues right. We think that can be done independent of solving this battle between the States and the FERC.

Ultimately we think it makes perfect sense to be in an RTO, but we can't deal with the situation in which a number of our States believe one way and a number another way.

Mr. DOYLE. Mr. McGrath?

Mr. MCGRATH. I think we need to get on with things here. To the extent we can clarify the rules, take care of siting issues, take care of reliability requirements. That's got to help this industry in its transition. And I think the sooner we get on with it, the better off we are.

Mr. DOYLE. Very good. And, last, obviously we have a number of RTOs functioning today. As you see it,—and, again, this is for all of you—what additional action should FERC take to facilitate the effective operation of the existing RTOs? And I also wonder whether any of those actions would be prohibited by the proposed delay in this standard market design rulemaking.

Mr. WELCH. I think that the RTOs should be made mandatory. I think that the FERC should be given the authority to tell the utilities what RTOs they're going to be in. What we have in the Midwest has absolutely been set up as from an operational point of view, from a reliability point of view, a disaster waiting to happen.

There are too many scenes, too many handoffs, too many pieces to be coordinated. We need to get this, and they need to get it aligned such that you have an RTO that serves a region that is basically where the trading has been taking place and not a continual hash and rehash. The voluntary nature is just not working.

Mr. DOYLE. Yes?

Ms. MOLER. With your permission, I would like to submit a paper for the record that will talk about some of the potential unintended consequences of the delay. I think they are significant.

[The paper offered by Elizabeth Moler follows:]

UNINTENDED CONSEQUENCES OF DELAYING FERC'S STANDARD MARKET DESIGN

By Elizabeth Anne Moler,¹ Executive Vice President, Government and Environmental Affairs & Public Policy, Exelon Corporation

As conferees on the energy bill race to complete action on the legislation, they will be faced with a proposal from the Senate to prohibit the Federal Energy Regulatory Commission (FERC) from implementing its July 2002 Standard Market Design rulemaking proposal (SMD).² Prohibiting FERC from implementing SMD is one of those

¹Ms. Moler served as a Commissioner (1988-1993) and then as the Chair (1993-1997) of the Federal Energy Regulatory Commission and as Deputy Secretary of the United States Department of Energy from 1997-1998.

²Neither the House-passed nor the Senate-passed version of H.R. 6 contains an SMD delay provision. However, Chairman Domenici and his staff have stated publicly that he made a commitment to Senator Shelby to support a provision to prohibit FERC from issuing its final rule in the SMD docket, or any related rule or order of general applicability, until December 31, 2006 in order to secure consent to pass the energy bill. According to press reports, Vice President

things that “sounds good if you say it fast.” But a close look at the proposed SMD rule, and FERC’s April 2003 Wholesale Market Platform White Paper, clearly shows that delaying SMD will have numerous unintended consequences. The conferees should oppose the SMD delay proposal.

Those advocating SMD delay have proposed to prohibit FERC from issuing any “final rule pursuant to the proposed rulemaking, including any rule or order of general applicability within the scope of the proposed rulemaking” until December 31, 2006. Prohibiting FERC from issuing *any* rule or order that applies to more than a single utility, pertaining to *any* issue “within the scope” of the SMD notice of proposed rulemaking (NOPR), will have unintended consequences that even the opponents of SMD don’t want.

RTOS AND SMD ARE INTERTWINED

Those advocating for Congress to “delay SMD” argue that FERC should be stopped from implementing SMD, but should continue to encourage voluntary RTO formation. Frankly, it is not clear to me how Congress can “delay SMD” and “encourage RTOs” at the same time.

How can an RTO do its job if it does not plan the transmission system, and address generation needs, on a regional basis? How can an RTO do its job if it does not manage congestion on its system and does not redispatch generation to avoid problems on its system? How can an RTO do its job if FERC is prohibited from acting to deal with market problems that develop, as in California?

A close look at issues “within the scope of the proposed rulemaking” shows how harmful the unintended consequences of the broadly worded delay would be. Many initiatives included in the SMD NOPR have wide support, but FERC could not finalize or implement them broadly if the SMD NOPR is put on hold. If FERC’s hands are tied by the SMD delay provision, these consequences will follow:

1. FERC will not be able to respond to the August 14 blackout by requiring better coordination among regional transmission organizations (RTOs) and individual public utilities that are not in RTOs.

The U.S. Department of Energy, Natural Resources Canada and the North American Electric Reliability Council are still working to complete their analysis of what caused the August 14 blackout. If the Senate SMD delay proposal were adopted, FERC would be powerless to address any RTO coordination issues, information sharing requirements, and the like until 2007. Nor would FERC have authority to issue a general rule requiring utilities that are not yet in RTOs to coordinate, share information, or take other appropriate steps to try to avoid another blackout. Thus, FERC would be sidelined with its shoelaces tied together, prohibited by Congress from adopting changes that DOE and NERC conclude are necessary to avoid a repeat of the blackout. Even so-called “mandatory reliability rules” would leave FERC very limited in its authority to develop solutions to whatever caused the blackout. Simply put, that is not an appropriate way for the Congress to respond to the blackout.

2. FERC will not be able to approve voluntary RTO development or proposals to improve the operational efficiency and reliability of existing RTOs.

Many state regulators, public utilities, and other stakeholders are advocating that RTO development should be “voluntary.” Numerous utilities are actively engaged in discussions they hope will lead to voluntary RTO filings to form RTOs, perhaps even later this year. And the existing RTOs are constantly striving to improve their performance and advance their market design. Prohibiting FERC from issuing an order addressing RTO development would thwart even voluntary RTOs.

3. FERC will not be able to eliminate transmission rate pancaking and adopt transmission rate reform, including so-called “participant funding.”

In the SMD NOPR, and the White Paper, FERC proposes to eliminate transmission rate “pancakes” across an RTO (that is, charging multiple rates to wheel electricity across multiple utilities); incentives for construction of new transmission facilities; and authority for RTOs to require “participant funding” of transmission

Cheney supported the SMD delay provision in a telephone call to an unknown group of Senators just prior to final passage of the energy bill in the Senate in order to secure their commitment not to object to passage of the bill. The agreement is modeled after Section 1121 of S. 14, as reported by the Committee on Energy and Natural Resources, with the delay extended from July 1, 2005 to December 31, 2006.

upgrades (requiring those who cause utilities to incur costs to expand their transmission system to pay the cost of the expansion).

Putting SMD on hold would prohibit FERC from adopting any final rule that would codify these much-needed transmission rate design reforms. Ironically, some of the most vociferous opponents of SMD are touting the need for incentive pricing to encourage investment in our transmission system and participant funding so that their native load customers do not pay for system upgrades needed by generators locating in their service territory who propose to export their power outside the region.³ Putting these important initiatives on hold for three years is a bad idea.

4. FERC will not be able to issue rules governing how market monitors can ensure that generation owners do not game the markets, as happened in California, and adopt mitigation measures, such as bid caps, to address market power or gaming.

One of FERC's most important proposals in the SMD NOPR is to codify use of independent "market monitors" in existing RTOs and other regional markets to actively monitor markets and mitigate market power abuses and gaming, as in California. The SMD delay provision would eviscerate FERC's use of market monitors by prohibiting FERC from requiring RTOs to have market monitors, bid caps, and other initiatives to address Enron-style gaming practices. FERC must also be able to enforce orders requiring a utility to join an RTO to mitigate its market power, particularly market power resulting from a merger.

5. Regulatory uncertainty will be perpetuated that is dampening investors' interest in building new transmission needed to avoid future blackouts.

The SMD rulemaking proposal was issued in July 2002. FERC received an avalanche of public comments and Congressional inquiries. In response, FERC issued its April 2003 White Paper, changing the proposed rule significantly. It recognized the need for regional variations among RTOs, proposed to give State officials a formal role in the RTO process by forming Regional State Committees, and pledged that FERC would not assert jurisdiction over the rate component of transmission used to provide retail service to native load customers. SMD delay would prolong an already lengthy period of the regulatory uncertainty that is chilling investment in transmission. The August blackout made crystal clear that we need robust investment now.

6. FERC will not be able to require RTOs and utilities to do "regional planning" in order to address the need for new facilities (both transmission and generation) on a regional basis.

The SMD NOPR includes an initiative to foster a regional approach to planning transmission expansion and addressing the need for additional generation. If SMD is delayed, utilities would not be required to collaborate in the planning process. Capacity additions and transmission expansion would continue on a utility-specific or generator initiated basis, rather than on a regional basis. Putting this initiative "on hold" for three years is a bad idea.

7. FERC will not be able to address transmission congestion and adopt congestion management rules.

The SMD NOPR proposes to mandate that RTOs adopt locational marginal pricing (LMP) to address congestion on transmission lines. PJM, ISO-New England, and the New York ISO use the LMP model. Even the most ardent opponents of SMD have endorsed the LMP initiative.⁴ The White Paper nonetheless backs off mandating LMP and proposes to defer to regional needs for congestion management systems. Both the LMP congestion management initiative and the White Paper's endorsement of regionally based congestion management initiatives would be victims of SMD delay. Congestion on transmission lines is a nationally recognized problem that must be addressed to enhance the reliability of the transmission grid. Putting congestion management initiatives "on hold" for 3+ years is another bad idea.

8. FERC will not be able to adopt the North American Electric Reliability Council's (NERC) cybersecurity standards.

The North American Electric Reliability Council (NERC) has adopted a proposed industry cyber-security standard. It is self-evident that such a standard is necessary in the era of cyber terrorists and dependence on the Internet and other forms of

³See Testimony of H. Allen Franklin, Chairman, President and CEO of Southern Company, on behalf of the Edison Electric Institute before the Committee on Energy and Natural Resources, United States Senate, March 27, 2003, in which he endorses participant funding.

⁴The Alan Franklin testimony, cited previously, also endorses LMP.

electronic commerce. The SMD NOPR proposes to codify cyber security standards and FERC has indicated that security measures to protect critical information systems, like the Internet, would be a condition of market-based tariffs. Because the cyber security standards were a part of the SMD NOPR, an SMD delay would have the unintended consequence of prohibiting FERC from codifying the cyber-security standard.

9. FERC will not be able to adopt market rules developed by the North American Energy Standard Board (NAESB).

The SMD NOPR proposed to incorporate business practice standards for the industry developed by the North American Energy Standards Board. An SMD delay would prohibit FERC from doing so.

10. Finally, an SMD delay would invite litigation over the scope of FERC's authority to do its job.

The SMD delay provision is poorly drafted with undefined terms and untold consequences. It is a litigator's dream, virtually inviting lawsuits about what Congress allowed FERC to do and what Congress prohibited FERC from doing.

CONCLUSION

These potential unintended consequences of tying FERC's hands with the Senate's deal to delay SMD should make clear that Congress should not legislate an administrative process. These issues should be left to the established regulatory process where market participants, state regulators and consumers can participate in reaching acceptable compromises. The SMD delay provision is a law of unintended consequences. It would hamstring FERC at the very moment that we need better reliability and better coordination in wholesale energy markets. It should not be included in the final version of the energy bill.

Ms. MOLER. Clearly RTOs need to coordinate better with one another. The market rules, while we agree that one size may not fit all, they need to work. And there are numerous parts of the FERC initiative that I think everybody on this panel would agree need to happen that would be set back a number of years if a delay were enacted.

Mr. DOYLE. I see my time has expired. Thank you, Mr. Chairman.

Mr. BASS. Thank you.

The gentleman from Illinois?

Mr. SHIMKUS. Thank you, Mr. Chairman. Again, I apologize for our delay on the floor. We are trying to keep things moving.

Let me first say that I am a big supporter of standard market design. And I know we have got some critical problems with that, but we have standard market design for the natural gas infrastructure. We have it for the railway industry.

I taught history. In the Civil War period, we had different gauges. The gauges really did not help the movement of troops and materiel. It stopped the interstate aspect of rail transportation.

So I think we're foolish if we don't take this opportunity to move to a standard market design. But that's been done before here in Washington. So we'll see how far we'll get.

But the benefits that we do have on the table now, the point was we've got to get to it. This is the time. We have an energy bill moving to conference. The conferees will be named today. And if there is a time to move on this, it will be in this energy bill.

And there is depreciation. There is FERC authority increased, return on investment, siting issues. If you read some of the testimony yesterday, we had the Governor of Michigan. The Governor of Ohio said, "After a given period, amount of time, should FERC then have a date certain on siting?" And they both agreed. Now, they

don't represent all the States, but that was very good to hear because maybe the siting issues aren't as critical now as they once were.

Illinois, we produce more than we consume, especially in the southern part of the State. There are States that do not want to produce. There are States that do not want to generate electricity. So if they don't want to generate electricity, you have to have a transmission system to get power.

And I'll tell you what. My State wants to generate it. We want to generate it by nuclear power. We want to generate it by coal power. And we do have natural gas facilities. I have other problems with those.

Are retailing of PUCA, depreciation issues, FERC jurisdiction, return on investments and siting all helpful in moving the ball down the road and moving our grid to a more efficient system? I'll throw that open. Yes, sir?

Mr. WINSER. I think they are all helpful. I would chip in, in addition, that we really do need a rational and simple transmission pricing mechanism, though.

There has been a lot of talk of things proposed, such as market participant funding, which seems to be proposed on a voluntary basis, where basically you sort of pass the hat around and try to get enough money to build something. Some people put in, and some people probably take out. And some people don't bother.

What we need is to recognize these are shared resources and they will benefit a number of different people in the market, customers, generators. We have to recover the money from all the people that benefit. So I would add that to your list. And I would say that we do need to recognize that this is shared resource, recognize that for the most part, it is going to be a regulated shared resource and that we do need to have mandatory recovery of the investment.

Mr. SHIMKUS. I was interested. A lot of the comments yesterday dealt with "Well, the Federal Power Act gives us 12.5 return on investment."

But then I turned to the Governors and said, "If that's good, as a lot of people are claiming that that should be good enough, why aren't we getting the investments? There must be other reasons."

I'm not sure. Maybe it was Mr. Draper who said \$50 million on approval. There was a \$50 million cost on just the approval of transmission. I took that not even the costs that were incurred for the actual construction and the string of wires. Is that correct?

Mr. DRAPER. That's right.

Mr. SHIMKUS. Let me go on. And then you also applied to Alliance, right? What was the cost for the application to Alliance?

Mr. DRAPER. I'm not sure how much money we spent, but it was—

Mr. SHIMKUS. And what about MISO?

Mr. DRAPER. [continuing] tens of millions of dollars.

Mr. SHIMKUS. So that is what I want to really to my friends on the other side. The bureaucratic wrangling and the legal issues are very, very costly. So obviously a 12.5 ROE on the Federal Power Act is not sufficient. Otherwise we would have it.

Mr. DRAPER. We talked a bit earlier—I am not sure you were in the room—about the 12.5 percent and whether you actually recover

that, but I have made the point that for many companies, including my own, only about 10 percent of our transmission revenues are allocable to FERC wholesale transactions. And the rest are retail transactions within the State for which we don't recover the costs because we have rate freezes.

Mr. SHIMKUS. Let me just finish. I know we have ComEd and Exelon here. They had power problems in 1999. In fact, the Chicago Sun Times ran an article. Great investment. Can you talk about that and really in the guise of we have had problems today? Do you see that as helping us move? Were the power problems in 1999 helpful in moving your company? And then do you think this engagement will help, as I say, the engine that moves an energy bill?

Mr. BARTON. This will have to be the gentleman's last question. Go ahead and answer.

Ms. MOLER. I would hate to say that the power problems in 1999 were helpful. We certainly were humbled, learned a lesson, redesigned our system, and have spent \$2 billion in transmission and distribution upgrades since then. And we are, knock on wood, hoping it will not occur again.

I also believe that the blackout has brought the attention of this Congress and this committee to the electricity business in a way that I am hopeful will get the electricity title across the finish line this year.

Mr. BARTON. Gentledady from Illinois, Ms. Schakowsky, is recognized for 5 minutes.

Mr. ENGEL. Mr. Chairman, I am wondering if I can ask unanimous consent to go ahead of the gentle woman.

Mr. BARTON. If it's okay with the gentledady. Without objection, so ordered. The gentleman from New York, Mr. Engel, is recognized for 5 minutes.

Mr. ENGEL. Thank you, Mr. Chairman. I thank Ms. Schakowsky.

I want to welcome everyone on the panel. I think you have gotten a little bit of an idea of how Congress works. Perhaps you're wishing we would have a blackout here this morning. I want to especially welcome the two New Yorkers on the panel, Mr. McGrath and Mr. Kessel.

Mr. McGrath, I just wonder if you can help me understand how decisions are made when power is restored. As you know, I represent areas of the Bronx, Westchester and Rockland Counties in New York. Obviously when the power went out, it didn't return at the same time all across New York.

How are these decisions made? Are there actual decisions made or is it simply a matter of when you can get the power back to different communities, you do it as quickly as possible or is there a priority list?

Mr. MCGRATH. Well, the law of physics is probably the major determinant. Electricity follows certain rules. It depends on the event. Generally we need to reach out to supplies that are online and connect them into our system. That's a meticulous step-by-step process.

In this case, I mentioned earlier we had to come from the south and the north. And we had to along the way pick up pieces to es-

establish the grid. And that allowed us to startup generators, which were necessary to get enough capacity to pick up load.

So although it looks like a patchwork pickup of load, it actually depends on the route that is taken to restore power to the transmission system. And that route meanders through our territory, came together down in the city, and we were able to synchronize. And then we had a stable grid, where we could pick up the rest of the load.

Mr. ENGEL. But if you have a situation where you could get power back to different communities at the same time, is there a priority list? Do you, for instance, say, "Well, since Manhattan is the hub of activity in New York City, that's where the priority would be" or is it not done that way at all?

Mr. MCGRATH. Well, actually, the load picked up at parts of Westchester and Staten Island before Manhattan because of this process that I went through. If we had a choice, we would try to get the high rises and the parts of the city that move people underground who depend on electricity and people who need water because of the vertical height of the buildings. We would try to give preference to that.

But we don't have a lot of flexibility. It depends on the amount of load we need to pick up to stabilize voltage, the amount of generation available for us to pick up load. And that was a moving target as we brought together transmission systems and as generators came on line to give us more capacity.

Mr. ENGEL. Let me ask you. I understand that Con Ed is joining a coalition of companies to pursue superconductors. Is that a fact? I have been interested in this area. I think it is good to pursue it. Do you have plans to use superconductors? And is there anything that Congress can do to make superconductors more attractive?

Mr. MCGRATH. Well, there is a great potential provided by superconductors if they're made practical. We are involved with some R&D groups to look at what has to be done to make that practical out in the future. Obviously if you can get a system where resistance doesn't matter, it can really improve the efficiencies of our system. So we would be interested in that. It's not anywhere near a proven technology, but we are in the R&D phases.

Mr. ENGEL. Thank you.

Mr. Kessel, can you talk to me a bit about the Cross Sound Cable? Secretary Abraham obviously used his authority to allow use of the cable. Can you talk about that a little bit? Why has Connecticut been holding it up? And what are the problems there?

Mr. KESSEL. Well, yes, I will, congressman. It's good to see you again.

Mr. ENGEL. Thank you.

Mr. KESSEL. And I would report to you and to the committee that I have been informed that for the first time, the Cross Sound Cable today is being used to take power from Connecticut to Long Island across Long Island and into southwest Connecticut for the first time, which shows that we can help Connecticut as much as Connecticut can help us, which is what this is all about.

The major opposition to the cable comes from the attorney general in Connecticut. And it's legislative in nature as well. There are three objections. One is environmental, that somehow the Cross

Sound Cable would create environmental problems in the Long Island Sound.

I indicated before—and I know you weren't here—I don't know if we have the cable, but it's a solid cable. There is absolutely no environmental harm from the cable whatsoever. In fact, I have challenged the attorney general in Connecticut now that it's operated if there is environmental harm to show it to the public. We certainly wouldn't want to do anything to harm the Long Island Sound.

The second objection comes from people who say that New York is trying to steal electricity from Connecticut. The fact of the matter is that we actually import less electricity from Connecticut than Connecticut imports from Long Island. In fact, I actually have some numbers that, actually, between 1998 and 2001, the flow from New York to Connecticut was 5,754,550 megawatt hours. The flow from Connecticut to New York was only 2,207,450 megawatt hours. In effect, more electricity flows from New York to Connecticut than from Connecticut to New York.

The final issue that has been used is that somehow New York, Long Island in particular, is not paying attention to its own generation needs and why should Connecticut help out, why doesn't Long Island build more generation or New York.

The answer is very simple. We have. We have added in the last 2 years over 500 megawatts of new generation on Long Island itself, which is more than has been added in the prior 25 years.

I would point out that if you looked at the Connecticut versus Long Island alone and you net out plants that have been decommissioned in Connecticut, Long Island has added slightly over 600 megawatts while Connecticut has added slightly over 18 megawatts.

So I think those arguments are specious. I think it's political parochialism. And I think it's a bad policy for this country.

Mr. BARTON. The gentleman's time—

Mr. ENGEL. Thank you. Thank you, Mr. Chairman. And thanks to Ms. Schakowsky again.

Mr. BARTON. We have now got the answer why Connecticut doesn't want that line. They don't want that tainted New York electricity, see?

Mr. KESSEL. Our electricity is much cleaner than Connecticut's.

Mr. ENGEL. I was going to say point of personal privilege, Mr. Chairman.

Mr. BARTON. Well, they certainly don't want that dirty Texas electricity getting up there, you know.

The gentleman from Michigan, Mr. Rogers, 5 minutes.

Mr. ROGERS. Thank you, Mr. Chairman. And thank you, gentlemen and lady, for taking so much time and effort to be here today on such an important issue.

It sounds like we are starting to coalesce, at least around some critical mass of—

Mr. BARTON. Excuse me. Would the gentleman suspend just briefly?

Mr. ROGERS. You bet.

Mr. BARTON. You all have been here a long time. If anybody, not the whole group at one time but if you want a personal convenience

break one at a time because we are going to keep going, so if you all want to kind of cycle that through but keep the voltage within 60 seconds as you do it, we're okay on that.

Gentleman from Michigan? Reset your clock.

Mr. ROGERS. Thank you, Mr. Chairman.

I would direct this question to Mr. Welch to change a little bit. I have heard some reports that Michigan consumers may be footing the bill to the tune of maybe even \$30 million a year on energy that is put into the grid and not compensated for that gets lost—I don't know—maybe for people leaning on the grid or other issues. And I wonder if you could help me understand how that happens and if there is anything that we can do to rectify that.

Mr. WELCH. The phenomenon that you're talking about is loop flow. Loop flow is a very critical issue. First it has the economic consequences that you talked about that this flow is unscheduled and as a result of being unscheduled also usually winds up not curtailable in the event that there is some kind of reliability issue.

It was actually a huge amount of loop flow on our system that brought the system to collapse. It was clearly unscheduled. We in Michigan—and this is all of the utilities, the major utilities, in the lower peninsula; let me clarify that, CMS, DT Energy, METC, and ITC—have had issues on the loop flow from a reliability perspective. That needs to be dealt with.

If there is going to be any kind of reliability package, this loop flow issue because of the peninsulas' nature that we are surrounded by the Great Lakes, we absolutely get an additive effect. It has both financial and reliability issues. And as a result of that, we are constantly being asked to upgrade the transmission system for something that there is virtually no compensation for because there is no compensation for it.

Mr. ROGERS. Does technology fix that problem?

Mr. WELCH. There are technological fixes. You can either start to use asynchronous connections; i.e., DC. We actually had going into service a device called a phase angle regulator that would not have corrected the problem that we had on August 14, but it would start to limit some of that.

Mr. ROGERS. Leaning on the grid, how much of an issue is that in the current system?

Mr. WELCH. In our case, it's fairly significant. Most of the time we see as much as 50 percent of the flow on our southern 2 interfaces being unscheduled flow. Going into the day of the blackout, I think the schedule was 800 and the line was going somewhere around 12 or 14 hundred, which means the difference between the schedule and the actual is this loop flow. And obviously the effects of whatever happened were an additional 2,500 megawatts of loop flow put on our system that was what caused the voltage collapse.

Mr. ROGERS. How would you define in your words leaning on the grid? What in your mind?

Mr. WELCH. Well, normally leaning on the grid isn't referred to in transmission talk. It's usually one control area is out of balance with another control area. In other words, the control area operator is to balance the load consumption in their control area and make sure that all schedules are adhered to; in other words, that what

arrives at your border and is to be shipped somewhere else is shipped to that other point.

As the day goes on, there are ebbs and flows. Generators come in and out of service. Lines open. And so you will have imbalance in that flow. Control area operator then gets generators. The deficient control area's job is to get the generators to pick it up or to allow for a purchase.

The loop flow is just an uncompensated flow. And it has effect for both transmission and generation in that because it is unscheduled, that means it is not accounted for. So it has to be delivered to the other part of your system. That means that the losses have to be made up for it. The bar support, the voltage support has to be done. That means the generators in that region are being asked to make that up all the time.

The negative effect that it has on transmission is that in the case of some of our interfaces, they basically consume 50 percent for flow, of which there is no tracking or knowledge of.

Mr. ROGERS. Would you agree with that estimate of \$30 million a year?

Mr. WELCH. No. Actually, I think it is more than that.

Mr. ROGERS. You think it is higher than that?

Mr. WELCH. Yes.

Mr. ROGERS. Interesting.

Mr. WELCH. Actually, I think that if you look at the affected utilities in this case, a combination of transmission revenues and generation costs, it's more in the \$40 to \$50 million range annually.

Mr. ROGERS. Ma'am, did you want to respond as well?

Ms. MOLER. Yes. Thank you. I would not want my silence on this subject to reflect that I concur with Mr. Welch's conclusion that "loop flow brought the system to a collapse." I don't know what brought the system to a collapse.

We are litigating the loop flow issues right now at FERC. We have been for a long time. And I just did not want my silence to indicate that I agree with Mr. Welch's conclusion. I don't believe that any of us has defined movement on this subject at this point.

Mr. BARTON. Will the gentleman yield?

Mr. ROGERS. Yes.

Mr. BARTON. The gentleman's time has expired. If it's directly on point.

Mr. OTTER. Would you spell that? Is that loophole? Is that loop or—

Mr. WELCH. L-o-o-p f-l-o-w, loop flow.

Mr. OTTER. Oh, okay. Thank you.

Mr. BARTON. The gentelady from Illinois, Ms. Schakowsky, is recognized for 5 minutes.

Ms. SCHAKOWSKY. Thank you, Mr. Chairman.

I have questions for Ms. Moler from Exelon, Commonwealth Edison. I talked to the citizens utility board yesterday to ask about the vulnerability of our system. They reinforced what we have been reading and I have been hearing that since 1999, I participated in a hearing that Representative Rush had that Commonwealth Edison has made significant investments in the grid. And I applaud you for that.

In the testimony, a couple of things. First off, how is Commonwealth Edison's economic health just briefly? How is it doing? You said that you haven't recovered all of the costs of that investment. And I was just curious about how the company is doing.

Ms. MOLER. We are financially healthy, I am pleased to say.

Ms. SCHAKOWSKY. Wonderful. In 2006, when the rate freeze is over, can consumers based on this \$4 million plus, then, \$4.5 million investment in the transmission system, expect a spike in its rate?

Ms. MOLER. We expect to file a transmission rate case one of these days to recover some of our investment in the near future, but in 2006, I would not expect a price spike. We are in active dialog with the Illinois Commerce Commission about what to do when our current rate freeze expires in 2006. And we will put proposals before them. But I would not expect a price spike.

Ms. SCHAKOWSKY. You spoke in your testimony of innovative transmission pricing incentives. I have to say from a consumer point of view when one hears the words "innovative" and "incentive" kind of pricing, what people hear is "Our rates are going to go up." What do you mean by that?

And while it was the chairman's questioning and the answers were instructive to me that we are talking about when we talk about the 11, 12, 13 percent rate of return, we are only talking about 10 percent of transmission costs, as I understand it, that the rest is regulated at the State level; is that right, talking about wholesale costs that can be recovered through those regulated national FERC rates?

Ms. MOLER. There is a difference between—the transmission rates are regulated by Federal Energy Regulatory Commission, all of them.

Ms. SCHAKOWSKY. Oh, okay.

Ms. MOLER. But then the question is whether one can pass through all of those rates—

Ms. SCHAKOWSKY. I see.

Ms. MOLER. [continuing] because of the various retail rate freezes, such as we have in Chicago. We can increase our transmission rates, but we cannot pass them through because of a rate freeze.

Ms. SCHAKOWSKY. Except that, well, I guess I'm confused, then. If we're talking about rate of return on your investment of 11 to 13 percent—I understand a rate freeze, but absent that, you wouldn't be able to pass those through. Is that not true?

Ms. MOLER. That is correct.

Ms. SCHAKOWSKY. So why isn't that sufficient? And what are we talking about when we talk about innovative transmission when incentive rates are talked about? And why do we need them?

Ms. MOLER. There are lots of ways that one can do rate design. It's an arcane thing that lots of people in this room are involved in. And I would submit to you that if you do it right, in some cases because you do not have to have additional generation, if you do transmission rate, you can actually save customers money by operating the transmission system more efficiently so that they do not have to invest in the generation. And there are lots of creative things that we could go on and on about.

Ms. SCHAKOWSKY. But don't necessarily mean end consumer pays more, correct? Okay.

One of the things that we could do, the DOE national transmission grid study conducted, "Expansion of the transmission system must be viewed as one strategy in a portfolio to address transmission bottlenecks." This portfolio also includes locating generation closer to load, relying on voluntary customer load reduction, targeting energy efficiency, and distributive generation.

In the past, I know Commonwealth Edison has spent less than most utilities on energy efficiency. I was involved in a lot of pretty adversarial relationships with ComEd and know that to be true. Maybe that is different now. Are we seeing an investment in local distribution and efficiency, et cetera, that will—

Ms. MOLER. We have an active efficiency program. We have a very large distributive generation effort. We also have interruptible load. Customers have agreed to be interrupted in stressful times so that we don't have to build as much additional generation. We have actively explored all of these kinds of efforts.

Ms. SCHAKOWSKY. Thank you very much.

Mr. BARTON. The gentlelady's time has expired. Before we go to Mr. Otter, could we have one, Mr. Draper, what is the breakdown of the average customer bill? What percent did the commodity charge of the generation? What percent is the distribution charge? And what percent is the wholesale transmission since there seems to be some confusion about this 10 percent number.

Mr. DRAPER. Well, it's all over the map, Mr. Chairman. As you know, the electric rates of retail customers in the United States vary by more than a factor of two. It depends on the fuel source for the generation. It depends on how big the transmission system is.

Generally speaking, I think it's accurate to say that the generation element is in most parts of the country the biggest element. And the transmission is the smallest perhaps, 10 percent or so.

Mr. BARTON. So generation may be 60 percent and distribution 30 percent and transmission 10 percent just generally?

Mr. DRAPER. Could be.

Mr. BARTON. Could be. The gentleman from Idaho is recognized for 5 minutes.

Mr. OTTER. I thank you, Mr. Chairman.

Much has been said about the investment or the lack of investment. I think we're confusing some terms here. In reading most of the testimony this morning, I see the term "return on ROE," instead of ROI, which is what we have been concentrating on here. Is it ROI? Is it return on equity or is it return on investment? Anybody could answer that.

Mr. WELCH. The authorization that you get from FERC is return on equity.

Mr. OTTER. Which is decidedly different than when we are figuring return on investment. And it has also been the testimony that we have heard here this afternoon that the 12 percent or 13 percent, which is continually used, is not close to the mark. Is that pretty much the consensus of the panel?

Mr. WELCH. We're a transmission-only company. And we don't find that that is an inadequate rate of return.

Mr. OTTER. I want to pursue that because I think there are some other things that are involved in here that kind of imbalance the true answers that we are talking about here as far as some of these investments are concerned because one of the ingredients in our energy bill, which is now languishing in purgatory, so to speak, has some investment attractions to it.

Environmental costs, filing environmental impact statements, making structural changes for environmental purposes, can you capitalize those?

Mr. WELCH. Yes.

Mr. OTTER. All of them?

Mr. WELCH. Normally.

Mr. OTTER. I see. How about acquisition costs for rights-of-ways, transmission lines?

Mr. WELCH. Yes.

Mr. OTTER. Are all capitalized?

Mr. WELCH. Yes.

Mr. OTTER. Over how long a period?

Mr. WELCH. I think the depreciation period is somewhere in the 30-year range.

Mr. OTTER. Okay. So if you are depreciating both your environmental, up-front environmental costs—

Mr. WELCH. Right, but you don't depreciate property.

Mr. OTTER. But you are depreciating the acquisition costs?

Mr. WELCH. No. You just earn a return on it. You don't depreciate it.

Mr. OTTER. Well, but if you have got to go through some condemnation or legal proceedings in order to get the rights-of-ways,—

Mr. WELCH. You take that off.

Mr. OTTER. [continuing] you take that off. But that is capitalized, right? And then that goes on your depreciation schedule. And your depreciation then goes into cash-flow, instead of into investment return. Am I right? Good. It works the same way in the French fry business most of the time.

I am interested in this loop flow that we heard from my colleague from Michigan talking about. What happens to that \$40 million or \$50 million? What happens to that money?

Mr. WELCH. Basically, since there is no revenue stream for it, when you do a calculation for your revenue requirements, which is the way you calculate rates, it doesn't show there as any kind of offset. So maybe customers picked that up, they pay for it. They pay for it in the form of higher fuel bills if you are a generating company.

My company is transmission only. But they also pay for it in the fact that there is no offset in their transmission bill. That's why our position has been that the fix that we need in the transmission, one of the fixes that we need is that we need to get the flow base for revenue distribution, that the flows in the wire are what works the wire. And, therefore, the wire will get built where it is needed because the flows are there. It's just that simple.

Mr. OTTER. I understand. Ms. Moler, you talked a little bit about interruptable rates. Are the interruptable rates generally some-

thing that business and industry would buy because, No. 1, it's cheaper?

Ms. MOLER. Yes, sir.

Mr. OTTER. And, No. 2, unfortunately, when they shut down, people get laid off or people get sent home early or whatever. Does your interruptible rate generally go to business and industry?

Ms. MOLER. The program to which I was referring is generally business is industry. We look for large users who get a lower rate who would be willing to be interrupted, hopefully for a very short period of time. We're not talking about sending them home for the summer or anything like that. When we're an absolute—we call it a needle peak.

Mr. OTTER. On a kilowatt basis, how much cheaper would that be?

Ms. MOLER. I'm sorry. I don't have that.

Mr. OTTER. But it is cheaper?

Ms. MOLER. It is a distribution rate, and it is cheaper, yes.

Mr. OTTER. But it is an overall income scheme that helps the bottom line eventually. Am I not right?

Ms. MOLER. It makes it so we have to have less generation ultimately to serve those very hottest days. We can interrupt them.

Mr. OTTER. Okay. Thank you. I am getting interrupted myself here.

Mr. BARTON. Yes. The gentleman's time has expired. The gentleman from Massachusetts is recognized for 5 minutes.

Mr. MARKEY. Thank you. Thank you, Mr. Chairman, very much.

Mr. BURG, in January of this year, the Davis-Besse nuclear reactor, which is owned by FirstEnergy, was penetrated by the slammer worm. A safety monitoring system was disabled for 5 hours, despite a belief by plant personnel that a firewall existed.

Of course, the Davis-Besse reactor is offline because of boric acid, which almost ate through the head. So there is no power to black out at the time, but the incident raises some troubling questions.

One, after the smaller worm incident, did FirstEnergy conduct an assessment of cyber security at all of its other facilities?

Mr. BURG. Mr. Markey, I can't give you time and date, but it's my understanding we have been going through this process almost since 9/11 throughout our system in terms of looking at what the potentials are with respect to cyber security. So I would assume, yes, sir.

Mr. MARKEY. You would assume, but you don't know?

Mr. BURG. I haven't asked that question, but I know our people have been going through cyber security.

Mr. MARKEY. You have not asked the question of what is the level of cyber security at the rest of your plants after the slammer worm successfully penetrated your Davis-Besse plant?

Mr. BURG. I didn't say that, sir. What I said was I didn't ask our people when they started their examinations and so forth. I knew they were doing those examinations and reviewing not only our nuclear facilities but other facilities throughout our organization.

Mr. MARKEY. What did you do to ensure that all cyber security vulnerabilities at all FirstEnergy facilities were corrected?

Mr. BURG. Well, in some cases—and I am not trying to be off the subject here, but I would suggest that there are some things that

we're not allowed to talk about in this area in terms of how they go about—

Mr. MARKEY. I don't want to know the—what did you order to be done?

Mr. BURG. I didn't order anything. It was automatically done by our people, sir, in looking at the vulnerabilities on our system. We are in concert in this case with the NRC. I am sure we may have been in concert with the Homeland Security Agency in terms of what are some of the things that all companies should be doing in this area.

Mr. MARKEY. You stated that FirstEnergy experienced computer problems in the hours leading up to last month's blackout. Could they have been due to the blaster worm, which was at its height of activity at that time?

Mr. BURG. We really do not believe so because the kind of software that is involved at our system control center, the kind you are now referring to, is not Microsoft-based and, therefore, as I understand it, not susceptible to that particular worm.

Mr. MARKEY. So you do not have communications systems that rely upon Microsoft technologies?

Mr. BURG. No. We do, sir. I didn't say that. I said the particular technology that you were referring to is not micro-based technology. It's probably for security purposes. It's kind of a stand-alone system, if you will, right there at the site.

Mr. MARKEY. According to this morning's papers, your control room operators were in the dark about what was going on within your system. You said earlier that you still don't know what exactly happened to your computers on August 14. What is to prevent, then, your computers from misreading what the actual situation is going on in your system?

Mr. BURG. We, as I said, have, from what I am told, the world's foremost expert on those kinds of systems totally going over our system as we speak; the designer of the system, G.E., going through our system.

Mr. MARKEY. So you don't know the answer yet?

Mr. BURG. I don't know the answer to that yet as we don't know the answer to the entire situation yet.

Mr. MARKEY. So it could happen again?

Mr. BURG. Anything in life can happen again, Mr. Markey. We would expect—

Mr. MARKEY. So the answer is yes? You don't know what happened. And, as a result, it could happen again?

Mr. BURG. We know that the information on that particular day was not being updated as fast as it should have been on our systems. We also know that the information was flowing directly to our security coordinator on a real-time basis, as it is today. We also know that some 2,100 nodes, if you will, of information were being put on an inter-regional security network that others could look at that day. So we have verified that all of those kinds of backup redundant systems, those copilot systems, et cetera, are also working as we go forward.

Mr. MARKEY. My time is going to run out, Mr. Burg, but from what I can tell, FirstEnergy should not have a license to drive a car, let alone operate nuclear power plants and an electricity gen-

eration, transmission, and distribution system. All of the evidence appears to be focusing on FirstEnergy as the culprit in this blackout. And you appear to be trying to shift the blame elsewhere.

There is a pattern here, Mr. Burg. You failed to properly maintain your nuclear power plant, as the Davis-Besse situation clearly indicates. You allowed a computer virus to infect your corporate computer systems and let it get into the Davis-Besse safety systems. You have been found liable by the courts for violating the Clean Air Act by spewing pollution into the air at some of your other plants. And you freely acknowledge that on August 14, you had wires going down but no warning flags going up to anyone else who could be affected and a control room whose computers couldn't tell your operators what was actually going on during the crisis.

There is a pattern here at FirstEnergy. It is a pattern of cutting corners and neglect. And it has devastating consequences, not only on your consumers but for consumers throughout the Midwest and the Northeast.

I hope that the result of these hearings, Mr. Chairman, will be that we guarantee that we never again in our country see a repetition of what happened on August 14.

Mr. BARTON. We thank the gentleman. Before I recognize Mr. Walden, I want to point out that all the witnesses who are here are here voluntarily. There is nobody here under subpoena. And the gentleman's questions are exactly the kind of questions we should be asking, but as of yet, we are not here thinking that there is any criminal activity. Of course, the gentleman didn't infer that. We appreciate everybody being here.

Does Mr. Walden wish to ask questions?

Mr. WALDEN. Mr. Chairman, I will pass at this time.

Mr. BARTON. Mr. Davis?

Mr. DAVIS. I'll pass for now, Mr. Chairman. Thank you.

Mr. BARTON. Seeing no other members present who haven't had an opportunity to ask questions, we are going to excuse this panel and thank you for your attendance. And we will call the second panel forward.

[Brief recess.]

Mr. BARTON. Okay. If everybody would find their seat. We welcome our second panel. Our first witness is Mr. William Museler who is president and CEO of the New York Independent System Operator in Schenectady, New York. Mr. Museler, your testimony is in the record in its entirety. We ask that you summarize it in 5 minutes. You have to push that button.

STATEMENTS OF WILLIAM J. MUSELER, PRESIDENT AND CEO, NEW YORK ISO; JAMES P. TORGERSON, PRESIDENT AND CEO, MIDWEST ISO; DAVID GOULDING, CEO, THE INDEPENDENT MARKET OPERATOR OF ONTARIO; GORDON VAN WELIE, CEO, ISO, NEW ENGLAND; AND PHILLIP G. HARRIS, PJM INTERCONNECTION, INC.

Mr. MUSELER. Thank you, Mr. Chairman and members of the committee. I have been asked on behalf of all of the ISOs and RTOs to start my statement with a brief description of their ISOs and RTOs and their function as system operators. I currently serve as chair of the Independent System Operator Regional Trans-

mission Organization Council, which is comprised of the CEOs of existing U.S. ISOs and RTOs, plus Ontario's Independent Electric Market Operator and the Alberta Electric System Operator.

Each of these organizations performs analogous functions that I will now describe for the committee. By way of background, independent system operators and later regional transmission organizations were established to help implement the Federal Energy Regulatory Commission's policies of restructuring of wholesale electric power delivery and markets as originally set forward in Order 888 issued in 1996. FERC set forth certain functions of ISOs including responsibility for ensuring a reliable supply of energy for their respective regions and for operating fair and efficient wholesale electric markets. Subsequently, FERC created a related entity known as an RTO, which is a regional transmission provider.

In 2000, FERC charged RTOs and ISOs with the added responsibility for assessing and planning for the short-term and long-term reliability needs of the system in their respective regions. ISOs and RTOs are responsible for the reliable daily operation of the bulk electric generation and transmission system in their control areas. To meet this objective, ISOs and RTOs, sometimes operating through satellite control centers with differing degrees of authority and autonomy, administer the bulk transmission system and dispatch power from generators onto the grids in accordance with system demands and reliability criteria. ISOs and RTOs in the Northeast, for example, adhere to reliability standards established by the North American Electric Reliability Council, the NERC, and the Northeast Power Coordinating Council, NPCC.

A primary function of ISOs and RTOs is to ensure non-discriminatory access to the transmission system and fair and efficient markets. This objective is achieved through the development and implementation of transparent market rules and procedures that facilitate accurate market-based rates. Thus ISOs and RTOs are structured to be independent of any individual market participant or any one class of market participants, do not have any financial interest in any transactions for the generation or sale of electricity and do not own transmission assets or purchase transmission services. The regional planning function assigned by FERC to ISOs and RTOs in 2000 is critical to their reliability and efficiency objectives.

ISOs and RTOs with input from a broad range of affected stakeholders, including States and market participants, independently assess the needs of the entire grid in their geographic footprint. ISOs and RTOs also work together to ensure interregional coordination of planning activities. An independent regional and interregional approach to grid planning serves as an essential source of information, both to achieve competitive market outcomes and to develop transmission solutions that best serve the overall reliability and efficiency needs of the region.

I will now turn to the remarks of the New York Independent System Operator. The New York Independent System Operator began in operation in 1999, and we are charged with the responsibility to operate the New York State electric grid for providing non-discriminator access to that grid and for the operation of New York's electricity market. The exact causes of the August 14 outages are not known at this time, and we should not speculate on them. The

International Commission and NERC will make that determination. We are cooperating fully with the NERC as well as with the New York State Public Service Commission's formal inquiry on that outage.

What we do know is that the New York electric system was subjected to very large power swings beyond what the system was designed to withstand. At the time of the event, the New York system was operating normally and within all of its prescribed design limits. Based on the data we have thus far, and I emphasize again that firm conclusions must await analysis of all of the data, but based on what we know so far, the New York electric system and its components operated as they were intended to operate. The system was overwhelmed by the power surges that flowed through New York and through Ontario as well as through the other systems in the Northeast.

The New York system was isolated from the Eastern Interconnection by those power surges, and the system broke into two electrical islands. The upstate island shed a considerable amount of load but enough generation stayed online such that the system was balanced at about 5,000 megawatts. About 20 percent of the New York State load in the upstate area stayed up and enough generation survived the event in order to achieve a balance.

Mr. BARTON. You need to summarize. I hate to make you do that but if you could do it in the next 30 seconds.

Mr. MUSELER. Mr. Chairman, your staff indicated that the initial statement was not part of the 5 minutes. If it is, I will certainly adhere to whatever your ruling is.

Mr. BARTON. Well, we have a difference of opinion about that. How much longer do you have, do you think?

Mr. MUSELER. About 2 minutes, and I will go fast.

Mr. BARTON. Okay. Thank you.

Mr. MUSELER. The Eastern Island, which included New York City, was left with a very large mismatch of load and generation, too much load and that area went black. Power was fully restored to New York State in about 30 hours, and the workers and all the utilities and generators in New York, both public and private, did a superb job. Our neighbors in PJM in New England were also very helpful in restoring power in New York, and throughout all of this we coordinated our restoration activities with the IMO in Ontario.

While we do not know all the facts yet, the New York ISO believes there are three recommendations which we would like to present to this committee for your consideration. First, the current NERC voluntary reliability rules should be made mandatory under FERC jurisdiction, and entities that wish to have more stringent reliability rules should be allowed to do so. Second, the New York transmission grid should be strengthened, and we have provided specific recommendations along those lines in a document called "Power" in March and in a more detailed report, "The New York Transmission Grid: The X Factor," which has been provided to the PSC and to the New York market participants late last year. Third, the internal New York and interregional planning processes should be enhanced and operating and communication protocols developed over a larger area. I would stress that it is not just the communica-

tion but it is the protocol in terms of what you do when you know that there may be potential problems out there.

Finally, I agree with Mr. Gent of NERC that this should never have happened. Having the lights go out in New York City was our worst nightmare, and the NYISO will do all in its power to get to the facts and to do all we can to reduce the possibility of future events of this type. Thank you for your consideration and the extra time, Mr. Chairman.

[The prepared statement of William J. Museler follows:]

PREPARED STATEMENT OF WILLIAM J. MUSELER, PRESIDENT AND CEO, NEW YORK
INDEPENDENT SYSTEM OPERATOR

Good morning, ladies and gentlemen. My name is William J. Museler, and I am the President and Chief Executive Officer of the New York Independent System Operator, or NYISO. I appreciate the opportunity to brief the Committee on what we know so far about the August 14, 2003 blackout and our restoration operations. My testimony today will focus on the questions raised by the Committee in the Notice of Hearing.

Immediately prior to coming to the NYISO, I was the Executive Vice President of the Transmission/Power Supply Group of the Tennessee Valley Authority, which in terms of MW served, is the size of New York. Prior to that, I was Vice President of Electric Operations at Long Island Lighting Company. I serve as the Chairman of the ISO/RTO Council, and have served on the NERC Board and as Chairman of the Southeast Electric Reliability Council. I am a graduate of Pratt Institute and Worcester Polytechnic Institute.

The NYISO was created to operate New York's bulk transmission system and administer the wholesale electricity markets. We are a New York not-for-profit organization and started operation in 1999. As you know, we are pervasively regulated by the Federal Energy Regulatory Commission ("FERC"). As provided in the Federal Power Act, we are also regulated with respect to certain financings by the New York State Public Service Commission.

ISOs, and later regional transmission organizations ("RTOs"), were established to help implement the FERC's policies of partial deregulation as originally set forth in its Order 888, issued in 1996. In its order, FERC set forth certain functions of ISOs and, in a later order, of entities with similar functions such as RTOs. ISOs and RTOs generally act as the primary interface between generators, transmission owners and other participants in the wholesale electric marketplace. ISOs and RTOs accomplish this by dispatching the power system in their control area (*i.e.*, directing the power plants to generate a specific amount of power at a specific time) to supply electricity to customers while maintaining safety and reliability. In addition, ISOs generally facilitate and administer a number of different electricity markets, thereby providing market participants with the ability to sell and purchase various services on an unbundled basis.

The primary market function of ISOs or RTOs is to ensure fair and non-discriminatory access to the transmission system. As such, ISOs are meant to be independent of any individual market participant or any one class of participants. Reliability and security of the transmission system represent the other critical functions for a system operator. For example, the NYISO, in accordance with NERC, the Northeast Power Coordinating Council ("NPCC") and the New York State Reliability Council ("NYSRC") rules, implements and adheres to reliability standards intended to ensure that the integrated New York State electric system has enough generating capacity, including reserves, to provide a reliable power supply. Although ISOs play a key role in ensuring reliability, ISOs have only operational control of the bulk power system. They do not generate power, or own any generating or transmission equipment. They do not have any financial interest in any transactions for the generation or sale of electricity.

I would like to make clear at the outset the areas that we know and those that we do not. While I am, of course, aware of what has been in the press regarding the events that initiated the blackout in a significant part of the Eastern Interconnection, I am not yet able to tell you anything in detail about those events because they have not yet been determined in detail, and details in this case are extremely important. Because the initiating events happened in a very short period of time—really just a matter of seconds—and happened away from New York, understanding them fully depends largely on interpreting electronic data that we do not have. The International Commission formed by President Bush and Prime Min-

ister Jean Chretien of Canada is being given the data¹ and is undertaking its interpretation. We are, of course, cooperating fully in this investigation. The U.S. end of that investigation is well underway and is headed by the Department of Energy. Like you, I'm anxiously awaiting their conclusions.

In addition to outside investigations, the NYISO began its own investigation and analysis within hours of the event. The NYISO is reviewing its own records to determine the precise sequence of events that took down major portions of the New York system within fractions of a second. We have, in our preliminary analysis, identified two uncontrollable power swings that led to the New York system disturbance that occurred at about 4:11:00 p.m.

Up until the event, our system was operating normally, well within applicable criteria and with adequate reserves. There had been a routine scheduling call with adjoining control areas that occurred only 11 minutes before the event (at 4:00:00 p.m.) without indication of a problem. The first indication of a possible problem somewhere on the Eastern Interconnection occurred at 4:09:09 p.m. in the form of a counter-clockwise 700 MW power swing that flowed from the PJM control area through New York into the Ontario control area (which is operated by the Independent Electricity Market Operator or "IMO"). The 700 MW power swing did not, however, create a system contingency on the New York system (i.e., the system was still secure and within intended operating criteria). This 700 MW power swing was not a very unusual occurrence and thus did not alarm the operators. Such a swing usually indicates that a power plant or transmission element has failed in another region.

A second counter-clockwise 1100 MW power swing occurred a minute later, at 4:10:40 p.m., again flowing from the PJM control area through New York into the Ontario control area. At this point, there were approximately 2700 MW flowing through this New York transmission corridor, consisting of approximately 900 MW of normal flow compounded by the 700 MW and 1100 MW power swings. Our preliminary data indicates that seconds thereafter, a 2700 MW reverse power swing either from or through Ontario into the New York system occurred, which instantaneously took down major portions of the New York system. However, several hydro plants in upstate New York, as well as the Quebec tie line, remained in service, as did the majority of the upstate transmission system. Thus, about 20% of the New York load continued to receive service during the disturbance. Unfortunately, New York City was completely without service at this point.

Immediately after the event, the NYISO began implementing its restoration plan. The first step in the restoration process involves stabilizing the system and restoring our ties to the neighboring control areas. After that, the process of bringing power plants and outside sources back online must take place, including the delicate balancing of the power they can supply with the demand in the individual area being restored. If the demand were greater than the supply, the system would crash in the affected area, and fortunately that did not occur.

Within about three hours, we were able to restore one major tie to the remainder of the Eastern Interconnection at Ramapo. The first major power plant was returned to service in just under an hour after that, and a few minutes later we re-established a transmission path to New York City. Throughout the next day, there was a painstaking process of bringing generators back to the system and re-energizing lines. Statewide service was completely restored by 10:30 p.m. Friday, August 15th. The restoration process followed NYISO's pre-arranged plan and it worked well.

Preliminary analyses indicate that the New York system operated as designed, given the event, and that the power swings New York experienced were beyond anything the system had been designed to withstand.

In an occurrence such as the recent blackout, the greatest danger to electric service is potential damage to the system itself—the power plants and the transmission lines. Had that kind of damage occurred, it could have taken days, weeks, or even months to restore. Fortunately, the complex protective mechanisms that had been installed on New York's transmission system and on its power plants worked as intended and no serious damage was done. This protection shortened the restoration process considerably.

We do not know at this time what equipment, design, or process improvements would be required to prevent a reoccurrence of the August 14th blackout. It is important to understand that the facts must drive the measures taken to prevent a reoccurrence of the August 14th blackout. Until the cause of the cascading blackouts is ascertained, we cannot anticipate what design changes, preventive equipment, or

¹NERC has been designated as the central data collection and analysis point and all data is being sent to them.

process improvements should be put in place. Needless to say, we will thoroughly review our own operations to determine if they can be improved, and all of our data and analyses will be forwarded to NERC for use in the International Commission's investigation.

The events that so affected New York on August 14th are not yet known in sufficient detail to plan and implement specific solutions. However, we believe it makes sense to examine the known problems that could give rise to other reliability concerns in the future. We believe that the reliability standards set by the NERC, which are now voluntary, should be made mandatory. That issue is now before the Congress in the energy legislation now before a conference committee. We also believe those standards should mandate significantly improved communications and operating protocols among the various regions of the country, since we are now painfully aware of the extent to which events in one region can affect neighboring regions. Right now, there is no expectation that a non-adjacent system operator would communicate to other, non-contiguous control areas the existence of a condition or disturbance on its system, which is outside of allowable operating limits. Neither, is there an obligation on the control area's neighbors to communicate to the control area any information they obtain regarding problems on other systems. Communications alone, unfortunately, will not prevent a future blackout from occurring. The goal of having better communication is to enable ISOs and RTOs to take anticipatory action, if required, as soon as a system condition or disturbance becomes apparent anywhere on the Interconnection. Of course, there is no guarantee that prior knowledge or notice will translate into anticipatory action that can prevent a system disturbance.

There are some actions that can be taken in New York to help ensure that other reliability problems do not arise. New York has been short of generation in the recent past and projections indicate that deficiencies are likely again later this decade. That shortage will grow and will represent both a reliability concern and, in our new competitive markets, a cost to consumers. The NYISO has already reformed its capacity markets to encourage investment in needed facilities and is working with neighboring regions to develop regional capacity markets.

New York's transmission grid and its internal planning process needs to be strengthened. Current incentives for building transmission are inadequate. Likewise, inter-regional planning processes should be improved, and in the case of interstate facilities, a federal override (backstop authority) may be appropriate. I should note that this problem also has a continuous upward effect on electricity prices, since congestion on our transmission grid inhibits the free trade in electricity that the competitive markets were designed to foster.

In this brief statement, I have tried to respond to the Committee's questions and to summarize the state of the investigations into what we know about how we handled the recent blackout in New York. I have tried to do so without speculating on things about which it is premature to draw conclusions. Needless to say, once the results of the international investigation are available, the NYISO will move aggressively to implement appropriate changes, as indicated by that investigation. Finally, I have taken the opportunity to alert the Committee to some of the measures, which can help to avoid future problems.

I want to thank the Committee for the opportunity to come here today, and we will be cooperating with the Committee and the on-going inquiries into the outage.

Mr. BARTON. Thank you, sir. I want to just clarify something. Everybody's testimony is in the record, and all the members and their staffs, I am told, have had the testimony in advance so that we can read it and prepare questions, but we really do ask that you summarize in 5 minutes. Now, obviously, we are not going to shoot you if you don't, but we would like you to hold it as close to 5 minutes as possible. So with that, we will go with Mr. Torgerson who is the CEO of the Midwest ISO in Indianapolis, Indiana and ask that you try to summarize in 5 minutes.

STATEMENT OF JAMES P. TORGERSON

Mr. TORGERSON. Good afternoon, Mr. Chairman and members of the committee. My name is James Torgerson. I am the president and chief executive officer of the Midwest ISO. I would like to thank the committee for allowing me to appear today to provide

what insights I can concerning the circumstances surrounding the power outages of August 14 and offer suggestions as to what might be done in the future.

The Midwest ISO was formed in 1998. The Midwest ISO was the Nation's first voluntary regional transmission organization that did not originate from a legislative mandate or against the backdrop of a tight power pool. The Midwest ISO is also the first entity found by the Federal Energy Regulatory Commission to be a regional transmission organization.

The Midwest ISO's region covers portions of 15 States and the Canadian province of Manitoba. Of relevance to your inquiry here, our current role is that of a NERC-certified reliability coordinator. As a reliability coordinator, the Midwest ISO monitors flows on key transmission facilities, develops day-ahead plans, conducts next-hour analysis regarding the high voltage grid and communicates with the control areas in our region who have the primary control capabilities to open and close transmission circuits and to redispatch generation. Three of the more than 30 companies within our reliability coordinator territory suffered outages in the black out: Consumers Power Company, Detroit Edison Company and FirstEnergy Company.

The cause of the blackout and why it cascaded will be forthcoming from the work being done by the International Task Force formed by President Bush and Prime Minister Chretien of Canada. The Midwest ISO only has a part of the data needed to reconstruct the events. The Midwest ISO is cooperating with the committee, the International Task Force and the General Accounting Office. Likewise the reason for the cascading effect of the outages is unknown at this time.

The analysis that has been done to date in the Midwest seems to indicate that there were a number of events in the Eastern Interconnection on August 14. Some are surely related to separations and the substantial losses of load that occurred, and others are likely unrelated. At approximately 4:10 Eastern Daylight Time portions of the Eastern Interconnection were separating from one another, and the loss of significant load was only seconds or minutes away. At 4:19, the Midwest ISO initiated the first NERC coordinating call of the day among NERC and the regional reliability coordinators. During that first call, the issues became ascertainment of system conditions and then commencement of restoration activities.

The Midwest ISO worked with each control area to ensure the individual area restorations would not threaten even a small-scale repeat of Thursday afternoon's events. The Midwest ISO was able to relay information to Michigan about power available from Illinois that could safely be imported to hasten the restoration of load. Additionally, the Midwest ISO, in combination with the IMO and others, determined when it was safe to reestablish the ties between Michigan and Canada.

As only one of the companies contributing information to NERC and DOE, we do not have a picture of events across and adjoining the footprint of affected systems. Events occurring across the Eastern Interconnection, including plant outages, voltage conditions

and the operation of protective relay schemes, will have to be evaluated before cause can be distinguished from effect.

The question has been asked, what systems worked and what failed? The full answers to the questions posed cannot be known until the work of the DOE-led investigation is complete. However, it seems there were a number of items that did work as they were intended. Equipment that was designed to protect transmission lines and generators during cascading events operated successfully to isolate equipment before there was permanent damage. Automatic protection systems did keep the blackout from spreading even further. Considering the size of the area impacted, the restoration proceeded in an orderly manner with much of the load restored within 48 hours.

The committee is also confronting the question of what can be done to prevent a recurrence of the outages. I believe that you will find agreement that widespread adherence to strong reliability standards will be important. Other matters will be crucial as well, and in my opinion they include the development of more transmission infrastructure consistent with regional plans, such as the one recently developed by the Midwest ISO, a reassessment of the existing hierarchical control structure between the control areas and reliability coordinators, increased automated data sharing about system conditions over a wider area and review of protective relaying practices in the industry.

Finally, for the Midwest ISO in particular, acceptance by the FERC of our tariff filing to establish energy markets in our territory is critical. This will bring added elements of region wide action that are not present today—a security constrained generating unit commitment program and a real-time security constrained economic dispatch.

This concludes my remarks, and I would be pleased to answer questions.

[The prepared statement of James P. Torgerson follows:]

PREPARED STATEMENT OF JAMES P. TORGERSON, PRESIDENT AND CHIEF EXECUTIVE OFFICER, MIDWEST INDEPENDENT TRANSMISSION SYSTEM OPERATOR, INC.

Good morning, Mr. Chairman and Members of the Committee. My name is James P. Torgerson. I am the President and Chief Executive Officer of the Midwest Independent Transmission System Operator, Inc. ("Midwest ISO"). I am appearing on the panel with the other CEOs of the Independent System Operators (ISOs) and Regional Transmission Organizations (RTOs) that were affected during the blackout of August 14 to offer what insights I can concerning the circumstances surrounding the power outages and offer suggestions as to what might be done in the future.

The Midwest ISO was formed in 1998. The Midwest ISO is the nation's first voluntary regional transmission organization that did not originate from a legislative mandate or against the backdrop of a tight power pool. The Midwest ISO is also the first entity found by the Federal Energy Regulatory Commission to be a Regional Transmission Organization.

The Midwest ISO's region covers portions of fifteen states and the province of Manitoba. Of relevance to your inquiry here, we act as a Reliability Coordinator for three sets of companies. As Reliability Coordinator, the Midwest ISO monitors, plans, conducts analyses regarding the high voltage grid and communicates with the Control Areas in our region who have the primary control capabilities to open and close transmission circuits and to redispatch generation. We perform this coordination function for the companies that have transferred functional control of their transmission systems to us. We do it through contract with the East Central Area Reliability Council (ECAR) for two systems that are scheduled to transfer control to us in the future, Northern Indiana Public Service Company and First Energy's Northern Ohio system (First Energy's eastern assets are under the control of PJM).

Finally, through a contract with MAPP COR we perform this service to companies in the Mid-Continent Area Power Pool (MAPP) region that have not transferred control of their transmission systems to the Midwest ISO. Three of the more than 30 companies within our reliability coordinator territory suffered outages in the blackout—Consumers Power Company, Detroit Edison Company and First Energy Company.

What exactly caused the blackout will be forthcoming from the work being done by the International Task Force formed by President Bush and Prime Minister Chretien of Canada. As Secretary of Energy Abraham's press release of last Wednesday states: "It's a complex job we are undertaking. It's going to take some time to compile all this information, get it all synchronized and sequenced, and then determine exactly what happened when—and how it's all interrelated." The Midwest ISO only has a part of the data needed to reconstruct the events and is not in a position to characterize the proximate cause of the blackout. The Midwest ISO is cooperating with the Committee, the International Task Force and the General Accounting Office's investigations into the matter. Likewise the reason for the cascading effect of the outages is unknown at this time.

The analysis that has been done to date in the Midwest seems to indicate that there were a number of events in the Eastern Interconnection on August 14th. Some are surely related to separations and the substantial losses of load that occurred, and others are likely unrelated. During the morning and into the afternoon, Midwest ISO personnel were in contact with various control area operators and PJM, the neighboring reliability coordinator about the events of the day, which by the afternoon had included the outages of several high voltage transmission lines. During the morning of August 14th, there was no indication to the Midwest ISO of significant problems in our territory. During the course of the hour preceding the cascading event, after the loss of a large generating unit in northern Ohio had already occurred, several transmission line outages also occurred in the Ohio area. During this period the Midwest ISO operator was in contact with the neighboring Reliability Coordinator at PJM as well as control operators within our territory. At this point in time, the issues did not seem to implicate a regional problem.

Things began to change at 4:09. By 4:10 Eastern Daylight Time portions of the eastern interconnection were separating from one another and the loss of significant load was only seconds or minutes away. At 4:19 the Midwest ISO initiated the first NERC coordinating call of the day among NERC and the regional Reliability Coordinators. These calls were repeated every several hours thereafter and eventually to a few times per day during the restoration. During that first call the issues became ascertainment of system conditions and the commencement of restoration activities.

During the restoration efforts, the Control Area operators performed their responsibilities in linking returning generation with load to be restored. The Midwest ISO, as a Reliability Coordinator, played its part in analyzing the transfer capability into Michigan and Ohio to safely deliver power into those areas. The Midwest ISO worked with each area to ensure the individual area restorations would not threaten even a small-scale repeat of Thursday afternoon's events. The Midwest ISO was able to relay information to Michigan about power available from Illinois that could safely be imported to hasten the restoration of load. Finally, the Midwest ISO, in combination with the IMO and others, determined when it was safe to reestablish the ties between Michigan and Canada.

As only one of the companies contributing information to NERC and DOE we do not have a picture of events across and adjoining the footprint of affected systems. Events occurring across the eastern interconnection including plant outages, voltage conditions and the operation of protective relay schemes will have to be evaluated before cause can be distinguished from effect. I am awaiting the results of the International Task Force formed by President Bush and Prime Minister Jean Chretien of Canada.

The question has been asked, what systems worked and what failed? The full answers to the questions posed cannot be known until the work of the DOE led investigation is complete. However, it seems there were a number of items that did work as they were intended:

- Equipment that was designed to protect transmission lines and generators during cascading events operated successfully to isolate equipment before there was permanent damage to the equipment. This shortened the time period of the restoration efforts because, had protection systems not operated to protect individual components as designed, the power production and delivery systems could have been severely hampered for many months.
- Automatic protection systems did keep the blackout from spreading even further.
- Considering the size of the area impacted, the restoration proceeded in an orderly manner with much of the load restored within 48 hours of the initial disruption.

The Control Areas have primary responsibility to restore their systems while maintaining a balance of resources and load. The ISO/RTOs assisted in the restoration effort by ensuring equipment was not being put at risk for furthering cascading as generators were being brought back on-line and as load was being restored. The coordination among the ISO/RTOs and their member systems worked to assure a reliable restoration.

In my opinion, the restoration efforts would have been less effective a year ago, because at that time our territory was smaller, our regional view was not as developed and an additional reliability coordinator would have been involved in the Midwest. The Midwest ISO was able to assist in the regional coordination of the restoration of power in a fashion that did not allow a repeat of August 14th's events.

Looking forward a year presents much the same difficulties as looking back. Until we know the exact cause and effect of the various incidents and how certain physical equipment expected to operate to isolate outages earlier did perform, no one can give a conclusive answer. Making a few presumptions, I believe the Midwest ISO will be in a better position next August to lessen the likelihood of any recurrence. We have before FERC a tariff that if accepted and implemented will have the Midwest ISO running wholesale markets, much like PJM, the New York ISO and ISO New England do today. That tariff will put matters like a regional security constrained unit commitment and real time generation dispatch in place. Each of these additions should be of substantial benefit. That will give the Midwest ISO more information about generation unit status than we have today and add an ability to direct generator actions within the footprint. This market will improve reliability. Indeed a strong, reliable system is the necessary underpinning of a successful market. The two are not opposite poles they are two halves of what is necessary for reliable service to customers.

I think all the regional entities involved have an appreciation today that communication between reliability coordinators and other entities has to be raised to a higher level than has been required or practiced in the past. At a basic level, that has already happened. The use of the NERC coordinating call to apprise our industry counterparts of the computer virus on August 20th is an example of that increased communication. Mere telephone communication; however does not seem adequate for the future. The Midwest ISO and PJM have a Joint Operating Agreement under development that calls for substantial real time automated data transfers between our systems. While the Joint Operating Agreement is not yet finalized, the Midwest ISO and PJM have recently established the physical communication network links to allow for the types of data transfer called for by the Agreement. Once the software is in place the enhanced data transfer can be made operational. We are each reassessing the Agreement to determine what additional features it should have in light of the events of August the 14th.

The Committee is also confronting the question of what can be done to prevent a recurrence of the outages. While the definitive answer cannot be given today, I believe that you will find agreement that widespread adherence to strong reliability standards will be important.

Other matters will be crucial as well. In my opinion they include:

- The development of more transmission infrastructure consistent with regional plans;
- A reassessment of the existing hierarchical control structure;
- Increased, automated data sharing about system conditions over a wider area; and
- Review of protective relaying practices in the industry.

For the Midwest area as a whole we need the participation of all major transmission systems in an RTO. This will end the prospect of the risks posed by a Swiss cheese configuration of systems, some in an RTO and others not. Finally, for the Midwest ISO in particular, acceptance by FERC of our tariff filing to establish energy markets in our territory is critical. This will bring added elements of region wide action that are not present today—a security constrained generating unit commitment program and a real-time security constrained economic dispatch.

Of the eight items I mentioned, the first, mandatory reliability standards is largely in your hands. As to the development of more infrastructure in our region, the Midwest ISO issued its first transmission expansion plan this June. It calls for construction of \$1.3 billion of already planned projects. It identifies another \$.5 billion of proposed reliability projects. Commitment of participating transmission owners to pursue these projects is crucial for the future. The cooperation of the states in allowing timely construction is also important. I am pleased that within our region we have begun that cooperation with the newly created Organization of MISO States. This organization includes 14 states and the Canadian province in our region.

The remaining six items will call for the strong interplay of industry participants and the national government mediated through or directed by the Department of Energy and the Federal Energy Regulatory Commission.

This concludes my remarks and I would be pleased to answer questions.

Mr. BARTON. Thank you, Mr. Torgerson. We now want to hear from Mr. David Goulding who is the CEO of the Independent Market Operator of Ontario. You are recognized for 5 minutes.

STATEMENT OF DAVID GOULDING

Mr. GOULDING. Thank you very much. Yes, I am David Goulding. I am CEO of the Independent Electricity Market Operator in Ontario, and I would like to thank the committee for inviting me to come and speak to them on this particular event.

With a population of about 11 million people, Ontario has an electricity supply system which is roughly equal to that of New England, with annual usage of about 150 terawatt hours. Our electricity system has been fully integrated with neighboring U.S. systems for many decades. The significant import and export capability with the States of New York, Michigan and Minnesota that can total about 2,700 megawatts. And in fact this import and export capability has been used many times over the years, first of all, for trade, the economic trade in electricity, second, both ways in times of need when our neighbors or ourselves may have had an issue with adequacy for some period of time, and, third, in times of response to contingencies on the power system when there has been immediate flows across North if it was a problem in Ontario, south if it was a problem in the United States. So this system has worked extremely well.

We in Ontario and the IMO are participants and members of the standard setting companies, such as NERC and the Northeast Power Coordinating Council, and we are also members of the recently formed Regional Transmission Organization Council of all operating Regional Transmission Organizations and ISOs.

Electricity in Canada is predominantly a provincial jurisdiction. The Federal involvement is mainly through the National Energy Board exercising a role quite limited in terms of export permits and international facility approvals. So the regulator in Ontario will be the Ontario Energy Board, and we at the IMO have certainly regulatory functions too. Although we are not under the jurisdiction of FERC, the Commission in a recent decision did find that the IMO operates electricity markets that meet their criteria for providing non-discriminatory access to U.S. entities as well as to Ontario entities.

The IMO itself was created in 1999 as a part of the Ontario restructuring of electricity and one or two key accountabilities that I would like to mention that I think are important. One is that our objects were assigned by the provincial legislation to include participating in the development of standards and criteria relating to the reliability of transmission systems, as well as directing the operation and reliability of IMO control grid. We have a license from the Ontario Energy Board obliging us to enter into agreements with transmitters to direct the operation of the grid. We have an extensive set of market rules that go into considerable detail related to reliability obligations, authority monitoring and enforce-

ment, and a copy of that has been filed with FERC. And I think particularly important in the context of what we are hearing during these 2 days is we do have a full status-based authority for establishing, monitoring and enforcing reliability standards. And in this regard, the IMO has been an active participant in NERC and MPCC and has adopted the standards developed through those organizations as the basis for our standards in Ontario.

So we are both a control area operator for Ontario, we are also the reliability coordinator for Ontario, and we have been the subject of a NERC reliability coordination audit. In respect to our ability to enforce compliance and impose various types of penalties, a reliability compliance audit by the MPCC concluded that our procedures and practices are exemplary in discharging reliability authority function, and if I can quote, “The Ontario Are Compliance Program is unique in that it is directly tied to the established market rules and licensing requirements. This structure makes compliance a binding obligation and facilitates in the administration and enforcement of compliance. The MPCC’s Compliance Monitoring and Assessment Subcommittee encourages other areas to consider such a compliance model.”

So very briefly, in finishing off, we were unaware of any events on the interconnected system until around 4:09, 4:10 on August 14. Our system was operating normally within all limits, voltage and transmission limits. We had the requisite operating reserve available to us, and we, like some of our other colleagues, were hit by power swings on the system which developed over seconds, essentially, and shut down the whole province of Ontario. So maybe I will leave at that. Thank you.

[The prepared statement of David Goulding follows:]

PREPARED STATEMENT OF DAVID GOULDING, PRESIDENT AND CHIEF EXECUTIVE OFFICER, THE INDEPENDENT ELECTRICITY MARKET OPERATOR OF ONTARIO

I would like to thank the Committee for inviting the Independent Market Operator of Ontario to join this panel. My name is David Goulding, and I am the President and CEO of the IMO since its inception over four years ago.

There is strong tradition of cooperation and trade in electricity between Ontario and its U.S. neighbours. Our interconnections have yielded significant benefits to all parties over the years—benefits that can and should be preserved as we move forward. I say this even though Ontario was one of the jurisdictions hardest hit when this disturbance cascaded across our borders.

Today, I’ll provide a quick background on how Ontario fits into the North American grid and markets, then proceed to address the six questions that were in the chairman’s letter of invitation.

1. ONTARIO IS FULLY INTEGRATED INTO THE U.S. GRIDS AND MARKETS

With a population of 11 million people, Ontario has an electricity system roughly equal in size to New England’s. Annual use is about 150 TWh, valued at over CAD \$11—billion. The generation mix in Ontario is made up of nuclear, coal, hydro-electric and natural gas. Trade with our neighbouring jurisdictions is considerable, amounting to several hundred million dollars/year. For example, in the last twelve months, Ontario has traded the following volumes with its neighbouring states:

	IMPORTS to Ontario GWh	EXPORTS from Ontario GWh
New York	1,572	3,149
Michigan	5,436	132
Minnesota	364	23
TOTAL	7,372	3,304

Ontario's electricity system has been fully integrated with neighbouring U.S. systems for many decades. There is significant import/export capability with the states of New York, Michigan and Minnesota that can total up to 2700 MW. This can supply up to 10% of Ontario's peak demand. We are active participants and members of international standards setting and development organizations such as North American Electric Reliability Council (NERC), Northeast Power Coordinating Council (NPCC), and of the recently formed Regional Transmission Organization (RTO) Council of all operating Regional Transmission Organizations in North America.

Electricity is predominately under provincial jurisdiction in Canada, with the federal National Energy Board (NEB) exercising a role limited to export permits and international facility approvals. The Ontario Energy Board (OEB) is the main regulatory agency for electricity in Ontario, although substantial regulatory functions, including reliability, are carried out by the IMO.

While Ontario utilities are not under the jurisdiction of FERC, the Commission, in a recent decision, found that the IMO operates markets that meet their criteria for providing non-discriminatory access to U.S. entities as well as to Ontario entities.

2. BACKGROUND ON THE INDEPENDENT MARKET OPERATOR IN ONTARIO (IMO)

The IMO was created in 1999 as part of Ontario's restructuring of its electricity sector, and is the functional equivalent of a U.S. based ISO or RTO such as NYISO, PJM, or ISO-NE. The objectives of the IMO are established by Ontario's *Electricity Act, 1998*. Our objectives are:

- (a) to exercise and perform the powers and duties assigned to the IMO under this Act, the market rules and its licence;
- (b) enter into agreements with transmitters giving the IMO authority to direct the operations of their transmission systems;
- (c) direct the operations and maintain the reliability of the IMO-controlled grid;
- (d) establish and operate the IMO-administered markets;
- (e) collect, and provide to the public, information relating to the current and future electricity needs of Ontario and the capacity of the integrated power system to meet those needs;
- (f) participate in the development by any standards authority of standards and criteria relating to the reliability of transmissions systems; and
- (g) work with responsible authorities outside Ontario to coordinate the IMO's activities with their activities.

Participation in and operation of the IMO-administered markets is governed by a comprehensive set of Market Rules. A Board of Directors, made up of independents as well as stakeholders, governs the IMO and approves the Market Rules.

The IMO-administered markets have been in operation since May 1, 2002.

3. SPECIFIC ACCOUNTABILITIES REGARDING RELIABILITY

- The IMO's objects assigned to it by Provincial legislation include participating in the development of standards and criteria relating to the reliability of transmissions systems, as well as directing the operation and maintaining the reliability of the IMO-controlled grid.

- The IMO's licence, granted by the Ontario Energy Board (OEB), obligates the IMO to enter into agreements with Transmitters for purposes of directing the operation of the grid.

- An extensive set of Market Rules goes into considerable detail related to reliability obligations, authorities, monitoring and enforcement. A copy of these Market Rules is on the IMO website (www.theimo.com). A copy has been filed with FERC for information.

- The IMO has full statute-based authority for establishing, monitoring and enforcing reliability standards. In this regard, the IMO has been an active participant in NERC and NPCC and has adopted the standards developed through those organizations as the basis for reliability standards in Ontario.

- The IMO is Ontario's Control Area operator, and is party to the Northeast Power Coordinating Council (NPCC) agreement.

- The IMO is also the reliability coordinator for Ontario and was subject of a NERC reliability coordination audit in October, 2002.

- A 2002 reliability compliance audit by the NPCC concluded that the IMO's procedures and practices are exemplary in discharging its reliability authority functions. Its conclusion is that "the Ontario Area compliance program is unique in that it is directly tied to the established market rules and licensing requirements. This structure makes compliance a binding obligation and facilitates in the administration and enforcement of compliance. NPCC's Compliance Monitoring and Assess-

ment Subcommittee (CMAS) encourages other Areas to consider such a compliance program model”.

Question 1—What exactly were the specific factors and series of events leading up and contributing to the blackouts of August 14?

The Committee will hear from NERC on September 3rd, the day prior to this testimony.

The IMO, along with many other entities, is working with NERC to put a complete picture of events together. Our technical experts and our data are being made available for this purpose.

This testimony expands on the Ontario perspective on the disturbance and how we worked with our neighbours to restore service to customers.

Question 2a—At what time did your company first become aware that the system was experiencing unscheduled, unplanned or uncontrollable power flows or other abnormal conditions.

Answer to 2a. Subsequent analysis of data indicates that the disturbance started at approximately 4:09 pm, and for the next several minutes, the following sequence occurred:

- The flow into Ontario from Michigan reversed, from a flow into Ontario of about 486 MW to a flow out of Ontario which increased over time, reaching over 2200 MW about 3 minutes into the disturbance period.
- Voltages across Southwestern Ontario declined.
- Flow into Ontario from New York first increased by 700 MW and stayed there for a minute or so and then increased further. Shortly after, the flow reversed to be from Ontario out to New York, settling at about 1,200 MW.
- During this time, voltage instability occurred in Ontario, and frequency declined causing automatic frequency protections to operate in Ontario in an attempt to arrest the decline by shedding load.
- Various generating units and transmission lines started tripping off-line to protect equipment.
- Separation of Ontario from Michigan occurred at around 4:12 pm.
- Ontario is largely blacked out by 4:12 pm.
- Small pockets of Ontario remained connected to New York and in Northwest Ontario to Minnesota and Manitoba.

Question 2b—What steps did you take to address the problem?

Answer to 2b. Steps taken to address the problem:

- Confirmed extent of the disturbance
- Activated the Ontario Power System Restoration Plan including:
 - Communication with other Control Areas (CAs)
 - Communication with Transmitters
 - Communication with market participants in Ontario
- In order to restore power reliability to customers throughout the Province, the priorities of the restoration plan are:
 - Restore Class IV AC power to all nuclear sites
 - Restore power to critical transmission and generating station service loads
 - Restore critical utility owned telecom facilities
 - Restore customer loads to the extent necessary to control voltages and secure generating units
 - Synchronize islands together and/or to adjacent power systems
- Suspended Ontario’s IMO-administered Markets at 4:20 pm
- Activated the IMO’s internal Emergency Response Team and our external Crisis Management Support Team (within minutes):
 - Focus on public health and safety
 - Early notification to provincial and federal government regarding scope and scale of the blackout
 - Early notification to telecommunications service providers to sustain critical telecom
 - Identification of status of priority loads at several stages through restoration (e.g.—hospitals, oil and gas refineries, and water treatment plants)
- Set up Decision Support and Communication Centre with Ontario government officials, including working with industry and government to assist in implementation of the Ontario government’s voluntary conservation/curtailment program over the week following the disturbance.

Service was restored to all customers in Ontario by end of Friday, August 15th, with the voluntary curtailment request from government being lifted on Friday, August 22nd.

Question 2c—Were there any indications of system instability prior to that time?

Answer to 2c. There were no indications of system instability prior to that time. Pre-disturbance conditions:

- All reserve requirements were being met (1,580 MW)
- Operating within all system limits
- System voltages were within required ranges
- No significant transmission outage
- Actual Ontario demand—24,050 MW
- Schedules: from Michigan—1,074 MW, from New York—373 MW
- Actual Flows: from Michigan—486 MW, from New York—1,089 MW

Question 3—Which systems operated as designed and which systems failed?

Power System Protections. Protections intended to isolate equipment from damage worked as designed. These protections provided a safe and orderly shut down for generators, transformers, and transmission lines.

Emergency Power Supply to Control Centre. Back-up battery/diesel systems worked seamlessly at the IMO's Control Centre, providing electrical power to enable the IMO to direct the restoration of Ontario's power system.

Public Telephone System. With the exception of cell phones that were overloaded early in the event, the public telephone network was generally available to the Control Centre. Subsequently, the heavy traffic made arranging large conference calls difficult.

System Restoration and Crisis Management Processes.

- Efficient and effective assignment of accountabilities within the control room
- Good cooperation from field staff of generators and transmitters
- Good cooperation with neighbouring area operators
- Successful restoration plan

Large-scale restoration is inherently complex, and our control room staff adapted to changing circumstances as the restoration proceeded, modifying approaches as necessary to achieve objectives. The overall restoration and crisis management processes proceeded in an orderly fashion and met their objectives.

IMO Help Centre. The IMO Help Centre was immediately able to expand its operations from weekdays to 24x7, and successfully handled a 400% increase in call volumes over the ensuing 8 days. As a result there was always someone available to answer questions during the declared emergency, and all questions were handled quickly.

The IMO Help Centre typically answers calls from IMO customers. During this period significant volumes also came from large industrial consumers, small businesses and the general public. The overriding request was for information to help them ensure that they, as electricity users, were "doing the right thing," such as implementing conservation measures.

The communication systems that the IMO Help Centre relies on to receive and reply to inquiries (i.e. phone and e-mail) functioned normally during the entire emergency.

Communication Centre/Provincial Decision Support. A Communications Centre was set up to brief media on status of system restoration in Ontario and to provide information as to how customers can assist in the restoration effort. Press conferences, scheduled twice daily, were coordinated with Provincial officials.

Provincial government officials were continuously briefed on power restoration priorities to ensure coordination with other government agencies.

Question 4a—If events similar to those that occurred on August 14, 2003 had happened a year ago, would the results have been the same?

Answer to 4a. No comprehensive analysis of the initiating and subsequent events is yet available. This question can only be answered in a meaningful way once that analysis, now underway at NERC, is complete.

Question 4b—If similar events occur a year from now, do you anticipate having in place equipment and processes sufficient to prevent a re-occurrence of the August 14 blackout?

Answer to 4b. Ontario's intent is to incorporate lessons learned from this event, and to follow up on all recommendations designed to avoid a re-occurrence. But Ontario's actions, and those in our neighbouring jurisdictions, must be part of wider regional actions and solutions. It will not be sufficient if even a few entities fail to address the lessons learned. Actions must be taken by all interconnected jurisdictions.

Question 5—What lessons were learned as a result of the blackouts?

It is too early to know all the lessons learned at this time. Only by thoroughly studying the events of August 14th and getting to the root cause of the events will the lessons become apparent. We can, however, confirm the value of various plans and practices from Ontario's perspective:

1. We confirmed that the devices that are in place to protect equipment operated as planned.
2. We confirmed that maintaining a well-documented restoration plan, supported by training and rehearsals involving the IMO, market participants and government, was and will continue to be a key investment.
3. We confirmed that close cooperation amongst the IMO, and Ontario Transmitters, Generators, market participants and government is essential to achieving an orderly restoration.
4. The significance of communication protocols between different control areas and reliability coordinators became evident.
5. Maintaining a secure power system in a strongly interconnected network is difficult when there is imperfect knowledge about the extent of local disturbances that have the potential to spread regionally. The extreme speed at which events can cascade across the system increases the significance of timely information.

Question 6—How can similar incidents in the future be prevented?

While additional lessons will be identified as the event analysis proceeds, it is the submission of the IMO that the following principles should be adopted by the Committee, and acted on at the earliest possible date:

1. **Maintain and enhance the integration of systems and markets:** The interconnections with our neighbours have yielded substantial reliability and trading benefits for all parties over the years. These benefits are significant and must be preserved.
2. **Mandatory enforceable reliability standards should be put in place where they do not exist: Reliability standards for the interconnected North American grid should continue to be developed through the NERC international processes and the associated regional reliability councils but those standards should no longer be voluntary, they should be mandatory.**
 - A well-defined statute-based mandate should be established in the U.S. under which a responsible organization would have clear enforcement, compliance and sanctioning authority for reliability performance. This mandate should be compatible with the corresponding Ontario mandate with respect to Ontario entities.
 - Ontario already has in place a statute-based authority to support the development and enforcement of reliability standards. Under Ontario law, the IMO establishes reliability standards, and can and does enforce those standards. Ontario standards established and enforced by the IMO meet or exceed relevant NERC and NPCC guidelines and policies. The IMO has all necessary authorities to impose sanctions on asset owners for non-compliance.
 - The U.S. reliability standards language in the current U.S. House and Senate Bills allows for the creation of an international organization that properly reflects the multi-national nature of the grid.
3. **The industry should continue to pursue the three part strategy of prevention, containment and minimization of impact:**
 - prevention:** through good planning and operations, adequate investments and putting in place mandatory enforceable standards.
 - containment:** through monitoring capabilities, communication protocols, as well as equipment and processes that are set to limit the scale of disturbances.
 - minimization of impact:** through good restoration plans, practical training, education and communications.
4. **The industry should build on the strong institutional and regulatory foundations already in place: It is our view that the framework exists to provide for improvements and future prevention of similar incidents. The strong and long tradition of international cooperation has served North America well. The institutions, agreements, and organizations already in place, supplemented by well-defined authorities as necessary, are fully sufficient, in our view, to take the industry forward.**

This concludes my prepared remarks. I am prepared to answer questions at this time.

Mr. BARTON. Thank you, Mr. Goulding. We now want to hear from Mr. Gordon van Welie, who is the CEO of the New England Independent System Operator in Holyoke, Massachusetts. You are recognized for 5 minutes.

STATEMENT OF GORDON VAN WELIE

Mr. VAN WELIE. Thank you, Mr. Chairman and members of the committee. My name is Gordon van Welie, and I am president and CEO of ISO New England. Sitting directly behind me is Steve Whitley who is senior vice president and chief operating officer. Before making some policy recommendations, I would like to briefly cover in a summary fashion the events on August 14 from the perspective of our New England region.

As you know, there is an intensive effort ongoing by the Department of Energy aided by the North American Electric Reliability Council to determine exactly what happened on August 14. We are confident that the blackouts began outside of New England, and we know that our system reacted as intended to limit the spread of the disturbance into New England. Automated protective mechanisms in our system open the ties interconnecting our system with New York and separated most of New England from the disturbance to the West. Power was lost in limited areas near the border with New York and most notably in southwest Connecticut where the transmission system is outdated and the State of Connecticut just recently approved a transmission upgrade. Our operators acted quickly to balance the isolated system, preventing further disturbance and began effective procedures to restore power where it was lost. They did an outstanding job.

Moving on to the policy recommendations, it may be too early to propose detailed solutions, but based on our experience in New England as one of the most mature electricity markets in the country, I would like to offer four policy recommendations. Firstly, there must be a single entity with clear operational responsibility for a regional area of control. ISO New England fulfills this role in New England, we do so through one control area. Creating a Regional Transmission Organization in New England will further define our responsibilities and our authorities. We believe that size and operation responsibilities and authority are important considerations for Regional Transmission Organizations.

It is difficult to determine what exactly the right size is; there is no science to this. However, we believe this is a balance and a tradeoff between regional vantage point and having a sufficient depth in one's system to deal with a wide range of contingencies, for instance, not making it too complex for human operators to be able to control. As we have seen under emergency conditions, computer systems fail, and in the end we have to rely on human operators to make decisions in a matter of seconds. In addition to science, clear operational responsibilities and authorities must be defined. Lack of clearly defined operational responsibilities between an RTO and participating transmission entities can lead to confusion and hesitancy of action, and those are dangerous situations in an emergency situation.

Other speakers have emphasized the point that reliability standards must become mandatory. Ms. Betsy Moler in a previous panel

had also mentioned that market rules need to be looked at as well, and I would like to second that. Particularly, there is a dependency, particularly in the area of the way one schedules transactions, and I think in looking at reliability standards and ensuring that RTOs operate in a standardized way in the scheduling of those transactions is a very important point as well.

The third policy recommendation I would like to make is that we need to have new transmission infrastructure, but we can't do so on an ad hoc basis. It must be done pursuant to systematic and thorough planning process such as one used in New England and in a number of system operators elsewhere in the country.

The final point that I would like to make is that a balance must be struck between the interest of States to site transmission facilities and the importance of such facilities in the reliable operation of the regional electric system. A State should have the first opportunity to act upon application for siting approval. However, in instances of serious transmission constraint or congestion, appropriate Federal authorities should be empowered to issue permits for new transmission facilities if the public interest requires such a facility to relieve constraints and a State has failed to take action in a reasonable amount of time. And those are my comments. Thank you.

[The prepared statement of Gordon van Welie follows:]

PREPARED STATEMENT OF GORDON VAN WELIE, ISO NEW ENGLAND INC.

INTRODUCTION AND BACKGROUND

Good Morning, Mr. Chairman and Members of the Committee. My name is Gordon van Welie, and I am the President and Chief Executive Officer of ISO New England Inc., the independent system operator of the bulk power grid that serves the six New England states. I am accompanied today by Stephen G. Whitley, ISO New England's Senior Vice President and Chief Operating Officer.

By way of background, I joined ISO New England in 2000 after serving as Vice President and General Manager of the Power Systems Control Division of Siemens Power Transmission & Distribution LLC, where I worked closely with electric utilities on control systems involving generation and power supply reliability. An electrical engineer with a graduate business degree, I have twenty years of experience in the electric power industry in both the United States and South Africa.

Steve Whitley has been in charge of ISO New England's operations since 2000. He was previously with the Tennessee Valley Authority ("TVA") for thirty years, starting as an electrical engineer and progressing through a variety of positions which gave him responsibility for control area operations, power supply, economic dispatch, system protection, transmission security and services, and dispatching for TVA's six-state service territory. He was also in charge of the planning, design, and construction of the TVA transmission system. He is currently Chairman of the Electric Power Research Institute Grid Operations, Planning and Markets Working Group. Steve is available for comment today regarding operational matters, including the effect of the blackouts in our region and ISO New England's response thereto.

ISO NEW ENGLAND'S ROLE AS INDEPENDENT SYSTEM OPERATOR

ISO New England, an independent, non-profit corporation, is responsible for the reliable daily operation of New England's bulk electric generation and transmission system, which supplies approximately 14 million people. The system has an installed capacity of more than 31,000 megawatts. There are more than 350 generators and plants and over 8,000 miles of high voltage transmission lines in our region, and we have 12 interconnections with neighboring systems in New York and Canada. ISO New England's mission also includes fair and efficient operation of the region's \$4.5 billion wholesale electricity marketplace, and it has been tasked by the Federal Energy Regulatory Commission ("FERC") since 2000 to assess and plan for the regional system's short-term and long term reliability needs.

ROLES AND RESPONSIBILITIES IN THE ELECTRIC POWER SYSTEM

Before addressing the Committee's specific questions, comment on today's restructured electric industry might be helpful. Different entities handle different functions in today's restructured electric industry. In New England, which constitutes one of the most mature and advanced electricity markets in the country, there are generators, transmission and distribution companies, marketers and the independent system operator. Generation is increasingly provided by unregulated entities who compete to sell their power into the marketplace, hoping to achieve satisfactory returns on their unregulated investments in generating plants. Transmission and distribution companies distribute electricity to customers on a regulated basis, using their own transmission and distribution lines, including protective devices which are designed to protect equipment in the event of power system disturbances and keep disturbances from spreading. These utilities earn an allowed return from rates which are a blend of transmission rates set by FERC and distribution rates established by state regulators. Marketers buy and sell generation to transmission and distribution companies.

An independent system operator, sometimes operating through satellite control centers with differing degrees of authority and autonomy, administers the bulk transmission grid and dispatches power from generators onto the grid in accordance with system demands and reliability criteria. With several different players having replaced yesterday's vertically integrated utility, the need for clear delineations of responsibility and authority today is an increasingly pressing matter.

THE NEW ENGLAND POWER SYSTEM

Much of the bulk power system in New England was constructed on sound engineering principles in the late 1960's, and while it was constructed to accommodate future growth, the demand for power and the demands placed on it by competitive markets have outstripped the system's design.

The market structure we administer in New England has been successful in attracting approximately 10,000 megawatts of new generation to the region since 1999, representing almost a third of the system load in peak season, and we believe the new standard market design we have just recently implemented provides more accurate market signals to incent the location of generation nearer to load centers. The market signals provided by the standard market design also more accurately value the availability of generation supply, such that in times of scarcity, wholesale market prices rise, which in turn creates an incentive for the building of new generation capacity. New generating plants sited in New England over the past five years have significantly increased regional generating capacity, but these plants have typically been built in less populous areas far removed from areas that are in the most need of generation. While this suggests the need for added transmission capability to get surplus power to customers, the increased investment in generation has not been matched by investments to upgrade the transmission grid. Our major problem in New England, and we are typical of many areas in the country, is therefore in delivering the power from generators to customers. Surplus generating capacity is not helpful if transmission cannot take it where it is most needed, nor can the economic benefits of a competitive market for electricity be fully realized if surplus generation cannot be accessed due to transmission constraints.

Our ongoing planning efforts, which result in an annual planning document known as the Regional Transmission Expansion Plan, have identified three particular areas where major transmission improvements are needed: Southwest Connecticut, Northwest Vermont and Greater Boston. Nearly a billion dollars in new transmission projects are underway or planned to meet the needs of these transmission-constrained areas.

Experience tells us that efforts to improve the transmission grid will run into problems. First, existing incentives for investment in new transmission may be inadequate in terms of return, certainty of recovery, and uncertainty of approval. Transmission investment must be made more attractive and process barriers must be reduced. Second, the regulatory approval process has become too long, too expensive and too uncertain. Potential transmission applicants need greater assurance that the approval process will be fair and efficient. Third, reliability has become politicized, and state regulatory bodies who must approve or deny applications for new transmission facilities and other equipment installations come under tremendous pressure in dealing with such applications. Politics should not be allowed to detrimentally affect reliable service.

THE TRANSMISSION SITING APPROVAL PROCESS

As the Committee has invited comment which might help to prevent future disruptions, and as we believe siting and regulatory approval processes are relevant to efforts to install new transmission infrastructure needed for system reliability, we would like to offer observations and suggestions based on recent and pending regulatory proceedings in our region.

A. The Siting Approval Process Needs More Efficiency

In July, Connecticut regulators approved a 22-mile transmission line crossing five towns, the first leg of a 345kV loop which will relieve system inadequacies in Southwest Connecticut, the most affected area in our region during the blackouts. Despite general acknowledgement of the need to improve electric service in Southwest Connecticut, the transmission application was not well received by towns and residents along the proposed route when Northeast Utilities began pre-application consultation activities with municipalities in July, 2001. The result, after formal filing of the application in

October, 2001, was grass roots pressure on the siting process, executive and legislative involvement in transmission siting issues, a one year legislative moratorium on the proceeding, a task force to review the siting of transmission facilities, and the passage of legislation which will add considerable time, expense and uncertainty to the transmission siting approval process in Connecticut. The line was ultimately approved in July, 2003—almost three years after it was filed. And this was after a hearing schedule which spanned several months, consideration of more than twenty proposals, and eventual consent by the applicant to use a less preferred underground cable technology for a considerable portion of the route.

An approval proceeding involving the second leg of the 345kV loop, a 52 mile line, lies ahead. The full 345kV loop serving Southwest Connecticut will not be completed until 2008 at the earliest. In the meantime, customers will continue to be exposed to the possibility of service disruption and higher prices.

There is clearly a need for a speedier, more efficient process for siting approval, especially as siting decisions in one state can affect the operation of the electric grid in several other states—as should be apparent from the events of August 14th. Since bulk transmission facilities operate in interstate commerce, it is appropriate to provide that if state regulators are unable to conclude siting proceedings within a certain amount of time, federal authorities should take over the process. States should certainly retain primacy in approving transmission siting, but we favor federal backstop authority when states cannot act in a timely manner.

B. Mandatory Reliability Standards Will Benefit Regulators by Depoliticizing Reliability

ISO New England contributed to the siting approval proceeding for the first leg of the 345kV loop in Connecticut by providing reliability studies comparing the ability of different proposals to meet the need for improved electric service in Southwest Connecticut. We used national reliability standards adopted by the North American Electric Reliability Council (“NERC”) and regional standards adopted by the Northeast Power Coordinating Council (“NPCC”). Opponents of the proposed transmission line included state officials and affected towns who claimed that our reliability studies were flawed because our test cases assumed, in their estimation, that too many generator or transmission line outages could occur at the same time, thus subjecting the various alternatives under study to too many contingencies and overstressing them to unrealistic extremes. Even when opposing experts conceded that it was appropriate to overstress the system for planning purposes, they asserted that transmission lines should not be designed to deal with the more severe multiple contingency scenarios envisioned by planners.

In effect, Connecticut siting regulators were being urged by governmental officials to approve a lower voltage transmission line than necessary to meet reliability standards. I mention this not as criticism of any particular party’s right to present its views, but as an indication of the need to adopt mandatory reliability standards in order to fortify state siting officials against localized pressures to do less than what is necessary to assure reliability. I applaud the Connecticut Siting Council for reaching an appropriate decision in the face of considerable opposition, but mandatory reliability standards would have made their decision easier and should facilitate decision-making in other areas of the country.

RESPONSES TO COMMITTEE QUESTIONS

Q. What exactly were the specific factors and series of events leading up and contributing to the blackouts of August 14?

As the blackouts began in other regions, it is difficult for me to speculate on the specific factors which contributed to them. I assume others are better able than I am to answer this question. As the Committee undoubtedly knows, the Department of Energy and the North American Electric Reliability Council (“NERC”) are engaged in an intensive fact-gathering exercise to determine what happened, and I will be interested in their conclusions.

Q. At what time did your company first become aware that the system was experiencing unscheduled, unplanned or uncontrollable power flows or other abnormal conditions and what steps did you take to address the problem? Were there any indications of system instability prior to that time?

ISO New England control room operators first became aware that the system was experiencing a disturbance at 4:10 pm (EDT). There had been no prior indications of problems on the New England system prior to that time.

Q. Which systems operated as designed and which systems failed?

In the recent disturbance which affected much of the Northeast, we were able to isolate most of the New England grid from the rest of the power system. The New England system was designed and maintained properly and worked as expected. Automatic protective relay devices on the transmission lines opened as intended, interrupted the transmission lines and opened the ties interconnecting our system with New York. This mechanical action separated most of New England from the disturbance to the west. While power was lost in limited areas, the rest of the system was rebalanced and saved from a system-wide collapse. Of the limited areas in our system which were affected, I would suggest that Southwest Connecticut was hardest hit because its transmission system is the weakest part of our New England system and it could not withstand the disturbance. The 115kV transmission lines serving Southwest Connecticut cannot carry as much load as the 345kV lines serving the rest of Connecticut. Thanks to extensive training in restoration and an annual system restoration procedure exercise, our operators were well prepared to bring back power. Our operators adhered to their training and used the tools available to them within clearly established lines of authority, and we were able to restore power to many customers in the limited areas in our system which were affected, mainly in Southwest Connecticut, within approximately 12 hours. I regret that any customer lost power, but I believe ISO New England did an outstanding job under the circumstances of August 14. The coordination within the Northeast Power Coordinating Council (“NPCC”) was excellent throughout the disturbance and system restoration.

Q. If events similar to those which happened on August 14, 2003 had happened a year ago, would the results have been the same? If similar events occur a year from now, do you anticipate having in place equipment and processes sufficient to prevent a recurrence of the August 14 blackout?

Answering from the perspective of New England, being at the eastern edge of the disturbance, I would have expected similar results in our region if a similar set of events had occurred elsewhere a year ago. The protective relays in our system were audited by NPCC approximately a year ago and were in good condition, so I assume they would have worked. However, Southwest Connecticut’s dependence on a 115kV transmission system would probably have made it similarly vulnerable. We have been deeply concerned over the last few years that Southwest Connecticut could experience significant outages because it is a major load center served by a very constrained transmission system. We simply cannot provide reliable service to a 3,500 megawatt load center with a 115kV transmission system.

Until 2008, five full years from now, when installation of the full 345kV transmission line will hopefully be completed in Southwest Connecticut, we will continue to be concerned that this area could experience significant outages. As load continues to grow, it is my belief that events similar to those which occurred on August 14 could have similar effects in our region: most of the system would separate from adjacent systems, but Southwest Connecticut would remain challenged by its weak transmission system. Southwest Connecticut’s growing demand for electricity has outpaced ISO New England’s ability to assure reliable service to the people who live and work there. We have also identified Northwest Vermont and Greater Boston as areas of concern.

I strongly support the regular maintenance program within New England and administered by NPCC to assure that all protective equipment is properly installed and in proper working order, and I advocate the continued thorough review and standardization of operating procedures and training so that both operators and equipment will be prepared to respond in the event of a recurrence a year from now. As noted, 345kV lines in certain areas of concern will not yet be in place next year but will eventually help in the event of a recurrence. Please see my comments below

in response to the Committee's question regarding prevention of similar incidents in the future.

Q. What lessons were learned as a result of the blackouts?

ISO New England and the rest of the electric power industry in the Northeast are attempting to reconstruct exactly what happened, and the Department of Energy and NERC are working together to determine the causes of the blackout. We are still very much engaged in a learning exercise, and it may be appropriate to revisit this question after all the facts are established. In the meantime, we should probably all look closely at the way we operate our systems, the territory they cover, the decision-making structure and lines of authority, and applicable operating procedures and reliability standards.

The operators at ISO New England know what the security limits are on the transmission system—thermal, voltage and stability. This knowledge is derived from both “on-line” and “off-line” software tools which are run periodically, in order to determine the security limits of the power system under a variety of operating conditions. The operators are trained to proactively operate within those limits in real time operation. They take immediate action when loading exceeds those limits, even if this means curtailing demand in a local area. I believe this operating posture was key to New England's ability to minimize the August 14 disruption and stay balanced following separation from the rest of the eastern power grid.

Q. How can similar incidents in the future be prevented?

The short answer is to increase the reliability of the electric system and to operate the system in a secure and analyzed state. We have several thoughts about how this objective should be accomplished. Upgrading infrastructure is an obvious priority, but the answer goes beyond that. We know that there are limits to public acceptance of transmission facilities and other infrastructure necessary for a reliable and uninterrupted supply of electricity. It is not realistic to expect reliability enhancements without infrastructure upgrades or improvement without investment, but aside from infrastructure issues we have a duty to maximize our ability to operate whatever system we have as reliably and cost effectively as we can. To this end, I would like to offer four policy recommendations which I believe will greatly improve the reliability of the bulk power grid.

POLICY RECOMMENDATIONS

1. There must be a single entity with clear operational responsibilities and authorities for the bulk power system in a region. ISO New England operating as a single control area fulfills this need for New England. Our area in New England is a manageable size, enabling us to operate with only four satellite control centers, without the need to yield operating autonomy to them. They provide information to the operators in our main control center, and the operating decisions are made by ISO New England. Creating a Regional Transmission Organization in New England will further define our operational responsibilities and authorities.

In other areas of the country, size and operational responsibilities and authorities become very important considerations in creating and defining Regional Transmission Organizations. While it is difficult to describe what the “right” size of a regional area of control should be, size is nonetheless a very important consideration in creating Regional Transmission Organizations. A regional area of control must be large enough to track regional flows and have sufficient operational flexibility to be able to deal with a reasonably wide range of contingencies. However, as we have recently experienced, in an extreme emergency, operational control will rest on the shoulders of one or more human operators and, therefore, the area to be controlled cannot be too large. The accuracy of software tools supplied to operators are dependent on complex mathematical models, which in turn rely on accurate data being transmitted from the field. In emergency situations, these data sources can be compromised, thus further increasing the dependency on human interaction. In summary, there is a trade-off between size (in terms of regional “vantage point”) and complexity, and achieving a reasonable balance between the two is paramount.

In addition to size, clear operational responsibilities and authorities must be well defined. There must be documented a clear split of responsibilities between the Regional Transmission Organization and the transmission entities (including satellite control centers or control areas). Lack of clearly defined operational responsibilities between the Regional Transmission Organization and the participating transmission entities can be a major potential source of operational risk, particularly under emergency conditions. Cascading outages occur, as you have seen, in a matter of moments. There is no time for questions of overlapping responsibility, confusion of roles, or hesitant action. If you have only seconds to prevent voltage collapse and cascading, decisions regarding the redispatch of generation, reconfiguration and bal-

ancing of the system, and curtailment of transactions and firm load cannot be scattered among the system operator, satellite control centers, utilities and independent transmission companies. The control of the transmission system must be consolidated in one Reliability Authority which would not delegate its duties to underlying authorities and thus could be held clearly accountable for system operation. For this reason, we believe that reliability would be enhanced through proper implementation of the Regional Transmission Organization concept. The RTO, as an independent transmission provider, would have clear operational control and authority over the transmission grid in its region. The separation between planning for system reliability and implementing system reliability measures would be significantly narrowed, if not eliminated.

2. Reliability standards must become mandatory and operating procedures must be standardized. Adequate reliability standards do exist today, but to ensure regional reliability they must have teeth. Reliability standards must become enforceable, with penalties, to assure that appropriate, modern equipment will be in place, that it will be properly maintained by trained personnel, and that there will be enough personnel to operate and maintain the system in accordance with reliability standards.

Clear standards for transmission operation are also necessary, with standardized grid management rules and operational procedures, including adequate security limits, so that operators in every region will be better positioned to coordinate actions with their counterparts elsewhere in response to critical events. Right now we have procedural seams between our regions, and standardized operating rules would help eliminate them. I would be glad to volunteer the procedures utilized by ISO New England as a detailed and well-proven model. A core principle embodied in these procedures is to operate the power system in a secure and analyzed state. To supplement the concept of seamless operating procedures, I would also suggest an overview system whereby the status of the entire grid, including actual voltages, power flows and scheduled transactions could be monitored at the NERC and provided to each RTO Reliability Coordinator in real time.

Referring again to the incredible speed with which voltage collapse can cascade into widespread outages, the first line of defense protecting one system from a disturbance in an adjoining system is mechanical. Mandatory reliability standards will encourage Reliability Coordinators and control areas to assure the readiness of their security analysis and alarm systems at all times. Mandatory standards will promote proper maintenance to assure that such important equipment as protective relay devices will always respond to transmission trouble and interrupt faulted lines before they cascade into other systems.

If automated protective mechanisms fail to contain a system collapse, the second line of defense against cascading outages is human, and the likelihood of appropriate human response will be greatly increased by standardized operating procedures. Control room operators must take immediate action to get and keep the system within safe operating limits. This will prevent cascading blackouts. They must be empowered to immediately adjust any or all generating and transmission resources. They must also be empowered to immediately take load off the system. Operators must have a reflexive mastery of these procedures and must follow them in times of crisis with confidence in the knowledge that their counterparts in adjacent systems are following the same procedures.

3. We must have new infrastructure, which means that we must provide new incentives for transmission owners to build new infrastructure. Right now the task of gaining approval for new transmission infrastructure is discouragingly costly, uncertain and time-consuming, with no assurance of regulatory approval and cost recovery, and clearly, the financial incentives for undertaking the task may not currently match the risks involved. Ways must be found to reduce process disincentives and assure appropriate investment incentives, including tax credits, to make transmission investments more attractive and to assure recovery of investment and an adequate return. Finally, it must be clearly understood that there will be significant costs for improving the reliability of the electric system, and that the costs will have to be paid by someone, most probably the customer who will ultimately benefit from both increased reliability and access to competitively priced electricity in an expanded marketplace. It is important to note that transmission infrastructure cannot, and should not, occur on an ad-hoc basis. It should occur pursuant to a deliberate evaluation of the overall adequacy of the bulk power system in a region, taking into account inter-regional dependencies. This can only be achieved with a systematic planning process, such as that currently employed by ISO New England and a number of other system operators. Such a planning process should also be mandatory, since it becomes the basis for exposing power system weaknesses on both a regional and national basis.

4. A balance must be struck between the interests of states to site transmission facilities and the importance of such facilities in the reliable operation of the regional electric system. A state should have the first opportunity to act upon any application for siting approval. However, in instances of serious transmission constraint or congestion, appropriate federal authorities should be empowered to issue permits for new transmission facilities if the public interest requires such a facility to relieve constraints and a state has failed within a reasonable time to act upon a permit application or has unreasonably conditioned approval of the project.

Thank you for your consideration.

Mr. BARTON. Thank you, sir. We now want to hear from Mr. Phil Harris, who is the president of the PJM Interconnection, which, as I understand it, is an RTO, and it has been approved by the FERC; is that correct?

STATEMENT OF PHILLIP G. HARRIS

Mr. HARRIS. That is correct, Mr. Chairman.

Mr. BARTON. Okay. Your statement is in the record, and you are recognized for 5 minutes.

Mr. HARRIS. Thank you, Mr. Chairman. I think, first of all, it is important to talk about what we are talking about with the Eastern Interconnection. It is a single 600,000 megawatt interconnected motor. The things travel at the speed of light. There are 3,300 different companies involved in the generation, transmission and distribution of power in the Eastern Interconnection, two countries, 38 States and 129 control areas. And if you do the combinations and permutations of the math about who has ideas to do what, you can begin to see it is an insurmountable problem. That means you have to have coherence, you need cohesion, and you need direction to operate this single synchronized motor in the most optimum way for the best public good.

PJM is the largest control area in North America. It is 78,000 megawatts. We currently have other systems that we are working with to join PJM: American Electric Power, Commonwealth Edison, Dayton, Duquesne and Dominion Resources. We are moving ahead, we have been operating competitive markets for a little over 6 years now, and the reliability has improved within the system, and the markets work and are stable.

On the particular day of August 14, we were going along with business as usual. What is business as usual? Every 10 seconds we were looking at 16,000 bits of information coming in from the system. This information will change. Any time there is a status change it will change immediately. Every minute we were looking at 2,000 different possible contingencies that could be happening to the system. Every 30 seconds we had a tool called the state estimator that was looking at the state of the system to make sure the data was valid and being communicated appropriately. In minutes, we were looking at the transfer limits of the flows that were coming into and out of the PJM system. Every 2 seconds we were looking at regulation of the generation that was coming in and leaving. Every 10 seconds we were looking at the economic signals that we were sending out to the generators to work in a competitive market, and every 5 minutes we were looking at the security-constrained dispatch to make sure that the dispatch that was set up at that point in time could withstand the contingency on the system. As we went into the day, we had noticed some anomalies hap-

pening early on in the Midwestern part of the system, and we were in communication to the areas and the control areas out in that area about what was happening. This is normal course of business because things do break in this electrical mechanical system. It is designed to be able to withstand default and then to be able to go on.

At exactly 4:10:48, as experienced with other systems, everything basically went south on us. We then took—the automatic actions took place to isolate the problem, and most of PJM was isolated from the system. We then took immediate action to analyze the condition of the system, because the next thing is the triage to ensure that your system is stable and would be able to withstand the next single fault that could possibly occur. We initiated a mobilization plan where we called for all generation to come online, we called for manning of the substations, manning of the combustion turbines. We began the preparation to support system restoration and provide all the support to the areas that were affected as soon as practicable.

I will add, Mr. Chairman, that we do analyze twice a year and do complete restoration studies and analysis, and I do think from a professional point of view it is quite outstanding that New York was able to restore in a little less than 30 years. It was a tremendous engineering feat, management feat, and the fact that they did it safely with large public support is something that should not go unnoticed.

Looking at these events, the things happened and worked within PJM, our market continued to work and function appropriately. We do think that in looking at the lessons learned, yes, you need reliability rules and they need to be mandatory. You operate a system that operates at the speed of light. It is impossible to be ahead of it so you have to operate always planning for the worst thing to happen, and you are only as strong as the weakest link, so everybody has to do their part to make sure they can withstand that worst possible event.

The other thing I would like to talk about is the importance of regional planning. It was touched on oftentimes in the earlier panel. PJM was blessed in the fact that our States insisted in 1995 that before we began competitive markets we set up regional planning protocols. Because we have regional planning protocols, we have participant funding, we have generation being built, we have over \$700 million of transmission being built, we have the capability to optimize that for the public good. So if it is a distributed generated, that could be the optimum choice, if it is economic demand side, that could be the optimum choice. It is an allocation of a resource, and regional planning that is transparent and done by an independent entity gives you the wherewithal to allow the public and those with a vested interest to optimize the right choice for investment, whether it is transmission generation, distributed generation or demand side. Thank you, Mr. Chairman.

[The prepared statement of Phillip G. Harris follows:]

PREPARED STATEMENT OF PHILLIP G. HARRIS, PRESIDENT AND CEO, PJM
INTERCONNECTION, L.L.C.

Mr. Chairman and Members of the Committee: The events of August 14, 2003 represent as much a crisis in confidence in this industry as it does a failure of the

electric power grid. As one who has worked in this industry my whole life, I am vitally concerned that we restore the public's confidence by establishing a clear road map to move this industry forward. Of course, time needs to be taken to ensure careful analysis and the development of solutions which can be tested and retested prior to full scale implementation. And although thoughtful reflection is needed, we simply cannot allow the events of August 14 (as significant as they were) to paralyze us from moving forward.

None of us can repeal the laws of physics which ultimately control the behavior of this speed-of-light product. As a result, policymakers need to drive rational public policy, market development and infrastructure investment which free this industry from mountains of red tape, constant political and legal battles over individual proposals and never-ending regulatory proceedings over Regional Transmission Organization ("RTO") formation. These solutions also need to meet the interstate and international nature of this speed of light product. As a result, although I will spend part of my testimony addressing the specific questions you raised concerning the August 14 event, I want to lead with what I think is the far more pressing issue: How do we address the critical crossroads we find ourselves in today? How does Congress, as our nation's policymaker, moves this industry forward through clear and coherent policies and institutions? How do we avoid the pitfall of unclear or internally contradictory policies slowing industry growth and discouraging need investment?

To answer these questions, we can look at real facts and analyze the positive as well as negative experiences faced by this industry. The "bottom line" is that certain models of deregulation and restructuring of the industry have worked and have developed real value for the customer. It has been proven that restructuring and deregulation can work to provide real benefit to customers in the form of stable prices, increased generator efficiency and new demand side options for consumers. Although not necessarily the answer to the events of August 14, market rules and procedures can work to limit the adverse impacts of transmission or generation outages triggering larger events. And as a result of our transparent and independent regional planning process, the PJM system was designed to withstand and did withstand, for the most part, an outage of this magnitude. So as we move the industry forward, we must not throw out the baby with the bathwater or tie the hands of the regulator to move forward based on the positive experiences that have occurred during this otherwise troubled time.

Much of the mid-Atlantic region's ability in real time to withstand the disturbance of August 14 was the result, not of human intervention, but of hardware working as it should—hardware that was designed to protect each of our systems from outside faults, voltage drops and other system disturbances that threaten system stability. But in the longer run, a transparent planning process undertaken by an independent entity such as a regional transmission organization with a "big picture" look at the entire grid, can ensure that the appropriate hardware is in place and that reliability is maintained proactively and at prudent cost to the consumer. And important market tools such as ordering redispatch of generation between neighboring systems, something which PJM and the Midwest ISO have put forward as a reliability solution in the Midwest, and which PJM and the New York ISO are piloting between their systems, can help alleviate the adverse impacts of curtailments of individual transactions. Only independent entities such as RTOs can undertake these solutions in a manner which will not be seen by the marketplace as favoring one provider over another or sacrificing one entity's "native load" at the expense of another's "native load".

Just as Abraham Lincoln stated that "a house divided cannot stand", neither can an industry continue to rely on unchanged 20th century institutions and tools to police the new 21st century world surrounding this speed of light product. Today we find ourselves teetering somewhere in between a traditional and restructured environment. This is a highly unsustainable state and cannot help to either improve reliability or attract needed capital for investment. Let me give an example.

The Energy Policy Act of 2003 provides for incentives for the construction of vitally needed new transmission. Such investment is extremely important and Congress should be applauded for taking this bold step. However, in the same breath, there is discussion of adding provisions which would limit or suspend FERC's ability, through rulemakings, to create the very institutions needed to independently and in an unbiased manner, plan the right location for this new investment. Absent a rational planning process undertaken by an independent entity such as an RTO, one that balances the need for generation, transmission and demand side solutions simultaneously, we risk building transmission in the wrong place and appropriating private property for investments that don't necessarily solve (and in some cases create new problems) for the regional grid. In short, if we are not careful, without the proper tools in place, we run the risk of creating tomorrow's stranded investment

and simply throwing ratepayer money at the problem. By contrast, regional planning processes undertaken in an unbiased public process, allows the marketplace to obtain the needed information to effectuate the wise choice between transmission, generation and demand side solutions to meet our reliability and economic needs. The states in the mid-Atlantic were extremely wise during PJM's formation—they insisted that before any markets are started that the RTO have in place a regional planning protocol. They correctly noted that as we are talking of using a power, which only the government can grant, to appropriate private property, we ought to ensure that we are exercising this powerful government authority both wisely and judiciously. An unbiased regional planning protocol can do just that.

For all these reasons, we recommend that Congress undertake the following steps:

- i. Provide FERC with the authority it needs to ensure that regional organizations can flourish to plan and manage the grid in a coordinated manner;
- ii. Do not discourage or strip FERC's authority to move forward in those regions of the country that wish to move forward with the development of competitive markets;
- iii. Ensure that the laudable goal of protecting native load does not work to repeal the anti-discriminatory provisions of the Federal Power Act or to otherwise balkanize the grid. A clear statement from Congress that native load should be protected but flexibility in how that native load is protected would ensure this proper balance;
- iv. Whether federal or state siting is preferred, encourage regional planning processes undertaken by independent RTOs with state and stakeholder input before the power of eminent domain is exercised to appropriate private property to build transmission.
- v. Reliability standards should be made mandatory, with their development and enforcement overseen by a public body. Deference should be provided to regional solutions that improve reliability for the region and for neighboring systems.

With this overview in mind, I will proceed to address the questions in your correspondence of August 22:

1. What exactly were the specific factors and series of events leading up and contributing to the blackouts of August 14?

2. At what time did your company first become aware that the system was experiencing unscheduled, unplanned or uncontrollable power flows or other abnormal conditions and what steps did you take to address the problem? Were there any indications of system instability prior to that time?

3. Which systems operated as designed and which systems failed?

Answer. As noted above, the location, character and proximate cause of the initial disruption in the transmission and supply of electricity is the subject of an ongoing NERC/DOE investigation and PJM defers to that investigation. As a result, PJM will limit its response to actions it took on its own system both prior to and during the August 14 outage.

As to its own system, PJM first became aware of a disturbance on the Eastern Interconnection at about 4:10 pm on August 14th. Prior to that time, August 14th could be characterized as a typical unexceptional summer day in the PJM control area, with a typical number of lines out of service, and relatively few scheduled or unscheduled outages. At noon on August 14th, NERC initiated a routine time frequency correction across the Eastern Interconnection in accordance with NERC operating policies, because the time frequency had exceeded its margin for error. PJM was properly following the NERC standard process, but it is mentioned in this context because it accounts for a frequency fluctuation in PJM data at the time the correction was implemented.

PJM became aware of significant impacts on its system from an external disturbance at approximately 4:10pm. At the time of the disturbance, PJM recordings of telemetered load and frequency revealed an initial loss of more load than generation on the PJM system. Subsequently system operators reduced generation output in order to bring the system back into balance. PJM experienced a loss of load of approximately 4,500 MW of its total load of approximately 61,200 MW at the time of the disturbance. About 4,100 MW of PJM's lost load manifested in northeastern New Jersey, while an additional 400 MW of load was lost in northwestern Pennsylvania near Erie.

The disturbances noted by PJM at approximately 4:10pm resulted in some individual units going off-line in PJM and in transmission lines opening. The cascading effect of the outage caused PJM to lose approximately seven percent of its load, but automatic relay devices deployed throughout PJM in accordance with our design and planning criteria isolated most of the PJM footprint from the power loss. Automatic relay devices effectively isolated most of PJM from Ohio and New York, which

were subjected to prolonged outages. By 4:12pm., most of the tripping of generating stations and transmission lines within PJM had subsided. Thereafter, PJM system operators worked to rebalance generation and load within the PJM system by reducing system frequency to a normal range. In addition, PJM system operators initiated procedures for more conservative operation of the system, to assure that system restoration could proceed more effectively. The disturbance itself played out over the course of mere seconds—with no real-time human intervention possible—but system operators played a vital role in system restoration.

In summary, the system worked as it was designed—through the automatic operation of relays PJM was able to isolate problems which effectively separated it from the outage and “kept the lights on” for the overwhelming majority of its customers. Through swift operator action, PJM was able to stabilize its system and also provide critical support to the restoration efforts in Northern New Jersey and Northwestern Pennsylvania, as well as the neighboring systems in the New York, and Ohio.

4. If events similar to those that occurred on August 14, 2003 had happened a year ago, would the results have been the same? If similar events occur a year from now, do you anticipate having to place equipment and processes sufficient to prevent a reoccurrence of the August 14 blackout?

Answer. Prior to the August 14 outage, PJM and its Midwest counterpart, the Midwest ISO had just reached agreement on an historic Joint Operating Agreement and Reliability Plan that, if implemented, would bring a new level of coordination and data sharing that would clearly have avoided some of the communication and coordination problems that arose in the context of the August 14 outage. The Joint Operating Agreement and Reliability Plan provides for an unprecedented level of coordination and data sharing among neighboring systems in the Midwest. The Joint Operating Agreement detailed monitoring measures and specific actions that each of the large RTOs would take to clear congestion or reliability problems on the other’s system. at key designated flowgates. It would provide for actions that presently do not occur systematically in the Midwest including:

- day-ahead and real-time monitoring of each RTO’s system;
- detailed data exchange between the two RTOs;
- emergency operations protocols;
- joint planning protocols; and
- mandatory redispatch of each other’s generation in order to relieve congestion on the other’s system.

This Agreement, coupled with the fact that there would be just two entities, both with planning responsibility and a large regional look as opposed to multiple control areas with a more limited view of neighboring systems, would provide for an increased level of reliability in the Midwest and would reduce the coordination and communication issues that exacerbated the problems which occurred on August 14th. The Joint Operating Agreement and associated reliability plan were undergoing stakeholder review at the time of the August 14th outage. Subsequent to that time, both PJM and the Midwest ISO have committed to reviewing the document in light of lessons learned from the August 14th outage and providing appropriate enhancements. PJM looks forward to review and comment by the respective stakeholders and state commissions in the area.

That being said, PJM believes that should the Joint Operating Agreement and Reliability plan be allowed to move forward it would provide a model that has been sorely lacking in this nation relative to coordination and communication between two large regional entities each charged with the responsibility of ensuring reliability of the regional transmission grid.

5. What lessons were learned as a result of the blackouts?

6. How can similar incidents in the future be prevented?

Answer. As the DOE investigation to the causes of the blackout is first beginning, it is too soon to detail with specificity all of the “lessons learned” from the August 14 event. That being said, there are some overarching lessons of August 14 which played out dramatically in how different entities reacted:

We cannot continue to use 20th century solutions to solve 21st century problems—In the last century, reliability was ensured through a series of loosely described emergency support agreements among neighboring utilities. No regional planning process existed and each individual utility was charged with maintaining and planning for the reliability of its individual portion of the grid. Although regional reliability councils exist to coordinated regional efforts, such entities were neither independent of the market participants nor empowered to require solutions and order penalties. It is clear that these loose agreements and institutions of the last century will not work in the future. Rather, we need Congress to:

- i. encourage the development of regional transmission organizations and not strip or suspend FERC authority to undertake necessary generic rulemakings;
- ii. tie any transmission investments to the use of regional planning processes undertaken with the states and interested stakeholders to ensure that whatever transmission is incented is the “right” transmission located at the key location needed to ensure maximum benefit to reliability and economics of grid operation;
- iii. encourage and require native load protection but not tolerate discriminatory conduct favoring one’s own market position in the name of protecting one’s “native load”; and
- iv. finally, Congress should make reliability standards mandatory but avoid codifying statutory deference to standard-setting and enforcement in some regions but not others. Deference should be provided to regional solutions, arrived at in open stakeholder processes and with state concurrence, in all parts of the country while any national organization review is limited to ensuring that solutions arrived at on less than an interconnection-wide basis, promote reliability in the larger region. The negotiation of the Joint Operating Agreement and reliability plan between PJM and the Midwest ISO, which will soon be submitted for NERC review, is an example of the process working at its best with NERC focusing on whether the plan enhances reliability between regions while avoiding the commercial infighting among member companies.

For grid operators themselves, it is clear that we have to ensure that our relay hardware is appropriately sized, maintained and programmed to protect systems in the event of cascading outages. RTOs need to be more vigilant in defining their role vis-à-vis the local transmission owner who still owns and maintains this critical equipment. Agreements such as the MISO/PJM Joint Operating Agreement should be a mandatory “baseline” of coordination between RTOs and should provide appropriate and reciprocal support of adjacent systems both between market areas and where market areas abut non-market areas. And most of all, we need to move this industry forward with flexible policies that are designed to meet and restore the public’s confidence in this critical industry so important to our nation’s secure future.

I thank you for this opportunity to testify and look forward to your questions.

Mr. BARTON. Thank you, Mr. Harris. The Chair is going to recognize himself for the first 5 minutes, and we don’t have too many more members come, we may be able to do two rounds of questions. It is very complicated for the average congressman and certainly for the average citizen to understand what an RTO is and an ISO is. I could ask one question to explain the differences and that would take my 5 minutes, so I am not going to go down that trail, but I am going to ask Mr. Harris, who represents an RTO that has been approved by the FERC, and Mr. Torgerson, who represents an ISO who I think, I understand, is in the process of being created, if you all both have the same authority to operate your system. Do you have the authority that Mr. Harris or his designee has, you or your designee, in your system, in the Midwest ISO?

Mr. TORGERSON. Mr. Chairman, the Midwest ISO is also an RTO as determined by FERC. Now, our authority is different today in that we act as a security coordinator for our entities. We do not run the energy markets yet. We will be next March, which means there are certain aspects of being an RTO that we are not fulfilling yet today.

Mr. BARTON. Now, my understanding is, and I do not claim to be an expert on this, Mr. Harris or his operating designee can order dispatch, can order load shifting, has what is called a tight operating system, and I am told that the Midwest ISO does not have that. In other words, you basically kind of take what comes and try to make the best of it, but he can actually manage preventively. Now, if I am wrong, explain how I am wrong.

Mr. TORGERSON. Mr. Chairman, I think that is pretty close. We do not operate the transmission lines or the generation, whereas Mr. Harris runs that control area and operates the generation.

Mr. BARTON. Now, if your ISO had the authority that Mr. Harris' RTO has, would that have made a difference on August 14?

Mr. TORGERSON. I think Betsy Moler gave probably the right answer to that. We don't know all the things that happened. I believe that once we have the market and we have all those other authorities, I think it would certainly help.

Mr. BARTON. You think it would—does anybody disagree with that? In the pending energy bill that the House passed, that is pending with the Senate, do we need to strengthen the RTO provisions? And under the current House bill, we encourage the creation of RTOs but we don't mandate it, we do have mandatory reliability standards. Should the legislation that is pending with the Senate should we go in and strengthen the provisions for RTO creation? Mr. Harris?

Mr. HARRIS. Yes, Mr. Chairman. I just think it is time for common sense to prevail. You have 33 different companies, 38 States and two countries involved. Common sense says that you are dealing with a speed of light product. It is a giant ecological system; one thing affects everything else. Common sense would say you need large regional entities that can look at all these vast volumes of data, coordinate between themselves in order to handle this speed of light real-time product. It can work and it just seems it makes common sense that you need some institution. Now, whether you call it an RTO or what, I don't know, but you need large regional coordination—

Mr. BARTON. Is that a yes?

Mr. HARRIS. Yes, sir.

Mr. BARTON. I hate to be that blunt about it. Mr. van Welie.

Mr. VAN WELIE. Yes. I would like to jump in and just say something with respect to your question, and that is this is particularly important when one makes the decision to go to wholesale markets. So in many ways we are going to stuck halfway between the old world of vertically integrated utilities and the new world where we started seeing disaggregated entities operating in a wholesale market. A wholesale market places very different demands on the transmission system, and if one's intention is to go in that direction, which I think this is the way we ought to head, I think we ought to mandate that RTOs be set up.

Mr. BARTON. Okay. Mr. Museler.

Mr. MUSELER. Mr. Chairman, I believe that the FERC, NPOR and the subsequent White Paper outlines an RTO that—RTO requirements that are correct and that are strong enough. I think if RTOs are not mandated, my opinion is we will probably get to the same place eventually but it will take much longer, and potentially things like August 14 may happen in the interim.

Mr. BARTON. Okay. Mr. Torgerson, FirstEnergy is a participant of your ISO; is that correct?

Mr. TORGERSON. They are not yet a member of the Midwest ISO. They are planning to be a member in about November. We took over security coordination for them this last February. So they are not a member.

Mr. BARTON. On the day that the incident—the outages occurred, August 14, I am told that they were operating their own system and were not part of an ISO. They were independently operating their system; is that correct?

Mr. TORGERSON. That is correct.

Mr. BARTON. Had they been part of your ISO, would that have made a difference?

Mr. TORGERSON. It is hard to say it would have made a significant difference, because we still would have been relying on them as the control area operator to do their function, and we would have done our function as security coordinator. We probably would have had a little more visibility for them, so it may have helped.

Mr. BARTON. Okay. My time has expired. The Chair would recognize the senior gentleman from Michigan, Mr. Dingell.

Mr. DINGELL. Mr. Chairman, I thank you for your courtesy. I have been looking here, just to carry forward on what the chairman's been inquiring of, I note that apparently FirstEnergy is not a part of the system but that one of their subsidiaries or transmission subsidiaries is; is that right?

Mr. TORGERSON. That is correct, sir. It is the American Transmission System, Incorporated and their subsidiary is the one that would be joining the Midwest ISO in the future. They are a non-transmission owning member today.

Mr. DINGELL. What is the practical impact of that?

Mr. TORGERSON. The practical impact is they haven't joined the—they just haven't joined the RTO or the ISO at this point. We monitor their—we are acting as their security coordinator through a contract with ECAR today.

Mr. DINGELL. Is that as efficient as having them be a member and full participant?

Mr. TORGERSON. No, it is not.

Mr. DINGELL. It is not. And if you were to correct it, what would be the practical result?

Mr. TORGERSON. They intend to join. We would prefer they—we would want them to join as soon as possible and become a member, and then we can do all the functions that we are supposed to do.

Mr. DINGELL. All right. Now, I have some questions that will follow along on the line of what we were asking earlier. Mr. Museler, you were—on the 14th, were any part of your service area or your constituent groups adversely affected by the shutdown?

Mr. MUSELER. Yes, sir. We lost approximately 80 percent of our load and the entire eastern and southeastern portion of our transmission system, including all the load in New York City.

Mr. DINGELL. Now, you were hurt badly or your constituent service areas were very seriously hurt; is that right, Mr.—

Mr. MUSELER. Yes, that is correct.

Mr. DINGELL. And, Mr. Torgerson, same thing with you?

Mr. TORGERSON. Our areas would have been Michigan with the Detroit consumers and then—

Mr. DINGELL. And, of course, Mr. Goulding, I gather that Ontario got it quite bad.

Mr. GOULDING. Yes. Not quite the whole of the province was shut down in fact but part of the northwest held together with Manitoba and Minnesota, and there were a couple of pockets that held to-

gether with New York but predominantly generation and little demand in them.

Mr. DINGELL. Mr. van Welie, your area and your consumers were badly hit also, were they not?

Mr. VAN WELIE. Actually, in comparison to some of our neighbors, we were actually relatively fortunate. We lost about 2,400 megawatts of load down in southwest Connecticut, which is a little—

Mr. DINGELL. How about your area, Mr. Harris?

Mr. HARRIS. Our area was largely in tact. We lost a little bit in Newark, New Jersey, which is next to New York City, got caught up in that, and we lost a—

Mr. DINGELL. Now, how is that you were able to separate yourself whereas others were not?

Mr. HARRIS. I don't know as far as the others were not, but our system operated as designed. It was to isolate itself from the problem which it detected.

Mr. DINGELL. Did you receive notice from anybody that the shutdown was coming your way?

Mr. HARRIS. No. At 4:10:48 when everything happened, the automatic relays and the protective equipment, which we train, drill and rehearse on, actually worked and did as it was expected to do.

Mr. DINGELL. Now, gentlemen, with the rest of our witnesses, would you tell us, gentlemen, whether you received notice from any party, from FirstEnergy or anybody else, that there were aberrations either in the frequency or aberrations in the voltage levels or other circumstances which would cause the shutdown of the system?

Mr. GOULDING. Absolutely no.

Mr. DINGELL. Do you want to start, Mr. Goulding?

Mr. GOULDING. Absolutely not.

Mr. DINGELL. I am sorry?

Mr. GOULDING. No.

Mr. DINGELL. No. How about you, Mr. van Welie?

Mr. VAN WELIE. Also, not. We were only aware of the disturbance around 4:09.

Mr. DINGELL. Mr. Torgerson, did you receive any?

Mr. TORGERSON. No. We were in conversation with FirstEnergy regarding the lines that tripped out but not of an event that was going to occur?

Mr. DINGELL. Did you find any aberrations or anything like that within the service areas that are under your jurisdiction?

Mr. TORGERSON. We saw a couple lines that had tripped. Those were the aberrations we saw.

Mr. DINGELL. Did you see any curiosity in the frequencies or any curiosities in the voltage levels?

Mr. TORGERSON. Not till later, like at the 4:10 point.

Mr. DINGELL. At the 4:10. Mr. Museler, what did you find?

Mr. MUSELER. No notice and no communication, sir.

Mr. DINGELL. Would you each tell us, please quickly, whether you found any violations of the voluntary rules which you lay in place for the behavior of the energy deliverers within your area, starting with you, if you please, Mr. Museler?

Mr. MUSELER. No, sir. And we are still obviously providing information to the International Commission, but thus far we have found no violations of any of the reliability rules in New York.

Mr. DINGELL. How about you, Mr. Torgerson?

Mr. TORGERSON. No, we haven't seen any. We are also waiting for the results of the study.

Mr. DINGELL. Mr. Goulding?

Mr. GOULDING. Nothing at all.

Mr. DINGELL. Mr. van Welie?

Mr. VAN WELIE. No, sir, not.

Mr. DINGELL. Mr. Harris?

Mr. HARRIS. No, sir; we have not.

Mr. DINGELL. Mr. Chairman, I note that I am 16 seconds over. I would ask unanimous consent that I be permitted to ask just one more question, if you please? Gentlemen, this is directed particularly at Mr. Torgerson, what energy generators or transmission deliverers within your area are not full participants in your program? I gather FirstEnergy is not.

Mr. TORGERSON. FirstEnergy is not.

Mr. DINGELL. Who else?

Mr. TORGERSON. Northern Indiana Public Service Company is not yet. Ameren, which is in St. Louis, is not yet. There are a number that are further in the upper Midwest, Northwestern part of the country that are not. Those would be the big ones. Then there are Dayton Power & Light, AEP and ComEd have all indicated they are going to be in PJM, which is adjacent to us.

Mr. DINGELL. Same question to you, Mr. Museler.

Mr. MUSELER. Sir, all of the transmission and generation entities in New York are members of the New York ISO.

Mr. DINGELL. That is because you have certain mandatory powers under State law; is that right?

Mr. MUSELER. The New York ISO was set up administratively under the Public Service Commission, and in order to form the ISO, it was a requirement that all of the entities within the State participate, including the public entities, the State entities and the municipal and cooperative power systems.

Mr. DINGELL. Mr. Goulding, what do you want to tell us about people within your service area—within the service area under your jurisdiction?

Mr. GOULDING. In order to be connected to the IMO control grid in Ontario, each participant needs a license from the regulatory, the Ontario Energy Board, and in that license it is mandatory that they adhere to all of the market rules within Ontario, so they are all members.

Mr. DINGELL. Mr. van Welie?

Mr. VAN WELIE. Similar situation. When our State regulators and the FERC decided to set up the ISO back in 1996, there was a requirement that market participants sign an agreement and operational control of facilities are directly controlled from the ISO.

Mr. DINGELL. Mr. Harris?

Mr. HARRIS. We are currently in the process of Commonwealth Edison, American Electric Power, Dayton Power & Light, Duquesne and Dominion Resources joining the existing PJM area.

Mr. DINGELL. Gentlemen, thank you. Mr. Chairman, I thank you for your courtesy.

Mr. BASS [presiding]. Thank you very much, Mr. Dingell. The Chair recognizes himself for 5 minutes. My first question for, I would say, Mr. van Welie, Mr. Torgerson and Mr. Harris is the issue of size of an RTO. Are there—and by the way, I asked this question of the last panel and I can't remember who it was who responded but the answer essentially was there is no limit to—or issues with limits to sizes of RTOs because of the technology involved. I don't want to paraphrase an answer, but I am wondering what your perspectives are on the issue of size of an RTO. Start with Mr. Harris.

Mr. HARRIS. We have seen through our analysis when you look at the technology that is required that you certainly have the technology to handle very large systems. I mean we are in an age of information technology and you can do that.

Mr. BASS. You can do that.

Mr. HARRIS. Yes, sir. The limits seem to be more social and political along the regional boundaries, the way people have historically operated and so forth. You do have increased sophistication. We put about \$5 million extra a year into operator training. We have tripled the size of the operators. We are into advanced technologies, artificial intelligence. You have much more sophistication that is necessary to handle the size. But with that it certainly is doable and the efficiencies are there. What that optimum is, it could be a big swing, but you certainly can handle larger areas within the 600,000 megawatt Eastern Interconnection.

Mr. BASS. Mr. van Welie?

Mr. VAN WELIE. I listened carefully to your question and the answer in the previous panel, and I think the—perhaps it was a little misconstrued. I think the transmission system itself can be made as large as one likes, and from an operator perspective, the more highly interconnected it is the better, at least from a delivery point of view. I guess my opinion would be that there is a tradeoff in terms of operating that transmission system in terms of size. So the bigger one makes it, and there are advantages to scope and size, the more one increases complexity, as Mr. Harris has said. And as one increases complexity, of course one becomes more dependent on automated tools. At some point, there is a point when the advantages of the size and the scope outweigh the disadvantages of risk and complexity.

Mr. BASS. Mr. Torgerson?

Mr. TORGERSON. I think, as Mr. Harris said, the technology is there today to accomplish an RTO of significant size, and you can do it safely. How you operate the system you may have to have—we have 23 control—actually, 35 control areas we work in; 23 are members. That probably needs to come down to a much more smaller number, but you still can do it with the size of a rather large—

Mr. BASS. Do all of you support mandatory reliability standards? Is there anybody here who does not? Everybody supports mandatory reliability standards. Are there specific benefits that accrue to being an RTO versus an ISO. Mr. van Welie, anybody else have any comments on that? Specific benefits to that status.

Mr. VAN WELIE. I would say at the moment, although there are these two members at this table who have the RTO designation and have different functional responsibilities, but I would say, in general, not at the moment. So if you look at ISO New England, for example, we have very similar functional responsibilities to PJM and to New York. So there is no real functional distinction at this point in time. I think FERC has actually indicated that in the White Paper. I guess the issue for me will be more what does the future hold? Is there some distinction in the future?

Mr. BASS. Does anybody else have any comment on that? Okay. One last question: Mr. Museler, your ISO lost 80 percent of its power, you said, or something like that, and Mr. van Welie, you lost 20 percent. In a layperson's terms, what has happened in New England that was different in New York?

Mr. MUSELER. Mr. Chairman, I think the detailed answer to that will come out of the International Commission, but maybe one way to look at it in very, very broad terms, not electrical engineering terms. Betsy Moler was asked why her system was not affected or affected very little in terms of the Chicago area was not affected by this, and her answer, I think, was accurate in that she said, "Well, we were far removed from the problem and the closer the power surges, because of the lines that tripped, flowed through PJM, through New York and through Ontario." And if you think of it as a river that is necking down, the speed or the velocity of the water in the wide part of the river is fairly low. When it gets down to the neck of the funnel, it tends to be very, very high velocity and turbulent. That is a hydraulic analogy not an electrical engineering analogy, but the bottom line is that the power surges were concentrated in New York and Ontario and we were isolated from the rest of the Eastern Interconnection.

Now, Mr. Harris correctly points out that his system isolated itself from some of the high flows going through. That left New York and Ontario to be the final conduit of these power surges, so that is not a very elegant description, but it does basically says that New York and Ontario were in the direct path of the flow and then we lost the support of the rest of the Eastern Interconnection. The detailed analysis will tell us whether or not our systems performed the way they should have performed under those circumstances, but this was well beyond anything that our system was designed to survive, and I think the same goes for—

Mr. DINGELL. Mr. Chairman, would you yield and I would ask unanimous consent you have 2 additional minutes.

Mr. BASS. Thank you. Without objection, Mr. Dingell.

Mr. DINGELL. I think maybe Mr. Harris can—no, no, not Mr. Harris but Mr. Torgerson and Mr. Museler but also Mr. Goulding can give us some assistance on this. What happened with regard to those who weren't shut down with the shutoff was that either they got warning or their automatic system worked or they were far enough away that somebody else between them and the trouble shutdown. Isn't that what transpired? Wasn't that why Betsy Moler's company didn't wind up getting shut down, they had somebody between them and the trouble.

Mr. HARRIS. Well, that is close, Congressman. Basically, because it is a speed-of-light system, the design criteria is that you operate

for what the worst thing that can happen to you is. And so your protective equipment looks at the system to say if there is a problem on one side, I need to isolate myself to protect my equipment, and that is how you operate the system, you are always looking for what can go wrong. And so each system, large area, designs their relays and their protective equipment to be able to—and in the PJM area, again, one is the size, we are 78,000 megawatts, it is a single coordinated area, so all the relays are coordinated, everything is working together to make sure our area can isolate itself from the problem. So when the problem happened instantaneously, then these automatic devices begin to operate and they separate us from where the problem areas were.

Mr. DINGELL. Thank you, Mr. Chairman, you were gracious.

Mr. BASS. The Chair recognizes the gentleman from Michigan, Mr. Stupak.

Mr. STUPAK. Thank you. Thank you, Mr. Chairman. Mr. Torgerson, I am looking at your testimony on the bottom of page 1 and going up on page 2. Earlier on, I asked a question from FirstEnergy about their power flow up into Michigan through ITC. I was asking them about who would be in control, who would be responsible for the communications. They seemed to point to you as the regional coordinator for them. Would that be a fair statement?

Mr. TORGERSON. We are the security coordinator for FirstEnergy through a contract with ECAR.

Mr. STUPAK. Okay. And on top of the second page it says, “We perform this coordination function for the companies that have transferred functional control of their transmission systems to us,” and then it goes on and says we do it through a contract. By “we do it,” it being, again, the coordination function for FirstEnergy?

Mr. TORGERSON. Yes, that is correct.

Mr. STUPAK. And then it goes on to say, and you testify in the third page, first paragraph, it says, “During the course of the hour preceding the cascading event, after the loss of a large generating unit in northern Ohio had already occurred, several transmission line outages also occurred in the Ohio area. During this period, the Midwest ISO operator was in contact with neighboring reliability coordinator at PJM as well as control operators within our territory. At this point in time, the issues did not seem to implicate a regional problem and then things began to change basically a minute later at 4:09 and 4:10.” How were you in contact with people, just through telephone or—

Mr. TORGERSON. Primarily telephone, yes.

Mr. STUPAK. Would these other coordinators, the reliability coordinator at PJM and your control operators be seeing the same data you would be seeing?

Mr. TORGERSON. Some of them would. It depends how much of the system you were looking at at the time. I can't say that PJM would be looking at all of the same data we would be, just like we don't necessarily see all of the data that FirstEnergy or our control area would see. We monitor key facilities, and those key facilities are ones they tell us that should be monitored.

Mr. STUPAK. So from FirstEnergy, you only get the information they give you?

Mr. TORGERSON. No. We get the information but then they tell us which ones are important to monitor, which ones are important to put alarms on and to flag.

Mr. STUPAK. But as a safety coordinator or security coordinator, wouldn't you really make those determinations?

Mr. TORGERSON. We work with them on determining what they are ahead of time. It is not done at the last minute. We do it ahead of time before they even become part of the system.

Mr. STUPAK. If you are working with, and I am sure you were, the reliability coordinator at PJM and control operators, no one anticipated this cascading event even after you knew all these lines were down and things like this?

Mr. TORGERSON. Not at that point. We were looking at it working with FirstEnergy, as we work with other utilities and control areas in our area when the same circumstances happen. When a line would go out, we would work with them, determine what the cause was and then work with them to figure out what the resolution would be, whether you implement a TLR or do something else. So at that point, we were working with FirstEnergy.

Mr. STUPAK. Is this a normal occurrence in August to have a large generating unit out, several transmission line outages? Is that normal?

Mr. TORGERSON. I can't say it is really normal every day but it does happen.

Mr. BARTON. Will the gentleman just suspend? What is a TLR?

Mr. TORGERSON. I am sorry. Transmission line loading relief mechanism that is used by those who don't have markets to unload the system when you have a constraint and you want to back down for an overloaded situation.

Mr. STUPAK. Part of FirstEnergy's system is under PJM, right, the eastern part of their system?

Mr. TORGERSON. Yes.

Mr. STUPAK. And they didn't have any trouble on that eastern part?

Mr. TORGERSON. Not to my knowledge.

Mr. STUPAK. Would Mr. Harris—

Mr. HARRIS. We had about 400 megawatts in the Northeast, a small portion in the Erie area that went black.

Mr. STUPAK. Why was the eastern part different from the western part, let us say, or the part that is with the MISO?

Mr. HARRIS. I think, potentially, because this is the part that was purchased general public utilities, and so in the general public utilities area we had the data and information real-time, as I was articulating earlier in my comments, that we were monitoring real-time throughout the system. So we had control of the critical points and we were watching it.

Mr. STUPAK. You know, I did hear your comments about every 2 seconds and 5 seconds, you are looking at all this. Is that the norm throughout an ISO in the Nation?

Mr. HARRIS. Well, certainly, I think for New England and New York when you operate in the large markets, you run these tools, you have to have thousands of bits of data that you are looking at, you bring it in so you can maintain the control and also manage the markets appropriately.

Mr. GOULDING. I should mention that we also have similar types of tools in Ontario.

Mr. STUPAK. Okay. Mr. Torgerson, do they have more monitoring capabilities than the MISO did?

Mr. TORGERSON. Today, we do it on a 30-second interval. We will be going to the quicker interval once we have the market in place.

Mr. STUPAK. If you had the quicker interval, would that have helped prevent some of these problems?

Mr. TORGERSON. I think we would have to wait and see the analysis to determine that, but, as I said before, I think going to the market where we are then doing the dispatch I think could help.

Mr. BARTON [presiding]. The gentleman's time has expired.

Mr. STUPAK. Just if I may, the reason why I am asking these questions is that you are all saying and giving us great suggestions what we should do in the future, but we are stuck with this system here for a while, and our concern is how do we prevent it. If there are some things we can do simply before we go to major policy changes, we would like to do that. Thank you, Mr. Chairman.

Mr. BARTON. The gentleman from Arizona is recognized for 5 minutes.

Mr. SHADEGG. Thank you, Mr. Chairman. Mr. Museler, I want to ask this question directly of you, and then maybe I will let the others comment on it. Have you had a chance to review the statement submitted by Governor Pataki?

Mr. MUSELER. No, sir, I have not.

Mr. SHADEGG. Okay. At pages 5 and 6 of that statement and going on over to page 7, he explains that one of the things that was done in the course of this is that the New York Power Authority and its counterpart in Ontario appealed to the officials at Niagara Falls to divert more water through the turbines and that by doing so, since they were able to turn those on instantaneously, in his testimony he says roughly 1 million homes did not lose power, and because Niagara Falls' hydroelectric generating capability was able to pick up that load, it made it possible for other plants to come back online more quickly than they would have otherwise and shortened the duration of the entire outage. Would that be consistent with your understanding of what happened?

Mr. MUSELER. Generally, yes, sir. Those generating units stayed online so they did provide the power source, one of the major power sources to restore the system. We also did appeal on the New York Power Authority and its counterpart in Ontario, also worked with the appropriate authorities to increase the amount of capacity we could get out of those units. There are what are called water restrictions that are used to both control the flow over Niagara Falls as well as to optimize the use of that energy, and there are some contractual international contracts that govern that. What that allowed us to do is to get more generation out of those units than would have happened otherwise, and that clearly was very helpful in terms of restoring power quicker in New York.

Mr. SHADEGG. His statement makes it clear that as a matter of fact so much additional water was diverted through those hydroplants for that brief period of time that the tour boat, the Maid of the Mist, was not able to go up the river as far as it normally would and get underneath the falls as it might otherwise be-

cause they were able to divert more water through the turbines and less water was going over the falls. Given that, there is language in the energy bill which we have sent over to the Senate which does two things: It allows for the addition of—for an economic incentive for the addition of new generating equipment to dams which do not have generating capacity currently, and it also provides an economic incentive for installing more efficient turbines in dams where we already have turbines there but they are older generation, less efficient turbines. Would it be your testimony, and I guess I will ask any of the others on the panel, that that kind of incentive for making sure that where we have dams but not have any turbine at all and the dam is susceptible to the installation of turbines to generate power, or where we have dams that have older turbines that are not efficient in them we could, because of the instantaneous nature of hydropower, benefit in a circumstance such as this outage?

Mr. MUSELER. I think the short answer to your question, Congressman, is yes, and particularly with additionally, which is basically a renewable resource it has some environmental benefits. The only caveat I would add is that obviously there are, particularly in dams that have no current hydrounits in them, there are environmental considerations which I am sure would be dealt with in the process.

Mr. SHADEGG. Obviously, all of this would have to be done in light of environmental restrictions that do apply and flow restrictions and other concerns, but it seems to me if we have the ability and we are already releasing water, it can be an advantage, and this outage apparently proves that. Yes, sir, Mr. Harris?

Mr. HARRIS. Thank you, Congressman. I think that that is important as to one element, but we can't away from the fact that the electrical grid is a giant ecological system. As we saw in the black-out, one thing affects everything else, and so in order to determine what is the right solution to the electrical grid, it may be a demand response or distributed generated or more transmission. You really need large regional planning protocols so that you can look at all the data, and certainly you should have this as a wherewithal that this is the right solution, it is the one that should be engaged. But there may be other solutions too, and the planning protocol is what needs to be in place to enable the appropriate solutions to the situation that we are facing.

Mr. SHADEGG. Mr. Goulding or Mr. Torgerson, did you have a comment to make?

Mr. GOULDING. Yes. I was just going to add to Mr. Museler's response. In terms of Niagara, first of all, clearly half of the Niagara water is used in Ontario, and our generating stations were still isolated and operating onto the New York system. And that additional water that was made available was very important to us as we used that anchor point, if you like, as one of the main paths to move out and restore supplies within our system. That was one of 3 or 4 places that we used as an anchor, so that was very important.

Mr. SHADEGG. Mr. Torgerson?

Mr. TORGERSON. I really don't have anything to add. I agree with what was said.

Mr. VAN WELIE. I would say, in general, hydro resources are an extremely valuable resource. They provide a lot of flexibility to the system operator. I wish we had more of them. But other than that, I don't have anything further.

Mr. SHADEGG. Thank you very much. I yield back the balance of my time, which is expired.

Mr. BARTON. The gentleman from Maine is recognized for 5 minutes.

Mr. ALLEN. Thank you, Mr. Chairman. Mr. Torgerson, I want to ask you some questions here and at least contrast with PJM, Mr. Harris. Forgive me if some of these have been asked before. But I understand, Mr. Torgerson, that the Midwest ISO does not have the, what you might call, exclusive and centralized control of the transmission grid in your region, at least as compared to the kind of control that PJM has over its grid in its region. Is that a fair statement?

Mr. TORGERSON. That is fair. We don't do the dispatch of generation yet at this point, which we intend to do in March.

Mr. ALLEN. Which you what?

Mr. TORGERSON. We will—the plan is to be able to do that in March.

Mr. ALLEN. Okay. Now, is that pursuant to existing contracts or negotiations? What I really want to know is when you have—what is the reason for the difference in authority that you have as compared to PJM, and to what extent have you sought the additional authority? To what extent have you been resisted by either the utility companies or the State PUCs? Can you talk about that a bit?

Mr. TORGERSON. Certainly. The way the Midwest ISO was started it was started voluntarily by utilities in the Midwest. Initially, they wanted to set us up with the, I guess I would call it, the minimum characteristics or minimum functions they could have and then get FERC to approve it, which is what they did. As we have moved through time, and we have only been operational since February of 2002, so as we have moved forward, FERC has said, "You need to have an imbalanced market, you need to have market-based congestion management." Our stakeholders then said in order to do things, the best way to do it is to implement a market which would have the economic dispatch of generation, the security constrained unit commitment, those aspects which these other people already have. And we are moving that direction. When we started up we didn't have it, so that is why you see different layers of control and authority between the Midwest ISO and the other entities.

Mr. ALLEN. And does the blackout give you some, I guess I would say, more determination to move ahead along those lines?

Mr. TORGERSON. It certainly gives me more. You asked were some people resistant to us taking on more and clearly there is that aspect of it. Some people would prefer to keep their own control, so we have seen that in some areas.

Mr. ALLEN. We see that in a lot of different areas. Do you think it makes sense for MISO to consider reorganization as an RTO?

Mr. TORGERSON. Well, we are determined to be an RTO by FERC.

Mr. ALLEN. Okay.

Mr. TORGERSON. And FERC has said also we need to add these other aspects.

Mr. ALLEN. The other aspects. Okay, fine. Let me also ask if you are going—standard market design, do those issues operate in any way to affect your desire to get more operating authority over the transmission grid? Is there anything about the standard market design issue? The administration has agreed to delay the FERC's SMD until 2007 or later, I am told, and I am just wondering whether you are then left in a situation where you may not have the authority—you may not have the power to get all you really need to make the MISO more effective? Is there any connection between those two things?

Mr. TORGERSON. I think what we have in front of FERC now, a filing to allow us to implement a market tariff, if that is approved, that will give us the authority we need outside of even the standard market design, because the standard market design looked at the entire country or Eastern Interconnect. For our region, I think it will work fine, and then we have to work with other RTOs, for example, we are working on a joint operating agreement with Mr. Harris' company, we are going to have similar agreements with others, so that we can coordinate between those that are designated as RTOs.

Mr. ALLEN. Okay. Good. Thank you very much. I yield back.

Mr. BARTON. Thank the gentleman from Maine. The gentleman from Illinois wish to ask questions?

Mr. SHIMKUS. Yes, sir.

Mr. BARTON. The gentleman is recognized for 5 minutes.

Mr. SHIMKUS. Seniority there. Sorry. Thank you. Thank you all for coming.

Mr. BARTON. Actually, it is order of appearance at the first of the day, that is what it was.

Mr. SHIMKUS. Yesterday when we started these hearings?

Mr. BARTON. Today.

Mr. SHIMKUS. Oh, okay. So I still beat you I think again. They are crying. Thank you and I know it has been a long day, but I have been on this subcommittee, this is the full committee, but the subcommittee now 7 years, and I think we are really getting close to having some exciting things happen, I think positive. Some would disagree but I thin positive. And so the transmission issue will, I think, help incentivize moving a national energy plan. Let me ask this, and Mr. Harris, since people are agreeing that the transmission grid has to be improved, updated, investment has to come, tell me that could investment in transmission pay for itself in terms of providing access to cheaper generation of resources?

Mr. HARRIS. Well, the answer is most certainly it can. I had been talking earlier about a regional plan. Well, we have been doing regional transmission planning for a little over 6 years. We have \$700 million of transmission that is being built. The interesting thing, about 60 percent of that is participant funding. Those that have caused are paying for it, and generation is being built. About another 30 percent of that is just upgrades, improving the substations equipment, not new lines. So there is a lot that can be ac-

complished just by having a way to look at the problem in a wholistic way.

Mr. SHIMKUS. Does anyone else want to mention that? Yes, sir?

Mr. MUSELER. Yes, Congressman. New York, unfortunately, is the poster child for transmission congestion. Literally, hundreds of millions of dollars in higher energy costs are paid by New York consumers because our system is pretty constrained. The Secretary of Energy's Energy Advisory Board transmission report pointed that out.

Mr. SHIMKUS. So if you expand the grid, you would hope to see lower pressure on your consumers.

Mr. MUSELER. That is correct, sir. Now, that has to be done in an integrated manner, as Mr. Harris pointed out earlier, but the feedback, we have done some studies and provided that information to the Public Service Commission and to our market participants that show for a number of representative projects paybacks of 5 to 10 to 1 in energy savings for the cost of the ongoing transmission. So there is no question that if done properly and in an coordinated planning process there are very large potential benefits for consumers.

Mr. SHIMKUS. Yes. Let me—and I know some people want to answer, but let me move to another question and you can probably roll this in. There was a big movement when we talked about energy a couple years ago for green power and people to have choice in the type of power produced. Would it be easier for people to make a choice to use green power if we expanded the transmission grid? Mr. van—

Mr. VAN WELIE. Van Welie.

Mr. SHIMKUS. [continuing] van Welie, sorry.

Mr. VAN WELIE. Let me just—I will answer that from a New England perspective. This is something that we have been grappling with in New England, transmission, first of all, to supply power to where there is an inadequate availability of power, for example, southwest Connecticut. The other thing you touched on is does it give one access to more efficient sources of power, and the answer there is yes as well. And I think the answer to your third question is also yes, which is to the extent that people want to locate green power sources and one has the transmission network to be able to distribute that in the region, it facilitates that.

Mr. SHIMKUS. Yes, sir.

Mr. TORGERSON. In our expansion plan, which just came out in June, we identified \$1.8 billion in programs that could be done, should be done for reliability. Also, we identified economic projects for transmission that could hook up wind power up in the Dakotas. People are looking at putting in 10,000 megawatts of wind power, which would be obviously a renewable resources there. There isn't the transmission system to carry it to the markets today. Also, in Kansas, they are looking at the same things with wind power. And, again, we would need more of a transmission system to get that energy to market.

Mr. SHIMKUS. You know, we have a coal generating facility here that powers DC. We could probably use wind generation facilities here. I know that has probably been said before, but there is a lot of wind that we circulate up here that maybe if we could connect

that up to the grid, we could be very, very, very successful. My time is running out. Go ahead, sir.

Mr. GOULDING. Yes. I was just going to say, similarly, Ontario, we have several thousand megawatts of green projects on the books, as it were, many of them located away from the grid, and we currently have a Conservation and Supply Task Force, which has been initiated a couple of months ago; I am a member of it. And one of the things we are looking at is the appropriate mix of generation facilities that one should have in the future, the appropriate mix along with conservation and demand programs and what is the necessary transmission in order to make those things happen.

Mr. SHIMKUS. So if you really want green power, you really should be proposing expansion of the grid.

Mr. GOULDING. I think green power is one of the things that is required in order to help drive some of the expansion of the grid.

Mr. SHIMKUS. My time is out. Thank you, Mr. Chairman.

Mr. BARTON. Gentleman from Massachusetts, Mr. Markey.

Mr. MARKEY. Thank you, Mr. Chairman. Mr. van Welie, in your testimony, you express concern over the vulnerability of south-eastern—southwestern, rather, Connecticut to future outages. If there were to be such future outages, what is the risk that Boston and eastern Massachusetts could be affected in some subsequent event?

Mr. VAN WELIE. The answer is really that it depends on the size of the outage, but if there is a substantial outage, it will have a ripple effect elsewhere within the system and can very well have a reliability impact on Boston.

Mr. MARKEY. And what is a substantial outage?

Mr. VAN WELIE. Well, if you were to lose several thousand megawatts in an area as vulnerable as southwest Connecticut, that would probably cause us a problem. And it also—let me just say that it also depends on where in the network the outage occurs.

Mr. MARKEY. So you have identified greater Boston as an area of concern.

Mr. VAN WELIE. Boston is an interesting case study because if you go back several years, it was very vulnerable. In the last several years, transmission upgrades have occurred and some new generating facilities have been located and have actually gone operational. So it is in a reasonable state at this point. Our projections looking forward, and we will be shortly releasing another version of our original expansion plan, is that Boston—if the load growth continues as we are projecting, it will become vulnerable again, and we will have to strengthen the infrastructure around the Boston area.

Mr. MARKEY. What is the point at which it does become vulnerable? What is the tripping point? How great does the load have to be on these wires?

Mr. VAN WELIE. Well, that is the function of this regional plan that we do. So we have a planning department that runs many different scenarios. They do a very detailed analysis and they essentially are doing a “what if” analysis and trying to predict under various circumstances what may occur. Those studies are the

things that lead us to identify vulnerabilities in the system and therefore to put forward plans to correct them.

Mr. MARKEY. So you are saying right now we are okay.

Mr. VAN WELIE. I would say at the moment Boston has come from a situation of being marginal and is certainly in a much stronger position it was several years ago.

Mr. MARKEY. When would the word, "marginal," have been used appropriately?

Mr. VAN WELIE. Well, what we use—

Mr. MARKEY. No. when was that? What year are we talking about?

Mr. VAN WELIE. I would say prior to that last 2 years, so there are some recent transmission upgrades and generating investment that has occurred within the last 2 years.

Mr. MARKEY. Okay. Now, when I look at the mismatch that seems to exist between the duties and responsibilities of MISO and PJM and the whole history of what happened with the alliance RTO proposal that FERC rejected from the Midwest, it seems to me that there may be a notion out there amongst some transmission owners that they can shop around for the best deal amongst RTOs regardless of whether that makes sense from the standpoint of regional grid reliability. Do you agree with that, Mr. van Welie, and if you do, how can this committee prevent companies from gaming the system to the detriment of the reliability of the overall system?

Mr. VAN WELIE. Well, my view as a system operator and as an engineer is that that is a bad thing. Basically, what it does is it creates non-contiguous areas in terms of control areas, and you end up with a swiss cheese arrangement that one has to operate. To me, what that does is it really increases the complexity of what the operator has to deal with, and you are therefore increasing the risk.

Mr. MARKEY. So should we prohibit that in legislation?

Mr. VAN WELIE. In my opinion, yes.

Mr. MARKEY. Okay. Thank you. Do you agree with the testimony submitted by Mr. Makovich that the—and by the way, thank you for sticking around all day, you will be up here sometime before supper—who is on the next panel that the Midwest network suffers a misalignment between organizations and the underlying extent of the regional network? And if so, what should we do to correct that situation, Mr. van Welie?

Mr. VAN WELIE. I am sorry, could you repeat the question?

Mr. MARKEY. What he said in his testimony was that the Midwest network suffers a misalignment between the organizations and the underlying extent of the regional network.

Mr. VAN WELIE. I can only assume, and so let me preface it with that, that what he is really referring to is the functional responsibilities that the Midwest ISO might have in the future versus the way the organization is structured and the operational control they have over those facilities. But further than that, I am hesitant to comment.

Mr. MARKEY. All right. I will pose the question.

Mr. BARTON. The gentleman's time has expired. The gentleman from Pennsylvania, Mr. Greenwood.

Mr. GREENWOOD. Thank you very much, Mr. Chairman. I would like to address a couple of questions to Mr. Torgerson. The information that I have is that on the day of the blackout, beginning as early as perhaps 1:30 in the afternoon, at the FirstEnergy service area, there were operators of plants who were calling into the SCC, the control center for FirstEnergy and indicating that things were going wrong, that there were very big fluctuations in the frequency or the power, that there were power plants that went offline at—I think one went offline at 1:30, one went off a little after 4. Meanwhile, MISO was also calling into the control center asking questions, reporting things, and the folks at the control center seemed unaware, based on looking at their computer screens, that these things were happening, which suggests strongly that there was something wrong with the computer system, that it was not picking up the information that it was designed to pick up from the system.

The question is, first off, if that is accurate or not accurate, I would like to know what you think about that. And, second, it seems to present a problem because when you have—it seems to me that there should be some sort of standard operating procedures so that when a control center for a utility is receiving information from different sources, its own operators in the field as well as MISO, whether they see it on their computer screens or not, they ought to be able to determine that the actual reports coming from elsewhere may be more reliable than what they are looking at on their computer screens. And then the secondary question is what does MISO—what options do you have when you are calling into the control center saying, “Are you aware of this, are you aware of that,” and the guys in the control center are saying, “No”? You don’t have, as I understand it—you have some responsibility but you don’t have any authority to start telling people to do things.

Mr. TORGERSON. Well, first off, on what we saw or what we heard, I mean we did find out at about 1:30 their East Lake plant one of their units went out. We did not know anything about the conversations between their plant and their control center. What we saw later, closer to the 4 hour, and if you saw the transcript—

Mr. GREENWOOD. Let me just interrupt you for a second.

Mr. TORGERSON. Yes.

Mr. GREENWOOD. When you saw that East Lake went out at 1:30, you reported it to the SCC, correct, or no?

Mr. TORGERSON. No, they advised us that—

Mr. GREENWOOD. Oh, they advised you. The SCC advised you.

Mr. TORGERSON. Right.

Mr. GREENWOOD. Okay.

Mr. TORGERSON. That it was out. But that was a little later in the day that they advised us. We know now that it went out at 1:30; we weren’t aware right at 1:30. Later—

Mr. GREENWOOD. So how much time elapsed between the time when they knew it was out and you knew it was out?

Mr. TORGERSON. About 40 minutes.

Mr. BARTON. Would the gentleman suspend?

Mr. GREENWOOD. Certainly.

Mr. BARTON. If the same thing had happened at PJM, wouldn't you have been notified immediately as opposed to 30 or 40 minutes later?

Mr. HARRIS. Yes, sir. As I was advising earlier, we run tools in the seconds. One of our tools is called a state estimator. We run it every 30 seconds on all the equipment that validates the data and those that stay with the system.

Mr. GREENWOOD. I am sorry. Finished, Mr. Chairman? Go ahead.

Mr. TORGERSON. Okay. Then we had conversations with FirstEnergy. We had one around half an hour before the event. We were asking them questions, because we were observing then a line that went out, they called us back a little while later and they still hadn't responded at that point. And that—

Mr. GREENWOOD. But were they essentially saying to you, "We are not getting this data from our own equipment here." Weren't there SCADAS not reporting data to them?

Mr. TORGERSON. We didn't know that at the time, and—

Mr. GREENWOOD. Do you know it now?

Mr. TORGERSON. At about 4 when we had that conversation with them was the first time it came to light that they were having problems with their data and information. And then as you look back, you can see what had transpired, but up and to that point, we didn't. And as I said, we monitor key facilities for them and it is not all of them right now. So, as Mr.—

Mr. GREENWOOD. What I am trying to get at is—to make a parallel—if I am an air traffic controller and I am looking at my screen and I am seeing one depiction of the world and, first off, pilots start calling in and saying, "By the way, we just had a close call here, we just had a close call there," and another entity was calling in and saying, "Do you know you have a problem here or you have a problem there," at some point, as an air traffic controller, I have to start to think maybe my screen is not giving me the right story here, and what does this—and how is the system designed to handle that?

Mr. TORGERSON. For the operator, if they are not seeing what people are telling them, it would at least tell someone that they ought to be looking elsewhere, looking to someone who can see things for them, calling the operations, finding out exactly what is going on and then—

Mr. GREENWOOD. Did that seem to happen in this case?

Mr. TORGERSON. That I really don't know. I think this will be all part of the investigation, but what FirstEnergy did and who they communicated with other than us, I mean I know the communications we had with them, I don't know what the communications they had back—

Mr. GREENWOOD. I mean the picture I get here is—

Mr. BARTON. If that is the gentleman's last comment.

Mr. GREENWOOD. Okay. The picture I get here is that the guys in the SCC were flying blind. Others from MISO and from the plants were telling them, "The system is collapsing around you," and they flew it blind right into the mountain. Is that an exaggeration?

Mr. TORGERSON. I don't know that I would go that far, but I think we were calling and trying to find out what was going on,

because we were seeing some things and we were trying to confirm it with them as to what was going on, and we weren't getting the confirmation immediately.

Mr. GREENWOOD. Thank you, Mr. Chairman.

Mr. BARTON. The gentleman wasn't here when I was asking questions but Mr. Torgerson's ISO has much less authority than Mr. Harris' RTO, and at least the chairman has the opinion that that is a possible cause of what happened. The gentleman from Pennsylvania, Mr. Doyle.

Mr. DOYLE. Thank you, Mr. Chairman. Well, reliability is certainly a hot topic right now, and I am just curious to get your opinions on which entity you think is better suited for managing and enforcing reliabilities, individual utilities or RTOs, and why? Maybe Mr. Harris can start.

Mr. HARRIS. Well, I think the answer is all of the above. As I mentioned, the Eastern Interconnection there is 3,300 different entities involved in the generation, transmission and distribution of power. I think from the overall perspective of the transmission grid, you have some entities that are regulated by the FERC, some that are not. You have some that are regulated by the States and not the FERC and some by the Department of Energy, I guess. So having some coherent body that is accountable to the Congress for the public policy aspects of reliability I think is important, and that is something that should be done.

As far as the actual practice of the reliability, there are things down to maintenance and practices, O&M standards that need to be done at the local level. When it comes to the real-time operation of the grid, then you need large regional entities that can deal with the speed-of-light product in an appropriate way to ensure that the grid is stable and reliable at any point in time. So I think all of those have to be effectuated.

Mr. DOYLE. Anyone else? Yes.

Mr. GOULDING. Yes. I firmly believe that RTOs are the appropriate organizations. If I can just quote my own particular instance in Canada. First of all, we are independent so we don't have any vested interest in the results in the marketplace, and I think that is an important point. The second one is that we can see a bigger picture than individual utilities can see and coordinate across a broader area. The third one is that in this particular context we can do the scheduling, dispatching, all the good things that Mr. Harris, Mr. Museler and Mr. van Welie can do on sort of an interconnected basis, and I think that is very important. And the fourth one, as I have mentioned earlier, is that having an RTO and particularly having it with some mandatory capability in terms of applying the standards, the processes and procedures, which we have, is a very effective way in ensuring that operations get carried out as appropriate and also in setting out the necessary standards for others to follow in terms of maintenance and operating technique. So I think, quite clearly, an RTO for me is a far more appropriate body.

Mr. DOYLE. Anybody else?

Mr. VAN WELIE. Yes. I will comment on that as well. I think I made an earlier statement that it really depends on where one is headed, and I think in, let me call it, the old world, the vertically

integrated utility world, even in that world, particularly in highly integrated networks type pools, type power pools, the utilities felt that it was a good thing to have somebody managing the system from a regional vantage point. Going forward, however, as one moves into wholesale power markets, you are putting a lot more stress on that integrated system, and I then think it becomes a requirement to have an organization such as this.

Mr. DOYLE. Thank you. Finally, just one more question. I have been a big proponent of distributed generation, and I just wonder if you think increasing utilization of distributed generation could help improve reliability, and would you all support including standard, interconnection standards as part of any energy bill we pass?

Mr. HARRIS. Absolutely. I was saying our regional planning protocol distributed generation has an equal shot to meet the electrical needs of the Mid-Atlantic region as well as a larger generator or transmission line. So you need regional planning protocols that allow them to play on an equal basis with any other solution, but it provides a depth and a resource that I think is definitely needed.

Mr. DOYLE. Yes?

Mr. TORGERSON. I would agree. I mean it is a way to make sure you have reliable power. You need to know about it, and you need to plan for it, though, too.

Mr. DOYLE. And you support standardizing the interconnection standards so that it is easier for DG to get on the grid?

Mr. TORGERSON. Yes.

Mr. VAN WELIE. I would also comment which is to say that the regional planning process that both I and Mr. Harris have mentioned is very important in terms of identifying needs of the marketplace so that the market can respond. And then given that need being identified, I think it makes a lot of sense to have standardized procedures for interconnection.

Mr. DOYLE. Great. Thank you, Mr. Chairman. I yield back.

Mr. BARTON. Thank the gentleman. The gentleman from Michigan, Mr. Rogers.

Mr. ROGERS. Thank you, Mr. Chairman. Mr. Torgerson, are you familiar with the third entry point in Michigan that was attempted a few years ago through Indiana? Do you have any knowledge on that effort?

Mr. TORGERSON. No, I do not.

Mr. ROGERS. Okay. We had testimony from a gentleman who was the CEO and president of ITC who said that loop flow problems, or at least designed into the grid, may cost Michigan consumers anywhere from \$40 million to \$50 million in uncompensated costs that get laid back on the consumer which end up paying that in their energy costs. Can you provide any insight for me on that?

Mr. TORGERSON. Well, I know loop flows a phenomenon to the system, I mean because the power flows along the path of least resistance, so there will be loop flows and they are there all the time. One of the reasons to set up RTOs was to manage the loop flows within the RTOs. That was part of it. The cost that it has to Michigan I am just not sure what it is. I mean I know Mr. Welch, and he and I have had conversations about this before. His concerns about not being compensated for it and mechanisms to allow that we have talked to him and worked with him on that in front of our

stakeholders, as a matter of fact, directly. So I am familiar with what he is talking about, I just didn't know the magnitude.

Mr. ROGERS. How do we fix it?

Mr. TORGERSON. I am not sure how to fix it, because you are talking about who—really, it is who pays? Which entity, if it is coming from somewhere else, you are asking someone else to pay for something they are not today. So that really becomes the issue is who pays for it.

Mr. ROGERS. Yes, sir?

Mr. MUSELER. I was going to say there are obviously reliability issues associated with loop flow as well, but just sticking, reinforcing what Jim said, essentially, the cost of the consumers in the area where the loop flow is having an impact is a free rider issue, and people are getting to use the transmission system—use someone else's transmission system and therefore are able to utilize their own system more, because they are getting a free ride on the other person's transmission system. And both the NOPR and the subsequent White Paper reinforces not just the authority but the obligation of the RTOs and the ISOs to resolve those loop flow issues, not just within our individual territories but between our territories.

Mr. ROGERS. And if I understand it—yes, sir; go ahead, please.

Mr. GOULDING. Yes. I just wanted to add a little bit. This has been an issue for many years, and at one point in time there was a lot of work done on what was erroneously called the general agreement on parallel paths, which was an attempt to identify that you should pay for the transmission that you use, not the transmission that you pretend to schedule your transaction over, because they never match. At the end of the day, what that showed, and what we still see today, are there are winners and losers by doing that, and so you never get an agreement. But at the end of the day, I think what is necessary really is if you can solve the financial problem to ensure that if you are going to be making use of other transmission, you actually pay for that transmission, I think that not only provides compensation to the correct parties, but I think that will also drive, quite frankly, more investment in transmission, because it will be less of an incentive for people to use other transmission paths. So I think that is a key element in terms of investment in transmission.

Mr. ROGERS. Is that a technology issue?

Mr. GOULDING. Doesn't have to be a technology issue, no. It can be simply that somebody doesn't want to build a transmission in a particular place because it is not going to get a lot of use or because they can carry out their transactions at this point in time without additional transmission on their own network. And that is what causes these loop flows.

Mr. ROGERS. Is leaning on the grid a contributor to loop flow?

Mr. GOULDING. Well, leaning on the grid is really something a little bit different. Leaning on the grid is generally meant to mean that somebody doesn't provide sufficient generation or purchase power within their own area in order to satisfy their demand in schedule. So they will be undergenerating, if you like, and pulling power in from others. That can often be done when power is there at a high price. The current rules of the game call that inadvertent

energy, and often what a party will try to do is pay that inadvertent energy back so they look honest over a period of time. But you pay it back in the middle of the night when the prices are low. So that is more of an issue of leaning on the grid.

Mr. ROGERS. Interesting. I yield back my time, Mr. Chairman.

Mr. BARTON. The gentleman from Oregon, Mr. Walden, is recognized for 5 minutes.

Mr. WALDEN. Thank you, Mr. Chairman. I just have a couple of questions, I guess. One is an issue that came up yesterday about rates of return needed to sustain the grid and to build it out for capacity. From your experience, what is that magic number? Is there one? How do you achieve it? We have heard numbers of 10, 12, 13 percent rate of return. What do you find?

Mr. TORGERSON. I think my experience is that if you are in the 12, 13 percent range, that is a very good return on equity today. I mean if you look at comparable markets, that seems to be okay. The issues become more of when are you going to get that rate of return, and when you are building transmission it is over a very long period of time before it can get started because of the siting and all the planning and right-of-ways, all the things you have to go through. So it could be 7, 10 years before you start getting your return and you have put the money out. That leads to a lot of the reluctance for people to expend a lot of dollars on transmission today.

Mr. WALDEN. How much of that is related to the siting delays?

Mr. TORGERSON. Siting is a big issue, big part of it. You will hear a number of the States, and we work with our States, we have an organization of MISO States who are trying to start working toward getting siting done on a more regionalized basis, so the States are—commissions are actually working together. But it can take one, two, 3 years for siting to occur. And then you have to go through the—usually, the siting happens pretty fast, but then you have the litigation afterwards.

Mr. WALDEN. Right, the appeals. Anyone else want to comment on this issue? Yes, sir?

Mr. MUSELER. Congressman, I think you heard from the previous panel that the rate of return, 10 percent, 12 percent, is not so much the issue as not only when they would actually see that rate of return but if they actually would see that rate of return at some point. The bundled rates where FERC may set the wholesale rates but the States have authority to set the bundled rate, which is what the utility really receives, is a major issue for them. The utilities in our area are very reluctant to propose projects because they really don't have any assurance that they will actually see the rate of return even if FERC grants it to them. Now, there are places where that has been overcome, but in our State it has not been.

Mr. WALDEN. Because I think it was Mr. Markey or someone yesterday talking about you have this guaranteed FERC rate of return of upwards of 12, 13 percent; isn't that adequate and all that? What you are saying is, yes, but that is what FERC will authorize, it is the States that set the actual—so it is sort of like we play here, we give you a big authorization and a small appropriation, and you can't spend an authorization. Is that what I am hearing?

Mr. MUSELER. Yes, sir, and the utility companies are the ones to really give you their opinion on that, but I think you heard that in the earlier panel.

Mr. WALDEN. Yes, sir?

Mr. GOULDING. Yes. I would just like to add that I think another factor is perhaps the design of the tariff, and I think that is extremely important. It is not just the rate of return on the investment or on equity but the tariff itself. If part of a tariff, for example, means that you get paid for the amount of usage of your transmission network, if you build another line, then the use of your existing network might go down. So there can be a bit of a hit there. So tariff design I think is also extremely important.

Mr. WALDEN. Well, I think that is an issue that concerns me as we move forward on developing RTOs is we do create artificial chokepoints that cause price spikes? Who oversees that? How do you keep from some sort of manipulation occurring in that process? Nobody wants to tackle that one. How do you do it now?

Mr. TORGERSON. We all have independent—well, we have an independent market monitor who looks at transactions that occur on the system and looks to see if anybody is manipulating it or—

Mr. WALDEN. But couldn't it be pretty soft manipulation in the sense that a decision as to where to build the grid or expand the grid for greater capacity so you end up with a congestion that drives up the cost?

Mr. TORGERSON. We do our planning process and we look and evaluated all of the projects that are going to happen, and we do then studies to see where it should be and will it create additional congestion, what the impacts are going to be? So we would at least have knowledge of that if someone is building transmission. And we would go through that in our planning analysis and our studies.

Mr. WALDEN. One final—oh, yes, Mr. Harris?

Mr. HARRIS. I just want to comment that in our area the States insisted we had to have a regional planning protocol that dealt with these issues, so everyone has a chance to look at that regional data. So the transmission construction that is being built the company is obligated to build and construct, and it is approved by an independent entity, so you don't get into that tangled sort of mess as to are you goldplating, is it being abused and so forth? We have got an independent entity approving the plant.

Mr. WALDEN. Thank you very much.

Mr. BARTON. The gentleman from Michigan is recognized for 5 minutes.

Mr. DINGELL. Gentlemen, I would like to get this answer on the record, but I have very limited time. Would you each tell me the respective authorities that your agency has with regard to reliability, reporting, disclosure, information that you might get with regard to impending problems, the power you have over siting, the ability to require that the facilities be run at certain speeds or certain ways? Indicate to us in each of the cases what powers you have to assure reliability of several members of your respective organizations. Would you do that for us for the record, please? Please. Not right now but just submit that to us. And would you now tell us what would be the power that a well run RTO would need to address the problems of reliability? And I guess I will ask

you, Mr. Goulding, because the Canadians seem to like government, over here we don't seem to, and I would like to hear what an intelligent race would have to tell us about how these things should be done.

Mr. GOULDING. So what specific question would you like me to respond to?

Mr. DINGELL. Well, what would be the powers that a well run RTO should have?

Mr. GOULDING. I think a well run RTO should, first of all, have access to all of the information that is required. I think a well run RTO should have the ability to both run a marketplace but to also recognize that reliability is paramount and to instruct changes in dispatch and schedules and the loading of lines in order to respect reliability within that marketplace. I think a well run organization should have the ability to carry out investigations, the ability to go and seek additional information in terms of whether the rules are being complied to or not. I think they should have, and I have already said we do have, the ability to enforce penalties, be they non-compliance letters, financial—

Mr. DINGELL. You have that authority.

Mr. GOULDING. I have that authority through statute, absolutely, and have applied it and have also found that having the stick is a better deterrent, quite frankly, that we haven't had any major issues, although we have penalized some people. And I think that is probably the key thing that is missing today from most authorities, the ability to have the big stick, to go in, to seek the information, to apply sanctions when necessary and to demand and order corrective plans and approve those corrective plans.

Mr. DINGELL. And to receive information when you need it in a timely fashion.

Mr. BARTON. Would the gentleman—

Mr. GOULDING. Receive information in a timely fashion, exactly.

Mr. BARTON. Would the gentleman yield on that, briefly?

Mr. DINGELL. Of course.

Mr. BARTON. When you say have that authority you mean in real time, not go to a governance board and file an appeal and 3 months later, but you have the authority in Canada if you see a utility or a plant doing something it is not supposed to do, you can correct it immediately.

Mr. GOULDING. We can correct it immediately, yes. In fact, most events that we will come across don't need to be corrected immediately but need further investigation. And there is a due process and there is a dispute resolution panel that the parties can go to to seek some sort of redress as well. But in terms of particularly significant reliability events, we can move immediately, yes.

Mr. DINGELL. Now, Mr. Harris and Mr. Museler, and in fact all, gentlemen, do any of you have the level of powers that has been described by Mr. Goulding? You, Mr. Museler, do you have authority to lay penalties in place for non-compliance?

Mr. MUSELER. Yes, sir, for specific failures to follow instructions, particularly from a reliability standpoint, failure to follow dispatch instructions, failure to provide information. There are sanctions with monetary penalties that we have. And that is a short-term situation. Longer than that, and this does require going to the FERC,

but longer than that there is an ultimate sanction which is to remove market base rate authority and remove people's ability to transact in the market, which is—

Mr. DINGELL. How about you, Mr. Harris, you don't have that authority.

Mr. HARRIS. No, sir, we do not have that authority to do that at all.

Mr. DINGELL. Now, I sense that both you and Mr. Museler would indicate to us that you have the capacity to address many of the problems that we confronted on this situation on August 14; am I correct in that?

Mr. HARRIS. Yes, we do. We have the—we could certainly direct the information. We have the authority to direct and control the system. I think it also begins with the board of the RTOs, and I think this is important. Our board has the authority to ensure that we operate a safe and reliable system, and as the fiduciary obligation of the independent board of directors, they take that quite seriously and will do what is necessary to ensure that we operate a safe and reliable system in the area that we serve. We do not have the direct sanctioning authority and the directive authority that Mr. Goulding has described.

Mr. DINGELL. I ask unanimous consent to proceed for 2 additional minutes, Mr. Chairman. Mr. Torgerson, I say this with respect and affection, you have got a tough job, but I get the impression that you don't have the authorities that Mr. Museler was talking about, Mr. Goulding was talking about or Mr. Harris was talking about; is that correct?

Mr. TORGERSON. That is correct today, yes.

Mr. DINGELL. You strike me as having been more of a spectator in this matter and things were happening but nobody was calling you and you were trying to find out what was going on. It is pretty clear that you need the authority to address those things; isn't that so?

Mr. TORGERSON. I would agree.

Mr. DINGELL. And I say this with respect because I happen to know you are running a new operation and you have some difficulties here. Can you tell us what of the authorities that Mr. Goulding described that you have to address any of the problems that you confronted?

Mr. TORGERSON. The only one we have right now is if someone does not do something for reliability purpose, we have the ability to penalize a transmission-owning member if they don't follow a specific direction. That is the only thing we have right now.

Mr. DINGELL. That is a penalty that has its own counter-productive results.

Mr. TORGERSON. Yes.

Mr. DINGELL. Now, I would note here that we have a picture of your area, and I note that it was—somebody was critical of the idea that we had swiss cheeses, and it strikes me here we do have a swiss cheese. I note you have one in the general area of Chicago, you have areas in northern Michigan, you have areas in, I guess it is, South Dakota and eastern, I guess it is, Kansas where you have no authority to address those questions. Fortunately, it didn't occur there, but August 14 could have afflicted those people. And

I find myself curious, you received virtually no phone calls, you had virtually no electronic communications through computers and so forth that would warn you that this trouble was coming on; is that right?

Mr. TORGERSON. We did communicate with FirstEnergy. We do get data in but we don't get it at the same rate and speed as the others do.

Mr. DINGELL. Of course, data unevaluated is only data. Data only becomes information when you have the ability to evaluate it so that it becomes a workable tool for decisionmaking; isn't that right?

Mr. TORGERSON. I agree.

Mr. DINGELL. And you did not have that.

Mr. TORGERSON. We have some coming in, and we have the data coming in, and we have specific things we look at. Like in the case of FirstEnergy, as I said, we evaluate key facilities that we work together to identify. Those are the ones we look at. But the control area, and we are not a control area, the control area is the one that has all the information, and they are the ones that balance the generation and the load. We need to move to that.

Mr. DINGELL. Thank you. Mr. Chairman, I thank you.

Mr. BARTON. Thank the gentleman. I am going to ask one question, and then we are going to let this panel go. I want each of you to tell me who hires you and who could fire you. We will start with you, Mr. Museler?

Mr. MUSELER. My independent board of directors hires me, and they can fire me.

Mr. BARTON. And who makes up the independent board of directors?

Mr. MUSELER. There are nine members on the independent board of directors. They have no financial affiliation with any of the customers or market participants. They were originally selected by a panel of the market participants, the customers, for the ISO. Going forward they can self-perpetuate themselves.

Mr. BARTON. But they are not utility employees.

Mr. MUSELER. They are not utility employees. Three of them are retired utility executives, but they have no affiliation with any companies in New York.

Mr. BARTON. Mr. Torgerson?

Mr. TORGERSON. I am hired and then can be fired by the independent board. There are seven members of our board that are totally independent of market participants. They are elected by the members, and they stand for—they are on 3-year terms.

Mr. BARTON. And the members are?

Mr. TORGERSON. The members are anyone who joins the Midwest ISO either as a transmission owning or non-transmission owning member. A member could be someone like Reliant, Synergy, marketers—

Mr. BARTON. But they would be utilities, either investor-owned or—

Mr. TORGERSON. Well, we have—

Mr. BARTON. A merchant plant operator.

Mr. TORGERSON. Morgan Stanley is a member, so there are financial houses that may be trading in the market when we have the market going, but those types of people are also members.

Mr. BARTON. Mr. Goulding?

Mr. GOULDING. Yes. I was hired by the board and can be fired by the board. My board is 17 people, including myself. Seven of those members are independent. The other nine represent stakeholders, so they would represent the generators, transmitters, large distributors—

Mr. BARTON. Is there a government representative on your board?

Mr. GOULDING. There is no government representative on my board, no.

Mr. BARTON. Okay. Mr. van Welie?

Mr. VAN WELIE. We have a board of nine independent directors. They both hire me and can fire me, but none of the directors have any affiliation with any market participant.

Mr. BARTON. And how are the directors appointed?

Mr. VAN WELIE. This particular board was appointed by a committee of the New England State regulators and I believe the market participants back in the 1996 timeframe. And going forward we are contemplating some changes to our governance arrangements, which we hope will give our board even further independence.

Mr. BARTON. Okay. And last but not least, Mr. Harris.

Mr. HARRIS. Yes. We have a 10-member board, 9 independent members and then myself. I serve at the pleasure of the board and was hired by the board. We are organized as a limited liability company, so our board is elected by the membership, and every year one-third of the board is up for reelection by the membership.

Mr. BARTON. And who is the membership?

Mr. HARRIS. Everyone that participates in our market. We have now currently about 250 some odd members. Anyone that participates has to be a member of the LLC to participate—

Mr. BARTON. So a member could be a distribution company?

Mr. HARRIS. Yes. We have distribution companies, marketers, traders, Wall Street firms, anyone that is doing business in the electrical business must be a member and must be able to participate and abide by the rules.

Mr. BARTON. And is it one member, one vote or—

Mr. HARRIS. One member, one vote by sector. We have five sectors and it is one member, one vote, and it takes two-thirds of that total vote in order to pass or to elect the board.

Mr. BARTON. But none of you have boards that I would say would be dominated by utilities; is that fair?

Mr. HARRIS. Our board has to be totally independent from the marketplace.

Mr. BARTON. Okay. Oh, I am told that the gentleman from New Hampshire has one question. Mr. Bass.

Mr. BASS. Very quickly, Mr. Chairman, I appreciate that. There is a—there might be a nexus between vantage point, i.e. the single dispatch station and size. I was wondering if either Mr. van Welie or Mr. Harris could comment. I think you two have single dispatch stations. As the FERC goes forward with regulations involving standard market designs, should they be considering the relationship between size of the system and the vantage point through the dispatch station issue?

Mr. HARRIS. Well, we actually operate out of two different centers. We have one in the western area and then one in Valley Forge, and these operate in tandem in a mutually supportive way in order to cover that. You get into communications technology and some fairly sophisticated tools to enable that, but that is how you manage across that footprint.

Mr. VAN WELIE. I think it is something that is very difficult to give you a formula on. It is a matter of judgment. I think what one has to look at is what is the state-of-the-art, and it is possible for certain regions to grow, but it has to be done in a really systematic way with careful analysis and with support with technology and tools. So I think my concern really would stem from leaping too quickly to a very large system without having underlying infrastructure. Remember, I also said that the other issue here is complexity. As one grows in size, one increases in complexity and sophistication. I am a proponent of software automation. I have spent 20 years of my life developing automation systems, and we know that one cannot place all one's reliance in software systems. At some point they fail, and one has to rely on human operators in order to manage the system. And so I think that is a very real constraint as we look at what is the determining point in terms of size.

Mr. BARTON. Okay. We want to thank this panel. We appreciate your attendance. There may be some follow-up questions in writing, and we would hope that you would comply with the answers expeditiously.

Let us now have our third panel come forward. We have Mr. David Owens, who is the executive vice president of the Edison Electric Institute; Mr. Larry Makovich, who is the senior director for Cambridge Energy Research Associates; Mr. T.J. Glauthier, the president and CEO of the Electricity Innovation Institute; Mr. Sonny Popowsky, Consumer Advocate of Pennsylvania; and Mr. Steve Fleishman, who is first vice president for Merrill Lynch. If you gentlemen would come forward, please.

Welcome, gentlemen. If everybody would find their seat. Your statement is in the record in its entirety, but you all are seated differently than you are on the witness list, so we are going to go in order of seating. So we are going to start—are you Mr.—the gentleman right here, what is your name?

Mr. MAKOVICH. Makovich.

Mr. BARTON. Makovich, okay. So we are going to go Makovich, Fleishman, Popowsky, Glauthier and Owens. All your statements are in the record in their entirety. Each of you will be given 5 minutes to summarize. We will start with Mr. Makovich.

STATEMENTS OF LAWRENCE J. MAKOVICH, SENIOR DIRECTOR, AMERICAS RESEARCH, CAMBRIDGE ENERGY RESEARCH ASSOCIATES; STEVEN I. FLEISHMAN, FIRST VICE PRESIDENT, MERRILL LYNCH; SONNY POPOWSKY, CONSUMER ADVOCATE OF PENNSYLVANIA; T.J. GLAUTHIER, PRESIDENT AND CEO, THE ELECTRICITY INNOVATION INSTITUTE; AND DAVID K. OWENS, EXECUTIVE VICE PRESIDENT, EDISON ELECTRIC INSTITUTE

Mr. MAKOVICH. Okay. Thank you, Congressman Barton. After listening to all the testimony today and what passed yesterday, it

seems clear that it reinforces the conclusion that we had come to as to what is gone on here. It looks like we had a combination of very normal component failures within the complex transmission network that has been subject to deterioration from a lack of investment and that there was an inability to respond and contain this problem at several levels of control. And so as you look at the root cause here, it seems to be a breakdown in the planning, coordination and communication necessary to control these interconnected power systems.

Now, other people have testified to what went right about capturing data and restoring power, but it looks like on August 14 when the power system was not particularly stressed it was not configured properly to withstand this series of normal problems that were allowed then to cascade. And so the sequence of events of this blackout caused parts of this power system to act on their own rather than in a coordinated fashion, and everyone was not in a position to act on their own and keep everything up.

So as far as the recommendations go, properly defining the mission here is important. There has been a lot of talk and policy focus on doing things to create a seamless national grid serving a standardized market structure, and whether that is or is not desirable, I think we have to come to grips with the fact that what we are dealing with here is a transmission network that needs the coordination and planning and data transfer that everybody has been talking about today. But it is a natural monopoly, it has seams, it involves places where markets are well developed, like PJM and other places where we still have traditional regulation in place, where we have got ownership spread between public power, both at the State and Federal level, as well as investor-owned assets, and all of this has to be coordinated. And so these organizations need to line up with the underlying networks, and they need to span these big differences that we have today.

We also all agree, it seems, on the necessity for mandatory reliability standards, and with regard to transmission investment, I think the point here is our analysis shows there are many, many opportunities to make investment in the transmission network with big benefits compared to the costs. So there are big payoffs here. So if you provide for more accelerated appreciation, greater rate of return, that difference just increases, but it is still not getting done. And the problem here really goes to that who pays problem, that because we have got prices frozen, we can approve rates for transmission. That is the good news. The bad news is we can't pass them on to the people that need to pay them.

So the recommendation here is to unfreeze the prices that need to be unfrozen and have a default position. You make an investment, it is going to get spread across the entire network, and then if proceedings need to happen to try to rearrange the allocation, fine, but don't hold it up as you try to resolve this very thorny question of who is going to pay. Thank you.

[The prepared statement of Lawrence J. Makovich follows:]

PREPARED STATEMENT OF LAWRENCE J. MAKOVICH, CERA SENIOR DIRECTOR,
AMERICAS GAS AND POWER RESEARCH

A definitive analysis of the contributing events and causes of the August 14, 2003, blackout will take months to complete. At this time, Cambridge Energy Research

Associates' (CERA's) analysis indicates that a combination of normal component failures, transmission system deterioration, and an inability to respond and contain the problem at several levels of control caused the cascading blackout.

At this time, it appears that the greatest power failure in US history began with normal component failures. For example, one failure on August 14 was an unplanned outage of a unit at the East Lake power plant that caused power flows to instantaneously reroute in the transmission network. Such unplanned power plant outages occur thousands of times each year and so too does the instantaneous rerouting of power flows. Such normal component failures and dynamic power flows are part of normal power system operations.

Transmission system operators plan for normal component failures. To do this, they configure the electrical system—the real-time balancing of sources of power and uses of power and the limits on transmission line loadings in the system to withstand the effects of normal component failures. At a minimum, proper transmission network planning keeps the power system configured in such a way that it can withstand the effect of the most critical component in the system failing (first contingency planning). Automatic controls on generating plants and transmission lines allow the power system to isolate problems, protect equipment, and reconfigure itself to a stable condition within seconds following a normal component failure.

As power system conditions change (supply, demand, weather, etc.), power flows reroute at close to the speed of light. Thus, when a generating unit and a transmission line trip and power reroutes, several transmission lines carry more power and, as expected, begin to sag. On August 14, one of these lines carrying more power near Cleveland sagged close enough to a tree to short circuit. Proper maintenance (tree trimming) should prevent such contact but, again, transmission line failures of various types are something power system operators also plan for. Nevertheless, when power rerouted along the remaining lines, additional overloading occurred and automatic protections for generating plants and transmission lines disconnected additional power plants and lines in the network. At some point, the multiple failures pushed the system past its limits to isolate and restabilize. Consequently, the problem expanded over a larger area of the power network as significant rerouting of power flows continued.

When a power system is not configured to contain a normal component failure, the destabilization of a larger part of the power system quickly follows. Power surges spread through some parts of the network—Pennsylvania, New Jersey and Maryland, and AEP—that reacted (both automatically and with discretion) to isolate themselves in order to maintain stable system operations. However, such actions add to the rerouting dynamics of the remaining power network and begin to overwhelm the remaining parts such as eastern Michigan, Ontario, and finally New York.

The root cause of the cascading blackout appears to be a breakdown in the planning, coordination, and communication necessary to control the interconnected power systems. The sequence of events in the blackout caused parts of the power system to act on their own rather than in a coordinated fashion. Such coordination has not gotten the proper investments of time, money, and systems in the past several years and this system deterioration—the cumulative effects of years of underinvestment in the varied needs of transmission networks—is a root cause of the blackout.

PAST EFFORTS TO PREVENT AND MINIMIZE BLACKOUTS

The blackouts of 1965 and 1977 in the Northeast and in 1996 in the West spurred efforts to prevent and minimize blackouts in the future. The lesson from 1965 was that greater integration of regional power systems created desirable day-to-day benefits from electric trade but required an associated higher level of planning, coordination, communication, and control to prevent cascading power outages. As a result, the formation of the North American Electric Reliability Council (NERC) and its regional reliability councils followed the 1965 blackout.

The lesson from the two blackouts of 1996 in the West was that a breakdown in planning, coordination, communication, and control can allow normal events—again, in one case, a power line sagging into a tree—to cascade into a large regional system failure. In this case, the cascading failure began with federally owned transmission assets that were highly integrated with other publicly and privately owned transmission infrastructure. Following the 1996 blackouts, the western power system decreased the amount of power flowing on transmission lines (forgoing savings from increased power trade) in order to maintain the level of redundancy necessary to prevent a repeat of cascading failures following normal component failures. A year

or more passed before the planning and coordination got to the point that these power transfer limits could return to pre-blackout levels.

The blackouts of 1977 in New York and several years ago in Chicago highlighted the problem of underinvestment in power delivery systems. In Chicago the problem was underinvestment in distribution (the small wires near homes) rather than in transmission (the large wires that carry power long distances). Even the best planning and coordination to properly manage a power system cannot offset the problems created by continued underinvestment. Eventually the probability of multiple component failures and the increasing constraints on systems operators charged with configuring a reliable power system leads to a major blackout. This underinvestment affects more than just transmission lines and substations and includes computer systems, backup systems, software, instrumentation, data, rules, and organizations.

WHAT WORKED ON AUGUST 14?

The conditions across the eastern power interconnection on August 14 were not highly stressful. The East was not in the throes of a prolonged heat wave or suffering from an abnormally high level of supply outages. Interregional power flows were providing benefits, as areas with higher-cost generation were able to draw upon areas of lower-cost generation. As the blackout cascaded through the Midwest, Ontario, and New York the automatic protective devices for power lines and power plants worked to prevent damage. Restoration of electric service reflected a well-thought-out and rehearsed sequence of procedures. The control centers of the electric systems appear to have captured the real-time data necessary to reconstruct the details of the cascading failure. The blackout exposed weakness in the US power grid but did not provide evidence that the US has a third world transmission infrastructure. Normal component failures should be expected even in a state-of-the-art transmission network. Quite to the contrary—the high degree of interconnection of the US grid exposed the need for better planning, coordination, communication, and control.

NEEDED IMPROVEMENTS

Defining the Transmission Mission

Electric transmission is critical infrastructure in the US economy. The transmission network is a natural monopoly that is in the middle of an industry that is stuck halfway between regulation and the marketplace. Transmission remains in the center of integrated regulated power companies and public power entities as well as at center stage in emerging power markets, where it governs the interactions between consumers and producers. A properly structured transmission sector requires that the institutions and rules meet the needs of both of these existing industry structures. Transmission policy must adjust to the reality that regional power systems in the United States will operate for quite some time with very different structures—some relying greatly on market mechanisms and others relying on comprehensive regulation. Transmission institutions and rules must accommodate the different power industry structures that are interconnected and need to interface properly.

Transmission Organizations

Transmission organizations need to reflect the underlying reality of the transmission infrastructure. We do not have a seamless, national transmission grid and are not even close to having one. Instead, the US power system consists of a dozen regional transmission networks within three largely independent transmission interconnections, with varying levels of power transfer capability between regional networks and with networks in Canada. These networks cover multistate areas and need organizations that align with the physical extent of the grids to implement the necessary planning, coordination, communication, and control. Thus, the Federal Energy Regulatory Commission (FERC) should not allow movement to the market in regions that do not have proper alignment between the transmission organization and the network. Currently, the US Midwest network has two transmission organizations in formation and transition, rather than one, and suffers a misalignment between the organizations and the underlying extent of the regional network. On the other hand, if the FERC gains authority to order regional transmission organization participation in regions moving to the market, then it should also order proper alignment between transmission organizations and networks.

Since these regional networks do have significant interconnections, the need also exists for an umbrella organization to coordinate operations and interdependencies within the interconnections. We want sufficient overall control to avoid situations

in which one regional network protects itself by causing collapses in neighboring networks. The current NERC comes close to the envisioned umbrella organization but suffers from being a voluntary organization with limited enforcement authority.

Mandatory Reliability Standards and Procedures

Mandatory electric reliability standards and procedures would help address the breakdown in planning, coordination, and communication that are at the foundation of power system control. A system of rules and procedures is needed that provides real-time information flows such that all system operators have a clear view of not just their local power system but also the larger whole. Such standards and procedures need to be enforced by an agency with authority over both publicly and privately owned transmission assets in competitive as well as regulated industry structures. International agreements are also necessary to coordinate with Canadian power systems and, to a much smaller extent, Mexican power systems.

An umbrella organization must ensure that contingency planning evaluates the power system as a whole—and is not just an uncoordinated set of regional contingency plans with a blind spot regarding their interdependencies.

Resolving the Gridlock in Transmission Investment

More investment is needed in the US transmission network. Many opportunities exist where the benefits of additional transmission infrastructure investments far exceed the costs, and this result is robust under a wide range of future conditions. The problem, as CERA identified in its 1999 report entitled *Gridlock—Transmission Investment and Electric Restructuring*, is that “[c]urrently there is no entity in the emerging industry structure—neither generators, transmission owners, independent system operators, distribution companies, traders, retail marketers, nor end users—facing the proper incentives to invest.” Our conclusion four years ago was that “[s]ustained underinvestment in transmission may eventually threaten the reliability of the bulk power system.”

Underinvestment in transmission and the gridlock in transmission policy are longstanding problems. When I last testified before the Senate in July 2002, CERA warned that a continued lack of investment would lead to reliability problems: “A gridlock plagues most transmission investment decisions because incentives are misaligned.” These investments “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.” Over a year ago, the Department of Energy’s National Transmission Grid Study provided a similar warning. And in CERA’s Special Report *Energy Restructuring at a Crossroads: Creating Workable Competitive Power Markets*, 5 out of 12 recommendations on making power markets work involved transmission issues. CERA’s currently ongoing study *Grounded in Reality: Bottlenecks and Investment Needs in the North American Transmission System* is finding that significant transmission congestion exists both within and between regions.

The solution goes beyond higher allowed regulated rates of return, tax incentives, or accelerated depreciation. The payoffs already exist. The problem is settling who pays. The current principle is that whoever benefits ought to pay. However, implementation of this principle is very difficult. Benefits are robust under a wide variety of conditions but as conditions change, the incidence of those benefits can shift dramatically. Transmission investment is stymied by the complex arguments of who will benefit and thus who should pay. As a result, adequate investment is not yet being made. Transmission investment planning at the network level that guarantees cost recovery and prevents investment indecision due to gridlock on cost allocation and recovery mechanisms is sorely needed. One possibility is a policy that allows economic transmission investment identified by analyses at the network level to go forward with a default decision to spread the costs across the entire network. Reallocations and true-ups can follow later if necessary and substantiated.

Mr. SHIMKUS [presiding]. Thank you. A record for testifying. Now I would like to recognize Mr. Fleishman.

STATEMENT OF STEVEN I. FLEISHMAN

Mr. FLEISHMAN. Mr. Chairman and committee members, thank you for the invitation to provide my views on—Mr. Chairman and committee members, thank you for the invitation to provide my views on issues surrounding the August 14 blackout. My name is Steve Fleishman and I am an equity analyst covering the utility industry for Merrill Lynch. My primary job is to observe and study

developments in the utility sector and specific companies and then make investment recommendations to clients. As such, I do not come here with any vested interest on the contentious debate over future industry structure; instead I speak more as an active observer of the industry and one importantly who interacts daily with the retail and institutional investors who ultimately will be asked to invest the capital that is necessary to build a more reliable transmission network.

As of today, the exact chain of events that precipitated the blackout is not determined nor the exact cause is known. Whatever the ultimate cause, the blackout has served to highlight many of the structural issues that the industry now faces. While many call it a transitional problem, it might be better called a long period of limbo. Some of the examples of this limbo include the fact that approximately half the States have deregulated their electric business, the other half have not. In many regions, transmission is still owned by the utilities but controlled by ISOs or RTOs. While this split of ownership and control is difficult to work, it does require rules that are very clear to make work.

Finally, as Larry mentioned, when a generator adds a power plant, it is not clear in some regions who is responsible for bearing the cost of the associated transmission additions. The lack of clarity on these issues and others are some of the examples of significant barriers to companies and investors as they look to invest capital in the sector.

The blackout is also a wakeup call that there has been underinvestment in the transmission grid. Underinvestment in the grid is not a new story. According to the studies in the past, we have seen significant reductions in the amount of transmission investment relative to peak demand to the degree of 17 percent during the decade of the 1990's and projected another 12 percent in the coming decade. This structural uncertainty in the transmission business we think is clearly part of the reason of the underinvestment and then siting of transmission probably even a greater impediment. FERC has recognized these barriers to investment has recently been supporting higher returns on equity for transmission investment and has also supported incentives for potentially even greater returns based on if that investment is made by independent entities.

I commend FERC on these steps but also would consider other forms of incentive regulations, such as sharing of cost savings between shareholders and consumers, incentives tied to transmission reliability and then finally, maybe most importantly, incentives tied to reducing congestion costs in the power markets. We do continue to see significant inefficiency in these markets due to bottlenecks, and the resulting congestion costs we think are in the many billions of dollars, and that an incentive regulatory approach that would allow for a sharing of congestion cost savings between transmission builders and customers could be a win-win solution.

Some may question whether incentive regulation is necessary. My belief is that the recent investment climate for utility investors makes this even more important. For example, roughly half of the 37 utilities we track had to reduce or omit their common dividends over the past 5 years. Balance sheets in the industry have been

stretched to, on average, about 60 percent debt to total capitalization. In 2002, Standard & Poor's lowered utility credit ratings 10 times as many upgrades that they did, and so far this year that number is 11. Given these financial pressures, utilities are very focused on reducing debt and living within their means.

As a result of this, we estimate capital spending for the utilities we track will drop from \$50 billion in 2002 down to \$35 billion in 2004, 34 percent reduction. This reduction is crucial to many companies maintaining their current credit ratings, and in order to avoid further credit pressure, companies would need to make a clear case to the rating agencies and Wall Street of the attraction of new transmission investments.

The good news here is that public policymakers have taken actions and can take further actions to entice new capital to help resolve the infrastructure issues of the industry. One of the actions already taken has been the reduction in taxes on corporate dividends. We believe this will be an important attraction for regulated utility investments and will also increase equity and less debt in funding these investments. We have talked also about incentive regulation, tax incentives for transmission investment, and we think also repeal of the Public Utility Holding Company Act would provide more certainty to investors and also make it easier for non-traditional investors such as financial or private equity investors to invest in the industry and specifically in transmission.

Finally, we highlight that actions on siting will be really critical in the near term as most of these incentives for new investment in transmission will play out over a long period of time. For there to be some near-term strides, siting is really the critical issue, and we do support a process of determining national interest transmission lines led by the Department of Energy and regional State and utilities. And once these are identified, the DOE would work with the States to streamline the siting process, including looking at building these lines on Federal lands.

Finally, I would like to thank the committee for the opportunity to share my thoughts on potential actions to help resolve issues raised by these blackouts. I would highlight that certainty is critical for investors to commit to investments, and I believe we do have an opportunity here in the near term to provide much more certainty to investors. Thank you.

[The prepared statement of Steven I. Fleishman follows:]

PREPARED STATEMENT OF STEVEN I. FLEISHMAN, FIRST VICE PRESIDENT, MERRILL LYNCH & CO., INC.

Thank you, Mr. Chairman, for the invitation to provide my views before your Committee on issues surrounding the blackout in the Northeast, Midwest, and Canada on August 14. My name is Steve Fleishman and I am an equity analyst covering the utility industry for Merrill Lynch. My primary job is to observe and study developments in the utility sector and of specific utility companies. I then make investment recommendations to clients on stocks of utility sector companies.

As such, my comments to the Committee do not come as an advocate of a specific side of the table on the debate over future industry structure. Instead, I speak as an active observer of the industry and, more importantly, one who interacts daily with the institutional and retail investors who will ultimately be asked to provide the new capital necessary to build a more reliable transmission network.

I have called the blackout on August 14 a "black eye" for the electric utility industry. This is an industry that prides itself on safe and reliable electric service to customers. The blackout was obviously a serious breach of this commitment.

Despite this breakdown, there are many aspects of the system that did work. Utility workers performed admirably in returning electric service to all customers within days after the blackout. Moreover, the affected generation units and transmission lines are currently up and running with little to no permanent damage caused by the blackout.

ELECTRIC INDUSTRY IN STRUCTURAL "LIMBO"

As of now, the exact chain of events that precipitated the blackout is not determined, nor are the exact causes known. Whatever the ultimate cause, the blackout has served to highlight many of the structural problems that the industry now faces. While many call it a "transitional" problem, it might better be called a long period of "limbo". Following are just a few of many examples of the lack of clarity that companies and investors face as they look to invest capital into this sector:

- 1) Approximately half of the states have deregulated their electric businesses and the other half have not.
- 2) In many regions, transmission is still owned by the utilities but controlled by independent system operators (ISOs) or other forms of regional transmission operators (RTOs). This split of ownership and control is difficult to make work and can be an impediment to new investment, unless there are very clear rules in place.
- 3) When a generator adds a power plant, it is not clear in some regions who is responsible for bearing the cost of the associated transmission additions, the generator, or the local utility (the participant funding issue).

As President Bush aptly stated, the blackout is "a wake-up call" to the American people, the utility industry, and public policy makers that these and other structural issues need to be resolved.

NEED FOR TRANSMISSION INVESTMENT

The blackout is also "a wake-up call" that there has been underinvestment in the transmission network during this period of structural uncertainty and that this trend must change quickly. It is not certain that a lack of transmission investment will prove to be the direct cause of the blackout. However, I suspect that more transmission capacity and better information technology on the grid could have helped to at least limit the scope of the blackout.

Underinvestment in the transmission grid is not a new story. This has been an issue discussed within the industry for some time. According to a 2001 Edison Electric Institute (EEI) study, transmission investment grew by only 0.5% annually during the 1990s well below the 2.5%+ annual growth in peak demand. Transmission capacity relative to peak demand dropped by 17% during the decade and is projected to fall by another 12% based on projections for the next decade. In order to simply maintain transmission capacity relative to peak demand at 2000 levels, \$56B of investment would be needed in the current decade, well above current expected expenditures of \$35B.

I believe the greatest impediment to transmission investment has been siting. While a power plant can often be located in a barren area or in an industrial zone, transmission lines in high-usage regions often need to be sited close to the population raising NIMBY concerns. A second issue has been the structural uncertainty of transmission. Will a utility control the transmission it builds? Will it need to be spun-off in a few years to a new company? With these questions overhanging the business, it has been difficult to commit significant funds, in my view.

INCENTIVE REGULATION

The FERC has recognized these barriers to investment in transmission and has recently been supporting higher returns for transmission investment (A Midwest utility was recently allowed a 12.88% return on equity). FERC has also supported incentives for even higher returns if the investor is independent from the regional generation or distribution companies. I commend FERC on these positive steps, though I believe that other forms of incentive regulation should also be considered. For example, sharing of cost efficiencies above a baseline return on equity would incentivize actions by transmission owners to increase efficiency. Incentives based on transmission reliability and safety would provide a balance to cost cutting.

Finally, I would also encourage incentives tied to reducing congestion costs in the power markets. There remains significant inefficiency in the power markets as a result of transmission bottlenecks that limit customers' ability to access the lowest-cost supply. The resulting congestion costs are estimated in the billions of dollars. I believe that an incentive regulatory approach that would allow for a sharing of

congestion cost savings between transmission builders and customers could be a win/win solution. This would also stimulate investment in transmission projects that would have the greatest economic benefit to customers. Moreover, since congested areas are also ones that are typically subject to more reliability risks, it would likely enhance system reliability.

CHALLENGES FACING UTILITY INVESTMENT

Some may question whether incentive regulation is necessary to encourage transmission investment. My belief is that the recent investment climate for utility investors makes this even more important. The last few years have been very difficult for many utility stockholders and bondholders.

- During the past five years, roughly half of the thirty-seven utilities we track had to reduce or omit their common dividends.
- Balance sheets have been stretched to an average of nearly 60% debt to total capitalization.
- The result has been a dampening in credit ratings for the sector. In 2002, Standard & Poors lowered ratings ten times for every upgrade. This trend has continued in 2003 with eleven downgrades for every upgrade. Given these financial pressures, utilities are very focused on reducing debt and living within their means.
- We estimate capital spending for the utilities we track will drop to approximately \$35B in 2004, down from \$50B in 2002, a 34% decline. This reduction in spending is crucial to many companies maintaining their current credit ratings. In order to avoid further credit pressure, companies would need to make a clear case to the rating agencies and Wall Street of the attraction of new transmission investments.

PUBLIC POLICY ACTIONS ARE ON THE TABLE

The good news is that public policy makers have taken actions and can take further actions to entice new capital to help resolve the infrastructure issues the industry faces. These include:

1. **The reduction in taxes on corporate dividends.** I believe this will be an important attraction for regulated utility investments and will also encourage more use of equity and less debt.
2. **Incentive regulation to encourage new transmission investment.** This has already been adopted to some degree by FERC and is also supported in the House Energy Bill (H.R. 6).
3. **Tax incentives for transmission investment.** Proposals in the House Energy Bill to accelerate depreciation of transmission assets for tax purposes (to 15 years from 20 years) would provide another incentive for transmission investment. Further, proposals to eliminate the tax liability for those selling or contributing transmission assets to independent buyers would help to accelerate the move to stand-alone transmission companies.
4. **National Interest Transmission Lines.** Even with the right incentives, near-term development of new transmission lines is constrained by siting difficulties. To address threats to reliability in the near-term, I support the process of determining National Interest Transmission Lines that would be identified through a joint process by the Department of Energy and regional states and utilities. Once identified, the DOE would work with the states and other federal agencies to streamline the siting process including determining whether part of such projects could be built on federal lands. Investment in these lines could be accelerated by support from DOE or appropriate incentive regulation by FERC. This process should only be followed for critical reliability projects. For the long term, the gas pipeline model for siting and regulatory approvals would be an appropriate one for electric transmission investment. This proposal would be similar to the siting provisions already contained in the House Energy Bill.
5. **Mandatory reliability standards for transmission.** This is already proposed in the House and Senate Energy Bills and would help to ensure that no parties fall behind on their transmission spending and operations.
6. **Repeal of the Public Utility Holding Company Act.** I believe that PUHCA repeal would provide more certainty to investors and reduce some barriers to investment by utilities. More significantly, it could make it easier for non-traditional utility investors, such as financial investors or private equity, to acquire and invest in utility assets such as transmission. Financial buyers have targeted billions of capital to the utility sector and will be an important source of capital in the future.

SUMMARY

I would like to thank the Committee for the opportunity to share my thoughts on potential actions to help resolve issues raised by the recent blackout. While the blackout was a “wake-up call”, the good news is that many of the constructive public policy initiatives that would enhance electricity reliability and promote new investment are already on the table in the proposed Energy Bill. Certainty is a critical driver for investment and I believe that it is an important time to increase certainty in the electricity business to encourage investment.

Mr. SHIMKUS. Thank you, and we appreciate it. I think this is the first time testifying before the committee and you are with a panel that has all been before us before, so you did well. Thank you. And now I would like to yield to Mr. Popowsky for his testimony.

STATEMENT OF SONNY POPOWSKY

Mr. POPOWSKY. Thank you, Mr. Chairman and members of the committee. My name is Sonny Popowski. I am the State consumer advocate for the Commonwealth of Pennsylvania. Consumers require, and I believe they are willing to pay for, a robust, reliable electric transmission system. Ask any consumer who has had to dispose of a refrigerator full of spoiled food after a long outage, and they will tell you that they understand the costs of failures in our electric network.

But simply charging ratepayers more money for higher profits on transmission lines I don't think is necessarily the solution to the problems that caused the blackout of August 14. If it turns out that the events that gave rise to the August 14 blackout were operating or communications failures, then simply building more power lines or increasing profit levels is not necessarily the correct solution.

Fortunately, one immediately constructive response is already contained in legislation that has been endorsed by this committee, and that is the establishment of mandatory reliability rules for the interstate power grid. I believe that voluntary reliability rules will no longer work in today's more competitive wholesale bulk power market. We don't have voluntary speed limits on our interstate highways, and we can no longer rely on voluntary reliability standards for operation of our interstate electric grid. Another area where the need for improvement seems clear is in the area of communications systems and coordination between system operators within regions and between regions.

As a representative of Pennsylvania consumers, I feel fortunate that most of our electric utilities have long been members of the original PJM interconnection. The utilities of the original PJM have operated on an integrated basis for decades, and for the reliability purposes, the entire original PJM system is operated out of the PJM control center as a single control area. PJM has now evolved to the point where the system operators are independent of the utilities whose transmission facilities comprise the physical backbone of the PJM interconnection. What that means is that PJM can plan and operate the system in a manner that serves the reliability of the grid as a whole and not the potentially conflicting financial interests of particular owners or users of the grid.

As shown by the experience of August 14, however, the mere presence of an independent system operator cannot prevent a failure from one part of the Eastern Interconnection from cascading

into another area of that interconnection. This clearly points to the need for better communication systems and coordination among regional grid operators. I do not agree, however, that the events of August 14 demonstrate that America is served by an antiquated or Third World transmission grid. Again, referring to PJM, our utilities committed to more than \$700 million in transmission improvements in 2001 and 2002, pursuant to the PJM regional transmission expansion plan, which is a regional planning process that identifies potential reliability problems and develops cost effective regional solutions to address those concerns.

I am not suggesting that we do not need significant continuing transmission improvements at PJM or around the Nation. Clearly, we do. I also agree that transmission owners ought to recover the costs of needed facilities, including a fair rate of return. I think it is a mistake, though, to assume that the current levels of return authorized by the FERC or, for that matter, by our State commissions, are inadequate in some way. Transmission investments certainly are less risky than many of our utilities' ill-fated investments in competitive generation, trading and foreign subsidiaries.

To the extent the August 14 outage was the result of operational failures or non-compliance with NERC standards or to the extent that NERC standards failed to provide adequate guidance for this particular series of events, the answer is not necessarily increased incentives. Consumers should expect to pay the cost of a reliable transmission network, but consumers should also expect that the network will be operated in the public interest and within the rules that have been put in place to ensure that the system is safe and reliable.

There is no such thing as a perfectly reliable electric system, and even if there were, it would be infinitely expensive. But the North American electric is designed and is supposed to be operated so that a failure in one part of the system does not grow into an uncontrolled cascading outage like the one experienced on August 14.

To conclude, I believe that the investigators from NERC, DOE and the affected system operators will get to the bottom of what happened from a physical and technological standpoint on August 14. America's consumers will then look to you and other State and Federal policymakers to use the results of that investigation to take steps to ensure that this type of event does not happen again and that all Americans continue to receive reliable and reasonably priced electricity service. Thank you for letting me testify. I would be happy to answer any questions at the end of the panel.

[The prepared statement of Sonny Popowsky follows:]

PREPARED STATEMENT OF SONNY POPOWSKY, CONSUMER ADVOCATE OF
PENNSYLVANIA

Chairman Tauzin, Chairman Dingell and Members of the House Energy and Commerce Committee: Thank you for inviting me to testify on this matter of extraordinary importance to electricity consumers across the Nation. My name is Sonny Popowsky. I am the Consumer Advocate of Pennsylvania. I am a state official and I have spent the last 24 years representing the consumers of Pennsylvania on matters involving their utility service.

I have served as the President of the National Association of State Utility Consumer Advocates (NASUCA) and I currently serve on the Executive Committee of that organization, whose members are state-designated consumer representatives in 40 states and the District of Columbia. In 1997, I was elected to serve as the first

representative of residential electricity consumers on the Board of the North American Electric Reliability Council (NERC). I served on the NERC Board until 2001, when the governance of NERC was transferred to an independent non-stakeholder board. Since that time, I have continued to serve as a consumer representative on the NERC Stakeholders Committee.

As an advocate for electricity consumers and as a participant at NERC, I received two shocks as a result of the events of August 14, 2003.

The first shock was that this massive cascading outage could have happened in the first place. This is precisely the type of event that NERC standards were designed to prevent. Indeed, this is the very type of event that NERC itself was established to prevent. In other words, unless someone was operating outside of NERC reliability standards, or unless there is a serious gap in NERC standards that we didn't know about, this catastrophic event simply should not have occurred.

My second shock was when I read on Monday August 18 that Secretary of Energy Abraham had stated on a Sunday morning news show that consumers will have to pay up to \$50 billion in higher electric bills to modernize the Nation's transmission system. As stated by Secretary Abraham: "Ratepayers, obviously, will pay the bill because they're the ones who benefit." I agree that consumers will ultimately pay the costs of any necessary improvements to the transmission network. I also agree that consumers are, or at least ought to be, the primary beneficiaries of a reliable transmission system. Ask any consumer who has had to dispose of a refrigerator or freezer full of spoiled food after a long outage, and they will tell you that they are more than happy to pay their fair share of the costs of a reliable electric system.

I don't think, though, that it should simply be assumed that spending \$50 billion of ratepayer money on new transmission facilities (or higher equity returns on new and existing facilities) will solve the problems that caused the blackout. If the events that gave rise to the August 14 catastrophe were operating failures and communications failures, then building more power lines or increasing utility profit levels is not the solution.

Fortunately, one possible immediately constructive response is already before the members of this Committee and Congress, and that is the establishment of mandatory reliability rules that has been proposed in legislation that is supported by NERC and by a wide range of organizations including NASUCA and the Edison Electric Institute (EEI). I would venture to say that this may be the only provision of the Electricity Title in either the House or Senate Energy Bills upon which NASUCA and EEI agree. I think that is because nearly everyone in the industry recognizes that voluntary reliability rules that were enforced in the past by peer pressure and mutual self-interest will simply not work in today's more competitive wholesale bulk power market. The people who operate the transmission grid must understand the rules as well as the consequences for violating the rules. We don't have voluntary speed limits and traffic rules on our interstate highways, and we can no longer rely on voluntary reliability standards for operation of our interstate electric grid.

Another area where the need for improvement seems clear is in the area of communications and coordination between system operators within regions and between regions. As a representative of Pennsylvania consumers, I feel fortunate that most of our electric utilities are members of the PJM Interconnection and indeed became members of PJM many years before the acronyms ISO and RTO were ever invented. The utilities of the original PJM have operated on an integrated basis for decades and, for reliability purposes, the entire original PJM system was operated as a single control area. What that means is that if something goes wrong anywhere on the PJM system, the information appears immediately in the PJM control center, where the problem can be evaluated and corrective actions taken in order to protect the overall reliability of the system. PJM is in a position to operate every part of the system in a way that maximizes the reliability and economic benefits of the entire system. Significantly, in recent years, PJM has evolved to the point where the system operators and management of the organization are truly independent of the individual utilities whose transmission facilities comprise the physical backbone of the PJM Interconnection. What that means is that PJM's employees can design and operate the system in a manner that serves the grid as a whole, and not the potentially conflicting financial interests of a particular owner or user of the grid. Whatever one thinks about the market design of PJM and the use of PJM as a model for a standard market design across the Nation, I think a great deal can be learned from the way the original PJM has operated (along with the Mid Atlantic Area Reliability Council, whose boundaries also coincide with the traditional PJM control area) as a framework for reliable regional operation, particularly in the highly interconnected Eastern grid.

As shown by the experience of August 14 in the New York ISO, however, and even in parts of PJM in Northern New Jersey and Northwestern Pennsylvania, the mere presence of an independent system operator cannot prevent a failure from one part of the Eastern Interconnection from cascading into another area of that Interconnection. This clearly points to the need for better communications and coordination between and among regional operators. This communication must occur in the hours leading up to a potentially catastrophic failure, not just in the few seconds it takes for such a failure to spread across a wide swath of the Nation.

I do not agree, however, that the events of August 14 demonstrate that America is served by an antiquated or “third world” transmission grid. NERC has stated on countless occasions that the North American bulk electric system is “the most reliable system in the world.” Again referring to PJM, our utilities committed to more than \$700 million in transmission improvements in 2001 and 2002 pursuant to the PJM Regional Transmission Expansion Plan, which is a regional planning process that identifies potential reliability problems in the PJM region and develops cost-effective solutions to address those concerns. The PJM transmission planning process is now being expanded to include projects that are necessary to resolve economic transmission bottlenecks as well as reliability concerns.

I am not trying to say that we do not need significant continuing transmission improvements, either in PJM or around the Nation. We do. There are many areas that require additional investments to ensure that we have a robust, reliable transmission network. I also agree that transmission owners ought to recover the costs of needed facilities, including a fair rate of return on their investment that is commensurate with the risk of those investments. I think it is a mistake, though, to assume that the current level of returns authorized by the Federal Energy Regulatory Commission—such as the 12.88% return authorized by FERC to transmission owners in the Midwest ISO—is somehow inadequate to attract sufficient capital. Though not risk-free, transmission facilities are a relatively safe investment, certainly much less risky than many of our utilities’ ill-fated investments in competitive generation, trading, and foreign subsidiaries. It is those unregulated investments, not investments in regulated transmission and distribution facilities, that have led some of those companies up to and over the brink of bankruptcy. As members of the Transmission Access Policy Study (TAPS) group have pointed out, “there is no lack of capital available to fund transmission construction that will provide a solid year-in and year-out 12% return on equity with very small risk. Ask anyone with an IRA.”

I also believe it is important to find out what went wrong on August 14 before we can determine where to make the investments that will ultimately be supported by ratepayers. To the extent the widespread outage was a result of operational failures or non-compliance with NERC standards, or to the extent the NERC standards failed to provide appropriate guidance for this particular series of events, I would say again that the answer is not necessarily massive construction of new power lines. Consumers should expect to pay the costs of a reliable transmission network, and the cost of that network may be substantial. But consumers should also expect that the network will be operated in the public interest and within the rules that have been put in place to ensure that the system is safe and reliable.

It has been widely reported that the potential for significant transmission problems in parts of the Midwest was identified in a Report by NERC that was issued in May 2003. What that Report actually stated was that “As long as transmission limitations are identified and available operating procedures are implemented when required, no cascading events are anticipated.” The corollary to that comment, however, is that if transmission limitations were not identified, or if available operating procedures were not implemented when required, then the events of August 14 could indeed occur.

Accidents will happen. Tree limbs will fall on power lines. Ice storms will wreak havoc in certain locations. There is no such thing as a perfectly reliable electric system and, even if there were, it would be infinitely expensive. But the North American electric system is designed and is supposed to be operated so that a failure in one part of the system does not grow into an uncontrolled cascading outage like the one experienced on August 14.

I believe that the investigators from NERC, DOE and the affected system operators will get to the bottom of what happened from a physical and technological standpoint on August 14. America’s consumers will then look to the members of this Committee and other state and federal policy-makers to use the results of that investigation to take steps to ensure that this type of event does not happen again, and that all Americans continue to receive reliable, and reasonably-priced electricity service.

Thank you again for permitting me to testify at this hearing. I would be happy to answer any questions you may have at this time.

Mr. SHIMKUS. Thank you very much. Now we would like to recognize Mr. Glauthier for 5 minutes. Welcome.

STATEMENT OF T.J. GLAUTHIER

Mr. GLAUTHIER. Thank you, Mr. Chairman, Mr. Dingell and members of the committee. We believe that technology can be an important part of the solution to these problems and that the focus of that technology will be the self-healing smart grid based on 21st century electronics. I will summarize my testimony. I am T.J. Glauthier, president and CEO of the Electricity Innovation Institute, an affiliate of EPRI, the Electric Power Research Institute, and I am here today representing both organizations.

EPRI is a non-profit research institute sponsoring R&D in the public interest in electricity-related technologies. EPRI has more than 1,000 members in the utility industry which produce and deliver more than 90 percent of our Nation's electricity. The Electricity Innovation Institute was formed 2 years ago by the EPRI Board of Directors as a separate but affiliated organization. It is also a non-profit research institute, and its focus is to sponsor longer term strategic R&D programs through public-private partnerships. Its board of directors is primarily composed of independent and bipartisan public representatives.

With respect to the official outage investigation, EPRI is actively supporting the binational U.S.-Canada Joint Task Force working with DOE and NERC. EPRI has staff in the region now and is lending its experience and expertise to the overall effort to learn exactly what did happen on August 14 and what the root causes were for that event.

On a broader front, last week, EPRI released a report on the current challenges facing the electricity sector in the U.S. That report, the "The Electricity Sector Framework for the Future," was completed prior to the August 14 outage and had been developed over the past year under the leadership of the EPRI Board of Directors. EPRI engaged more than 100 organizations and held a series of regional workshops, including customers, suppliers, elected officials, environmentalists and others. The report calls upon Congress to take action in a number of areas, such as establishing mandatory reliability standards, clarifying regulatory jurisdictions and helping to restore investor confidence in the electricity sector so that needed investments can be made. We have submitted a copy of the full report to the committee as part of the record for this hearing.

EPRI and EII are also already active in modernizing the electricity grid. Eighteen months ago, we began a public-private R&D partnership to design and develop the technologies enabling a self-healing smart grid. This partnership involves a number of public and private utility companies, the Department of Energy, several States and the high-tech industry. We have issued a multimillion dollar contract to a team that includes GE, Lucent Technologies and others to design an open architecture for the smart grid, and 2 days ago we issued an RFP for another multimillion dollar project on fast simulation and modeling.

You have heard many references to a smart grid from witnesses, members and groups like the Bipartisan Energy Future Coalition, but what is it? It is a fully computerized system with real-time sensors, integrated communication and digital age electronic controls. It will manage the system, both transmission and distribution systems, in real time as a network integrating, distributed and renewable energy resources and enabling whole new applications for customers. In the event of a disruption from either natural or man-made causes, it will be self-healing by automatically isolating affected areas and rerouting power to keep the rest of the system up and running. This represents a fundamental upgrade of the current system, the first one in the last 50 years.

And it will yield significant benefits. It will spur a new phase of entrepreneurial innovation and will reduce the costs of the power disturbances which we estimate to be at least \$100 billion a year—that is 1 percent of GDP. Because of that, building the smart grid could yield at least 5 to 1 return on investment.

To conclude, we offer four recommendations for the energy bill. First, establish the smart grid as a national priority. Second, authorize increased funding for R&D and demonstrations of the smart grid in key DOE programs. We estimate that this will require increased Federal funding for R&D on the scale of approximately \$1 billion over the next 5 years, with the private sector contributing a significant amount of matching funding. Third, recognize the importance of carrying this out in partnership with the private sector. The government cannot do this alone. It is the industry that will be ultimately responsible for building, maintaining and operating the electricity system to keep the lights on and the computers humming. Finally, develop an approach to the long-term funding for deployment. A national approach is needed to fund the full-scale deployment of a smart grid that will be effective, fair and equitable. We estimate it will require an investment of \$100 billion over a decade. We urge the Congress to include language in the energy bill to direct the administration to work with industry, the States, customers and others to develop a recommendation and report back to the Congress 1 year after enactment. Thank you.

[The prepared statement of T.J. Glauthier follows:]

PREPARED STATEMENT OF T.J. GLAUTHIER, PRESIDENT AND CEO, ELECTRICITY
INNOVATION INSTITUTE

Mr. Chairman, Members of the Committee, I am happy to be here today as you examine what happened in the electricity blackout on August 14, 2003, and most importantly, what to do to strengthen the nation's power grid in the future. We believe there is an answer for the future, and that answer is a self-healing, "smart grid" based on 21st century technologies.

I am T.J. Glauthier, President & CEO of the Electricity Innovation Institute, an affiliate of EPRI, the Electric Power Research Institute. I am here today representing both organizations.

EPRI is a non-profit research institute sponsoring R&D in the public interest in technologies and systems related to the generation, delivery, and use of electricity in our society. EPRI was created 30 years ago, in the aftermath of the 1965 Northeast power blackout. EPRI was formed with the support and legislative approval of the Congress, and with the support of the States and their regulatory commissions.

EPRI has more than 1,000 members in the electric utility industry, including investor-owned companies, public power organizations, coops, federal power systems and others. Its members produce and deliver more than 90% of our nation's electricity.

The Electricity Innovation Institute (E2I) was formed two years ago by the EPRI Board of Directors as a separate, but affiliated organization. It is also a non-profit, 501 (c)(3), public-benefit research institute, and its focus is to sponsor longer-term, strategic R&D programs through public-private partnerships. E2I's Board of Directors, is primarily composed of independent, bi-partisan public representatives.

E2I is already active in modernizing the electricity grid. For example, with technical support from EPRI, it began 18 months ago a public-private R&D partnership to design and develop the system of technologies enabling a self-healing, "smart grid." This partnership involves a number of public and private utility companies, the Department of Energy, several states, and the high tech industry. It has one multi-million dollar contract underway with a team that includes GE, Lucent Technologies and others, to design an "open architecture" for the smart grid.

EPRI and E2I actively support the dialogue on national energy legislation by providing objective information and knowledge on energy technology, the electricity system and related R&D issues.

SUPPORT OF THE AUGUST 14TH OUTAGE INVESTIGATIONS

EPRI is actively supporting the bi-national US-Canada Joint Task Force on the Power Outage of August 14th, working with DOE and NERC. EPRI has staff in the region now, and is lending its experience and expertise to the overall effort to learn exactly what did happen on August 14th, and what the root causes were for that event. EPRI will work through that team, and does not expect to issue any independent evaluation of the outage events or its causes.

REPORT: ELECTRICITY SECTOR FRAMEWORK FOR THE FUTURE

Last week, EPRI released a report on the current challenges facing the electricity sector in the U.S., outlining a Framework for Action. The report, the *Electricity Sector Framework for the Future* (ESFF), was completed prior to the August 14th outage, and had been developed over the past year, under the leadership and direction of the EPRI Board of Directors.

EPRI engaged more than 100 organizations, and held a series of regional workshops, including a diverse group of stakeholders—customers, suppliers, elected officials, environmentalists, and others. That dialogue has provided valuable insights into the causes of problems, such as the disincentives for investment and modernization in transmission facilities, which have become much more widely recognized since the August outage.

The ESFF report lays out a coherent vision of future risks and opportunities, and of a number of the issues that must be dealt with in order to reach that future. It is also notable that this report reflects viewpoints widely shared by the broad electricity stakeholder community who contributed to its development. That future will be based on a transformed electricity infrastructure that is secure, reliable, environmentally friendly, and imbued with the flexibility and resilience that will come from modern digital electronics, communications, and advanced computing.

To arrive at that future, many parties must take action. The report calls upon Congress to take action in a number of areas, such as establishing mandatory reliability standards, clarifying regulatory jurisdictions, and helping to restore investor confidence in the electricity sector so that needed investments can be made.

We are submitting a copy of the full report to the Committee, as part of the record for this hearing. We have already sent announcements and electronic links to the report to all the Members of this Committee, to your staffs, and to the Members of other, relevant committees in the Congress. We hope the report will be helpful to you as you deal with the various dimensions of these issues in the final energy bill—and we are happy to offer our assistance in whatever ways will be most helpful.

THE 21ST CENTURY TRANSFORMATION OF THE ELECTRICITY GRID

The August 14th outage served to again remind us of the absolutely essential nature of electricity service. It is the lifeblood of our nation's economy and quality of life. As such, the modernization of the electricity system is an essential investment in our nation's continued prosperity. This investment is particularly urgent in the face of today's rising security and societal demands on the nation.

The modernization of the electricity infrastructure described in the report is toward a "smart grid"—a self-healing, intelligent and digital electricity delivery system to meet the social and economic needs of the 21st century. This represents a fundamental upgrade of the current system—the first one in at least 50 years—comparable to the creation of an interstate highway system 50 years ago. Increasingly, leaders are becoming aware of the urgency of this need. For example, the bi-par-

tisan Energy Future Coalition made the smart grid one of its six areas of principal emphasis in its June, 2003 report.

This smart grid, which encompasses both the long distance transmission system and the local distribution systems, must incorporate ubiquitous sensors throughout the entire delivery system and facilities, employ instant communications and computing power, and use solid-state power electronics to sense and, where needed, control power flows and mitigate disturbances instantly.

The upgraded system will have the ability to read and diagnose problems, and in the event of a disruption from either natural or man-made causes, it will be “self-healing” by automatically isolating affected areas and re-routing power to keep the rest of the system up and running. It will be alert to problems as they unfold, and able to respond at the speed of light.

Another advantage of the smart grid is that it will be able to support a more diverse and complex network of energy technologies. Specifically, it will be able to seamlessly integrate an array of locally installed, distributed power sources, such as fuel cells, solar power, and combined heat and power systems, with traditional central-station power generation. This will give the system greater resilience, enhance security and improve reliability. It will also provide a network to support new, more energy efficient appliances and machinery, and offer intelligent energy management systems in homes and businesses.

The enhanced security, quality, reliability, availability, and efficiency of electric power from such a smart grid will yield significant benefits. It will strengthen the essential infrastructure that sustains our homeland security. Moreover, it will reduce the cost of power disturbances to the economy, which have been estimated by EPRI to be at least \$100 billion per year—and that’s in a normal year, not including extreme events, such as the recent outage. Further, by being better able to support the digital technology of business and industry, the smart grid will also enable a new phase of entrepreneurial innovation, which will in turn accelerate energy efficiency, productivity and economic growth for the nation.

The economic benefits of the smart grid are difficult to predict in advance, but they will consist of two parts: (1) stemming the losses to the U.S. economy from power disturbances of all kinds, which are now on the order of 1% of U.S. GDP, and (2) taking the brake off of economic growth that can be imposed by an aging infrastructure. The first part alone could yield a five-to-one return on the investment required to build and implement the smart grid.

RECOMMENDED CONGRESSIONAL ACTION

The current legislation contains some good provisions in support of technology development, but the national transformation of the grid is so important that it requires stronger action and support from the Congress in the energy bill. There are four key areas of technology policy that the energy legislation should address, as described below:

1. Establish the “Smart Grid” as a national priority

First, the Congress can provide real leadership for the country by establishing the “smart grid” as national policy and as a national priority in the legislation. By articulating this as national policy and offering a compelling vision for the country, Congress can increase the pace and level of commitment to the modernization of the electricity grid.

That action itself will help to focus the attention of the federal and state agencies and the utility industry and others in the private sector. By making the smart grid a national priority, Congress will be sending a clear message that this modernization is critically important in all sectors and in all regions of the country, and that deployment should be undertaken rapidly.

2. Authorize increased funding for R&D and demonstrations of the “Smart Grid”

To carry through with the priority of the smart grid, the legislation should include significantly increased development funding. In particular, it should contain authorization for significant appropriations over the next five years for programs managed by the Department of Energy, working in partnership with the private sector.

The Administration has taken some steps in this direction in its earlier budgets, but this demands even stronger, more targeted action by the Congress. Support is needed in two areas. One is more extensive R&D in the relevant technologies, needed to provide all the components of the smart grid. The other area is to support an aggressive program of technology demonstration and early deployment projects with the states and the industry, to prove out these components, and to refine the systems engineering which integrates all these technologies in real-world settings.

EPRI estimates that this research and demonstration program will require increased federal funding for R&D on the scale of approximately \$1 billion, spread out over five years, with the private sector contributing a significant amount of matching funding. These R&D and demonstration funds represent an investment that will stimulate deployment expenditures in the range of \$100 billion from the owners and operators of the smart grid, spread out over a decade.

3. Recognize a public/private institutional role for the R&D

It is vitally important that the legislation recognize that this R&D and demonstration program should be carried out in partnership with the private sector. The government can sponsor excellent technical research. However, it is the industry that will ultimately be responsible for building, maintaining and operating the electricity system to keep the lights on and the computers humming. And as we've just seen, there is little tolerance for error—it has to work all the time—so this is more than a “research” program, it is an engineering and operations program on which the country will rely.

DOE is the lead agency for the federal government in this area, and its new Office of Electricity Transmission and Distribution should have the lead responsibility on behalf of the federal government for directing the program. To succeed, DOE needs a partner that can effectuate the involvement of the private sector and other stakeholders in carrying out this program. This should be an organization that can work collaboratively with DOE on the management of the program, and that can receive and manage matching funds from both the public and private organizations. Congress should formally recognize the importance of this type of public/private partnership in the energy bill.

One potential vehicle for this role is the Electricity Innovation Institute. It was with these strategic goals in mind, that the EPRI Board of Directors sponsored the creation of this new organization in 2001, with the strong support of its Advisory Council composed of state utility regulators, academics, and representatives of business and public interest organizations.

4. Develop an approach to the long-term funding for deployment

A national approach is needed to fund the full-scale deployment of the smart grid throughout the country. The scale of deploying the technology, and doing the detailed systems engineering to make it work as a seamless network, will require significant levels of investment, estimated at \$100 billion over a decade.

These implementation costs for the smart grid will be an investment in the infrastructure of the economy. This investment will pay back quickly in terms of reduced costs of power disturbances and increased rates of economic growth.

Nevertheless, this is a substantial challenge for an industry that is already under financial strain, and is lacking investment incentives for the grid. It's a challenge, too, because this investment must be new and additional to what the industry and its customers are already providing to keep the current systems operating. A business-as-usual approach will not be sufficient.

We need a national financing approach or mechanism that will be effective, fair, and equitable to all parts of society. This will require agreement among the industry, state regulatory commissions, customers and other stakeholders as to how that should be carried out.

The answer to this will undoubtedly take extended discussions with the various stakeholder groups. Rather than rush to judgment on one or another specific approach, we urge that Congress include language in the energy bill to direct the Administration to develop an appropriate recommendation. The Administration should work with the industry, the states, customers, and other to develop its recommendation and report back to Congress at a specific time, no later than one year after enactment.

As noted earlier, the cost of developing and deploying the smart grid for the country should be thought of as an investment in the future—in a secure, reliable, and entrepreneurial future—that will pay back handsomely over many decades to come as the energy backbone of the 21st century.

Thank you.

Mr. SHIMKUS. Thank you, and I want to commend the panel for really being close on time. It has been very, very helpful.

Mr. OWENS. Do I get a chance?

Mr. SHIMKUS. Yes. That is why I said it. I knew it was coming. So you are recognized, Mr. Owens, for 5 minutes. Welcome.

STATEMENT OF DAVID K. OWENS

Mr. OWENS. Thank you, Congressman. Good afternoon, Mr. Chairman and members of the committee. I am David Owens, executive vice president of the Edison Electric Institute. We appreciate the opportunity to appear before this committee this afternoon. I will focus my testimony on the policies, issues raised by the recent power outages, especially those addressed in pending energy legislation.

The fact is that competition in electricity markets exists, and we cannot retreat from those markets. Instead, we must focus on making the markets work. For any model of electricity markets to work, there must be adequate transmission in place and appropriate rules for reliable operation. Without sufficient transmission, none of the models will work reliably. While utilities are investing roughly \$3 billion a year in transmission, most of the new transmission being built is to help serve local load and connect generation to the grid. In my opinion, more emphasis is needed on removing disincentives to investment and long distance, high voltage transmission wires necessary to strengthen regional markets. We believe that Congress can help strengthen our Nation's transmission infrastructure by including a number of provisions in the final version of the energy legislation.

We strongly support provisions in both the House and the Senate energy bills that would create an electric reliability organization with FERC oversight. In fact, I think that is the consensus you have heard all day. This organization would be responsible for developing and enforcing mandatory reliability rules and standards that are binding on all electric companies and market participants. We also support a provision in the House energy bill to grant FERC limited backstop siting authority to help site transmission lines in DOE-designated interstate congestion areas if States have been unable to agree to move forward.

Now, FERC has 55 years of experience in siting natural gas pipelines. FERC also has the ability to consider the regional needs and benefits of new transmission lines. The House energy bill contains provisions to reform and simplify the transmission permitting process on Federal lands, and we strongly urge their inclusion in the final energy bill. As you know, these provisions would designate DOE as the lead agency to coordinate and set deadlines for the Federal environmental and permitting processes. The House bill also would set deadlines for the designation of transmission corridors across Federal lands.

We also believe that repealing PUHCA, the Public Utility Holding Company Act, would help attract the billions of dollars of new capital needed to increase investments in our transmission infrastructure. PUHCA is a substantial impediment to investment and energy infrastructure. Now, both versions of the energy legislation include provisions to repeal PUHCA and to transfer consumer protections to FERC and the States.

We also believe that FERC and the States should utilize innovative transmission pricing incentives—you heard all the members of the panel make reference to that—including performance-based rates and higher rates of return to attract capital for investments and transmission. By reducing transmission congestion and in-

creasing the grid's efficiency, investments in new and existing transmission will allow greater economic dispatch of lower-cost generation. The net benefits to the consumer overall could be a lowering of electric bills. The House version of the pending energy legislation includes FERC pricing provisions.

Now, I know this committee does not have jurisdiction over tax issues, but EII believes that the U.S. tax code should be amended to provide enhanced, accelerated depreciation for transmission assets similar to the tax treatment that is provided to other major capital investments. We support, for example, reducing the depreciable lives of transmission facilities from 20 years to 15 years. In addition, we believe that it is appropriate for Congress to ensure that electric companies that sell or dispose of their transmission facilities through a FERC-approved RTO or through some form of an independent transmission company do not suffer substantial tax penalties because of such actions. Accelerated depreciation provisions are included in the House version of the pending energy legislation. Both the House and Senate bills also address transmission asset sales or dispositions.

In conclusion, adequate transmission infrastructure governed by mandatory reliability rules is essential regardless of how electricity markets evolve. Our challenge is to work together to make sure the transmission system can provide consumers with affordable, reliable electric service no matter what industry structure model exists. We look forward to working with Congress on the pending energy bill to meet that challenge. Thank you for this opportunity and I look forward to your questions.

[The prepared statement of David K. Owens follows:]

PREPARED STATEMENT OF DAVID K. OWENS, ON BEHALF OF THE EDISON ELECTRIC INSTITUTE

Mr. Chairman and Members of the Committee: My name is David K. Owens, and I am Executive Vice President of the Edison Electric Institute (EEI). EEI is the association of U.S. shareholder-owned electric utilities and industry affiliates and associates worldwide. We appreciate the opportunity to testify on the electric power outages that affected regions in the Eastern Interconnection for several days in August.

The Committee has requested information on the specific factors and events leading up to and contributing to the blackout. While there has been a great deal of speculation about the sequence of events that caused the blackout, we believe that the international investigative effort being led for the United States by the Department of Energy (DOE), with technical expertise from the North American Electric Reliability Council (NERC), the regional reliability councils and the affected regional transmission organizations (RTOs) and individual utilities, will provide answers to those questions.

Our testimony will focus on the policy issues that have been raised by the recent power outages, especially those addressed in the pending comprehensive energy bill, and what we believe Congress can do to help prevent similar incidents in the future.

ELECTRICITY COMPETITION AND THE INFRASTRUCTURE

The question of whether electricity competition caused the blackout has been repeatedly asked and argued about. We believe that is not the relevant question. Competition in wholesale and a number of retail electricity markets exists, and we cannot retreat from these markets. We must work together to make competitive markets work. Electrons follow the laws of physics. No matter what utility structure model exists—competitive, a mixed model or fully integrated—there must be adequate infrastructure in place and appropriate rules for reliable operation. Sufficient transmission capacity is a critical building block in all of the models. Without adequate transmission, none of the models will work.

The recent blackout, whatever its causes, reveals that the current system faces many stresses. Fortunately, Congress can help to relieve those stresses with a number of provisions that are included in the pending energy legislation.

ENSURE RELIABILITY STANDARDS ARE MANDATORY AND ENFORCEABLE

NERC was formed in the aftermath of the 1965 power outages in the Northeast, and for more than thirty years, NERC has set voluntary reliability rules and standards. This system has generally worked well in the past, but today's electricity market requires a mandatory reliability system, with enforcement mechanisms. The number of market participants has increased dramatically, as have the number and complexity of electricity transactions being transmitted.

Since early 1999, a broad group of stakeholders, including EEI and many of its individual member companies, have supported legislation that would create an electric reliability organization, with Federal Energy Regulatory Commission (FERC) oversight, to develop and enforce mandatory reliability rules and standards that are binding on all electric companies and market participants. Reliability provisions supported by these stakeholders are included in both the House and Senate versions of the pending energy legislation. We strongly urge inclusion of these reliability provisions in a final energy bill.

REMOVE ROADBLOCKS TO TRANSMISSION INVESTMENT

The level of investment in the long-distance, high-voltage wires has not kept pace with the growing demands being imposed on the system because of greater electricity use, competition in wholesale markets and related factors. Thus, it is not surprising that the transmission grid is becoming increasingly congested:

- According to NERC, the volume of actual transmission transactions has increased by 400 percent in the last four years. Transactions that could not be completed because of congestion on transmission lines increased five-fold to almost 1,500 in 2002, compared with 300 uncompleted transactions in 1998.
- Congestion in the Mid-Atlantic region, where the highly respected PJM RTO controls transmission, has quintupled between 1999 and 2001 to \$271 million, before increasing to \$430 million with the additional of PJM West.

Billions of dollars are being spent annually on new transmission facilities, but the bulk of the new transmission being built is to help serve local load and connect new generation to the grid. More emphasis is needed on removing disincentives to investment in the long-distance, high-voltage wires needed to strengthen regional electricity markets, such as siting delays, regulatory barriers and tax policies.

In the early 1970s, the annual growth rate in lower voltage line-miles that support localized grid operations and interconnections was 1.9 percent, while the annual growth rate for high-voltage line-miles was 3.2 percent. By the latter half of the 1990s, this relationship had reversed: the higher voltage line-miles were growing at only 0.3 percent, while lower voltage line-miles were growing at 3.5 percent.

According to the Energy Information Administration (EIA), consumer demand for electricity is going to increase by roughly 50 percent over the next two decades. To meet this increase in demand, capital investments in upgrades and new transmission lines must increase from the current level of \$3 billion annually to roughly \$5.5 billion annually over the next ten years.

A number of critical disincentives actually discourage investment in transmission, including:

- Local opposition to siting new facilities,
- Inability to recover planning and related costs when facilities are delayed or ultimately rejected by siting authorities,
- State retail rate caps that may prevent utilities from recovering their investments in transmission,
- Uncertainty over transmission ownership and control policies, and
- Uncertainty as to whether beneficiaries will pay for new transmission.

GRANT FERC BACKSTOP SITING AUTHORITY

While traditional state siting processes will be adequate for most local upgrades to existing transmission systems, limited FERC backstop siting authority to help site new transmission lines in interstate congested areas would be a critical aid in developing the more significant transmission infrastructure needed to support regional wholesale electricity markets.

Before states will grant utilities siting permits, utilities typically must prove that the new facilities are needed. The determination of "need" often focuses on service to in-state consumers and not to consumers across an entire region. In fact, many

state siting laws do not allow for the consideration of regional, or out of state, benefits of new transmission lines. If states consider only intrastate benefits and not regional benefits, they may have little choice under state law but to reject the proposed line, even if the benefits to the region are significant.

As competitive wholesale electricity markets continue to develop, multi-state RTOs will increasingly gain operational control of utility transmission lines. But, most state siting laws do not recognize the role new entities such as RTOs or independent transmission companies will play in transmission planning and siting. It is not clear that these new entities would even be considered utilities under state laws.

Regional electricity markets require a siting process that has the ability to consider regional and even national needs. FERC has jurisdiction over wholesale electricity markets, but, unlike its authority to site natural gas pipelines, it currently does not have any authority over transmission siting to help ensure that there is sufficient transmission capacity to support those markets.

The House version of the pending energy legislation gives FERC very limited backstop transmission siting authority. This authority extends only to helping site transmission lines in "interstate congestion areas" designated by DOE and only if states have been unable to agree or act within a year. We strongly urge its inclusion in the final version of the energy bill.

FERC has decades of experience in siting energy facilities. Since 1948, interstate natural gas pipelines have gone to FERC for certificates that grant them eminent domain authority. FERC has permitted hydroelectric facilities since 1920.

Protection of the environment is a top consideration in FERC's processing of natural gas pipeline certificates. Under the National Environmental Policy Act (NEPA), FERC is required to perform a comprehensive environmental analysis of all gas pipeline construction proposals. The House transmission siting provision would require the same environmental protection process for any transmission line construction proposal.

REFORM THE FEDERAL LANDS PERMITTING PROCESS

The unnecessarily complicated, time-consuming and difficult multi-jurisdictional federal permitting process to site energy facilities, including authorizations for siting across federal lands, is another major impediment to building new transmission. In some areas of the country, this is the principal impediment.

Problems with the federal permitting process include (1) a severely fragmented process, where each federal agency with potential jurisdiction has its own set of rules, timelines for action and processes for permitting; (2) the tendency by federal agencies to require multiple and duplicative environmental reviews; (3) a failure to coordinate with any state siting process; and (4) a lack of harmonized permit terms from one agency to the next.

The federal transmission permitting process needs to be coordinated, simplified and made to work with any state siting process. The House-passed energy bill accomplishes this objective by designating DOE as the lead agency to coordinate and set deadlines for the federal environmental and permitting process. In addition, DOE would be responsible for coordinating the federal process with any state and tribal process. A state where a transmission facility would be located could appeal to DOE when a federal decision deadline has been missed or a federal authorization has been denied. To further facilitate siting, the House version of the energy bill sets deadlines for the designation of transmission corridors across federal lands. We strongly support inclusion of these provisions, with some technical modifications, in the final energy bill.

REPEAL THE PUBLIC UTILITY HOLDING COMPANY ACT (PUHCA)

We also believe that repealing PUHCA will help attract significant amounts of new investment capital in the industry. By imposing limitations on investments in the regulated energy industry, PUHCA acts as a substantial impediment to new investment in energy infrastructure, keeping billions of dollars of new capital out of the industry. As a result, we believe that PUHCA has contributed to the failure of the electricity infrastructure to keep pace with growing electricity demand and the development of regional wholesale markets.

We also believe that repealing PUHCA will help expedite the formation of interstate transmission companies (ITCs). ITCs can play an important role in planning and building new transmission infrastructure. However, interstate transmission companies could be required to become registered holding companies and subject to PUHCA's restrictions and additional regulation, making it more difficult to raise financing.

Both House and Senate versions of the pending energy bill contain provisions that would repeal PUHCA and transfer consumer protections to FERC and the states. These provisions should be included in the final energy bill.

REFORM FERC TRANSMISSION RATE POLICIES

We believe that FERC and the states should utilize innovative transmission pricing incentives, including performance-based rates and higher rates of return, to attract the capital necessary to fund needed investment in transmission. In addition, transmission users must pay their fair share of the system's costs. We support the FERC pricing and transmission technologies provisions in the House version of the pending energy bill. Likewise, we encourage the states to assure that utilities can recover their costs for investments for transmission under state regulation, with a reasonable rate of return.

According to a December 2001 FERC "Electric Transmission Constraint Study," transmission costs make up only 6 percent of the current average monthly electric bill for retail consumers. On the other hand, generation costs make up 74 percent of the average bill. By reducing transmission congestion, investments in new transmission will allow greater economic dispatch of lower cost generation.

FERC estimates that a \$12.6 billion increase in transmission investment would add only 87 cents to an electric customer's average monthly bill. But, since increased transmission investment will help reduce congestion and enable lower cost power to reach consumers more easily, FERC anticipates that the net benefits to overall electric bills could be potentially quite large.

For example, FERC estimates that if the reduced transmission congestion resulted in just a 5 percent savings in generation costs, consumers would see more than a \$1.50 decrease in their average monthly bills. If the generation savings from reduced congestion were 10 percent, the average monthly bill for consumers would drop by \$4.00. So, a small increase in transmission investment can reap a much more significant benefit in lower generation costs.

In addition to investments to relieve congestion, investments in new technology to help improve the control and use of existing transmission lines is critically important.

REVISE THE TAX CODE TO ENCOURAGE TRANSMISSION INVESTMENT

While we appreciate that the tax provisions in the energy bills originated in other committees, we want to call your attention to several critical tax provisions that will help increase investment in our transmission infrastructure.

The U.S. tax code should be amended to provide enhanced accelerated depreciation (from 20 to 15 years) for electric transmission assets, similar to the tax treatment governing other major capital assets. Currently, transmission assets receive less favorable tax treatment than other critical infrastructure and technologies. In addition, Congress should ensure that electric companies that sell or otherwise dispose of their transmission assets into a FERC-approved RTO or ITC do not suffer tax penalties. Accelerated depreciation provisions are included in the House version of the pending energy legislation; both the House and Senate versions of the bill address transmission sales or dispositions. We strongly urge inclusion of both of these provisions in the final version of the energy bill.

CONCLUSION

As I stated earlier, an adequate transmission infrastructure, governed by mandatory reliability rules, is essential regardless of whether wholesale competition or retail competition exists or whether electric companies are vertically integrated or disaggregated. Our challenge is to work together to make sure the transmission system is robust enough to keep the lights on and provide consumers with affordable, reliable electric service no matter what industry structure model exists. The utility industry is currently investing billions of dollars a year in upgrading our transmission infrastructure. But, clearly more needs to be done. We urge Congress to adopt badly needed reforms to our federal electricity laws to help facilitate reliability and investment in, and construction of, our energy infrastructure.

Mr. SHIMKUS. Excellent, excellent, excellent. My appreciation for the panel and your long suffering for waiting all day for this time to come. I would now like to recognize the chairman of the Energy and Air Quality Subcommittee, Mr. Barton.

Mr. BARTON. Thank you. Thank you, Mr. Chairman. Mr. Owens, you represent the investor-owned utilities, I believe; isn't that correct?

Mr. OWENS. That is correct.

Mr. BARTON. I have heard your answer to this, but I want to hear it again just to put it on the record. We have had a lot of discussion in previous panels about RTOs and the inclusiveness that is needed for RTOs and the operational management that is needed. I just want to make—does EII support in a given area if you are going to have an RTO that everybody in that area should be a part of the RTO regardless of the ownership or the type of transmission or generator that is in that area?

Mr. OWENS. We are strongly supportive of Regional Transmission Organizations. I might amplify my answer and say, however, we do not support mandatory Regional Transmission Organizations.

Mr. BARTON. But you do support, if you are going to have one, that the coops be in it and the munis be in it.

Mr. OWENS. We support all participants: Investor-owned utilities, municipal companies, cooperatives, government-owned entities, such as the Bonneville Power Administration.

Mr. BARTON. Okay. Thank you. Mr. Glauthier, I didn't really read your testimony in detail but you talked about the smart grid. Does that include more R&D for super conducting transmission wire, that you might not have to build additional lines, you could just upgrade existing lines so that they could more current with less resistance?

Mr. GLAUTHIER. Yes, Mr. Chairman. That would be a feature on key inner ties or areas that are key congestion points.

Mr. BARTON. And if you were to do that, you wouldn't have some of the siting issues. We could use existing right-of-ways. It would be easier to upgrade the system and to get more capacity out of it.

Mr. GLAUTHIER. Super conductivity can do that and so can some other current technologies that could come into place even more promptly.

Mr. BARTON. Okay. Now, Mr. Makovich and Mr. Fleishman, it appears that the problem, and we don't have a definitive answer on exactly what caused the problem, but it appears that this issue of the Lake Erie loop going down and then a backflow in the Lake Erie loop is a part of it. Has there been adequate additional transmission, long-line transmission built in that area? And if not, is that a State siting issue, is it an equity issue of the affected utilities? If in fact they need additional transmission capability in that area, why haven't they done it in the past?

Mr. MAKOVICH. Well, if you look at the date on transmission investment, it has been declining now for over 5 years. I think we reached a 10-year low a year ago. In July of 2002, I testified in the Senate and I said that a gridlock plagues most transmission investment decisions because incentives are misaligned, and we are not able to undertake the cost-benefit analyses and nobody is in the position to confront all those costs and benefits to get this investment job done. So we have had a longstanding set of transmission investments that are highly economic and they are just not getting done.

Mr. BARTON. Mr. Fleishman?

Mr. FLEISHMAN. Yes. I would just also highlight that most of the utilities in those regions, Ohio, Michigan, have been under rate freezes that have been in place and continue in place for some period of time. And that obviously is another issue that has been mentioned in the past as being a potential impediment to committing to large transmission investments.

Mr. BARTON. Okay. Mr. Owens, and then I want Mr. Glauthier to answer this one too since you were in your prior life the Deputy Secretary at—Under Secretary at Energy, so you have got a broader portfolio than you are admitting to in your testimony today. Mr. Dingell and myself asked the prior panel, the ISO CEOs, the amount of authority they had in terms of operational control and dispatch authority. They all agreed that the more control an ISO would have in that area, the better able they would be to manage the problem and perhaps prevent it. Mr. Owens, how strongly does EII feel about a tight RTO? And, Mr. Glauthier, just in kind of the general good public policy, what do you think about having a tight RTO?

Mr. OWENS. If I might put it in a context. A tight RTO would be an RTO much like PJM, the New York ISO and the New England ISO. We all recall that the PJM ISO really evolved from a tight power pool, was started in 1927. Tight RTO would be one that would run the energy market and would keep the reliability of the grid operational. We support tight RTOs but we also believe it is important to recognize there has to be a transition to move from a current state to one where the RTO would run the energy market. As I understand it, MISO is scheduled to be up and running the energy market by next March. It does not, however, suggest to me that MISO will have the level of efficiency or operational flexibility that PJM has—a system that was started in 1927.

Mr. BARTON. Mr. Glauthier, and I know my time has expired so—

Mr. GLAUTHIER. Yes. Just briefly, it seems to me that what we need to do is recognize there are going to be regional differences, that there isn't going to be one size that will fit all solutions. And we need to have management that will be appropriated in every region. That management needs to include all the sources, it needs to be able to be effective, but it can be implemented with different kinds of ownership structures, different regulatory structures.

Mr. BARTON. Okay. Thank you, Mr. Chairman.

Mr. SHIMKUS. I would like to recognize the gentleman from Massachusetts, Mr. Markey, for 5 minutes.

Mr. MARKEY. Thank you. Is there any reason why Texas isn't part of the Eastern Interconnect? Would any of you want to defend—

Mr. OWENS. It is not in the East.

Mr. MARKEY. Would any of you—

Mr. OWENS. We will defer to the Chair.

Mr. MARKEY. See, I mean it kind of makes sense to have an Eastern Interconnect and a Western Interconnect if the Rocky Mountains are the big obstacle there, plugging the two into each other, but wouldn't it have really helped if Ohio had some of that Texas power that was surging up there? Is there any reason, in

other words, logistically, for Texas not to be tied into the Eastern Interconnect? Mr. Makovich?

Mr. MAKOVICH. Well, there is actually a lot of history behind this, but Texas—there are parts of Texas—

Mr. MARKEY. Yes. Dan Abraham was chairman of this committee.

Mr. MAKOVICH. There are parts of Texas that are in the Eastern Interconnect, but there is a transmission network inside of Texas that does align with ERCOT, the Electric Reliability Council of Texas. That part of the Texas grid for a variety of reasons, including not being subject to FERC regulation historically, created an organization that was separate and interconnections not synchronized with the Eastern Interconnect or the Western Interconnect, but with these questions of size it certainly is large enough that it can operate reliably. And in fact because there is good alignment with the organization and the underlying network, it is, along with PJM, one of the few places where we are seeing some significant transmission investment.

Mr. MARKEY. Is New England large enough to operate alone?

Mr. MAKOVICH. Yes. There doesn't seem to be a current ISO that looks to be too small.

Mr. MARKEY. So if we fought becoming part of the Eastern Interconnect for all these new ideas, that would—we would be able to be self-sufficient.

Mr. MAKOVICH. I am sorry, would you repeat that?

Mr. MARKEY. New England would be able to be as self-sufficient as Texas is in terms of its electricity—

Mr. MAKOVICH. Well, you must recognize, though, that there are an awful lot of benefits that New England gains by being—

Mr. MARKEY. I understand that, but I am saying if we decided—

Mr. MAKOVICH. It could. It could, yes.

Mr. MARKEY. Because Texas forgoes those benefits as well.

Mr. MAKOVICH. And in fact the fact that it was able to unplug and stay up shows that it does have a degree of self-sufficiency, yes.

Mr. MARKEY. Let me read you this from a Standard & Poor's July 2003 report. It is entitled, "The Credit Quality for U.S. Utilities Continues Negative Trend," S&P July 2003. Quote, "The downward slope in the power industry's credit picture can be traced to higher debt levels and overall deterioration in financial profiles, constrained access to capital markets as a result of investor skepticism over accounting practices and disclosure, liquidity problems, financial insolvency and investments outside the traditional regulated utility business." So would you agree that it is not PUHCA but other factors, such as the failed diversifications, that lead utilities not to invest in upgrade in transmission? Mr. Makovich?

Mr. MAKOVICH. Oh. Well, most of the financial distress that we are finding in the merchant power plant area, the people that built all those gas-fired power plants since 2000, are not typically the people that own these transmission assets. Most of the transmission assets, and many of the people that spoke today, Exelon and AEP and others, own very large portions of the transmission network, are financially healthy and could make the investments

but as Exelon said, it took the deterioration of the system, the embarrassment of a blackout and the problems they had to go through there defending themselves that caused them to finally make billions of dollars of investments, some of which they still can't even recover. That is not a healthy environment for investors.

Mr. POPOWSKY. Yes, I agree. That is the point.

Mr. MARKEY. Are you related to Eddie Popowski who was the base coach for the Red Sox?

Mr. POPOWSKY. No. His name was spelled with an I. I know he was a third base coach for the Red Sox—

Mr. MARKEY. Yes.

Mr. POPOWSKY. [continuing] but—

Mr. MARKEY. No? No relation?

Mr. POPOWSKY. [continuing] I can't claim any relation. That is exactly the point. The companies that have had problems, including some of our regulated utilities who have gotten into unregulated businesses, they haven't lost money on the transmission and distribution, they have lost money on their unregulated generation, telecommunications, water utilities, foreign subsidiaries. So I don't think the place where they are losing money and the financial distress is coming from is from there.

Mr. MARKEY. Let me go to Mr. Fleishman because my time is going to run out. Mr. Fleishman, could you—you know, it has been alleged the PUHCA is preventing investment from going into transmission. Wasn't most of the transmission system constructed under PUHCA? And in your opinion, looking at this whole pattern of diversification that many of these utilities engaged in, do you think the repeal of PUHCA is central to our ability to build the transmission system of the 21st century?

Mr. FLEISHMAN. I would say repeal of PUHCA is one piece of the puzzle. There are certainly a number of other reasons for the underinvestment in transmission. What I would say is that because of the condition that the industry is in today, which, as you noted, is due to many different reasons, but because of the weak financial condition that the industry is in today, there is a need for more non-traditional outside capital than we have typically had in the past and that that is one of the reasons where PUHCA is more of an impediment than it has been in the past.

Mr. MARKEY. PUHCA companies tend to have much higher ratings, bond ratings, than non-PUHCA companies. Why is that?

Mr. FLEISHMAN. Well, I am not sure the ratings are that much different. Clearly, the unregulated—

Mr. MARKEY. No. I have the fixed ratings right here for—oh, what is the date on this—September 2, and they are much higher right across the whole board.

Mr. FLEISHMAN. I think a lot of the non-PUHCA companies are the merchant energy companies, the pure play companies that were purely invested in the unregulated area.

Mr. MARKEY. But PUHCA prohibits diversification and by doing so their bond ratings are higher than the—

Mr. FLEISHMAN. Well, PUHCA companies have diversified.

Mr. MARKEY. Right. But—

Mr. SHIMKUS. The man from Massachusetts knows I have great admiration for him, but my patience is wearing thin. Thank you.

But I will jump into this debate a little bit in that, yes, transmission was expanded under PUHCA but that was under a regional monopoly system in which return was set by the—it was a whole different world than what we have evolved to now with merchant plants and a competitive market, wholesaling of power and the like.

Mr. OWENS. Mr. Chair, could I respond to that, just amplify on the—

Mr. SHIMKUS. Sure.

Mr. OWENS. [continuing] answer that Mr. Fleishman gave? He made—

Mr. SHIMKUS. Mr. Owens, I think your microphone—

Mr. OWENS. He made a point about investment alternatives, and one of the things that we want to preserve is the opportunity to have interstate transmission companies created. What PUHCA does it really retards the attraction for investors to create multi-State transmission companies. It retards the ability of investors to put their money in these companies and at the same time recognize that they are in other businesses. It is my view that if we are seeking to expand our transmission system, that we need to have all the options available, and the Public Utility Holding Company Act certainly takes away that option.

Mr. SHIMKUS. Does it not impede capital? In this environment today, what we need is capital to flow, and PUHCA impedes the ability for capital to flow.

Mr. OWENS. It would suggest to an entity that were seeking to make investment in the transmission system that they would be subject to a whole series of complex regulatory laws, and it would be a disincentive for them making that investment in a transmission system.

Mr. SHIMKUS. Okay. I want to go to—and I have limited time even though I do have the gavel, and I want to move on to a couple other questions. Mr. Glauthier, I want to go back to this loop flow debate since you are an expert in research and development, and we were talking as members over there as the question was if your State is a net exporter of power, if you generate more electricity than is consumed and you are exporting, are you subject to the loop flow problem or is that a problem—is it a problem because you are, in essence, a—you are leaning on the grid, as the terminology was used earlier?

Mr. GLAUTHIER. I am not a technical expert, but I believe it can be a problem still. The loop flows are a problem in many parts of the country.

Mr. SHIMKUS. So it is not whether you are a net exporter or a net importer of power in a region.

Mr. GLAUTHIER. That is my understanding.

Mr. SHIMKUS. Okay. Good. I think a lot of us have learned a lot.

Mr. OWENS. If I might amplify on that. He is absolutely right, it is not whether you are an exporter or importer of power, but it has a lot to do with the physical configuration of the system. So, for example, to the degree that you do not have sufficient transmission capacity, it could result in electrons flowing over paths that were not originally designed to flow over. So it is a function

of the physical design of the system, the availability of transmission and capacity of generating resources.

Mr. SHIMKUS. And what I would also like to do is I am still, as people now probably know if they have listened the last 2 days, a proponent of the standard market design. Based upon your distinct positions across the board, where do you individually stand, or your organization, on the standard market design? And we will start with Mr. Makovich.

Mr. MAKOVICH. Yes. In general, the standard market design makes a lot of sense. There is a right way and a wrong to set up power markets, and I think what standard market design did was it tried to take the lessons from power markets that worked and said, "Here are the things you need to do to get power markets to work properly." But I would caution that particularly going forward I think we are confronted with the reality that we have got half the business that is moving that direction and half the power system that is not, and we have got to tackle this reliability question and regional coordination and planning with this kind of hybrid.

Mr. SHIMKUS. Mr. Fleishman?

Mr. FLEISHMAN. Yes. I would generally agree with Mr. Makovich's comments in that we think the concept of standard market design is something that was a good concept to try. I think clearly the regional differences in these markets and their state of deregulation requires a good amount of flexibility in actual implementation of these markets and that it is critical that is considered. The other thing I would highlight is that it is going to be very important that there is a buy-in of the States and local entities into the ultimate design in a region, and if there is not a buy-in and a good Federal-State partnership in working this through, then I worry that the markets will not work.

Mr. SHIMKUS. Mr. Popowsky?

Mr. POPOWSKY. Yes. Being from a PJM State, I, like you, think the standard market design works pretty well in our region and in our type of region, but I can certainly understand the principal objections of people in the Pacific Northwest or the Desert Southwest that say, no, their systems are very much different from the kind of systems that we have in our region of the country.

Mr. SHIMKUS. Thank you. Mr. Glauthier?

Mr. GLAUTHIER. Yes. The organizations I am representing are focused on technologies to help make the system work reliably and securely in whatever political and ownership environment there is. So rather than take a position on standard market design, we are trying to work with all of these different settings and make sure that the technology is available and will work well.

Mr. SHIMKUS. And Mr. Owens?

Mr. OWENS. For any market design to work you need an adequate infrastructure, and some of the challenges with respect to a standard market design are that you have to recognize regional differences. We have got to also recognize that we have different forms of ownership in our industry. We have got to recognize as well that the States for the most part have the responsibility on planning and siting of resources, and for any design to be successful, it is going to require the States and the FERC working together. The States have to recognize removing of regional markets,

FERC has to recognize that the States have a very powerful voice in the siting and the development of the overall infrastructure.

Mr. SHIMKUS. Thank you very much, and now I would like to recognize Ms. McCarthy from the Show Me State for 5 minutes.

Ms. MCCARTHY. Thank you, Mr. Chairman. I want to thank all the panelists for their expert testimony here today, and I am very much intrigued by this public-private R&D partnership, Mr. Glauthier, that you are advancing. And I wonder, Mr. Makovich, you put some very thoughtful words together on what the problem is, on settling who pays in your testimony, and I understand the concerns that you raise about where to spread the costs. But if we look to a model such as Mr. Glauthier is describing of public-private effort, would that in fact address the concerns that you very rightly raise in your research and testimony about these complex arguments about who will benefit and who should pay and all the things that seem to keep us from getting where we need to be? I wonder, Mr. Makovich, if you would just expand on your thoughts on transmission investment planning at the network level and the guarantee of cost recovery prevents investment? If we found this public-private partnership, could we then move forward?

Mr. MAKOVICH. Well, at Sierra, we started a study in January, it is called, "Grounded in Reality," to try to put some numbers on how much investment opportunity exists in the transmission network. And it is not just new power lines and substations, a lot of this new technology that we are talking about here has very, very strong payback. And so a lot of this solid State technology would provide for greater control, could limit some of this loop flow problem and so forth, but, again, it costs money to implement this, and the argument who pays—the benefit of this new technology is very robust, but its conditions change. The people that get that benefit can shift dramatically. So if you hold this up until you get everybody to agree how much of it they are willing to pay for, what we are seeing is we are just not getting the investment done.

Ms. MCCARTHY. So based on that last sentence, does someone like the Federal authority have to step in and resolve that? How best to get over that hump that is a very real issue and contentious—

Mr. MAKOVICH. Right.

Ms. MCCARTHY. [continuing] especially given the 50 States and the regional grids—

Mr. MAKOVICH. Right.

Ms. MCCARTHY. [continuing] and the territorial instincts of all of that.

Mr. MAKOVICH. The recommendation here is when the network planning happens and they identify what should be done, those investments should go forward and the costs should be spread across the network. Now, there is a good example. People have talked about southwestern Connecticut. There is a portion of that line that the people there insisted should go underground because they didn't want to look at. Now, there is quite a legitimate objection from people in the State of Maine or Rhode Island, why should they have to pay for the undergrounding costs? So if we spread all these costs and allow the investment to go forward but then allow for a process that we can go back and spread some allocation and

then true up through time for people that have paid too much or too little, that would stop us from stymieing all this investment over this wrangling about who is going to pay.

Ms. MCCARTHY. I thank you for sharing those thoughts. And, Mr. Glauthier, would you like to weigh in on this concept and how we can get there?

Mr. GLAUTHIER. Yes. Thank you, Congresswoman. I think we need to move to another level of thinking about the advancement of technology and upgrading the system. This is a national need. We need to move into the 21st century, we need to develop a system that is robust, that will support renewable technologies and distributed generation and whole new applications. So rather than just focus on how we deal with today's problems, we need to set our sights on a transformation of the system that is not unlike what was done in the country 50 years ago when the super highway system was developed for the country. It was a national priority, it was done on a national basis, done with the strong cooperation of the States. We need to address that, we need to look into this with full participation of customers, of the political entities, the State commissions, the Governors and others, and I think Congress needs to show leadership in that, in directing that and trying to come to some resolution that is fair and equitable and effective.

Ms. MCCARTHY. When you bring Congress into this what has been traditionally—I was a former State legislator, so what was traditionally a States' rights concept, how do you perceive that legislatively so that Congress doesn't look like it is trampling all over States' rights?

Mr. GLAUTHIER. The proposal we are making is that the Congress direct the administration to undertake a process of engaging the States and the customers and the industry and come back with some kind of a recommendation. And in the end, it may be a recommendation that is actually adopted by the States. It may not necessarily be some sort of a Federal system of funding and the like, but I think some uniform approach to it is going to be important, and some way of engaging all these people that is a leadership that the Federal Government can really exercise.

Ms. MCCARTHY. I thank you, and I am giving you back some time, Mr. Chairman.

Mr. SHIMKUS. Well, I appreciate that. Thank you very much, Madam. And now I would like to recognize Mr. Walden from Oregon.

Mr. WALDEN. Thank you, Mr. Chairman. I would like to follow up on this issue of the standard market design, because I think some of you have touched upon one of the concerns those of us who represent Pacific Northwestern districts and States have, and that is the one size doesn't fit all, what you may have in PJM and how we deal with different things. When 62 percent of our region is hydro-based and our 82 percent of our grid is under Bonneville, it is a little different process, and so I am just wondering if you were in our shoes here, do you think SMD would actually work in the Northwest, the same set of rules work there that work in Ohio or Texas?

Mr. OWENS. Well, I certainly don't think the same set of rules work, and I don't think you can have a one size fits all, so I am

in agreement with you. The Eastern Interconnection is very different than the Western Interconnection, you correctly point out. The Eastern Interconnection is a thermally based interconnection, the western is a hydroly based.

Mr. WALDEN. Right.

Mr. OWENS. The Eastern Interconnection does not have the ownership diversity that the Western Interconnection does. Pacific Northwest, as you correctly point out, 70 percent of the ownership of the transmission system is in the hands of the Bonneville Power Administration, so certainly one size doesn't fit all. I think, however, it is appropriate to recognize regional differences. The FERC came out with a White Paper, which, in my opinion, is a bold attempt to try to deal with some of these regional differences, to try to recognize that some States may like some elements of a wholesale market platform and will be able to implement those. Some elements they may reject. It is a step in the right direction, but certainly I don't think we could have a national design that would represent a one size fits all.

Mr. WALDEN. Ye, sir?

Mr. MAKOVICH. It is true that the Pacific Northwest is different from PJM, but PJM also has hydro and there is a well thought out way in which the hydro is dispatched and then the thermal dispatch occurs afterwards. I think one of the things that we have observed is one of the things that went terribly wrong in California was that they couldn't all agree on the market design, and they made a lot of compromises that added flaws. So when you open the door to say, as the FERC White Paper has, that we will be flexible, you open the door to the kind of compromise that led to big flaws in the market design in California. So this is a very difficult area to work in, but by and large, with some minor modifications, standard market design ought to work, but, of course, Bonneville doesn't have to play if they don't want to, and that is not standard market design, but—

Mr. WALDEN. Well, but they could have been put under FERC—

Mr. MAKOVICH. Right.

Mr. WALDEN. [continuing] jurisdiction, and FERC writing the rules could have, in effect, dictated to Bonneville what it is they could or couldn't do.

Mr. MAKOVICH. Right, but that is outside really of the standard market design questions.

Mr. WALDEN. Yes, but our concern was the way it was written they could have been dragged under that, and so all of the work that was being done on a regional basis could have been voided, in effect, by FERC's decision on what should or shouldn't occur there. And some of our concerns, I asked Pat Wood directly, what is it we are not doing you think we ought to do out there, and there is really not much they come back with. And yet I don't necessarily believe that everybody in this operation has a clear understanding of how the hydro system works, our requirement for fish and the water flows, what happens in a drought. I mean it is a whole different deal. I am glad in Niagara and wherever they could flow more water whenever they needed to. It is a little different out

there. You would have a suit in a heartbeat over the Endangered Species Act issues. Yes, Mr. Owens?

Mr. OWENS. If I could just add, and I agree with the premise of your question, and, as I said, I think there are differences. I think, though, you can distinguish the standard market design from the mandatory reliability rules, which I believe—

Mr. WALDEN. I agree.

Mr. OWENS. [continuing] are supported by the folks in the Western Coordinating Council and even—

Mr. WALDEN. And Bonneville.

Mr. OWENS. [continuing] and in Canada. So I think there is an agreement that we can have some mandatory reliability principles that would be in effect nationwide.

Mr. WALDEN. See, I think that is very true, and I know Bonneville would support that, and I think we in the Northwest would support that as well. And in fact the disturbing part of some of the testimony yesterday I think from Mr. Gent from NERC was that they have got these voluntary standards and no big stick; there is no way to enforce them. And he told us there are some companies that just sort of say, well, tough, and there is not much that can be done, even with peer pressure. So I think you are right, I think that there are some mandatory reliability standards that could be put in place. My time has expired anyway. Thank you.

Mr. SHIMKUS. The gentleman's time has expired. We are going to end this but we have agreed to allow our colleague from Massachusetts—we were asking him whether it is a Markey minute or a regular synchronized minute, and we are going to find out right now. The gentleman is recognized for 1 minute.

Mr. MARKEY. Yes. I just wanted to put in a good word for PUHCA just so people can understand what PUHCA does and doesn't do. There is nothing in PUHCA that prevents utilities from going to Wall Street and issuing additional stock or going to Wall Street and issuing bonds to pay for investment in new transmission infrastructure. What PUHCA does do is to prevent registered holding companies from diversifying into virtually any business. It limits diversification to out-of-region generation, foreign utilities and telecommunications.

PUHCA also prevents huge conglomerates, like Warren Buffet's Berkshire Hathaway, from owning and controlling registered holding companies. He can be a passive investor and buy and hold their stocks and bonds, but he can't control the company. And we know from the rating agencies, from S&P and Fitch that PUHCA companies tend to have higher bond and hence a lower cost of capital than the exempts that diversify into risky unregulated businesses. Where registereds have gotten into trouble it has tended to be from the unregulated businesses. The core regulated utility businesses seem to remain rather profitable, and it still is difficult to understand why 11 or 12 percent guaranteed return isn't sufficient for many of these companies to ensure they upgrade their transmission. Thank you.

Mr. SHIMKUS. And the question is—

Mr. MARKEY. No question.

Mr. SHIMKUS. No question. Now I would like to recognize the chairman of the Energy and Air Quality Subcommittee, Chairman Barton, for 1½ minutes.

Mr. BARTON. I want a Markey minute, which is a minute and 42 seconds. That is what was put on the clock. I just want to say a few good things about ERCOT since it was disparaged a little bit. You have got 77,000 megawatt capacity, generation capacity. You have got, I am told, around 30 percent reserve margin in terms of transmission, you have a reliability standard that by any measure is as good as any in the country, you have sufficient natural resources that if you needed to increase your generation or transmission, you could do it intrastate, and you serve a territory that is totally within one State. So I would like to know what is wrong with ERCOT if it is all done within the State, it has sufficient reserve margins, both for generation and for transmission, and it has an excellent reliability standard, and since it is within the State it doesn't need FERC jurisdiction for interconnection and interstate commerce. Mr. Makovich, is there anything wrong with that?

Mr. MAKOVICH. No. There is nothing wrong with ERCOT as a stand-alone electric system. It certainly is big enough, and, as you say, the record is clear. The only thing I would add is ERCOT could benefit with some additional interconnection and it is typically DC lines that are put in because it is not synchronous. They have got a lot of bottled up generation right now, they have got a big surplus, and in the years ahead, not right now, but in the years ahead that could come in handy to some neighboring regions.

Mr. BARTON. Right. But in terms of serving any other State that had the natural resources and wanted to use them to build generation and had a State public utility commission and State law that allowed for transmission lines to be built in a fair fashion and expedition, they could do the same thing.

Mr. MAKOVICH. That is right. They have actually gotten more done because of that focus and alignment.

Mr. BARTON. So there is nothing—

Mr. SHIMKUS. Mr. Chairman, I am going to be challenged by this side now. You have now reached Markey time.

Mr. BARTON. All right. Then I am going to yield back.

Mr. SHIMKUS. The gentleman yields back. We want to thank the panel actually for staying for the entire day. We do appreciate that. And the hearing is adjourned.

[Whereupon, at 5:23 p.m., the committee was adjourned.]

[Additional material submitted for the record follows:]

September 22, 2003

The Honorable JOHN D. DINGELL
United States House of Representatives
 2328 Rayburn House Office Building
 Washington, D.C. 20515-2215

Re: House Energy and Commerce Committee September 4, 2003 Hearing Inquiry Regarding the Ontario Independent Electricity Market Operator's Authority to Maintain Reliability

DEAR REPRESENTATIVE DINGELL: This letter is in response to your inquiry, posed to members of Panel II during the House Energy and Commerce Committee's September 4, 2003 hearings, concerning the reliability authorities of the respective ISO/RTOs.

We understand your inquiry to be as follows: "Would you each tell me the respective authorities that your agency has with regard to *reliability...reporting disclo-*

sure; information you might get about *impending problems*; powers you have over *siting*; the ability you have to require that *facilities* be run at certain speeds or certain ways. Indicate to us in each of the cases what powers you have to assure reliability?"

As Mr. Dave Goulding, President and Chief Executive Officer of the Independent Electricity Market Operator (IMO) stated in his oral testimony, the IMO currently has "the powers a well run RTO would need to address the problems of reliability," including:

- 1) having access to all the information that is required;
- 2) having to both run a market-place but also recognizing that reliability is paramount;
- 3) instructing changes in dispatch, schedules and loading of lines in order to respect reliability within that market-place;
- 4) carrying out investigations; seeking additional information in terms of whether rules are being complied with or not;
- 5) enforcing penalties—applying sanctions if necessary; and
- 6) demanding and ordering corrective plans, and approving those plans.

In his written testimony, Mr. Goulding provided the basis of these reliability authorities. In particular, the IMO has been granted the authority for establishing, monitoring and enforcing reliability standards in its constating statute. As a result, the IMO has been an active participant in NERC and Northeast Power Coordinating Council (NPCC) and has adopted the standards developed through those organizations as the basis for reliability standards in Ontario.

The IMO draws its authorities for reliability from the following sources:

- The IMO's objects assigned to it in its constating statute include participating in the development of standards and criteria relating to the reliability of transmission systems, as well as directing the operation and maintaining the reliability of the IMO-controlled grid.
 - The IMO's licence, granted by the Ontario Energy Board (OEB), enables the IMO to enter into agreements with Transmitters for purposes of directing the operation of the grid.
 - An extensive set of Market Rules that go into considerable detail related to reliability obligations, authorities, monitoring and enforcement. A copy of these Market Rules is on the IMO web site (www.theimo.com). A copy has been filed with FERC for information.
 - The IMO is Ontario's Control Area Operator, and is party to the NPCC agreement.
 - The IMO is the reliability coordinator for Ontario.
- The following responds to your other questions:
- Pursuant to the Market Rules, Market Participants are responsible for *reporting and disclosure* to the IMO. These requirements are judged adequate for the purpose of maintaining reliability.
 - Market Participants are also responsible for providing the IMO with information regarding *impending problems*. Specifically, they must promptly inform the IMO of any change or anticipated change in the capability of their facilities or the status of their equipment or facilities. These requirements are also specified in the Market Rules and operating agreements. Corrective and preventive actions arising from impending problems in one control area that may impact another control area are addressed in operating agreements between the IMO and its counterpart organization.
 - While the IMO has no direct authority over *siting*, the IMO can issue an RFP for upgrades of existing or investments in new transmission facilities if the IMO determines that reliability criteria are at risk in the absence of these investments. The IMO is also responsible for conducting connection assessments to determine if proposed facility modifications or expansions meet established reliability criteria. Interested parties refer their proposed solutions to the OEB for approval. The IMO's assessment may have an impact on the siting decision.
 - The IMO's authorities regarding the control of transmission and generation *facilities* to maintain reliability are specified in the Market Rules and in the operating agreements between the IMO and transmitters in the province. These rules and agreements are judged adequate for this purpose.

We trust this is the information you require. We would be pleased upon request to provide clarification or additional information.

Respectfully submitted,

AMIR SHALABY
Manager, Regulatory Affairs, The IMO

NATIONAL GRID
September 9, 2003

The Honorable W.J. TAUZIN
Chairman
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515-6115

DEAR CHAIRMAN TAUZIN: Thank you for the opportunity to testify before your Committee on September 4 regarding the power outages on August 14.

During your hearing you inquired about the role and investment perspectives of independent transmission companies. I would like to provide further explanation so that you and the members of your Committee may better understand our role and the nature of our business.

National Grid USA is an energy delivery company. We are not in the power generation business. We purchase and manage transmission assets because through the efficient management of and investment in assets, we believe that we will be able to make a reasonable return on our investment. Our clear management focus ensures that our efforts are concentrated on transmission investment and the benefits to customers that it can provide.

Our latest venture located within the Midwest ISO is GridAmerica, an independent transmission company. GridAmerica, subject to obtaining regulatory approvals, will undertake responsibilities for the management and planning of the transmission assets of three major electric utilities in the Midwest.

The independent transmission company business model offers significant potential benefits to the nation's electricity system. Independent transmission companies operate, manage and sometimes own electric transmission facilities and are focused solely on the secure and economic delivery of electricity. Independent transmission companies will therefore invest in and install transmission facilities where it is in the public interest. As companies earn returns for their investors by managing and investing in transmission assets, independent transmission companies will be motivated to make those investments, as long as the regulatory regime affords an opportunity to earn reasonable returns on them.

In addition to investing in new transmission lines, National Grid also has experience in maximizing the capability of existing delivery facilities and rights of way. Building new lines on new rights of way is almost always more difficult, more expensive, and takes longer than updating existing facilities. Where additional capacity can be most easily created by reconfiguring existing facilities, independent transmission companies can be similarly incentivized through rate structures that allow them to retain a portion of the savings created by their efficiency.

I would like to clarify one other point that arose at the hearing on September 5. One witness implied that New York utilities are reluctant to invest in transmission because of the potential rate impacts. National Grid, including its subsidiary in New York, Niagara Mohawk Power Corporation, already has a capital budget that provides for a level of investment in excess of the national average. We had begun discussions with the New York Public Service Commission prior to the blackout regarding the potential benefits of further upgrades. National Grid is committed to make the investments in our New York system that we and the Public Service Commission conclude are in the public interest. We are confident that working with the Commission we will be able to manage the impact on rates from those investments.

We would be honored to answer any further questions you may have.

Respectfully submitted,

NICHOLAS P. WINSER
Group Director Transmission,
National Grid Transco plc

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