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RENAISSANCE ST. LOUIS AIRPORT HOTEL

9801 Natural Bridge Road

St. Louis, MO

PARTICIPANTS:

FERC Chairman and Commissioners

Cheryl LaFleur, Chairman

Philip Moeller, Commissioner

Tony Clark, Commissioner

Norman Bay, Commissioner

Colette Honorable, Commissioner

ALSO PRESENT:

Michael Bardee

Jamie Simler

Jeff Dennis

Jignasa Gadani

Eric Vandenberg

Anne Marie Hirschberger

P R O C E E D I N G S

(8:45 a.m.)

MR. BARDEE: Good morning everyone. Thank you all for being here today. My name is Michael Bardee. I'm with the Commissions Office of Electric Reliability. I'll be the moderator for the morning session of today's conference. Our topic today is EPA's proposed Clean Power Plan as it relates to the Central region of our nation, including MISO and SPP and the ERCOT territory.

Let me go over a few housekeeping details first. Members of the public are invited to observe, which includes attending, listening and taking notes, but does not include participating in the technical conference or addressing the commission or staff

Actions that purposely interfere or attempt to interfere with the commencement or conduct of the technical conference or inhibit the audiences ability to observe or listen to the technical conference, including attempts by audience members to address the commission or staff while the meeting is in progress are not permitted.

Any person engaging in such behavior will be asked to leave the technical conference. Anyone who refuses to leave voluntarily, will be escorted from

the technical conference. Thank you for your cooperation.

Just a couple of other housekeeping things. Please turn your mobile devices to silent, and for speakers, please be sure to turn microphones on and speak directly into them so that the audience and those listening to the audio cast can hear you, and also please identify yourself before speaking unless the context makes it clear so that those listening to the audio cast will know who they're hearing.

Let me next introduce our Chairman and Commissioners and then staff. Chairman LaFleur, a couple seats down from me. To her left is Commissioner Moeller and then Commissioner Bay. To Chairman LaFleur's right is Commissioner Clark and Commissioner Honorable, and then going down from my right I have Jamie Simler from our market office, Jeff Dennis and Jignasa Gadani from the policy office. Eric Vandenberg from our market's office and Anne Marie Hirschberger from our market's office.

And now let me turn to our Chairman and Commissioners and see if they have any opening remarks to make starting with Chairman LaFleur.

MS. LAFLEUR: Well, good morning everyone. Thank you for all coming. Happy to have a good

turnout. This is the fourth of our technical conference on this topic, and I have felt a little bit, like, you know, the people who use to appear on Johnnie Carson and say, like, on this date I'll be in St. Louis and then I'll be here and so we are here.

Excited to read the testimony that was filed in advance and think about what we have before us today. Obviously, the region that we're talking about today is characterized by three organized markets, two of which are under the jurisdiction of the commission for market design and operation. The other under the jurisdiction of the commission for the reliability standards and some other parts of its operation, like, pipelines and so forth, but not market operation.

The other thing that I was thinking as I was reading all of the material is unlike the other two regional conferences where we had some states that were already in carbon trading markets and, you know, for that reason our compliance was rather well in hand. We have three that are presenting with different states of issues today, so I think we'll have a lively discussion.

I'm very interested in hearing more on the impacts of the Clean Power Plan on this region and particularly what you think the role of FERC should be

as we move forward.

Two things I'd really like to delve down on over the course of the day. The first, I've said this at all of the meetings, is this is really our last chance at a forum to put more meat on the bones of the reliability assurance mechanism or reliability safety valve. Received a lot of submissions in the docket since I last asked for more details. Most of them are just an urgent plea to do it. A little bit more detail on when we should do it, but what standards we should use or what we should really do still pretty vague. So I think that's something I might be probing with on the panels.

The second thing that really came across in the testimony that I read on the plane is vigorous discussion of rate base versus mass base and whether mass base would make it easier for states to cooperate trade bilaterally, whether that would work better for this region, that's something we haven't talked about too much in the other sessions so I hope to get into that this afternoon.

And with that I will turn it over to Commissioner Moeller.

COMMISSIONER MOELLER: Thank you, Chairman LaFleur. Well, thank you for being here. There's an

extraordinary effort that goes into not only the Commission coming and the staff, but also for all of you to be here to express your thoughts on a very obviously vital region of the three that we split up. Somewhat unique characteristics of each region, but we're particularly interested in Central America -- the Central part of America. I almost took us to a little deeper place than I wanted to go there.

Nevertheless, we have particularly I think during these regional conferences the local anecdotal impacts of the Clean Power Plan moving forward compliance are particularly important. The overall arch and themes I think we've heard enough and we can continue to hear them today, but we look forward to the unique characteristics that people testifying today will submit.

So again, thanks to all of you for being here. Thanks to the staff for putting this together, and I'll turn it over to Commissioner Clark.

COMMISSIONER CLARK: Well, thank you, Phil. And it's a pleasure to be here in St. Louis. It's a pleasure to be in my home region of the country, and today I think offers an opportunity -- every region's unique, but this region I think in particular offers us a chance to really delve into some issues that are

very particular to the Central U.S.

Issues related to this is really if you focus in on one region that has still dominated basically by vertically-integrated utilities all be it operating within wholesale markets, this is the bulk of those types of states and those types of regions, which I think offers a little bit of a twist beyond what we've seen perhaps in some of the other regions.

Add to that we'll be taking up issues related to ERCOT. We know that an awful lot is expected of Texas under the Clean Power Plan. So I look forward to looking into issues like that.

This is also a bit of unique region in that the type of load growth and the type of energy development that's taking place in the country is largely centered in this region of the country.

When you look at the emerging shale plays in places like my home state of North DaKota, the tremendous load growth that goes along with that, gas resources, the Eagle Ford Permian Basins in Texas, the great wind development that takes place throughout the Central corridor and Great Plains of the U.S. A lot of the energy development in the country is coming from this region of the country and a lot will be expected of it should the Clean Power Plan come to

pass.

So lots of issues to delve into and I thank you for the really excellent turnout here today and look forward to a good day of discussions.

Commissioner Bay?

COMMISSIONER BAY: Thank you, Tony. I too am very pleased to be here and to learn from our panelists today. This region really is unique. There are three RTOs. It stretches from North Dakota and Minnesota in the North and goes all the way down to Texas and Louisiana in the south, and has a high amount of coal for generation but it also has a high amount of wind for any region in the United States, and as Tony noted, more wind is coming on line.

So consistent with what I've been interested in learning more about in the other technical conferences that we've done, I have several issues that I'm particularly going to be focusing on.

First from your perspective, What are the challenges with implementation of the Clean Power Plan that FERC should be aware of? Second, What suggestions do you have on how FERC could be helpful to the markets to the industry? And finally, there's been a lot of talk in the prior three technical conferences on regional approaches to implementation

of the Clean Power Plan, and so I'm interested in hearing whether you have considered a regional approach or some sort of market-based mechanism to achieve compliance.

So I look forward to hearing your comments today and thank you for being here.

COMMISSIONER HONORABLE: Good morning. It's great to see so many of you. It's good to be here. I feel like it's home. In fact, I was born in this city. Well, many of you know that. So many details of our lives are posted these days. You already knew that. But it's great to be here. With a number of you it seems like Ground Hog Day, a number of us were together last week in Little Rock. So thank you for coming back for more.

And I'm really excited to be in this region particularly because of the work that we've undertaken together. I see so many state regulators in the room. Thank you. And also because of the dynamic progress occurring in this region. At our last open meeting we heard a very robust State of the Market Report in which we talked about a lot of the great things happening right in this region with, for instance, SPP's launch of its market, the energy operating companies integration into the MISO region, and so

many others. I could go on and on about the great work happening with the co-ops and so many more.

I really want to thank each and every one of you for you presence, but also for those participating. We are down to brass tacks now and this is our last technical conference that we will have, and so we are counting on you to educate us as we go about and, as you know, each and every one of us takes seriously the role that we have to ensure the reliability of the bulk power system, but particularly with regard to our role to provide advice and counsel to the EPA.

What does that mean for us? And so when I say we're down to brass tacks now, we need to hear from you in detail what are those things as commissioner Bay said. What are the things that FERC needs to do? What are the things that you need to carry out this work? And so we appreciate your participation, and I look forward to the discussion today.

MR. BARDEE: Next we will have a presentation on energy infrastructure in the Central region both on the electric side and the natural gas side and our presenter is Olubukola Pope from the Commission Office of Energy Projects.

MS. POPE: Good morning and welcome. I'm Olubukola Pope of the Office of Energy Projects. Today I will be giving a snapshot view of the current status of the gas and electric infrastructure in the Central region of the country.

For the purpose of this presentation, the Central region consists approximately 15 states as shown in this slide. You should recognize that due to the long haul nature of some of the interstate pipelines, natural gas pipeline infrastructure does not neatly fit into the geographic confines of the region.

However, you will find that this geographic configuration is reasonable for discussing the status of the energy infrastructure under the Commission's jurisdiction.

The next slides will highlight the status of the electric infrastructure in the Central region. The North American Electric Reliability Corporation, NERC, is an international regulatory authority whose mission is to assure the reliability of the bulk power system in North America.

NERC'S area of responsibility include the continental United States, Canada, and the northern portion of Baja California, Mexico. NERC is subject

to oversight by the Federal Energy Regulatory Commission and governmental authorities in Canada. NERC works with eight regional entities to improve the reliability of the bulk power system.

For the purpose of the Central infrastructure the following NERC regions and subregions include the U.S. portion of the Midwest Reliability Organization, or MRO; MISO, which is included within the Reliability First Corporation; the Gateway subregion and the Delta subregion formally known as Entergy subregion, which makes up the SERC Reliability Corporation; the Southwest Power Pool or SPP subregion; and then finally the Electric Reliability Counsel of Texas or ERCOT, which makes up the Texas reliability entity.

This chart shows the current installed generation capacity in megawatts and the total energy produced in 2013 in gigawatt hours for the Central region. As of March 1, 2015 the total installed capacity was approximately 388,000 megawatts. Gas-fired capacity shown in red dominated with 45 percent of the total fuel mix. Coal-fired capacity shown in gray had 33 percent. Variable Energy Resources, VERs, shown in green had 10 percent, and nuclear shown in purple had 6 percent.

Turning to the actual generation in 2013, you

can see that the total was approximately 1 million 329,000 gigawatt hours where coal-fired generation produced 52 percent of the electricity in the region, gas-fired generation produced 27 percent, followed by nuclear at 11 percent and VERs at 8 percent.

Compared to 2010, coal-fired generation had declined from 56 percent reflecting the retirements of coal-fired plants while natural gas generation has increased from 23 percent. VERs generation has doubled since 2010 from 4 percent to 8 percent. I would like to note that the Reliability Must Run Units total approximately 225,000 megawatts of which 54 percent is coal, 36 percent is natural gas and 10 percent is nuclear.

The take away from this slide is that natural gas and coal generation are the primary energy sources for generation in the Central region.

These pie charts show that there are strong regional differences in installed capacity fuel mix among the subregions of the Central region. Coal-fired generation is shown in gray dominates in the MRO, MISO and the Gateway subregions. Natural gas generation as shown in red dominates in the SPP, ERCOT and Delta subregions.

The Gateway subregion has the highest

coal-fired capacity of all the subregions at 58 percent. The Delta subregion has the highest natural gas capacity of all the Central subregions at 68 percent. The MRO subregion has the largest VERs percentage with 19 percent all from wind energy.

These pie charts show the fuel mix differences in actual electric generation produced within the subregions. As shown in gray, coal-fired generation dominates and is a higher percentage than that for installed capacity which was shown in the previous slide in the MRO, MISO, Gateway and SPP subregions.

While natural gas-fired generation as shown in red dominates in the ERCOT and the Delta subregion, it is a smaller percentage than that for installed capacity. Also, in each subregion the actual generation from nuclear generation is larger than the installed capacity.

I would like to note that the MRO subregion has the highest VERs generation, and when combined with hydro generation it produces 20 percent of its generation from renewable energy resources.

Finally, the Delta subregion produced the highest nuclear generation with 20 percent of the fuel.

This slide provides a view on the expected additions to generation capacity in the Central region by 2025. A conservative projection of capacity additions under construction and in advanced development from present to 2025 total 32,000 megawatts with almost half of it under construction.

These additions include 49 percent in natural gas, 45 percent in variable energy resources or VERs. The VERs include 44 percent from wind and 1 percent from solar.

Approximately 66,000 megawatts of additions are currently in the early development status and may come on line by 2025. Of this total, 50 percent is estimated to be in variable energy resources. Of these VERs, 47 percent will be in wind and 2 percent in solar. The remaining capacity will include 10 percent in nuclear and 33 percent in natural gas.

A quick look at the peak in summer/winter electricity demand in the Central region shows that generally the peak demand in the summer is greater than the winter peak, which can be attributed to cooling requirement being greater than heating requirements for the Central region.

This slide shows that in 2013 the Central region was a net importer of electricity with

approximately 14,500 gigawatt hours of electricity from its adjacent regions.

PJM supplied 63,786 gigawatt hours of 60 percent of the total imports to the Central region with the majority of its supplies going to the MISO subregion. Another 23,442 gigawatt hours or 22 percent of the total imports was supplied from SERC, with 56 percent of its supplies going to Delta subregion and 41 percent going to the MISO subregion. Canada supplies 17 percent of the total imports with most of its supplies going to MISO.

In addition, the Central region exported a total of approximately 92,000 gigawatt hours from the Central region of which 53 percent was delivered to PJM and 41 percent to SERC.

The electric transmission infrastructure in the Central region consists of about 48,800 miles of existing transmission lines operating at 230 kilovolts or greater. Of this total, 64 percent of the lines are operating at 345 kilovolts.

The Central region has been expanding its transmission system in order to remove renewable resources to load centers. For instance, the Competitive Renewable Energy Zones Project in Texas added approximately 3,600 miles of transmission line

in Texas by the end of 2013. The additional infrastructure allowed wind power from West Texas and the panhandle area to reach highly populated metropolitan areas of the state. In 2014, 20 transmission projects totaling 1,355 miles were completed.

In the Central region approximately 16,000 miles of new transmission lines representing 190 projects are projected to be built by 2030 at an estimated cost of 43 billion dollars. Nearly 90 percent of the additional transmission lines are expected to be 345 kilovolts or greater. Of the 190 projects, 88 of the projects are scheduled to be completed by the end of 2017, which will add 3,890 miles of transmission lines to the region. Five significant high voltage direct current lines are proposed to be completed by 2030.

Electricity products can be traded at more than two dozen hubs or delivery points in North America. The data posted here represent three major electricity trading hubs in the Central region. Electricity prices in the Central region for 2014 were elevated slightly for the ERCOT north and Minnesota hub. The elevated prices are a result of higher natural gas prices during the first quarter because of

higher energy demand caused by the extreme cold weather in the beginning of the year. This raised average prices for the year as a whole.

Turning to natural gas. The next slides address the status of the natural gas in the Central region. This map shows approximately 50 FERC jurisdictional pipelines representing 96,200 miles of existing interstate natural gas lines. In addition, it shows approximately 2.5 trillion cubic feet of working gas storage was about half under FERC's jurisdiction.

The pipeline in the Central region had the capability to transport natural gas into and through markets in the West, Midwest, Southeast, Mid-Atlantic and Northeast regions. The Central region also imports gas from Canada. The map also shows 19 import/export points with Canada and Mexico. Four of which are along the Central boarder with Canada and 11 along the Central boarder with Mexico.

Also, there are five LNG import terminals all under FERC's jurisdiction located in or near Texas totaling 11.4 Bcf per day of deliverability. There are four export terminals currently under construction totaling 8.4 Bcf per day of deliverability.

This slide looks at the natural gas

consumption in the Central region. As you can see, the largest consumption of natural gas in the Central region is in the industrial sector.

In 2013 the total Central consumption for natural gas is 10.23 trillion cubic feet. Of this industrial demand makes up 4.20 trillion cubic feet or 41 percent, followed by electric generation at 2.86 trillion cubic feet or 28 percent.

Between 2013 and 2020 total gas demand is projected to increase to 10.43 trillion cubic feet with the largest increase in the industrial demand to 4.85 trillion cubic feet or 47 percent of the total demand.

From 2020 to 2030, total demand for gas is projected to increase to 10.8 trillion cubic feet with the largest increase in electric generation. Electric generation demand will be 3.1 trillion cubic feet or 28 percent of the total demand.

Looking at the sources of production in the Central region. We see that historically domestic natural gas production has primarily come from conventional, nonconventional such as tight sands and offshore sources.

In 2000 gas conventional tight sands and offshore sources made up 99 percent of the total gas

production totaling 13.2 trillion cubic feet. This changed in 2013 where Shell made up 50 percent of the total 14.5 trillion cubic feet production.

With the decline in conventional tight sands and offshore production, Shell becomes the dominant source with 67 percent of the total production totaling 15.3 trillion cubic feet in 2020 and 72 percent of the total production totaling 16.7 trillion cubic feet in 2030. Thus production from Shell will continue in the future and will account for the majority of the Central region's total gas production.

The U.S. natural gas production looks more like the Central region and is dominated by Shell in the future. In 2013 Shell made up 47 percent of the total natural gas production and is projected to increase to 67 percent in 2020 and 72 percent in 2030.

This chart shows that the Central region is and will continue to be a net importer of gas from Canada. However, in the past years net imports from Canada, the red bars, had decreased to .7 trillion cubic feet in 2013. The decrease in Canadian imports is due to their availability of gas in the U.S. The green bar show that net Canadian imports to the U.S. will also decrease.

This slide shows that the natural gas exports from the Central region to Mexico, shown as the red bars, are projected to increase dramatically from 2013 to 2030. Natural gas exports from the U.S. to Mexico, shown as the green bars, are also projected to increase.

This slide reflects the current pipeline capacity into and out of the Central region. The numbers in white indicate the capacity and the numbers in blue indicate actual flow. Traditionally capacity inflows into the Central region originated from the West and Eastern regions offshore pipelines from Texas and Louisiana and Canada.

Projections to 2030 show that the capacity inflows from the Eastern region will increase and that exports to Canada and Mexico will increase. With the increase in Shell production, natural gas will start to flow into the Central region and into Canada. Also exports from LNG facilities currently under construction along the Texas and Louisiana gulf coast are projected to start in 2016.

This chart summarizes previous slides and compares gas facts in the U.S. to the Central region from 2013 to 2030. As you can see in 2013, the Central region as a whole used about 42 percent of the

total natural gas consumed in the United States and produced about 59 percent of the total natural gas in the U.S. It is expected that gas production and consumption will continue to grow in the Central region through 2030, although gas consumption does not grow significantly. Exports of LNG are projected to increase during this period through 2030 with the majority of the volumes going through Sabine Pass LNG beginning in 2016 and Freeport LNG in 2018. Finally, imports to the Central region from Canada will decrease while gas exports to Mexico will increase.

Natural gas products can be traded at over 120 hubs in North America. The data posted here represent five major gas trading hubs. Natural gas prices in the Central region soared in early 2014, especially in the upper Midwest region as the polar vortex swept through the region.

Prices in the upper Midwest reached over $40 per MMBtu resulting in the highest average annual prices since 2008. The gulf region saw slightly higher prices from the year 2013.

This concludes my presentation on the snapshot of the current electric and gas infrastructure in the Central region. The slides will be posted on our website following this conference.

Thank you very much.

MR. BARDEE: Thank you, Olubukola. Are there any questions from our Chairman or Commissioners?

CHAIRMAN LAFLEUR: Not a question, but I just wanted to thank Olubukola for being at all of these conferences and doing such a comprehensive look at the infrastructure. Thank you.

MR. BARDEE: The next part of our agenda for this morning is a presentation by Janet McCabe from EPA. If you could come up Janet. Janet McCabe is Acting Assistant Administrator for the Office of Air and Radiation at EPA and will be providing a brief overview of the Clean Power Plan particularly as it relates to the Central region.

MS. MCCABE: Thank you very much Mike, Commissioner LaFleur, and all the Commissioners of FERC for including EPA. This is my third of your sessions to attend and the fourth one in Denver was attended by my colleague Joe Goffman.

Very much appreciate you holding these conferences and including us, and I'll note that scattered about the room I believe are a number of EPA regional and headquarters staff. If you're an EPA person, could you raise your hand? They're all sitting together. I think they're going to be here

throughout the day, and it's very exciting for them I know to have this session in the Midwest of the country. Like Commissioner Clark, this is my home region as well. I live in Indiana, which just barely made it into the cutoff here, it's sort of hanging off the edge there. My husband has been known to refer to Indiana as the Gateway to the square states, so but we're very pleased to be included in the Midwest.

And I will say that just on a very small personal note, I found that in my work at EPA coming from the Midwest has been really helpful and instrumental in the way that I contribute to the Office of Air and Radiation's policy and development. It's very important for EPA to reflect the perspectives and experiences from around the country and we certainly do that through our regional offices, but we have many in headquarters who also come from different parts of the country and it brings a very robust and rich perspective to our work. So thank you again for the opportunity to speak about EPA's proposed Clean Power Plan, and in particular about the vital issue of electric system reliability.

I want to thank all of the people who are here today and those who are not, wherever they might be, states, utilities, PUCs, other organizations,

NGOs, everybody who has taken their time to meet with us at EPA, either headquarters in the region, over the past two years as we've been working on this program.

And also to everyone who has submitted substantive and very thoughtful and helpful comments on the proposal we issued last summer. We received on the order of 4.3 million comments on this rule on the proposal that is by any stretch of the imagination the most that EPA has ever received on a proposal, and I think it reflects the great importance of this program to people and companies and organizations all across the country and also to the perplexity and to the -- how significant this program is as well. We continue to review each and every one of those comments and are spending considerable time on that as we work towards finalizing the rule this summer.

I want to thank, again, for organizing these conferences. It's another really important and good way for stakeholders to engage directly with the federal government and particularly with FERC that has particular responsibilities in this area, and it's also a great opportunity for us at EPA to build on the tremendous working relationship that we've developed with the Commission over the past several years. We look forward to continuing -- excuse me, I do not

usually have this problem. That's what water's for I guess.

So we look forward to continuing our conversation with FERC at both the staff and the leadership levels and also with FERC stakeholders. This coordination will be particularly important as states begin to pull their compliance plans together once the rule is finalized.

I also want to thank the many organizations, many of which have been mentioned today, NERC, MISO, SPP, ERCOT and the other RTOs and ISOs just to round out all the acronym stuff, for taking the time that they've taken to do analysis, to provide considerable information for EPA to consider as part of their public comments on the rule. All of this work and input will help us draft a final rule that reflects what's happening in the electricity sector today and what the sector will look like into the future.

A few weeks ago I spoke to the Commission lead national overview session in Washington D.C., and I'll say again some of the things that I said at that conference. But my goal today is to focus on issues that are pertinent to and raised by states in the Central part of the country, states, utilities and stakeholders, and then to answer questions that the

Commissioners may have.

Over EPA's long history developing Clean Air Act pollution standards for the electric power sector which has been doing under the requirements and direction of Congress through the Clean Air Act for many, many years including the proposed Clean Power Plan, the agency has consistently treated electric system reliability as absolutely critical.

We've devoted significant attention to this issue ourselves and have also made sure that we're coordinating with stakeholders and energy regulators at the state, federal and regional levels to ensure that the important public health and environmental protections that Congress has called for are achieved without interfering with the country's reliable and affordable supplied electricity. And, in fact, in no time in the more than 40 years that EPA has been implementing the Clean Air Act has compliance with air pollution standards caused lights to go out in this country.

We are equally committed to our mission as given to us by Congress to protect public health and the environment, and in the case of the proposed Clean Power Plan, that means addressing CO2 emissions and climate change, a serious and significant and far

reaching problem that is affecting the health and economic well-being of communities and families across the country. These impacts which are both dramatic and incremental will get worse if we do not take steps to cut carbon pollution.

So let me turn to the proposal to Section 111D and to the issue of reliability specifically. In crafting the Clean Power Plan proposal, EPA sought to provide flexibility and the kind of timeline that states, tribes, territories and affected generators would need to cut carbon emissions while maintaining affordable electric power and safeguarding system reliability.

We have heard over and over again from stakeholders across this space that time, significant time is needed to do the planning that's necessary, certainty is needed about what the expectations are, and flexibility is paramount and makes the process of developing plans to meet whatever the environmental goal is of much more doable and doable in a way that does not compromise reliability.

While our proposal recognizes the interconnected nature of the power sector and is founded on common strategies that are already in use today, it also proposes unique tailored goals from

each state that reflect the differences in the mix of resources that are currently being used to generate electricity in each state, and the differences in the potential each state has to increase the use of lower carbon and zero carbon resources, and the excellent presentation that we just saw really showed that very clearly how many differences there are even within the Central part of the country.

Because of these differences and because of the flexibility that Section 111D provides, we were able to produce and we did propose different goals for different states. We know that there are aspects about electricity generation in the Central part of the country that are different from those in the East and West, and some of those have been mentioned already this morning.

For instance, we note that some states in the Central part of the country are very, very relied on coal including my home state. There are others that are real leaders in developing and implementing renewable sources of energy. It is a very winding part of the country, the Midwest.

States, utilities and stakeholders have made these points very clear to us through comments and input that have been provided throughout this process

with very specific examples and information about the things that are going on in their states. We're paying very close attention to these regional differences as we look through these comments.

That's why it's so important that we have had meetings across the country and my colleagues and I have spent much time traveling the country, using both our regional offices and other opportunities to make sure that we're meeting regularly with people that represent electricity generation from the different parts of the country, and that's why the FERC commissioners were wise to schedule three field hearings that span the country.

We've heard from many Central states about the way that the proposed goals may have affect coal fleets in the region and how that may affect reliability. We're looking very closely at these comments, because we agree that coal must continue to be part of a diverse energy mix in this country, and indeed our proposal projects that in 2030, 30 percent of power generation in this country will be generated by coal.

We also heard about how the proposal can change the way states participate in the energy market. For example, stakeholders in Wisconsin and

Kansas and Indiana commented the Clean Power Plan could cause coal plants in some states to shift from being base load generators to operating more as peaking units, while natural gas plants could shift from being peakers to being base load providers.

Sources in Oklahoma express concern that the Clean Power Plan might encourage large electricity consumers to move to off-grid on-site generation that is not subject to the Clean Power Plan and could result in dirtier, less efficient energy and energy that is not available in emergency situations to help maintain grid reliability.

Several states express concern about the effect that the Clean Power Plan could have on the natural gas market during the cold winters in many Central states as demand for natural gas used for home heating competes with demand for natural gas used in electricity generation.

At the same time several states and other stakeholders of the Central region have commented that they appreciate the work that EPA has done to make sure that the right flexibilities and protocols are in the rule so that it can be implemented without triggering reliability issues.

For example, stakeholders in Missouri noted

that the option to use utility scale solar power under the rule can improve the stability and the reliability of the grid while Minnesota cited analysis that shows that significant increases in renewable energy can be incorporated into the state and into the MISO region by 2030 without negative impacts on reliability. And Michigan stakeholders applauded the ability of states to use renewable energy to meet their goals. Pointing to an evaluation done in Michigan that found a significant increase in renewable energy even more than was assumed in the goal setting calculation for the state could be accomplished without harming reliability.

Let me talk about compliance time for a minute. Even before we started drafting the rule, we understood that states and utilities would need time to make changes that cut emissions. By offering states and affected generators wide latitude in meeting the state goals, the proposal provides room for planning to avoid reliability concerns. The proposed final compliance date of 2030 is intended to give states, generators, reliability entities and other stakeholders a 15-year planning horizon.

Meanwhile, the interim compliance period of 2020 to 2029 for those interim state goals was

intended to allow states and affected generators to shape their own bypass so that they can determine the pace and timing of the measures and programs that need to be put in place.

I will tell you, and I think you know already, that the rulemaking record reflects a number of stakeholder comments expressing concern about that 2020 through 2029 interim compliance period, and the stringency of some state targets may reduce the flexibility that the proposal intended to provide, especially for that interim goal. Specifically from several Central states we've heard that there's a need for more time to develop natural gas pipeline infrastructure and transmission capacity. Again, another reason it was so very useful to see that presentation this morning.

We very much appreciate the detailed input that we're getting about the challenges posed in particular by the interim goal and the 2020 date, and I assure you that we are looking very, very closely at this issue.

From the perspective of assuring electric system reliability and the final 2030 compliance date, we believe that the long time horizon for the final target will provide system operator states and

generators needed flexibility to do what their already doing, looking ahead to spot the potential system changes and contingencies that could pose reliability risks and identify the actions needed to mitigate those risks, and I would add that they will be doing that in the context of the long range planning that is already part of what these entities do with a power sector that is many of the facilities of which are aging and that is very much in transition.

We certainly appreciate the length of time that many of these investments can take, and we know that planning horizons are essential. We see the significant changes already underway in the industry and in response to changes in fuel markets an increase use of renewable and distributed resources. We also know that companies are making long-term investments to address the Mercury and Air Toxic Standards and other obligations under the Clean Air Act including Regional Haze obligations.

Talk for a minute about regional planning. We know that working together in regional or multi-state plans can provide additional flexibility and a more integrated path to compliance and can also help reduce cost overall. We know that states have commented on whether they will be able to fully commit

to regional approaches, formal regional approaches, or be able to do so in the time the final rule will provide for state plans to be completed.

We've also heard from many states that they would very much like the final plan to allow for interstate or regional arrangements that are less formal perhaps than some of the ones that already exist.

We believe that the option allows states -- the option to join with other states, allows states to develop strategies that are more inline with existing interstate power markets that allow them to take maximum advantage of the sector's interconnected nature to maintain reliability and affordability while achieving emission reductions.

A few examples: Comments from states like Ohio who noted that coordinated planning and integrated compliance strategies take time. Similarly Iowa emphasized that this issue is even more difficult for states with utilities that participate in more than one regional transmission organization.

We're pleased to hear from states like Illinois who declared their commitment to developing and implementing a state plan that achieves the required emission reductions while balancing economics

and grid reliability. Good thing I'm almost done. I'm sure you're thinking that too.

Finally, we recognize that making full use of the flexibility provided by the proposal requires time for planning. Many states and stakeholders commented that the one, two, three-year timetable for states to submit their compliance plans is inadequate and that more time is needed. We recognize that planning is key not only to achieving reductions, but to safeguarding reliability along the way. Fortunately, and again I appreciate this so much, commenters including many from this region of the country have been offering practical suggestions for how we can deal with the various elements in the final rule that they've raised and that many of which I've noted this morning. Either in the form of additional or perhaps fewer process steps in developing the client's plans or in the form of suggestions like things such as a reliability safety valve. It should go without saying, but I will anyway, that we are looking very hard at all of this information and thinking hard about how to take account of these suggestions in the final rule.

You can expect that EPA will address many of these ideas in the final power plan that will be

issued this summer. And further we expect that after the rule is finalized, we will continue to work with FERC, DOE, states, generators, and all stakeholders to make sure that we are considering and planning for reliability issues and how to equip ourselves to be able to plan in order to avoid those kinds of challenges.

When I spoke at the National FERC Technical Conference, I noted that EPA's Mercury and Air Toxic Standards provide an example of how a reliability safety valve can work. As many of you know, when EPA announced the final MATS rule, we issued a companion enforcement policy that identified and defined a specific path that affected generators can follow if they found themselves in the situation of needing additional time to comply with the rule in order to maintain electric system reliability.

In addition, FERC, DOE and EPA began a process that continues to today of jointly and regularly convening with the RTOs and ISOs to monitor closely and frequently the changes in the various regional systems that have been occurring as generators work towards MATS compliance which starts this month. We hope that and expect that coordinating among the three agencies will continue as state plans

take shape, as utilities and states begin to implement the Clean Power Plan.

Like you, we will be examining the information and ideas generated by these workshops as we move forward to finalize, and then after the Clean Power Plan is finalized, and very much look forward to that continuing process.

So I'm about to wrap up and look forward to your questions, but I want to emphasize again how incredibly constructive the discussion has been over the past year or two and how important our interactions with FERC, with the state energy offices, as well as the environmental offices with which we are so accustomed to dealing, as well as with other federal agencies and regional organizations has been and will continue to be our federal and state partners. And our stakeholders are putting concrete ideas on the table about how reducing carbon emissions which is so critical to our future to be done efficiently without threatening reliability and in ways that strengthen and benefit our communities all across the country.

Thank you again Chairman LaFleur, to all the FERC commissioners and to the FERC staff for holding these reliability sessions, and I look forward to

further conversation with you all today and into the future.

MR. BARDEE: Thank you, Janet. And before we turn to questions, let me just thank you both for your remarks here today and your participation in our other conferences, two of the other three, as well as having other staff from EPA either participating or attend each of these conferences. We really think that's been very helpful to us. Any questions from the Chairman or Commissioners?

CHAIRMAN LAFLEUR: Well, I too would like to thank Janet for being here and for making the commitment to have senior people at a time when you're extremely busy writing the rule come to all of these sessions, and to the other EPA, members of the EPA team who are here and will be with us throughout the day.

I just want to acknowledge and underscore the statement that Janet made of continuing to work together going forward after the conferences. From my perspective that's particularly important over the next several months as you finalize the rule, anything in the rule that envisions a role for FERC in reliability reviews as in the MATS rule, not that it would be exactly the same, very, very eager to be part

of that conversation, so look forward to that.

And I just feel like I have to take note of the fact that MATS takes effect tomorrow. When we were having the tech conferences on that it seemed such a long way away. And I think 2020, presuming that's still the date, which I know is one of the things in discussion, although it seems a long way away now is equally close, so thank you very much.

COMMISSIONER MOELLER: I'm a little suspicious. I got the trick microphone here. Administrator McCabe, you've been a terrific loyal soldier being out on these, and we've been together at some neighborhood meetings as well and we appreciate you listening to all the comments we have. Particularly relevant that you would mention reliability to this region, because it's -- I always like to put these comments in context. This region is a much cleaner and more efficient region than it was even a few years as ago. There are a number of reasons for that. Larger footprints for the dispatch, the generation fleet, market rules, new technologies, investments in transmission, but things are trending in a good way here, and I've made this point every time, but it's so important that as you finalize the Clean Power Plan you don't mess up the interstate

markets that have continued to deliver these benefits. And the benefits, you know, they're between 1.2 and 1.4 billion people in the world without electricity, another billion that are underserved, and they want it -- we take refrigeration for granted, things that they don't have every day, so reliability is so key moving forward.

One of the things that I've tried to emphasize to you as well under building blocks 2 and 3, if that's the way that a state chooses to go, it's going to take a lot more pipes and wires, and one of the themes that I've tried to emphasize is the hope that you can play a role with other federal agencies particularly in focusing on a more efficient and streamline permitting process in the role of federal agencies in getting pipes and wires built, because right now it's not very elegant and whether the decision is yes or no, entities need a more timely and certain process.

So it's more of a statement than a question, but it's an appeal for you to -- for the EPA to show some kind of leadership in the federal family to focus on a citing system that I think few would argue works well, either for pipes or wires.

And, finally, you can take this as a comment

or a question, but we struggle with I think some of the people trying to get their arms around complying with the Clean Power Plan. Let's take a multi-state co-op, for instance, they don't answer to their state PUC, they answer to their board of directors. They don't really have a profit motive, but when they're in multiple states with relatively low cost power, they kind of wonder, you know, what's this going to do to us, how can we comply either within the building blocks or outside of the building blocks. I know you've heard those comments, but I'm curious, you know, what you would tell them?

MS. MCCABE: Thank you, Commissioner Moeller, and you have been very clear and consistent in the issues that you've raised and they're important ones, and that's how we engage and I think it's an important thing to raise here.

I completely agree with you that in the U.S. here we just take power for a given. It is just inconceivable that we will not maintain that kind of a system here, and the President has been extremely clear about that.

I also couldn't agree with you more that attention needs to be paid to the systems that we use in this country to get infrastructure projects

proposed, cited, and then built. And I think all of the -- there are a number of federal agencies that have responsibility in this area. There are also state and tribal organizations that have responsibility in these areas, and within the federal family, there are ongoing efforts to be more organized, be more streamline, be more coordinated, and those need to be enhanced and continued. I completely agree with you. And I think that those kinds of activities provide immense opportunity for good things to happen in this country, as well as just focusing on the Clean Power Plan.

You've noted some of the very interesting and real aspects of the power generation system. It is like the United States. It is not one monolithic system, it is a democracy of companies who have different origins, different motivations, different ways of behaving, and I think that's one of the challenges that we want to make sure we're equipping the states who under the Clean Air Act have the primary responsibility to develop plans to respond to the environmental goal that the EPA will set to make sure that there is space in those plans for them to deal with all the different kinds of generation that they have, whether it's vertically integrated co-ops

municipal power generation and the new and interesting things that I expect we will see in the future as the industry continues to evolve.

So the states are very well use to working with the range of producers in their state, and I think there will be enough space in the Clean Power Plan guidelines for any type of generation to be accommodated and participate in a way that is comfortable and works for them.

COMMISSIONER BAY: Janet, thanks again for being here. It's your third time in front of us and Joe had one as well, so coming up with fresh and new questions gets to be a little bit of a challenge for all of us I think, but there's one issue I wanted to ask about that seems particularly appropriate to this region, and I don't think that we've delved a lot into it into our prior discussions, but it's come up here in this region a lot and we heard some about it in the West and some others, but it's the issue of prior state actions and how consideration of that is built into the plan understanding that that can have an impact on affordability which is really the flip side of reliability issues.

And I'm wondering, I know you can't be too terribly specific in understanding that it's a pending

rule, but could you talk at least in general terms about whether there's active discussion about this issue of prior state action in terms of what the Clean Power Plan might look like moving forward, because I know it's something that a number of states have commented on.

MS. MCCABE: Do you mean actions that states have taken that have lead to changes in the --

COMMISSIONER CLARK: That lead to changes in the mix prior to the Clean Power Plan implementation, and concern that they have that they may not be getting recognized for that. In fact, the target may be tougher because of some of the earlier decisions.

MS. MCCABE: Right, right, right. That is a question that we've heard a lot about. I would answer that I think by going back to what Section 111 is in the Clean Air Act, and in particular what Section 111D is.

Section 111 is a section that asks EPA to establish standards of performance for new and existing sources in different types of industries based on a review of the kinds of approaches that are currently in use at the time that we set those standards. And the theory is that new -- going forward, and EPA's required to review the new

standards on a regular basis, going forward we should always be moving ahead and we should be expecting new things that are built to be at least as clean as the cleanest things that are operating now, and then on and on and on and get cleaner, and I think that that's in large part contributes to what Commissioner Moeller reflected which is that the air is a lot cleaner across the country and in the Midwest because of regulations like that.

So what that means is that we take into account the good work and the range of technologies and other approaches that are being used at the point of time where we're doing the rule, and we set an expectation that over time, and in this case it's over a long period of time, and in this case the existing fleet should be performing at a level that's comparable to where the best performing people are at the time we finalize the rule.

And so that right there has us looking at what the most forward looking states are doing and setting an expectation that everybody should be generally performing at a level that's commensurate with what the cleanest, the least carbon intensive states and sources are doing. So right there you're taking into account past actions.

One of the questions that's been raised in the context of how we establish the particular goals, is that it appears that sources that and states that are ahead in some of those things, are actually being expected to do more going forward. So while you're right I can't reflect on the specifics of where the final rule will end up, I will say that we're looking very closely at all this information across the range of comments that we've gotten within our responsibility and the bounds of our authority under Section 111D and the Clean Air Act to make sure that we're following a law and paying attention to the factual record before us as we determine what the final expectations will be for states.

COMMISSIONER CLARK: Sure. Thanks. It seems like attention to that detail will be very important from the discussions that I've had with a lot of state regulators, and having the background that I did on the state commission one of the things is I indicated in my opening comments it makes this region somewhat unique is that if you look at these states that are the bulk of states where you have vertically-integrated utilities that are operating across state lines in a still IRP world, what you end up with is actions that may be taken in one state in

terms of the physical plant that's being changed, but rate payers and regulatory commissions in multiple states across that region having to sign off effectively on that rate recovery plan, which can add a level of complexity to it. And if we're trying to encourage regional collaboration, understanding that dynamic I think will be very important in encouraging states to want to do that.

So anyway, thank you for being here again and look forward to continuing the dialogue.

COMMISSIONER BAY: Janet, I wanted to thank you for coming to this technical conference. This is the third conference that you've attended. I think it's been important that you've here, and when you haven't been here, your colleague Joe Goffman has attended the conference.

And one thing that I've been impressed with and I appreciate is the fact that you and your colleague have reviewed comments from each of the regions at the regional conference level, and it's clear that you're thinking about those comments and considering them carefully, and I think that's a very good thing, and certainly going forward I look forward to working with EPA, DOE, the states, NERC, the RTOs and ISOs and industry as we continue to talk about the

Clean Power Plan, so thank you.

COMMISSIONER HONORABLE: Janet, I'm Tijuana. Thank you for your presence. I also want to thank your team of folks who are here who know the region better than most. It's been a long journey and we have been, you and I and Gina, excuse me Administrator McCarthy and I and Joe and I all over the country. I really am -- I think it's been a beautiful evolution of the discussion that we've had with so many stakeholders no matter whether they are consumer advocates or members of the industry who are on the front lines of ensuring reliability or state regulators or state legislators. We've engaged with so many people around this issue and I'm really pleased with how our discussions have grown.

In particular as Commissioner Clark mentioned I'm well-acquainted with this region and well-acquainted with the planning processes having been on the Southwest Power Pool Regional State Committee, the Entergy Regional State Committee, and then MISO organization and MISO states, and I can attest to the brilliance in this region and how hard-working the stakeholders are and how dedicated they are and the tenure and longevity of so many experts who work day in and day out to keep the grid

up and running, to support planning, to plan long-term how we will integrate wind and gas and all of the resources that we need to ensure diverse array of resources which support reliability.

So I want to thank you for your presence, and I certainly believe that you're listening, and I think that just in your comments we certainly can appreciate that you are. In particular I want to thank the EPA for your focus on some of the things that we've seen kind of rise to the top, the glide path issue and taking a look at how we go about meeting the 2030 goals in a way, you know, with this 2020 effort that some have raised concerns about that really limit their ability to get to 2030. And then also something we've heard so many about the reliability safety valve issue. I too have likened this to a MATS-like approach, which hasn't been used very much thank goodness, but it's there in case we need it, and I think that provides certainty for everyone who's involved so I want to say thank you. We have a long way to go, but we've been on a long journey and it's been a pleasure to be on that journey with you.

MS. MCCABE: Thank you, Commissioner Honorable. You in your past life have provided leadership on this issue in a very constructive way

and certainly pleased that you're now a member of the FERC Commission and we can continue to work with you in that capacity. Many thanks to all of you for your studios and very careful leadership on this issue as we move forward.

MR. BARDEE: Thank you, again, Janet. We appreciate it.

With that we will proceed to our first panel for the day. If the speakers on the first panel could please come up.

Let me first introduce all of our speakers and then we'll begin by letting them each make brief remarks. Starting from Commissioner Bay's left we have Chairman Donna Nelson from the Public Utility Commission of Texas; then Commissioner Nancy Lange from the Minnesota Public Utilities Commission; Warren Lasher, Director of System Planning for ERCOT; Warner Baxter, Chairman, President and CEO of Ameren; Michalene Reilly, manager of Environmental Special Projects for Hoosier Energy REC; Mike Peters, President and CEO of WPPI Energy; Beth Soholt, Executive Director for Wind on the Wires; and Commissioner Thomas Easterly from the Indiana Department of Environmental Management.

So we'll start by giving each of the speakers

two minutes to make some very brief opening remarks. As at our Denver conference, we did not bring our big Washington clock that we used there to set the time for speakers, because it actually is big enough to take a small suitcase, but I did bring my trusty iPad and I will pass it to the speakers and have them use it themselves, self-monitoring, as they speak for two minutes each.

MS. NELSON: Good morning Madame Chair, Commissioners and staff. Donna Nelson with the Texas Public Utility Commission. I thank you for inviting me to speak.

I see the Clean Power Plan rule as the biggest challenge facing Texas' ability to reliably deliver power to Texans at affordable rates, and because I don't have much time -- oops, I forget to push the start button -- I would refer you to the comments filed by the Texas PUC with the EPA on December 1st. Texas is at a unique position. We are ERCOT, SPP, MISO and WECC. That alone makes compliance with this rule challenging, but it doesn't stop there. The EPA mandates a 40 percent -- 42 percent overall reduction in Texas carbon emissions and a 52 percent reduction in coal generation.

This rule also punishes first movers like

Texas, and there's been some discussion about that today. Texas has more installed wind capacity than any other state and Texas rate payers have invested over 7 billion dollars in building transmission for renewables. And as we speak, we are upgrading that transmission for renewables as problems arise.

The Clean Power Plan rule requires Texas to add up to 2 million megawatt hours of renewable energy by 2030. An increase of over 150 percent of our already sizable renewable fleet. With that increase Texas will have more renewable capacity on the grid than it has system demand on some days in the spring and fall. Texas is doing well. ERCOT has a very successful competitive wholesale and retail electric market. In the competitive market generators get paid their marginal cost which equals cost of natural gas times heat rate. Our market has driven out inefficient plans and reduced carbon emissions by 14 percent between 2001 and 2012. Because ERCOT buys entirely within state boundaries of Texas, Texas has jurisdiction over wholesale electric market, which leads me to the legal issues.

I'm not going to address those in very much detail, but there are serious preemption issues regarding blocks 2, 3 and 4. In the unlikely event

that Texas decides it is willing to relinquish control of these issues to the EPA, Texas opens itself to potential lawsuits by third parties.

This rule has a potential to up end our competitive market by requiring environmental dispatch in lieu of economic dispatch, and that comes with a cost both to reliability, which I'm going to let Warren Lasher from ERCOT talk about, and efficiency. And because this rule will require the building of mass amounts of transmission, it is good to be mindful of the time and cost of building transmission. Even in the great state of Texas it takes approximately 5 years to build transmission, and in RTOs that cover many states, like SPP, it takes more like 8 years, and those are time frames uneffectived by mass build out of transmission across the U.S. which would strain resources and extend the time.

Let me just finish by talking about one particular area in Texas that's served by SWEPCO. SWEPCO has a mix of natural gas and coal generation, has to retire almost 2200 megawatts of generation by 2020 under the proposed rule. That's more than 30 percent of their total installed capacity and 100 percent of base load generation in the east Texas pocket, Southwest Power Pool.

With that I'm going to conclude my remarks, and thank you again for the invitation.

MS. LANGE: Good morning Commissioners, Chair. My name is Nancy Lange. I'm a member of the Minnesota Public Utilities Commission. I want to thank you for sponsoring this dialogue, and our commission is working in close partnership with the Minnesota Pollution Control Agency to make sure that Minnesota's Clean Power Plan compliance will keep electricity services reliable and affordable while meeting the goals of the Clean Power Plan.

We believe we can accomplish this outcome as long as the federal rule allows sufficient time for good planning and flexible implementation and reasonable corrections are made in our state reduction goal.

In Minnesota we have a long history of proactively securing an adequate and diverse fleet of supply side and demand side and resources. We use a variety of regulatory tools. Chief among them a rigorous integrated resource planning framework, but we recognize that we don't just live in an IRP world, we live in an RTO world.

Minnesota utilities are members of MISO and our state has derived economic and reliability

benefits from participation in MISO, and some key examples of that are the regional transmission planning and operations that have enabled the adoption of substantial Midwestern wind resources and the wholesale energy market that relies on economic dispatch of the regions generating resources.

We understand that living in an RTO world actions taken by Minnesota to ensure resource adequacy can be enhanced or compromised by actions of other states or even the RTO itself.

Generation and transmission planning go hand in hand and will demand even greater coordination between states and the RTOs under the requirements of the Clean Power Plan. It is important that state compliance plans not rebalkanize the Midwestern grid or operations of the power market, which we believe would negatively effect states and rate payers in the Midwest.

It is still too early to know whether states in this region will decide to collaborate on implementation, but I can report that both environmental and utility regulators from states within MISO have come together to explore options for regional collaboration; meeting for the fifth time in person yesterday.

The mid-continent states' energy and environmental regulators have utilities that cross state boundaries with generation and load dispersed across multiple states. From Minnesota's perspective coordinating compliance across state boundaries either in a less structured way or in a more formal action will likely be necessary and plans may be more cost effective and support greater reliability when designed across a larger foot print. States will need final plan time lines and plan requirements that provide enough time and flexibility for states to work together to mutual benefit.

I'll end my remarks here and I look forward to your questions and the remarks of the other panelists.

MR. LASHER: Madame Chair, Commissioners, good morning. My name is Warren Lasher. I'm the Director of System Planning with the Electric Reliability Council of Texas. It's my pleasure to be here this morning to share in these discussions.

The ERCOT region is an interconnection comprising most of the state of Texas as the reliability coordinator of planning authority for the ERCOT region. ERCOT, Inc. conducted a study of the potential impacts of several recently finalized or

proposed environmental regulations. These regulations include the Cross-State Air Pollution Rule, Mercury and Air Toxic Standard, Regional Haze, and the Clean Power Plan among others. We have provided a detailed report on this analysis in our comments in the docket.

In brief summary, our analysis indicates that these regulations will likely result in retirement of up to half of the existing coal fleet nearly 9,000 megawatts in the ERCOT region.

Based on the proposed requirements of the Clean Power Plan and the other regulations, these retirements would likely occur within the next 5 to 7 years. These findings raise concerns for grid reliability.

First, if these retirements occur without sufficient advance notice, they could result in reduced reserve margins increasing the risk of inadequate resources to serve peak loads and the need to use rotating outages to maintain grid reliability.

Second, many of the units that would likely be retired are located between the major load centers of Dallas and Houston. Transmission lines in this region have been designed over the years to move power from these units to urban customers. As these units are retired and new resources are developed, new

transmission will likely be required to maintain local grid reliability.

Compliance with the proposed Clean Power Plan would also likely require a significant increase in the amount of renewable resources in the ERCOT region. ERCOT has been very successful in integrating renewable resources over the last ten years. With currently 12,500 megawatts of wind resources, ERCOT has significant experience in challenges associated with the changing resource fleet.

But one of the key tools in the successful integration of new variable resources has been the ability to curtail these resources if necessary during real-time operations.

The need to achieve emission targets included in the proposed Clean Power Plan could limit the use of this tool increasing the challenge of maintaining grid reliability.

These challenges are all associated with the proposed compliance schedules in these regulations. And point back to the need for flexibility in the finalized Clean Power Plan and also in the resulting state implementation plans.

Again, I appreciate the opportunity to participate in these discussions, and I look forward

to your questions.

MR. BAXTER: Good morning Commissioners -- technical stuff. I got it. Thank you. Thank you. We'll try again. Good morning Commissioners and welcome to St. Louis. My name is Warner Baxter. I'm the Chairman, President and CEO of Ameren Corporation. I'm here today representing my company and certainly we serve the greater St. Louis area.

Again, I want to express my appreciation for being invited to participate on the panel this morning. I also want to thank the Commission for conducting these technical conferences across the country.

The proposed Clean Power Plan is the most transformational environmental regulation that I have seen in my career, and as the record's shown so far will have significant implications on the reliability of the electric grid.

To facilitate our discussion this morning, I submitted a pre-filed statement last Friday. In my statement I outline several important concerns that Ameren has with the Clean Power Plan. Our primary concern relates to the significant and negative impact that the proposed Clean Power Plan will have on two things that our customers tell them that matters to

them most, that is the electric service reliability and cost.

The key driver of these issues relates to a matter that I know has been discussed at all your technical conferences the aggressive interim targets established under the proposed rules. For the sake of time, I will not repeat what I covered in this matter in my prepared statement.

Although we have significant concerns with the Clean Power Plan, we are not just saying no. Instead we have offered several constructive commonsense solutions that will significantly mitigate the reliability and cost issues that I mentioned earlier. Our recommended solutions include a very important role for the Commission to play in the implementation of the Clean Power Plan, especially as it relates to maintaining the reliability of the grid.

In particular, and as a result of the evidence presented during these technical conferences, we believe the Commission should take immediate action and recommend that the EPA modify the Clean Power Plan in a way that significantly reduce reliability risks associated with the proposed rules.

Those actions include the following: First, request that the EPA replace the interim targets with

a process that allows states to determine the appropriate glide path to the 2030 goal.

And second, recommend that the EPA adopt a reliability assurance mechanism, or RAM, and reliability safety valve, or RSV, and codify them in the final rule. I provided more details in these mechanisms in my pre-filed statements.

While we strongly believe that the Clean Power Plan should incorporate a RAM as well as a RSV, I want to be clear that these mechanisms are not substitute for first addressing the most significant reliability problem with the proposed rules, the interim targets. Addressing this issue should be the first order of business, while RAM and RSV should be second and third lines of defenses for reliability in the Clean Power Plan.

So in closing I believe the record is clear that the Clean Power Plan will have a significant impact on our nation's electric grid and consequently its citizens. As a result we strongly believe that the Commission must play an important role in several phases of the implementation of this rule. With the first phase being before the final rule is issued and later during the execution of the RAM and the RSV. We simply must get this right, and I hope that the

discussions we are having today will greatly contribute to getting this right for our country.

Again, thank you for conducting these technical conferences and providing me the opportunity to show my perspectives. I look forward to our conversations.

MS. REILLY: For the record, my name is Michalene Reilly. And Hoosier Energy appreciates the opportunity to discuss these important reliability issues with FERC. The Clean Power Plan is more of an energy standard than a typical environmental regulation. The plan sets the course for nearly 600 generating facilities providing over 44 percent of the nation's electricity. From there I'm going to defray from what I wrote down for comments, because the fact is the questions that have come up from the Commissioners and some of the statements that have been made so far leads me to talk a little bit about what Hoosier's done.

Hoosier is in a state where -- and actually we're in two states. We are a non-for-profit electric cooperative. We operate in Illinois and Indiana. Our coal is in Indiana, our gas combined cycle is in Illinois. We -- our renewables are in Illinois and Iowa. We are very concerned with the way this plan is

written. Hoosier as part of its comments to EPA submitted an alternative to the Clean Power Plan which will give the same kind of reductions by 2030 with only using building block 1. We urge the Commission to look at the comments that Hoosier Energy has submitted and we have met with EPA on our plan.

One of the things I wanted to talk about was the safety valve here, and on March 21st there was a really interesting article that the associated press had about the drought in California and the reduction in hydropower in 2014 increased CO2 emissions in California by 8 percent.

You know, we need a safety valve. We heard a presentation this morning that said that the Central region is a net, it takes in electricity. We don't provide all of our own power, and yet if you look at the amount of coal that is in the Central region, we are going to either be shuttering, and we will be shuttering, or we are going to be reducing the ability to generate from our facilities that we have right now.

Hoosier Energy spent 350 million dollars to upgrade pollution control equipment in 2012 and 2013. Our members are facing significant increases that in a rural area that has a lot of poor folks can't afford

those significant increases in the price of power because we're not allowed to run our generating facilities.

So we have a lot of concerns both about reliability but also about affordability, and I have no idea how long I've gone so I'm going to stop now. Thank you.

MR. PETERS: Madame Chairman, members of the Commission, I appreciate the opportunity to speak on the Clean Power Plan today. My name is Mike Peters. I'm President and CEO of WPPI Energy. WPPI is a municipal joint action agency. We serve in -- we have 51 member utilities in Wisconsin, Michigan and Iowa, but we also have either resources or long-term contracts with generation in Wisconsin, upper Michigan system, as well as Minnesota, Iowa and Illinois. In fact, we have five states that will have some impact on what WPPI does to comply with the Clean Power Plan.

We have invested and continue to be committed to energy efficiency and developing a resource mix that will reduce greenhouse gas emissions while preserving reliability, and we have demonstrated that since 2005 we've reduced our greenhouse gas emissions by about 25 percent. We are now as a system at about 1300 powers per megawatt hour for our emissions rate,

which is very close to Wisconsin's ultimate goal.

Our difficulty is that because of the location of our resources and our load, how our states interact with each other will definitely dictate the cost of this plan and what we ultimately have to do in order to comply, so we're greatly concerned with that.

Couple of points I'd like to make sure that are brought up today, and they've already been mentioned, but I'll reiterate them as well. With respect to reliability, a safety valve is absolutely critical. And we see FERC as the entity with the responsibility to maintain reliability, and because of that you have to take a leadership role in the development of this plan. And we see FERC's role in two places. One is in the development of the plans themselves. In my written comments I talked about the fact that we believe the time frame should allow for FERC once preliminary plans are filed by the states for FERC to put all those plans together and look at the region or the country as a whole and not individual state plans. FERC is the only entity that I believe has the ability to do that. That is not within EPA's purview or expertise.

So once the plans are filed by the states, FERC could then look at how do all these plans fit

together. And then from that, FERC can opine on reliability concerns that will become apparent as states file their individual plans, and then states should have the ability if they choose to do so to revise those plans and resubmit those for final approval by EPA.

We believe this is really the only way to make sure that we get the plans in such a way that utilities, especially those that operate across state lines like we do, are able to do so at a cost effective manner.

I will call attention to Sue Kelly's comments. She's President and CEO of APPA, and she testified at the hearing in Washington D.C., and focused specifically on the reliability of safety valve and how critical that is for our members and our utilities, municipal utilities across the country.

With that I'll be happy to answer any other questions that you have throughout the hearing, and again I appreciate the opportunity to comment and look forward to the dialogue. Thank you.

MS. SOHOLT: Good morning. I see our Madame Chair has left, but Madame Chair and Commissioners, I am Beth Soholt with Wind on the Wires, and I appreciate the opportunity to provide comments on

these important issues.

For the last 14 years Wind on the Wires has played a key role in establishing and implementing state renewable energy policy in nine states in the Midwest. Wire has worked in the MISO stakeholder process on transmission planning and cost allocation on wind integration issues including generator interconnection issues and creating tools to allow MISO to reliably integrate wind into the grid.

When Wind on the Wires started in 2001, there were only a couple hundred megawatts of wind in the ground. Today in the MISO footprint, there are 13,726 megawatts.

While I was pleased to have been part of the stakeholder process that created the MISO multi-value portfolio approach and the package of 17 transmission lines, the transmission lines are moving forward in the state regulatory approval process with Wisconsin being the most recent state to approve a new transmission line, though 180 mile 345 kV Badger Coulee transmission line. Badger Coulee will enhance reliability, relieve congestion, relieve transmission congestion, and is an important backbone infrastructure piece that will help meet Clean Power Plan requirements by facilitating clean energy.

Wind power holds great promise for helping states meet Clean Power Plan requirements, and I feel like I'm a little bit displaced at this technical conference. We're bringing a solution to the table, and I'm hearing a lot about challenges and problems. So I'm glad to kind of be on the other end of the scale.

Like I said, wind power holds great promise for helping states meet Clean Power Plan requirements reliably and cost effectively. Utilities keep touting benefits to consumers of adding wind to their portfolios, and a number of utilities have met their renewable, state renewable portfolio standards significantly ahead of time.

I want to call your attention to the Wind Vision Report recently released by the White House and the U.S. Department of Energy. On March 12th after two years of research and peer review, this documents how wind energy already provides major economic environmental benefits, including protecting consumers against energy price spikes and making deep cuts in pollution and water use.

Wind is at about 4.5 percent in the United States overall and Wind Vision provides a road map for wind to reach 10 percent by 2020, 20 percent by 2030,

and 35 percent by 2050.

Important elements in Wind Vision includes significant transmission lines to deliver low cost wind energy to population centers and improved weather forecasting, among other things.

Let me go to talk a minute about how MISO is well-equipped to help states meet the Clean Power Plan requirements. Again a little bit different take here. MISO already has checks and balances in place to ensure that states reliably meet Clean Power Plan requirements. States have authority over resource adequacy and MISO has a robust planning process for existing new or retiring generators and the additional transmission needed. Flexibility tools MISO already has at its disposal include attachment-wide studies for generators that want to retire, system support resource designation and compensation for generators that need to continue to run to address local reliability concerns while feasible alternatives are identified and put in place.

Second, MISO has a track record of working together on a number of complex issues, including the MVP portfolio. In the MVP case, state regulators, MISO staff, and other stakeholders worked through a long difficult and contentious process that by most

accounts resulted in a good outcome.

And then finally MISO has already integrated significant amounts of renewable energy into its day-ahead in real-time markets. States like Iowa and South Dakota already produce 25 percent or more than 25 percent of their electricity for wind power, and MISO has proactively worked on putting the pieces in place to reliably and efficiently integrate wind and we expect that MISO will continue to build on that body of work.

I want to just say a couple sentences about additional areas of where help from FERC may be needed. It's anticipated that MISO will need to or want to make tariff changes as the Clean Power Plan implementation progresses. It's hard to tell exactly what changes may be needed, but things that we can anticipate include new market tools for integrating renewables or demand site resources, cost allocation for new transmission, continued work on seams issues, and working with the neighbors on issues, like, aligning interregional planning metrics and cost allocation. Continued interconnection here reform to ensure a fair, timely and cost effective interconnection study process for all types of generators.

This concludes my remarks and I look forward to questions. Thank you.

MR. EASTERLY: Good morning. My name's Thomas Easterly, and I am the Commissioner of the Indiana Department of Environmental Management -- and I can't figure out how to use the timer, but -- well, I can spend more time on it. It doesn't look like my -- oh, she's got it. I don't see anything.

Okay. So let's go back. Our mission is to protect Hoosier's in our environment, and we really are an environmental agency much different than our utility regulators that you're hearing up here. But we don't think that the Clean Power Plan is consistent with our mission, because part of that is you have to have affordable and reliable power. And this plan I've heard a little bit about reliability, actually maybe a lot, but not much about affordability.

In Indiana, which is the most manufacturing intensive state in the country, 80 percent of our electricity comes from coal, the rate increases necessary to do this plan will adversely effect both our industrial base and our poor people. They are having trouble even now. Every year we lose people, because they don't have adequate energy in the winter,

and electricity, even coal-fired electricity, is one of our cleanest sources of energy over much of our state. People burning solid fuels and other wastes are not nearly as clean.

So what has happened even before this plan, talk about reliability, we have closed 3.2 gigawatts of coal just for the MATS plan, .2 was from Hoosier. And MISO, we're in MISO zone 6, they're saying that we're going to be short about 1.2 gigawatts from the reliability reserve this coming year, 2016. This is before the 14 gigawatts that they think is at risk of coal from the Clean Power Plan.

Yes, wind is valuable in the Clean Power Plan. As you know, credit for your wind doesn't go to the state that produces it, but to the state that buys it, which is a challenge for us.

I think things that you could do that would help us is come up with technical standards that our plans have to make sure are met. One would be for storage of something, you know, at a coal-fired plant you have coal in the backyard. You can keep making energy when things are disrupted. We ran into some gas issues where gas, even supposedly firm gas, wasn't always available when people really needed to generate. We have to deal with that issue.

What are the proper reliability reserves? I know MISO's working on that, they've done a great job, but having something that we should incorporate into our plans would be good.

We are working on regional plans with Minnesota and others through the mid-continent states and energy and environmental regulators, but like for Indiana which is also in PJM, we have to have another set of discussions that haven't happened yet with PJM states. We had a meeting yesterday as Nancy said, and one of the big problems is as you question the rate base versus the mass base. Some states are much more advantaged by the rate based answers, some are more advantaged by the mass based answer, but then you have a seam between the two states.

And as of yesterday afternoon, but I still think there's hope here, we couldn't figure out any viable way that you could trade between a rate based and a mass-based state. So how are we going to have a regional plan when there's little holes in the region that you can't poke through, so -- thank you.

MR. BARDEE: Thank you all for those opening remarks. We'll turn next to questions starting with Commissioner Moeller.

COMMISSIONER MOELLER: I think maybe, Mike,

we should reverse it and give Commissioner Honorable first shot.

COMMISSIONER HONORABLE: Thank you, Commissioner Moeller, what a special treat. And I want to thank the speakers already this morning, you've really given us so much food for thought. And I want to ask you something, I think the last speaker, is it Mr. Easterly, really touched on one issue, which is the mass base versus rate base. Something we do need to think more about. How will the states interact together that choose different approaches? But I want to ask for your thoughts about how.

So let's for the purposes of this discussion, I'm saying this to my dear friend Chairman Nelson of Texas and others, put aside the concerns we have about legality and forcibility, third-party suits, and the like. So let's get in this space of thinking about how this could evolve where a state participates in more than one RTO or ISO. Have you thought about that? Are there barriers to doing so? Are there benefits there? So I want to ask for your thoughts, and also in particular Commissioner Nelson, notice I always like to single her out, how would that work in Texas too with ERCOT and also with utilities that participate in SPP, for instance?

MS. NELSON: Let me just say, well, it's really, as much as I love you, Commissioner Honorable, it's hard to separate those two issues, because the only way a regional approach works, I mean, it's hard to imagine that anyone -- if the final rules look like the proposed rules, it's hard to imagine anyone's going to want to enter into a regional agreement with Texas unless it is to sell us carbon, whatever, you know, credits.

And then you get to the issue of whether the EPA has the authority with respect to setting up a carbon trading system, and we don't, so -- so let me just say, setting that aside, I mean, we started working on this as soon as the rule came out, we had a hearing with our environmental agency and the railroad commission and Texas has authority over natural gas. We've talked about the issue at SPP and MISO, but until the final rule comes out, it's really hard to say exactly what we would do and how it would work.

I can tell you it would be complicated, I can tell you obviously there'll be winners and losers, and under the current draft Texas is, you know, would be a net payer and we're not -- we're probably, as you might expect, not going to roll over on the issue of carbon tax so thank you.

COMMISSIONER HONORABLE: And if I might before Commissioner Lange speaks, I wanted to mention, Donna, that we've heard this concern that you've raised about Texas from other states such as Arizona and others that may feel that they may not be as attractive. But I really find value in these discussions because sometimes we are, as you've mentioned, in Arkansas too, we've undertaken this workshop effort to really focus on what we bring to the table, what our challenges, what are the impacts for reliability and cost, but then sometimes we haven't done as much work with our neighbors to discuss it.

So this is a great thing we need to do, and I guess maybe Commissioner Lange's point earlier about the MISO region work would be instructive here.

MS. LANGE: Thank you Commissioner Honorable. Certainly in theory a regional system makes a lot of sense. It's economically more efficient, it operationally taps into the way we work already, and as we gather together in the Midwest through this MSEER group, we recognize that there are theoretical regional benefits, and we worked hard to understand what those benefits might be for our individual states.

As Chair Nelson said absent a final rule, it's difficult to really know how we'll be situated with respect to each other, and I can tell you that we've spent a lot of time in the MSEER group mashing our teeth about our diversity of goals, and saying, okay, why would you want to work with me or why would I want to work with you when we are situated so differently.

But having said that, at the end of the day I think we have committed to try to understand what states, tools states would have to put in place, what kind of trading platform might need to be in place to exchange emission allowances even within a state, you know, there may be utilities within Minnesota that can trade with each other, there may be utilities across state boundaries that can trade with each other, and improve the cost effectiveness of compliance.

But I think it is fair to say that we are all still wrestling with that goal disparity and what that means for our cost of compliance. Having said that, I think there is broad recognition that a regional response will most likely be more cost effective and operationally beneficial.

COMMISSIONER HONORABLE: Any other thoughts?

MR. LASHER: Yeah, I would like to just add

to that question. ERCOT has a little bit of the opposite situation. We are an interconnection within one state, but I think that can be used to highlight the need here for whether it's statewide or regional plans that in some ways are seams neutral, meaning we don't want to have a situation where there's a compliance strategy that's set up, as an example, within Texas which leads to simply a market arbitrage opportunity across our boundary on our limited import/export capabilities, but you can analogize that out to all of the seams that we're going to see meaning that the rules and the implementation plans have to be set up in such a way that they're consistent with the markets across all of the different seams. I think it's going to be a real challenge going forward.

MR. PETERS: We looked at this issue from the standpoint of -- made an assumption that, you know, we operate in five states we're just about guaranteed that there will not be consistent plans that will allow for easy trading across state lines between, you know, rate based, mass based and we fully expect a state will not file any plan and we'll end up with a federal implementation plan, which we don't even know what that looks like at this point in time.

We did some analysis on assuming that you could figure out how to trade between a rate based and a mass-based state, what the cost differential could be on an adder for various generation and we filed some comments in a pre-filed testimony and been provided some analysis in that regard.

But if you take a state that has a rate-based approach and another state that has a mass-based approach, identical generating units in both states, identical cost of fuel, you could have a 20-plus dollar differential in the adders on those plans, and that's going to result in shifting generation in ways that we can't even anticipate right now simply because a state selects a different path.

We think one way to overcome some of these challenges, and you've heard it today, the difficulty of requiring a group of states to come up with a regional plan and then file that is I think it's overwhelming for state's to come to that agreement ahead of time. I think maybe a more workable solution is one where states can keep their state based -- their state plans, file those plans, and then at that point I think states will be able to sit down and look at ways that we can come up with ways to trade. I think most are assuming that states are going to go

towards a mass base, it obviously makes it easy to trade in a mass-based environment, but I think getting the states together and incentivising them the way the rule does right now is probably going to be difficult.

I, again, see a better approach where states file their plans, FERC takes a look at those plans, points out the reliability issues, states can then go back and revise those plans as well as looking for ways that they can better coordinate to ensure reliability and just as important, maybe more so, its cost impacts.

MR. BAXTER: Commissioner, I really don't have much more to add other than I think this conversation points to the challenge that we really have with the interim targets, because I do believe that with given time that there could be adequate -- and not adequate, but robust plans put together, whether they be regional or statewide to really solve this problem to make sure you address not only the reliability issue but also the cost issue.

And so not only does it go to the interim targets, but as Mike was talking about the importance of the, what I call the reliability assurance mechanism at the outset to make sure we bring all the plans together to see if they really solve, and then

to take -- have the states and others go back to the drawing board if necessary to make sure that the reliability continues to be robust, because I think that that's critical.

So I think it just highlights problems. Missouri's very unique. Missouri has SPP, it has MISO, and it has some that aren't part of regional transmission organizations, and so we're fortunate that we have a very good working relationship among all of us, including with our commission and others, yet at the same time the challenge will still be pretty meaningful to bring these things together in a timely basis to really finding a good solution for our customers.

MR. EASTERLY: I would just like to say part of the reason that we're having the discussion on rate base versus mass base I believe is your vision for the future of our country. The mass-based plan sets a cap that basically limits growth over time forever. The rate-based plan allows you to have a really unlimited growth if you can do it in the clean way. And that's why different states have different views -- one of the reasons, not the only reason, and it's what's making it so difficult to come to a common understanding.

COMMISSIONER HONORABLE: Thank you. If there are no other comments, I want to thank you for your responses. Certainly we do appreciate, we're all in this wait-and-see mode, right, and so much more will be made abundantly clear to us when we see the final rule.

I'm very pleased that you're thinking about it and having the discussions. It will, I think, require cooperation and collaboration at a level that we haven't yet had the pleasure I will say positively to experience, but I look forward to working with you. Thanks so much.

COMMISSIONER BAY: First I want to thank the panelists for coming here today and for sharing their views with us. It's very helpful for us to hear your views.

The question I have relates to two different ideas that I've heard this morning. One is relaxing the interim target date of 2020 and the other is creating some sort of reliability safety valve, and I'm curious to hear your views as to whether one is more important than the other. In other words, if there were a relaxation of the interim target date, would you still need the reliability safety valve, especially since as it's currently drafted the Clean

Power Plan contemplates that states could use an averaging approach from 2020 to 2029.

Yes, please Warner.

MR. BAXTER: Commissioner, I'll take a shot at that first, and then certainly welcome other comments.

You know, from my perspective I was clear in my pre-file statement and even my opening comments that the first order of business, if I was going to rank them, clearly are the interim targets. I think that is really the root cause of the challenges that we're talking about today.

But having said that, you know, we still strongly believe that you need both the reliability assurance mechanism, which is really the front end before the state plans actually go into effect, and then also what I would call as a reliability safety valve which is during the compliance period. We think, even if you would get rid of the interim targets, that those would have a role to play, because the bottom line is from my perspective, states are still going to make substance and progress with or without interim targets. Because no one's going to wait until 2030 to try and solve this problem, and they're going to figure out their own glide path. But

a state and maybe even a region will not have the ability to see what everyone else is doing, and so I think it's important that even if you got rid of the interim targets and the state's had their own plans of the regions, then you bring them all together, and in this case FERC or a designee will say, Look, does it all still work, even if you have your glide path.

Take care of those issues at the outset, because I think you have a much smaller subset absent the interim targets, but I think you still have issues. And even then we can't predict, we can't sit here today and predict what's going to happen over the next 15 or 20 years. Our company has a plan over the next 20 years, but things will happen. And so consequently we want to have the ability to adjust that plan, to raise the issues with the EPA that our plan may now impact reliability for whatever the reason may be, and so consequently, you know, the RSV would come into play there.

So to summarize, interim targets clearly the first order of business. The RAM, as I call it, and the RSV, second and third lines of defense, but nonetheless I think they're both -- all three of them are still very important.

COMMISSIONER BAY: Thank you. Commissioner?

MS. LANGE: I would echo the concern with the interim targets, that's a comment that Minnesota has made very strenuously to the EPA. We have a very aggressive reduction goal and an interim target that requires or advises accomplishment of that within a very short amount of time, so we see that interim target as a real conflict with reliability. I think Warren's -- Warner's points, excuse me, about --

MR. LASHER: It's tough, there's two of us here.

MS. LANGE: -- the ability to adjust plans is going to be very important, because reliability is likely to arise in a very location-specific way, and that's going to be an iterative process between states and RTO and their utilities to identify those locations and the ability to be able to go to the EPA and say, you know, we need a different mechanism here either for a short-term or perhaps adjusting the plan overall is going to be important.

The reliability safety valve has been mentioned with respect to MATS, and I would just say that there's a little bit of difference between MATS and the Clean Power Plan in that MATS reductions really do need from a public health perspective to happen at a location. I mean, carbon is a universal

pollutant in the sense that, you know, a ton of carbon here or a ton of carbon there, but, you know, a pound of Mercury here and versus a pound of Mercury there is different, and so I think, you know, some of the MATS reliability issues did come up because specific plants in specific locations were meeting to come off-line or, you know, include in engage in retrofits, and that may not be as prevalent of a problem in the Clean Power Plan, but I don't know the answer to that.

COMMISSIONER BAY: Thank you Commissioner Lange.

MS. NELSON: Let me just echo the comments of my colleague regarding the time frame, you know, Texas is also concerned about that. I don't think -- I still think there needs to be reliability safety valve, because they're not mutually exclusive. You know, as you add more renewable resources to the grid, for instance, as an example, you run into issues that either are more extreme than you thought they would be or that didn't exist.

So, for instance, Texas is having an issue with sub-synchronous oscillation, and when we built our CREZ transmission lines, we put in series of capacitors because it's the most efficient least cost way of carrying a lot of power, and we've run into

problems where there are areas with low load and low base load with sub-synchronous oscillation that can cause damage to generation units, and we're dealing with that.

So there will be times where you think you're going to get a certain amount of power from a system that ends up not working out for whatever reasons and you need some flexibility.

MR. LASHER: Let me add to that. I was really hoping we could get through a technical conference without sub-synchronous oscillation coming up. Apparently that's not going to be the case today.

But I would like to on a slightly different note about the interim target. In our analysis the Clean Power Plan, even the risk of the Clean Power Plan is acting like something of a curtain. The actual retirement decisions are being driven by the other regulations that are affecting the ERCOT region, both MATS and Regional Haze.

I think it's interesting to note, talking about MATS, we have 8,000 megawatts, I believe, of coal capacity that has a one year extension on the MATS requirements, so that's out until 2016. Some of those units, I believe, are delaying implementation of any capital investment no matter how small in order to

gain some sort of understanding of what the impacts of the Clean Power Plan will be when it's finalized this summer.

So the interim target itself I think moving that out or reducing the impact of that would be beneficial, but I certainly think that the reliability safety valve would be a key component to the successful implementation of the Clean Power Plan.

MS. REILLY: Just a continuation with what Mr. Lasher was just saying. The utility industry has not, at least the ones I've talked to, have not ever looked at their being an interim goal. It's a cliff. And I know you've heard that before.

The idea that an average over 9 years does not mean we go into the first year at a high number or a current number, which results in a number that is extremely low by the end of that averaging period which really takes a lot of coal off-line. That's the only way it works.

When a -- for a company like Hoosier that, you know, 85 percent of its power comes from one power plant, that's a huge, huge issue. We're also one of those companies that has a combined cycle plant that when it calls for gas can not get gas, so there is a huge issue out there in the timing between when you

elect to get gas and the time you have to bid into the market that also needs to be solved during this time.

But when you start talking about an emergency safety valve, when you start talking about something that happens maybe once in a while, maybe never if it's structured correctly, we're talking about those situations where the wind stops blowing.

I gave that current situation in California where hydro power, and there was an article yesterday about the same thing happening in Washington and Oregon, where you're getting less and less of that renewable power because it's not available.

You know, we start talking about yes, but then you can bring on new facilities and those won't count in this plan, because they will already meet this standard that the assistant administrator talked about that, you know, those will be the most efficient plants. Well, many of us have spent a lot of time making our plants as efficient as possible, and we believe we have a remaining useful life of significance 30 years or more on those plants.

So it's important to have a safety valve that says if we need you, it's more important to run that coal plant that might raise a state's emissions one year than it is for their to be no electricity for a

hospital or quite frankly for my house.

MS. SOHOLT: Here we go. Great. I guess I need the engineer, yeah, attorney engineer.

So I have kind of an overarching comment for you, and that is I think it's difficult to think about what the driver in removing an interim target, it's difficult to think about what the replacement driver would be for people to act early rather than to wait until the end of the time period.

And so if there is more of a glide path to 2030, are there replacement things put in place to incentivise, to urge utilities to move sooner rather than later. MISO, for example, it's not going to be able to study every generator that puts an attachment Y at the same time. They're not going to be able to accommodate everybody shutting down resources or switching out resources. There's going to need to be an orderly transition.

And so how do you get a handle if everybody waits, you know, to those later years? What can you put in place in lieu of the interim target to allow progress to happen smoothly throughout the time period?

And then I would also say that some things might be able to be done earlier rather than later.

So infrastructure will take a significant amount of time, but making sure we have a variety of planning studies that look at different scenarios as people are considering what their mix is going to look like and what their final plan is going to look like will be really important.

So getting the stakeholder process to really drive robust scenario planning under a variety of situations would help, but I really come back to what's going to be the driving force to really get people to act sooner rather than later?

COMMISSIONER BAY: You know, I actually would like to move onto -- well, you know, I think I probably used up my allotted time, so I should probably pass the microphone to my colleague Commissioner Clark.

MR. BARDEE: Just a quick reminder for the speakers, if you could turn off your microphone after you're done speaking it would be helpful for the sound. Thanks.

COMMISSIONER CLARK: All right. Thanks Norman and thanks to the panel. I notice that regardless of whether we start at greatest seniority or least seniority, I'm in the middle either way so I know how my 11 year old feels now. As a first born I

haven't had to experience that.

First, Mr. Peters, thank you for bringing up this issue of some entity needs to look at how all the state and federal implementation plans fit together after they are developed and implemented. Thanks to Public Power especially for bringing this issue, because I think APPA has been at the forefront of it. I think this is extraordinarily important in terms of from the working of the market and from a reliability standpoint having some entity with expertise and marketing reliability, looking at that issue specifically as the plans get stitched together.

So thank you for raising that. My question for you and then I'll ask others if you have any thoughts on it is how do we incorporate -- oh, and I would say this. I think you're right, FERC is the entity to do it. Whether we do it under our own statutory authority or under something that's bolted onto the Clean Power Plan or EPA's revision of it or whether it's Congress that comes in and says FERC does it. I think you're right.

My question is this: FERC's expertise is in the bulk electric system, and so would be able to look out for those things that might either affect the markets from an interstate market's perspective or

might affect reliability of the BES, but we don't have expertise in the local reliability issues, and yet this plan could have impacts on those local reliability issues that would be -- that we wouldn't be able to model.

I'm wondering if you've given any thought to is there a way to ensure that local reliability needs are met that are really beneath the certain modeling that FERC does on a granularity basis?

MR. PETERS: Thank you. You've raised a lot of issues. From a -- how this should be approached, we think EPA should amend the rule and require FERC's input and your ability to have a formal process not just somebody on the sidelines, you know, looking at it from the outside, and then hoping somebody would respond to that.

But I think FERC has a statutory responsibility to ensure reliability, and FERC needs to step up and assert that authority, and EPA should recognize that in the Clean Power Plan by allowing time for that review to take place.

From a local reliability standpoint, we're, you know, the Midwest region has been talked about. We have state oversight over our requirements to meet our load. And every state that we have load in every

year, and some states are looking out, pushing out that window a little bit further, we have to show that we have the resources available to meet our requirements in the upcoming year. And so from a local reliability standpoint, unless the states change that structure, that's going to continue.

So you're going to have FERC looking at it from an overall standpoint and the RTOs are going to be looking at it. As MISO's done an excellent job in our region of pointing out the shortfalls in the various state's capacity requirements, and those states have been responding, and so I see that as good structure for MISO, whether that's work in PJM or parts of the country, I can't tell you, but in our region, it works very well.

The states maintain the responsibility for ensureing that the utilities serving customers in those states have the resources to meet those requirements. That information is rolled up, MISO takes a look at that. If they see shortages out further in what that state's planning cycle might be, they're very good at pointing that out, and that gives those states time to go back to those utilities, so it is a partnership.

You've got FERC taking on the responsibility

at the outset, then you have the RTOs looking a little bit longer, then states from year to year or every three years making sure that the utility in their state will have the resources available to meet that load.

COMMISSIONER CLARK: Okay. Thanks. Mr. Baxter?

MR. BAXTER: So I would largely echo what Mr. Peters articulated. We see the -- the upfront mechanism I agree with you is very important to have that done at the outset. And it would be one whereby it would be imbedded in the rule and whereby -- as the EPA would ultimately receive the compliance plan so too would FERC.

And then ultimately FERC would designate perhaps the RTOs and others would participate with FERC in this assessment, because I do agree that FERC has the bulk power system, you got the RTOs and those aren't in RTOs, there's some regional planning that could identify those more localized issues and raise those as part of the plan, and ultimately before EPA would approve any plan they would have that input and then of course it would give the states or the regions the opportunity to modify those.

We think that that's absolutely critical, and

I think it's absolutely doable in the bigger picture of things. And so at the end I think that that's how we ultimately see it, and I agree with you, again, it's an important part of the process.

COMMISSIONER CLARK: Thanks. Commissioner Lange?

MS. LANGE: Commissioner Clark, I'll just mention the process that MISO and OMS went through on a resource adequacy survey over the last couple of years, and we're going to have another go around on that and learn some lessons definitely from the first generation.

One of which was utilities need direction from their state regulators that they need to supply this information in a candid but confidential way to MISO. That was very important that utilities knew if they provided generation information in their plans going forward that that was going to be confidential, but it needed to be accurate, and I think that was some of the iterations we had to work out in that process.

That helped us as a state almost do a cross-check on our resource adequacy work that we do in Minnesota through our IRP. Are we on track with meeting our parameters with respect to MISO's

analysis, that was very helpful. Identifying some regions within MISO that were constrained or short, that was important I think for those states as well.

So I guess in collaboration with the other gentlemen, I would concur that states, RTOs, and then FERC if he believes that oversight can be constructive, you know, suspenders I guess we're talking about. Thank you.

COMMISSIONER CLARK: Thanks. It sounds like it's a -- on a local reliability side it's an iterative process that starts from the bottom up, which states, their utilities, and environmental regulators working together to make sure that the plan that they're developing doesn't degrade local reliability and at the top end hopefully, I would agree with those views.

We've commented on this, it's FERC looking at the BES and market operations in conjunction leveraging our resources with the ISOs and those regions to oversee the wider grid.

Final question on cost. Understanding that utilities and their regulators will go to great lengths to not have to deal with reliability problems. The way we deal with reliability problems sometimes can be through the price mechanism that you do things

you wouldn't otherwise do that are costly, but they keep the lights on.

I'm curious of any studies that have been done in your individual utilities or regions that deal with the cost delta between complying, say, by 2030 if you were given the flexibility of just -- say get to 2030, here's the target, you do it like you need to do it, versus the cliff that we've talked about. Have you done those sorts of studies so you can kind of tease that out, what the cost delta is?

MS. LANGE: I'll just mention briefly that we haven't done a cost study of that detail. I know Wisconsin has, I believe, done a very good analysis of what the plan requirements would do for them. I think from more of a qualitative assessment our concern with the interim timeline is stranded investment. Plants that have just spent hundreds of millions of dollars to comply with MATS and Regional Haze and have depreciation schedules that are, you know, much longer than 2020. That's a qualitative look that we as our commission are concerned about, but that's not a detailed study.

COMMISSIONER CLARK: Thank you. Sure, Warner.

MR. BAXTER: Commissioner, I'm happy to

respond, because we have done that analysis, and we are in a position to do so, frankly, because we have an integrated resource planning process in the State of Missouri and that we've been looking at this for some time.

So we've been actually executed on a plan that over the next 20 years will do several things. One, it would achieve the EPA's final targets at the 2030 targets. In our case it would be the 2034 time frame. But along the way we would do a lot of things. We would retire about a third of our coal fleet, we would add renewables, we would add natural gas capacity, we would extend the life of our nuclear power plant, and of course we would continue with energy efficiency programs among other things. So we had that plan, it actually was presented to the Commission.

And so they gave us the ability to look at the Clean Power Plan and do a with and without. And the bottom line is that if we have to comply with the interim targets, what the incremental impact for this rule alone for our customers would be, would be 4 billion dollars.

And of course, it would -- the reality is, as I said even in my paper, the ability actually to

achieve some of those things by 2020 is very problematic from a reliability's perspective among others.

And so there's no doubt that the implication of the Clean Power Plan will have not just reliability issues, which I know is the main focal point of this discussion, but it will have significant cost issues, and we've actually done that, and it will be very significant to our customers here in Missouri.

COMMISSIONER CLARK: Next, please.

MS. REILLY: It's really interesting to be sitting next to Ameren when you've got one coal plant and some peaking gas plants and one combined cycle plan, because when you start talking about shutting down a coal plant that just spent 350 million dollars to upgrade all of its environmental controls in '12 and '13 and you say that you're going to shutdown a bunch of coal, which is 80 percent of our generation, we don't have a number for you because when we start looking at it, it's sort of the fear factor sets in and we really hope that, you know, they'll be opportunities outside of this which is one of the reasons why Hoosier Energy came up with an alternative plan to the Clean Power Plan that kept out, that only looked at building block 1, but the fact is the only

word I can use for a co-op, and I'm sure this is municipal too, and that's devastating.

MS. SOHOLT: The one thing that I would point out in any of the studies that look at 2020 versus 2030, is the modeling inputs are going to be critical. The capital costs that are used in the modeling, particularly for wind right now because the costs have declined so dramatically, are very important. Off by a factor of, you know, three or four you can get significant cost differentials.

So wind has declined 58 percent over the last five years, and lots of times the assumptions on capital costs really lag, the reports from the industry, and so while you think it's an easy thing to agree on, the capital costs for new generation are a very controversial topic once you start doing exercises that look at cost tradeoffs, and so it would be just as important to make sure we have the current capital costs.

COMMISSIONER CLARK: That's a good point. Any modeling is sometimes uncertain and things like PTC would certainly play into that as well whether it's available or not. So thanks to everyone again from the panel and I'll turn it over to Commissioner Moeller.

COMMISSIONER MOELLER: Test. All right. Okay. I want to first make a comment and then ask a question about the reliability safety valve or the reliability assurance mechanism. It builds on something that Commissioner Clark opened with and also Mr. Lasher talked about, the challenge about seams. And I had a good conversation with a trader last week who made the point for those of us who had to live through the West Coast crisis in 2000 and 2001, by the way we're still litigating that at FERC, keep that in mind, that's 15 years ago, and that was essentially caused by seams.

California had a market program that was flawed and then those seams issues spilled over into the entire West. So I hate to be sounding too dark here, but I certainly hope that that will be in the minds of our friends at EPA as they put these rules together, because of the issue of different states, different approaches, and the fact that when a trader is telling me that there's going to be a lot of opportunity here, and this is an ethical trader, but, you know, he's putting out a pretty good warning to make sure that that is at least thought about as this is put together.

The question pertains to how the RSV or the

RAM would actually work in terms of our role, and I think I've been pretty consistent in calling for an open transparent and accountable process on reliability implications of it, but I'm particularly interested from many of the panel, but from our regulators, our state regulators, if FERC is put in a position to be second-guessing what a state puts together, whether it's the assumptions under building block 1 are too high, whether the energy efficiency program under building block 2 won't be workable, whether you'll get your state environmental agencies to approve pipes and wires to go through building blocks 2 and 3, I sense that it could add to our state federal tension, some of which is healthy and at some point gets to a point that's not very healthy.

Chairman Nelson? Commissioner Lange?

MS. NELSON: I was purposely quiet in response to that question. You know, I mean, ERCOT is in a unique position. We don't -- we --the Texas PUC has authority over that market, over the wholesale market, so I don't think that, I mean, I think FERC definitely has some role to play, but, and again it's going to be hard to evaluate that until we see what the final rule is, and, you know, we learned that the hard way in Texas when we looked at Casper and there

was such a difference between the proposed rule and the final rule, it's hard for us to evaluate, and I think the underlining theme there is, and the speakers who have gone before me, and I don't want to speak for them, but they seem to want somebody to make sure that reliability is reviewed.

I do think the state commissions can play that role, like, in Texas where we have multiple jurisdictions, but it is challenging.

MS. LANGE: Just the thought of FERC cross-checking their state compliance fund did kind of make my skin crawl, so thanks for being sensitive to that because, you know, it is this tension between state and federal jurisdiction and, you know, if it's not broke why fix it, but we are entering a much more challenging regulatory system here.

I don't think anybody would deny that this is a big lift for all of us. I do think we can learn some lessons from the MATS roll out, if you will, want to call it that, and see how it's going. I feel comfortable that through the IRP and through engagement with our RTO that we're managing that, but, you know, that's end of pipe controls or retrofits or shutdowns, it's not energy efficiency and renewables and other building blocks.

So I hear what you're saying, but I also think that states, you know, if they have their eye on the ball, they know what's going on in their states better than the federal government would.

COMMISSIONER MOELLER: Mr. Baxter, thank you for your comments related to both RAM and RSV and understanding that your top priority is the 2020 timeline, but -- and maybe it's not fair to ask you to think this through as much, but if there is a case where we take a look at, say, Missouri's plan and we think it's inadequate and how it deals with Kansas and then how Kansas interacts with Oklahoma and talk about moving parts, I can see real challenges to what we would come up with or what we would recommend, maybe it's a pass/fail, but just wondered if you flushed out further your already articulate points about the need for these, but how it would actually work in practice?

MR. BAXTER: Well, Commissioner, you raise a great question, and it's something we haven't talked about to some extent, but you know the reality is that while we have a very robust state planning process and we work very closely with MISO, and frankly we work with all the entities, we have a seams issue in Missouri as I discussed, we have those conversations.

The point is, you know, our concern is that we may have a not large enough view to see where some of the issues may be, and this is where an organization, like, FERC or the RTOs working together, and say, you know, you have a gap and there's a yellow light, maybe it's a red light, maybe it's simply a yellow light, you know, there are ways that you can fix this gap and to address this at the front end as opposed to doing it through say an RSV, right, and then you're in real-time trying to address a problem, and that's not a prudent plan from my perspective.

So you have to weigh the issues, and as we step back and we weigh the issues, we think that some of that input upfront where there may be a little tension, but if the work is really being done thoughtfully with the stage for the RTOs as they go through the planning process, it isn't like we're going to show up one day and say, oh, my gosh, I haven't had any conversations with these people for two or three years. I think many of those things will be ironed out.

But what all goes around, comes around and comes back to the most important thing I think that would address many of these things as if you took care of those interim targets. I think you really address,

allow this tension we're talking about, and then the reliability insurance mechanism tension is meaningfully narrowed and the RSV issues are even more narrowed. That's how we see it all coming together.

COMMISSIONER MOELLER: Thank you. Well, I appreciate the entire panel, you all had great points from different perspectives. I'll just add to reiterate my first point that the California market actually worked fine for a couple of years until May of 2000 when a West-wide drought exposed its flaws. So similar to what we've referenced, it's the unintended things that come up that can really create some problems. Chairman LaFleur?

CHAIRMAN LAFLEUR: Well, thank you very much, Phil, and thank you everyone. At the risk of sticking on one topic too long, I also want to bore down, bear down a little bit on the reliability assessment mechanism reliability safety valve picking up on some of what my colleagues have said, and that is not at all to undercut the critical importance of some of what we've heard again and again on, the glide path and other aspects of the rule, but I'm really trying to focus in on the FERC aspects.

And at the very first of these meetings in the national meeting I had talked about the different

things that people meant when they used the word reliability safety valve and what it meant and what we would do, and what I thought I would do is try to echo back, do a little drafting on the fly here, if we were trying to write something in a rule, try to echo back what I think I've heard some consensus on. The three questions I'm still uncertain on and I really welcome the views of the panelists.

So what I read -- from what I've read and heard in all of the sessions is that whatever this mechanism is it should occur at the time when the states or regions turn their plans into the EPA, but before the EPA puts the infamatore of finality on those plans, we'll call that a reliability assurance mechanism. That seems to be in all the comments.

Then the second is that they would be something that would be an ongoing opportunity for review as the plans were being implemented and something went wrong or came up and that's a reliability safety valve. That seems -- people tell me when you talk if that's wrong, but I'm hearing that as the consensus.

Then secondly, I think there's a clarity on that FERC should stick to doing what FERC does. The bulk electric system, the markets, the wholesale

aspects, the interstate aspects, although not a clarity of who would do anything else that was needed, but that's something I think we're developing clarity on.

But then turning to the things that I don't think we have clarity. The first is what are the standards that FERC would use, and one thing I've heard again and again is that we would take a plan as it came in and say does this plan if implemented as it came in, does it affect reliability? Do a run and see if the lights will stay on. Within reason that's, quote, fairly straightforward.

I've also heard look at all the plans, do they work together? Do they compete with each other? You have to figure out how to do that, but I understand it.

But then there's echoes in comments. Those I think I hear consensus on of, like, does a state need more time? Does this plant need more time? And if we would do that, that gets into all the questions that Commissioner Moeller raised of, like, am I going to say, Hey, Minnesota you could have really done a little better job on efficiency and then you would have need that, and that gets me right into state jurisdiction.

So do people envision this reliability either the -- do you envision the assurance mechanism of the state would come in and say, Here's our plan. We need more time, and FERC would do something; and if so, what standards do we use or are we just kind of verifying that the plans work, because those are two very different things, and I -- we want to make sure that we know, if we're going to do something, we know what it is. That's the first question.

The second is how would the state and federal work together if anyone has any ideas, because everyone says FERC should work with NERC, well that's great, but they just have the same limited jurisdiction we do. FERC should work with the RTOs, other FERC-like creatures, but if we're going to get into the distributed resources or any of that, we have to somehow work with the states or, I would imagine, and that doesn't seem to be concretized.

And then the final question is I do want to learn from MATS, and although I'm gratified that we've had to use the MATS safety valve infrequently, we only have one that we've acted on, I think one more that we're expecting that we know of so far, but one thing I've heard a lot about it when it came out is that people didn't like that it was in the compliance

process and it wasn't in the rule and it was bolted on and you had to be, like, out of compliance to use it, and I'm not one to lead the witness here, but if anyone wants to say anything about that, this seems to be the time to if you have thoughts about doing this differently and why I'd invite that.

So what we should do when we look at it, how we work with the states, if you have thoughts about it should be in the rule because, I mean, the rules come final in a few months so we're getting into the 11th hour. That's going to be my only question, because I know it's a whole bundle of them.

I guess I'll start with whoever wants to start, whichever end of the line.

MS. NELSON: I'll start. I think it's still on. It's working right? Okay.

So, you know, you've asked some very good questions and I think we're just starting to look at that right now. We did work during Casper to suggest this, I think, maybe we were the first ISO to suggest it.

One thing I would say I think it's critically important is do no harm to markets. Whatever you do needs to be limited in duration, and, you know, there has to be some sort of everyone hates a settlement

process that happens after the fact, but as we've worked through reliability issues in Texas, I think it's really important that whatever you come up with that you preserve the workings of markets.

Because a lot of times markets will solve issues. Other than that, I would just say -- I would just go back to the reminder that Texas has jurisdiction.

CHAIRMAN LAFLEUR: I do understand that. I always say there's seven RTOs but only six that we regulate. I do know that.

MS. LANGE: Those are a bunch of really great questions, a long list of things to think about. I'm going to pass on the MATS compliance question, I think that's maybe more regulated entities have thoughts on that.

State and federal working together, absolutely. One of the ways at the risk of really wading into a thorny patch, but thinking about other ways to ensure reliability with provision of resources, like, demand response, and I know that's brought with peril right now because of where things stand, but there are a number of ways to provide axillary services, voltage support besides just traditional generation and transmission, and so I

think FERC could play an important role in being sure that you're including those in your assessment or in supporting those in your provision of rules for the markets.

I know that MISO is working on setting up a big reliability model to look at how states might comply and how that would affect reliability. Certainly we as states are going to be very engaged in that. That model might be instructive to look at with FERC, because I think it's pretty daunting for FERC to take in all these state plans and be kind of a final arbiter and say, Yeah, those look good. I don't know that that's a possible task for FERC.

So thank you for your questions.

CHAIRMAN LAFLEUR: Well, thank you. I actually feel, maybe foolishly, like I do understand how you would look at a state planning and see if it works. It's more if the state wants something else, if the state wants more time, or something, how FERC would -- it's very hard for me to understand where we'd start in figuring out what all the drivers are of that. That's -- it's all good and we want to say, yeah, that one works, that one works, that one works, we have concerns about that one, I think we can figure out rules.

But some of the things that have been mentioned as being FERC being the, you know, the kind of backstop or whatever, I worry how you would really do it at the time, so that's why impressing on this.

MR. BAXTER: So Commissioner, I'll -- you've raised some very good questions, and of course I think we collectively as a company and we collectively as an industry continue to think of some of those things.

So let me try and address to the extent I can some of your questions. Your first one related to MATS, and I think we are clear as a company that we believe it should being embedded in the rule, and from my perspective why not? Why not? We've gone through a MATS type of process, and I don't think MATS is sort of lift in place, but I think it's a good framework to talk about the evidence that you need, the procedural things that go on, and how frankly FERC is working with generators and others as well as with the EPA to try and resolve issues. So I think it's a good framework and being embedded in the rule I think has a lot of help but certainly from our perspective in terms of certainly and those types of things. We'd clearly support that.

The second thing, your question was how does the state and the federal folks all work together?

Well, you know, in many respects that's probably a -- it's a good conversation to have with all of our -- not just the state regulators but the staff folks and many others, but, you know, I think this is -- I do believe that's doable. I mean, if you start highlighting some of the issues, you know, what we have to do I think they'll be a lot of conversations, as I said earlier, upfront. I don't think we're going to wait until the final day and go have conversations, but whether there's a process that requires some of those conversations, that's maybe something worth having a discussion about.

And I think the last thing relates to, you know, what standards that FERC would look at. You know, I guess, and it's very basic, would be sort of the NERC compliance standards at a very high level.

I guess -- I had an envision where you would come to my company and say, you know, you should have done a little bit better on energy efficiency. Frankly my state regulator will have already had those conversations with me.

I think it's more that Missouri's doing this and Illinois is doing this, and we really didn't have total, because it's, you know, two different regions, you have PJM, you have MISO and SPP. We don't have

total visibility. You have that visibility and you say, Time out. We have a problem. And we could have a real reliability issue. Some may be from bulk power system, but working with the regional transmission organizations, they know the various state standards, they could say, you know, we're going to have a problem here.

And so I don't know if that gets you as far below as you wanted to go, but I don't see you calling the balls and strikes on things, like, you could have done a little bit better. I think the state regulators and the stakeholders are going to already do a lot of that from my perspective.

MR. EASTERLY: I think it's not quite as simple as we'd like to believe. Remember there's three possible sets of plans. Each state can do its own plan, the states can work with other states to come up with either sort of more voluntary market driven trading between states, or actually a multi-state plan, which probably can't be done in time, or we can opt for the federal plans and they're all going to be different.

What I've noticed talking to other states is everybody's least cost solution right now involves shutting down things and having the market make it up.

Well, the market has to exist, and that's something that you can figure out is whether or not when you add up all these things that we're trying to do, the market really can provide that much energy from all these other states that are doing the same thing we're doing.

And the other challenge -- oh, wait, I might have forgotten. Oh, this is an environmental goal, and in the environmental goal we have all these building blocks and we have -- we're going to say you must do this much of load shedding and stuff, but what if it doesn't happen? Then we won't have reliability, because there -- it just won't be implementable on the ground and somebody will be short.

So I think there's serious concerns and I hope that you can help us with this.

MS. REILLY: I want to start off by saying I think this -- whatever we do for reliability valve has to be within EPA's rules. I do think there's two different issues here, you've mentioned them both. One being the ongoing issue, what happens when the wind stops blowing? What happens when we have a drought? NRECA has come up with a very good reliability safety valve for those kinds of issues, and quite frankly I hadn't thought about this as much,

because I'm an environmental manager, but what it comes down to for me is when I look at these questions that you ask and I look at -- at the first hearing there was a gentleman from Tennessee, who talked about he has two RTOs, he has TVAs, and he has independent people within the state, you know, we are talking about an electric system that took over 100 years to develop. We have transmission wires and we have all kinds of things that were built around where the power plants are.

I wish I could -- I wish I had a magic fairy wand and I could say this is a great way to meld all these issues together. I'm not sure that it exists at this point and it's going to be painful and it's going to take a lot of work on your part, on EPA's part, on these wonderful people down here that are responsible for their states, and unfortunately for folks like Hoosier Energy that are not regulated by their state PUC and have to come into compliance on an extremely short time frame, you guys got your work ahead of you.

CHAIRMAN LAFLEUR: Well, thank you all very much for those comments. I just want to say a couple things. I do think that beyond anything that's in the rule on reliability assurance mechanism or reliability safety valve, FERC will have work to do to ensure that

the markets continue to function to produce the resources that are needed as well as -- other than ERCOT where Donna will do that -- but the others as well as to work on the infrastructure, and those are both of the topics we will be looking at this afternoon.

On the reliability safety valve, I do think we're making progress, sometimes I think this is -- all these tech conferences are like a symphony where you keep hearing the same motif again and again. So the melody's getting a little clearer, and, you know, because we're right -- if it's anything that's going to be written in the rule, we're talking now, I really appreciate the specificity of your thoughts. Thank you.

MR. BARDEE: Any other questions from the Commissioners?

COMMISSIONER HONORABLE: I just had one comment, and I heard something Commissioner Moeller say that was just music to my ears when he said, ya'll. Thank you so much; it made my day.

COMMISSIONER BAY: I hate to ask the last question of the panel. I'm standing between everyone and lunch, but one question came to my mind and that is that a number of you have mentioned some pretty

substantial carbon reductions that you've been able to achieve over the last few years. I think Ameren's website, for example, says that it achieved a 20 percent reduction since 2008. Mike, I think you said that you've been able to achieve a 25 percent reduction, and different states have also achieved pretty significant reductions in a pretty short period of time.

So my question is what allowed you to achieve those reductions in such a short period of time while maintaining reliability and affordability, and what makes the period going forward different, because now we're talking about a 15-year time frame as opposed to seven or eight years.

MR. PETERS: For WPPI it's something that we've been focusing on since, you know, 2005, '6 time frame. So it has been, you know, 10 to 12 year period that we've been looking at at this. How we've been able to achieve that is a couple of things.

One is an early focus on energy efficiency and demand response as a way of meeting our resource requirements, another was just simply opportunity. The Point Beach nuclear plant went through an upgrade, 162 megawatts of additional nuclear capacity came available. We were able to step in and buy all of

that long-term for the life of the license that takes us out to 2030, 2033. There's two units there.

And at the same time we started backing down. We had some flexible contracts that allowed us to back down purchases over a three-year period, three to five-year period that was able to reduce a significant portion of our coal purchases.

So part of it was opportunity, it just simply the -- had the nuclear option not become available, we wouldn't have been able to step down as quickly as we were. We knew that was in the works and so we had that to look at.

Going forward, I think Warner's made it abundantly clear and we agree 100 percent, that 2020 interim goal is flat out a cliff, it's not a glide path, it is a cliff, and that is a serious concern for us from a reliability standpoint. If it truly becomes a glide path, where we can start it where we're at and then give to the goal by 2030, we think we'll be fine. We'll be able to -- that gives us enough of a planning horizon that we can take advantage of the opportunities that come up. We can look at where our energy efficiency, demand response, renewables all fit into our portfolio and blend that in over that 10 to 12 year period. But if that 2020 time frame remains a

cliff, we're not going to be able to do that cost effectively.

And if they just simply, the EPA just simply moves it out to 2025, but still keeps the cliff, it's the same problem. We need a true glide path and not a cliff.

MR. EASTERLY: I'd like to state that I think the market worked. We had things like the shale gas come on, the price of gas dropped precipitously, the combined cycle gas turbines becoming useful -- well, they always were useful, but becoming more accepted, and we had a lot of old plants that the economy would say these are better solutions to -- and also unfortunately there was an industrial reduction in load due to the economy, so those three things -- and in the end, in fact, I think 30 states in the United States reduced their CO2 emissions by more than 15 percent from 2005 to 2012 before this rule was even proposed, just the market was working. We don't know if the market's going to work this way, if these opportunities will be available for the next number of years.

MS. LANGE: I would just add that in addition to everything, which I agree with the early focus on efficiency and renewables, access and expansion of

Canadian hydropower, which is very important to Minnesota, conversion of older inefficient coal plants to gas, and integration of renewables which has been able to be done in a reliable and cost effective way because we're part of a larger footprint. Those are all things that we've used in Minnesota to drive down our carbon emissions and that we plan to rely on in the future, and many of those things we're not getting credit for in our goal. Sorry, I just have to say that, the early actions that Minnesota did were not getting credit for, you know, we've kind of come to terms with that in a way. We are concerned that things that we're doing between 2012 and 2020, we're building more wind, there's some coal plants being retired, we do need to get credit for those, and we'd like to bank those emissions, for example, which would allow some flexibility going forward to deal with some reliability issues, so...

MS. NELSON: I would echo what my colleague from Minnesota said about wind, but also economic dispatch, you know, older coal, because as I said in my comments, generators get paid their marginal cost, which is heat rate times the price of natural gas, plus older heat rate units couldn't make it in the market anymore and closed down and natural gas

replaced them.

MR. BAXTER: So Commissioner I think it was, from my perspective, it was a combination of several things.

Certainly one of the things that we did was we invested more in energy efficiency, and certainly as we embarked on the programs in Missouri, those things are working. We invested in our coal plants. We made them more efficient. We also operated our nuclear power plant some, and then lastly, you know, we obviously started getting renewables. So it was a combination of all of those things, but your question was, well, okay so you did it before why -- just do it again.

I think the next step is a far more difficult step and so when you look at the building blocks that are underlying the targets to achieve the greater levels of efficiencies and power plants, they're simply not there compared to what we had on a cost-effective basis. To try and take this next step change for energy efficiency that will -- that's a challenge in the first place and certainly will take time.

And so -- and at the end of the day what we're trying to do because we made these investments

in our coal plants, we want to run them to the end of their useful lives. This is why we did it in the first place.

So when you look at the 2020 targets in particular, but even as the interim targets in general, what it creates is a regulatory cliff and really it's just something that's just not feasible. So that next step change is not the same step change that we made already. It's a much greater hurdle, and that's why 2030 in the bigger picture, when you look across the industry, we are transitioning our fleets systematically in a calibrated way as coal plants retire, we're placing with cleaner, more diverse resources among others, but to do that on an accelerated basis, that's just -- that's the real problem.

COMMISSIONER BAY: Thank you.

MS. REILLY: And I would just add very quickly. If you look at what everybody has said here, we've picked the low hanging fruit, we've picked the cost effective things, we've picked the things that can be done without huge rate increases. We've invested where we know society wants us to invest. In the end it does not have a renewable portfolio standard. Hoosier is invested in renewables, we

expect to be up to 10 percent by 2020. We do not have an energy efficiency standard for the cooperative. We have invested in energy efficiency. It's good for our members, but what ends of happening in a cooperative area often is that that means you've insulated their home and instead of heating their home to 55 in the winter, they heat their home to 70. It does not mean a reduction in energy use often, it may only mean that their life is better. And that's something we can't forget with municipals, with cooperatives, and other people, and a lot of the other IOU's that serve the poorer communities.

COMMISSIONER BAY: All right. Thank you.

MR. BARDEE: I would like to thank all of the panelists for the written presentation they've sent us or taken the time to be here today, and most importantly for the thoughtfulness of their comments here today so thank you.

With that we will end this morning's panel and we will resume at 1:00. Thank you.

(Recess)

MS. SIMLER: So good afternoon and welcome to the second panel of today's conference. I'm Jamie Simler and I'm going to be the moderator for this

conference -- for this panel, excuse me. The focus of this panel is identifying and addressing infrastructure needs.

I'd like to remind our speakers to use your microphone, to turn your microphones off when you're finished responding to a question and introduce your name -- introduce yourself and give your name before you respond to the question.

I'm going to go ahead and introduce this panel's speakers who will be given an opportunity to make two minutes of opening remarks. Jessica is providing you with a timer, and when you're finished with it, you can just pass it to the next person, and if it times out, Jessica will be happy to help you.

So starting with our guest speaker panelists, starting with the first gentleman on Commissioner Bay's left is Commissioner Stoll from the Missouri Public Service Commission; then we have Commissioner Brian Kalk from the North Dakota Public Service Commission; Mr. Lanny Nickell, Vice President, Engineering, Southwest Power Pool; Michael Cashin, Environmental Policy Adviser, ALLETE; we have Robert Steve Gaw, consultant for The Wind Coalition; Amy Farrell, Vice President, Market Development, America's Natural Gas Alliance; Leslie Kalmbach, Vice President,

Enable Midstream Partners and Enable Gas Transmission; Lauren Azar, Former Wisconsin Commissioner and DOE Official and currently of Azar Law; and Mr. Clair Moeller, Executive Vice President of Transmission and Technology, MISO.

As I said, each panelist will have an opportunity to present the one or two most important points they would like to make in about a two-minute time frame, and with that if there's no opening remarks from our Commissioners, I think we can begin this panel. Thank you.

MR. STOLL: Okay. I'll kick this one off. First of all, I would like to welcome everyone again to the greater St. Louis area, and we appreciate FERC holding the final Rule 111D technical conference here in St. Louis, and I appreciate the opportunity to represent the Missouri Commission at this meeting.

On August 18, 2014, the Missouri Public Service Commission held a workshop and posed questions to stakeholders relating to the impact of the EPA's proposed rules that we anticipate will be finalized this summer. On December 1, 2014, the Missouri Commission filed its comments regarding the proposed changes to Rule 111D.

There are a number of key points that

Missouri, and I'm sure others, and we have heard others make some very good points at the earlier session, that we will impress upon the Commissioners regarding the Clean Air Act and 111D compliance. And since this panel is here to address infrastructure needs, I'll keep my comments to the important issues raised by the stakeholders of Missouri and shared by the Missouri Commission that pertain to those needs.

First, the work of utilities transmission systems and energy companies is characterized by years and even decades ahead of interhorizons in regard to construction and planning of critical infrastructure followed by decades of depreciation and useful life expectancy of that critical infrastructure once it is completed.

The ship quite candidly cannot turn on a dime. We can diversify our generation systems and our transmission systems, but to properly do so will take adequate time to allow for proper planning, effective safe and practical construction planning. We are deeply concerned that the deadlines for compliance are unrealistic in this regard in allowing the adequate time that we properly need to meet this challenge.

Second, it's essential that we implement new regulations and the new and new generation in

transmission systems in a manner that complements existing regulations in our infrastructure systems. Here in Missouri we have authorized billions of dollars in plan improvements to meet sulfur and Mercury emissions requirements as well as reduced consumption and clean up our generation infrastructure. This will all be for not if these facilities are made obsolete by regulations that curtail the usefulness before they would naturally be replaced. Let us sustain, not compromise, the gains we have made as we move forward to a less carbon dependent energy future.

And finally, we should always place priorities on safe and efficient energy systems. Doing so requires that we avoid any regulatory paradox in which the regulations of one agency to ensure reliability, we have to make sure they are not in conflict with another agency's regulation that limits emissions. This logically extends as well to the relationship between federal agencies and state regulatory bodies. It should be remembered that resource adequacy as described in every Missouri regulated utilities integrated resource plan is an important responsibility given to the states and that this authority must not be eroded. Meeting changes as

large as these that we face are not easy, but we can meet them with adequate time and prudent practices to assure that the reliability and safety of our systems are improved and not compromised.

As we move forward, I would like to ask FERC Commissioners, and I've already stated this to -- you heard this numerous times this morning, but to reiterate once more, I would like to ask the FERC Commissioners to express to the EPA the very real concerns expressed at these technical conferences. There are still many issues to be addressed by EPA before the final rule is published, and we would appreciate your help to encourage EPA to develop a plan that is mindful of the time, resource requirements, and costs associated with implementation of this rule. Thank you.

MR. KALK: I guess just keep going down the line. I'm Commissioner Brian Kalk, North Dakota. I'm going to follow up on, first of all, thanking the FERC for having us out here and Commissioner Honorable talked about it's time to get down to brass tacks, so I threw out my prepared notes and I'm going to give you my thoughts right off the top.

We'll start with a story. I was a young marine, Dessert Storm, had guard duty one night and

woke up the next morning came out and it was dark as heck. I couldn't understand why it would be dark at 10 o'clock in the morning. Well, that's when Hussein lit the oil fields on fire. And first it gelled my mind that National Security and Energy Security, they're tied together.

So I followed through the rest of my career, retired, ended up on the North Dakota Public Service Commission. But that's kind of the perspective that I have on infrastructure. When you look at building infrastructure, we should be looking at enhancing our National Security, build infrastructure, the answer should be yes. It's how do we get there? Whether it's a wind farm, whether it's a pipeline, whether it's a power plant so we cannot forget that.

North Dakota's perspective I guess from the Clean Power Plan, first off, it threatens our National Security, we can't lose sight of that. I don't think it's authorized under federal law. It raises significant concerns about reliability of the power grid. We can't say it will cause reliability problems, but we can't say it won't. It's never even been modeled. If you swap out a transformer in North Dakota we have to model the impacts of it before we do it so we just can't lose sight of these things.

And I'll tell you that the North Dakota Public Service Commission, we've done very similar to what Commissioner Stoll has done in Missouri, all three of us agree, we're not buying into a regional plan. We're not going to offer up state's rights. This thing's going to be litigated, but along the way we're going to keep building what we built in North Dakota.

I kind of laid out my hard line position, but just kind of to give you an update on what we've done in North Dakota in the last decade.

We sited many, many 345 kV lines. We've sited many oil transmission lines, crude. We've gone from 0 to 2000 megawatts of wind. We've gone from 0 to 600 megawatts of natural gas. All of our coal plants are in compliance with current regulations. We have great renewable energies, use dry fining, a new technique to dry the coal down, less emissions, offered five years, great stuff.

We also have alms cycle where we're taking the CO2, how it stays now, 100 percent of CO2 is reutilized and we can use it for enhanced oil recovery. We've been capturing the CO2 in North Dakota for three decades, and doing that for an export to Canada quite honestly for EOR.

So I guess what I'm getting at is that from a state perspective just leave us alone, okay? We know what we're doing and just let us be, okay? I understand that it's very challenging, but the final point of what we ask for is very similar, you know, please use your authority under the Energy Power Act to make sure that you have a role in looking at this Clean Power Plan on what it does for reliability. Whatever you can do to insert yourself in that process, please do it, because all the other things aside that will work itself out, but the reliability concerns are front and center so please do what you can.

And the second point, help the states retain our right that's been there for decades of making sure it's our job for the retail stuff, reliability and low cost. So thank you very much for having me out here. That's the brass tacks. Thank you.

MR. NICKELL: Well, good afternoon. I'm Lanny Nickell with Southwest Power Pool, and I want to say thanks to the Madame Chair and the Commissioners for the opportunity to engage with you on a very important issue and be involved in that dialogue.

I think SPP's reliability concerns have been fairly well-documented. We filed our comments with

the EPA focusing primarily on our reliability concerns. We have shared those concerns with the Commission in the past, and I have since elaborated on those concerns in the written remarks that I filed with you last week.

So I'm not going to bore you with any more detail about what those reliability concerns are. What I do want to do, though, is talk a little bit about some of our recommendations, and let me just say, and this could be the engineer in me coming out, but I think it's always better to get it right than it is to get it quick.

The effects of doing something quickly and making mistakes are much more lasting and far out reaching and costly than if we simply take the time to get it right on the front end. Having said that, that is one of the reasons why we have recommended a delay in the imposition of the interim goal to at least 2025. So that's recommendation number one that I want to emphasize.

Recommendation number two is the incorporation of a reliability safety valve in the final rule in line with what the ROC has already proposed.

Let me describe a little bit more why I think

the first one is so important. Taking time to get it right. If we can delay the imposition of the interim goals, that allows the planning authorities such as SPP and other RTOs in other regions to adequately prepare the transmission grid, the infrastructure needed to not only allow compliance with the Clean Power Plan in a reliable way, which is of upmost important, but also in a very cost-effective way. If we don't take the time to do that, it will be much more costly to implement it. If we react as opposed to be proactive and develop the transmission grid as we need to.

Furthermore, relying on transmission planning processes that are already in place that we know how to implement that our stakeholders are familiar with is much more effective than relying a whole lot on a reliability safety valve of which hasn't yet been involved. We don't yet know how that's going to work, and I would much rather the reliability safety valve be used sparingly as opposed to being used a lot. So if we can have the time to develop the transmission grid, not only can we develop it for reliability, but also we can develop it such that compliance is done in the most cost-effective way possible, and it relies upon existing processes. The reliability safety valve

is still important, I just don't think it needs to be used a lot. It should be only used as needed as a last recourse.

What I would ask FERC to do is, first of all, publicly acknowledge the concerns that have been raised from SPP and from others who know how to operate and plan the system. Secondly, to support the recommendations that we have made along the lines of what I've already described. And then, thirdly, we would ask that FERC continue the good work that it began with Order 1000 and to continue to encourage and increase that encouragement for planning regions and planning authorities to work together to develop regional solutions, and even more importantly, interregional solutions.

The reason I want to emphasis interregional solutions is because if you look at where the EPA has projected the majority of the retirements in the Southwest Power Pool's region, the majority of those are on the scene with MISO, and that asks for interregional solutions, and so we need more encouragement to develop those.

And then, finally, I believe FERC could also and should encourage that planning authorities begin as soon as possible to implement and include Clean

Power Plan assumptions in their planning efforts. We don't need to wait, we need to get started, we need to start planning the system in preparation for the ultimate implementation. Thank you very much.

MR. CASHIN: Good afternoon. I'm Mike Cashin with ALLETE Minnesota Power, and I also thank the FERC staff and Commission for inviting us here today.

To start off making an observation in that those that may have had a chance to see the panel comments that were prepared, I think they do an excellent overview, a lot of the moving parts, the issues that are out there under consideration as we proceed looking at the Clean Power Plan for reliability issues, and I know I appreciate seeing that out there.

With that in mind, I'd like to emphasize a few points from Minnesota Power ALLETE. First is to acknowledge a point that our Minnesota PUC Commissioner Nancy Lange brought up in that Minnesota has been much engaged with the issues of environmental excellence and see ourselves as an environmental leader, passed legislation in '07 that set up climate targets and such, and we as the utility sector in Minnesota have been very proactive in getting involved in that.

We have a similar rendition of what you saw from Ameren with our energy forward plan we're aiming for a third, a third, a third of renewables, natural gas and coal. Starting off with 85 -- or 95 percent coal in 2005, so that's a big transmission for us going into the 2020s.

And the problem we have is right out of the gate that the EPA BSER process really gave no consideration to that head start that we've done in Minnesota, and consequently we're concerned about equity issues, the consequences of not acknowledging things that are under way, and bring forward one of the recommendations we've given the EPA is that the EPA adjust their targets for Minnesota to give that kind of recognition and accept it as a basis for SIP.

Now, I characterize Minnesota as a thoughtful process that did things right from the Minnesota perspective, and that includes giving consideration to rate for deployment as progress steps were laid out for renewables, we have an established conservation program, and so forth. And one of the issues with EPA's Clean Power Plan as people have talked about is that pretty much blocks 1, 2 and 3 are in full deployment at the beginning of the period. If you look at the glide path from many of the states, it's

just the residual of one-and-a-half percent a year conservation improvements that show your glide path shape going to 2030. Well, obviously, a program that we've had doing those kinds of activities spread out over time and then to augment it with perhaps the same scope new by 2020 isn't practical, so concern about that.

EPA structured the Clean Power Plan to work within state borders, and we all know what that does in terms of encapsulating a generation, the customer base within that, yet we also know that the electric system involves transmission and customer service from plants that are optimized for location, and that's no different than where we are. We're very much concerned that there's some double counting that's occurred under a block 3 perspective when it comes to renewables. We have two states that might claim the same renewables as being under their rationale and when we've asked for clarification from EPA, we've been left with some uncertainty there, and then on top of that, the targets for renewables are carrying an option where rather than having a designated percent, it might go to a renewable potential development.

Consequently, we have perhaps over 30 percent of the electric supply in Minnesota in the air coming

up for 2020. So what we're suggesting for reliability perspective that FERC consider asking EPA to reform their targets so that ownership rights and the location of the facilities is given a proper consideration when targets are set, and then re-propose it so that the states can make a knowledgeable determination on what it is we're dealing with for the next level. We definitely don't want double counting.

Then we also have an issue of block 2, and I don't know how pervasive it is in other states, but in Minnesota EPA shows block 2 would have half the coal generation that was produced in Minnesota in 2012 do the redispatch to existing natural gas, and set the targets accordingly.

And that's a concern for us, because if you think about it completely through, the block 2 requires that as you increase the NGCC megawatt hour, you'd have to decrease an existing coal relative to a historic level.

So in Minnesota that gas has been in reserve. We have just under 3,000 gigawatts of NGCC that have a relatively light capacity factor that EPA wants to ramp up to 70 percent, and in the process the coal that might otherwise be released to serve that

reliability duty has an environmental restriction now. So in a sense you're taking 3,000 megawatts out of capacity reserves in your backyard.

When you look at it from our neighboring states' perspective, that number blossoms up to 8,000 megawatts and going across our region it's significantly greater. Our observation is that this is an ill-conceived concept, because in the process of designating higher utilization of an existing resource, you're constraining utilization and that puts supply in the constraint situation, and that hasn't really been properly modeled or evaluated. And we're suggesting that EPA just remove the block 2 component from its target setting, especially for states like Minnesota where it would show such a large quantity.

I have other points that I'd like to raise that would get into the subject matter that the Commissioners have been looking at for things, so I'm going to defer that until we get to the Q and A portion. Thank you.

MR. GAW: Oh my, this is dangerous. So thank you Commissioners very much for the invitation to participate. I noticed that Lauren had former by a few of her former titles. I was concerned about

adding former to my titles for fear that after I finished today I would be formally with The Wind Coalition, but let me just say that in the prepared statement that SPP, MISO, and ERCOT regions have the best wind resources in the world. And we have harvested only a small part of the potential of those resources as a low cost energy resource when resources help keep consumer prices low and have a stable price for 20 years or more. Wind energy brings added benefits by providing a hedge against changes in environmental regulations, and fuel, and transportation costs, and it's also proven valuable in keeping the lights on during some of the polar vortex events. Because wind generation does not need water to generate electricity, it helps us to conserve that valuable resource for drinking and agriculture uses.

Cost effective infrastructure investments have been neglected for decades until recently. The transmission planning and cost allocation policies adopted in all three regions that we are talking about today, broke through some of the barriers to building new and needed transmission after decades of under investment in infrastructure. The CREZ lines in ERCOT and the priority projects and the ITP projects and SPP and the multi-value projects in MISO resulted from the

dedicated and collaborative work of stakeholders, the FERC, and the states.

These investments have delivered and will continue to deliver substantial savings to consumers, improve reliability, and increase efficiency in the wholesale electricity markets. They have also allowed the integration of more cost-effective wind resources with higher capacity factors which in addition to the benefits noted help in the transition to a cleaner production of electricity and provide a head start in meeting the Clean Power Plan.

Wind power has grown in significance in all three regions. ERCOT has approximately 12 and a half gigawatts, SPP is approaching 9, MISO has over 13 and a half gigawatts. With Transmission upgrades that are currently underway, these regions can add additional wind generation putting them well on their way to meeting the earlier years CPP targets; however, additional transmission will be needed for the cost-effective compliance with later Clean Power Plan requirements and to ensure that states have more flexibility to meet those targets.

In assessing what FERC could do to help facilitate moving forward, the following measures should be considered. First, helping to ensure that

regions begin work on modeling the Clean Power Plan regionally and interregionally. Much can be done now and certainly once the rule is finalized this summer, to start the planning processes. Waiting until the SIPs are developed will be too late. And regardless in understanding of what infrastructure is likely to be available, should be an input into the state's SIP development process.

Second, giving consideration to strengthening the requirements of Order 1000 on a regional and particularly an interregional basis as it relates to infrastructure that is needed to most cost-effectively implement the CPP, this includes planning and cost allocation.

Three, exploring alternatives to the current construct of pancaking of rates for transmission service particularly in the seams between MISO and SPP.

Four, exploring ways that interstate transmission siting rules could be improved.

Five, providing assistance in the option to regionally implement the CPP.

Six, improving the coordination of transmission service requests between regions.

And seven, better coordination of neighboring

electricity markets.

Thank you very much for allowing me to participate in this panel and I look forward to your questions.

MS. FARRELL: Commissioners and staff, thank you for the opportunity to participate today. My name is Amy Farrell. I'm the Vice President of Market Development at America's Natural Gas Alliance, an association made up of the leading independent producer of domestic natural gas.

As an organization we focus on market and demand issues. Today I'm offering my comments in the context of implementation of the rule as proposed by EPA. I want to make clear that ANGA neither supports nor opposes EPA's Clean Power Plan. It is a fact that EPA's Clean Power Plan will add costs to regulated entities and consumers just like any other regulation.

While much of the rule's specific effects, from consumer costs to changes in generation mix, will be dictated by how states choose to comply, natural gas does provide for reliable generation and a relatively cost-effective compliance mechanism under the rule.

From an infrastructure standpoint, we think the most frequently overlooked element in compliance

conversations and debates about reliability and feasibility is the fact that EPA has set an average annual standard.

When considering the role natural gas can play in compliance, we need to think about annual average capacity factors, not peak day capacity factors. In many areas there is room in existing pipelines to serve increased existing natural gas combined cycle generation. Generators can operate at a higher capacity factor in non-peak gas demand months and then rely on dual fuel, LNG storage or other generating sources during peak demand months. Yes, this is a paradigm shift and may require changes to how existing generation is dispatched, and how generation is compensated, but it does present a near term option for compliance.

I want to be clear that we are not saying that no infrastructure needs to be built, of the contrary, pipeline infrastructure investments will need to continue. As DOE's recent infrastructure study noted, CPP implementation is most likely to shift where that investment is made.

We are simply saying that the existing infrastructure supports significant opportunity to comply by increasing generation from existing natural

gas combined cycles, and that is made possible in large part by the average annual form of the standard.

With respect to the question posed by the Commission regarding what FERC can do to ensure reliability, we believe FERC can play and must play an important role in ensuring continued reliability, even as significant changes in generation occur.

We encourage FERC to explore any and all ways to expedite infrastructure approval, while maintaining the integrity of the review.

We encourage FERC to work with system operators to ensure that appropriate costs recovery mechanisms are in place for existing facilities to provide generation when called upon, even if such generation is needed in limited time periods throughout the year.

And we encourage FERC to ensure that electric generators are able to anchor a new pipeline in both restructured and vertically-integrated markets.

Thank you again for allowing me to participate. I am sticking to my prepared two-minute remarks, but look forward to discussing our views on the advantages of a rate-based system over a mass-based system per the Chair's opening question later this afternoon, as well as other important

compliance elements. Thank you.

MS. KALMBACH: Good afternoon, Commissioners and staff. My name is Leslie Kalmbach. I am Vice President of Regulatory and FERC Compliance for Enable Midstream Partners, LP. Enable Midstream owns and operates approximately 8,000 miles of interstate pipeline as well as intrastate pipeline and storage facilities. The Enable Midstream companies are power generators across their systems and in the Central region of the United States. Enable appreciates the opportunity to provide input on the development of pipeline infrastructure that may be necessary to comply with the EPA's Clean Power Plan as well as service issues that must be considered when generators make decisions about infrastructure development.

Pipelines have a successful history of building infrastructure, yet pipelines can build only after a customer determines its capacity requirements and signs a long term firm transportation contract.

Given that electric utilities and generators likely will not know until 2017 or 2018 at the earliest, the extent to which they will meet the contract for pipeline capacity, construction schedule certainty is vital to meet Clean Power Plan deadlines.

Enable appreciates the great job the

Commission does in its role of reviewing pipeline certificate applications and understands the high workload the Commission currently manages in that area.

Enable respectfully offers the following ideas to promote schedule certainty and improve efficiencies in the certificate review process.

First, develop uniform solutions that would result in consistent minimization and mitigation measures. For example, a standard set of mitigation measures could be developed for a particular endangered species.

Next, increase staffing in the Commission offices effective by greater levels of natural gas infrastructure activity. Increase cost limitations under the blanket certificate program.

Finally, increase the use of technology and the permitting agencies processes including acceptance aerial surveys.

Enable is in no way suggesting that the Commission skips critical steps and proceed without appropriate levels of environmental freedom and review.

In considering the need for new pipeline infrastructure to comply with the Clean Power Plan, it

is important to take into account a generator's expected low profile. If a generator expects to run during peak gas demand periods, interruptible capacity may not be available. If a generator expects to have less than predictable run requirements, a premium service that provides the capability to respond quickly to unanticipated changes in run requirements may be the answer.

Many pipelines including Enable's two interstate pipelines offer these tailored services. However, in order to provide such services, pipelines must have sufficient capacity, compression, and often storage or other axillary services available to accommodate the hourly swings possible with such services. Pipelines can serve generators reliably and design services to meet their needs.

Enable has a good track record of working with its customers to create tailored services and also has engaged in outreach, education, and communication efforts with other stakeholders, including MISO, to promote gas-electric integration, although the pipeline industry neither has nor needs regional or centralized planning because the interstate model is driven by the customer's commitment to contracts to support the construction.

Pipelines welcome the opportunity to discuss these contracting opportunities with generators, ISOs and RTOs, and state and federal regulators. Thank you.

MS. AZAR: Good afternoon, Commissioners. Lauren Azar and I am formally several things, but let me talk to you about what I'm currently doing. I am back in the private sector, and I am trying to help get things built, namely transmission infrastructure both on the utility side and merchant side.

While I was at NARUC last February, I was struck by the number of commissioners who recognized that regional compliance would be the most cost effective for their states, but then quickly concluded that it would be too complicated to accomplish.

Regional compliance may not be simple, but the states can do it. I know, because the states already did do it in MISO. While as state commissioner I lead the MISO process that resulted in the acceptance of the MBPs and the cost allocation for those multi-value projects. We were able to accomplish both of those products because of three conditions.

Number one, there was a law that needed to be complied with, namely the RPSs in the numerous states. The final product included a portfolio of projects

that benefited each state within MISO. Now, to be clear, some states were benefited more than others, and that's a key component and frankly a key success of the cost allocation process that there were some differences there, which I think you're going to see the same sort of differences in the Clean Power Plan. And third, the transmission owners coalesced around the product because the state commissioners were leading the process, so they had some certainty with regards to whether or not their costs were going to be approved later on.

The regional compliance with the CPP can follow the same road map, and I just want to point out a couple things based on the conversations that happened this morning.

Number one, there's no question it was not simple, right? We met about every other week over 18 months to get that accomplished. So when I heard this morning that the states have met five times, I applaud their meeting five times over the regional compliance of CPP, but let me tell you guys, you're going to have to meet a heck of a lot more and I recommend to you begin as soon as possible.

And I do believe the regional compliance probably hinges on the ability to monetize compliance

of CPP. By monetizing compliance, you're going to be able to essentially have a fungible commodity that can be bid into the market such as MISO, and I'll let for better minds than mine figure out exactly the best way to monetize compliance. I believe there are a number of different ways that are currently being floated about.

And lastly just to point out that besides coming up with a regional compliance plan, somebody like MISO can also help with developing the regional infrastructure that's going to be needed to support the compliance with the plan.

So I was at NARUC last February, obviously, and I was also struck by the number of commissioners who were worried about lengthy permitting times, and in fact that's already been mentioned quite a bit here.

I spent two-and-a-half years at the Department of Energy, among other things, working on the streamlining of federal permits for transmission, and that work continues to this day. I am happy to report that I know of a pilot project that's going on right now where the DOE is the lead agency and they will be issuing from the point of the notice -- publishing of the notices of intent to the publishing

of the federal EIS will be approximately 16 months, 16 months.

What that tells me is that the federal agencies can do it when they have a will to do it, and I have put in my written testimony a number of the rules that FERC, I think, can help play to ensure that the federal agencies stick to time lines like 16 months.

I'm not going to go through all the different things I put in my testimony, because you guys presumably have read it. I did think of another thing that FERC can do, you know, the proverbial happened in the shower this morning, is, you know, 216H under the Federal Power Act requires the DOE to actually be the coordinator of the permitting of transmission projects, and they have been working on that -- they got that authority in 2005 and they had been working on that. FERC has been involved with the rapid response team for transmission.

One step that could be taken is to have the DOE actually delegate its authority under 216H to FERC. I think that that might help, because FERC's independence I think would bring a different kind of perspective to the implementation of 216H. So I look forward to your questions.

MR. CLAIR MOELLER: This was the good one. Here we go. I just had to wait for it to wake up.

Again, thanks for this opportunity to speak here today. I'd like to start with five things that are FERC jurisdictional. Inside the MISO tariff, not very clearly, but embedded in that are what we call conditions precedent to the construction of infrastructure. And we call those four conditions precedent policy consensus, which is defined in our tariff as duly promulgated rules or legislative action in energy policy.

We talked about the business case, it has to be a robust enough business case that it's most likely acceptable in all futures. The parameters of those business cases are also ensconced in our tariff.

It talks about who benefits has to be who pays over time. That will be the hardest thing to solve again. It always is the hardest thing to solve. The MISO tariff has changed four, five times in order to continue to maintain that balance between who benefits and who pays. I would expect we'll have to do that again, because as we think about the infrastructure and the uneven burden that the states bear, who benefits and who pays is where all the action's going to be one more time.

Investors have to get their money back. That's true in the electric side. We're experimenting with new different business models to get transmission constructed, different ways to pay for that.

I suggest that those same four things we should think about in that kind of way as we think about the seam that we haven't solved yet, and that's a seam between the gas and the electric industries.

We spend a lot of time talking about the seams between electric markets. There's another seam there that's going to be very important for us to work through so we can meet even of relaxed light path kind of on a time frame to get to the kind of infrastructure we need.

To reiterate the multi-value project path, there's about three years worth of work to get to a policy consensus that was -- tried to meet these things. That was the renewable portfolio standards not only state legislation and goals.

It took us four more years to construct the business case. The last 18 months of that four years, as Azar talked about, getting down to making sure who benefits and who pays.

Most of those transmission facilities have been requested, but the schedule to finish them all is

like 2019. So we began this trip in 2007, and we will be done with the first infrastructure in 2019.

If we're going to do that same sort of path including gas infrastructure, we're going to have to get together pretty fast, and we're going to have to have that policy consensus so that planners know what to do. We planners are not policy makers, we are policy takers. And until that policy is clarified, it's really hard to align those conditions present.

Then the last point I'd make is -- I might get hit by lightening, because the point where state jurisdiction and the federal jurisdiction meet is in resource adequacy. Inside the MISO tariff we define a risk profile. The jargon in the industry is one day in ten. It is that one day in ten that the state jurisdictions work to meet. How we define that risk profile will have a big play in that reliability assurance question.

The big issue is historically we have been able to use past performance to predict future performance. As the generation fleet evolves, the question will have to ask and answer to work our way through the analysis of the various plans is, is the fleet going to behave tomorrow like it behaved in the past, but that risk profile is again ensconced inside

our tariff, and that's a jumping off spot for us all I think as we work our way through these questions. With that I look forward to your questions.

MS. SIMLER: Thank you very much for all those opening remarks. I'd now like to start with our Chairman for any questions, and please remember when you're responding to the questions if you could identify yourself for the court reporter. Thank you.

CHAIRMAN LAFLEUR: Well, thank you very much. I really appreciated the specificity of the comments and how focused a lot of them were on things that FERC does, whether it's pipeline, permitting, Order 1000, and so forth. I had a few things to kind of bore in on. I want to start with Steve Gaw and your suggestion that FERC do more to oversee regional modeling on the Clean Power Plan, and I'm interested in comments. I know we have representatives of SPP and MISO on the panel, because that's something we have not really done to date. We've held these conferences, but we haven't asked or required the RTO to do any particular kind of work on this or anyone else, I mean, other than through transmission planning, which of course we have required. So I'm interested in, if you will, what you meant by that and if anyone else has comments.

MR. GAW: Okay. Thank you very much, Chair. I think that the progress that was made in Order 1000 is significant and it needs to be noted. Both SPP and MISO were making strides in somewhat in parallel as Order 1000 was coming down on a regional basis, and so a lot of the actual construction that we have seen is as a result of the leadership and the collaboration that's been going on and the states have been a part of that.

What I'm concerned about at this stage is, number one, on a regional basis not waiting too long to start laying groundwork for what needs to be done on planning, and at this stage of the game, SPP is just now to the point where we're talking about looking at actually modeling the transmission system that would be based upon carbon constraints.

There was some effort to do that in the last IPP. It was supported by the Chair. It was supported by some others, I'm talking about the Chair of the Board of SPP, but in the end it didn't survive and as a result we are where we are.

So I don't want to see that become a problem that allows this what needs to be, as Commission Stoll said earlier, a ship that takes awhile to turn for us to wait before we're turning that wheel in the

direction of trying to understand where we are.

On the interregional side here's my major concern. When you look at the potential, especially on block 3 and the renewable fund, and all of the great resources we have in the Midwest that you could utilize, and the path that we're on we're going to eclipse what's necessary even in the early years just based upon where we are today and what we're seeing.

But if I'm in an area that doesn't have access to those resources, and maybe it's in the Southeast, maybe it's in MISO south, and we need to see what kind of transmission infrastructure could be built in order to allow either access to those energy resources or access to resources being built that allows credit transfers.

Either one of them are going to require the building of transmission in a different region than where it is being used, and today I do not believe that we have the right kinds of planning mechanisms or cost allocations specificity to see that we get that cost-effective result, if it indeed is the most cost-effective result.

And so I think FERC really could do a lot of good in focusing in on that particular problem in which I think is -- we've got part way there, but

we're not all the way there, and I think we really need to encourage it.

Now, SPP and MISO are going through this first round of a modeling effort, but no where in that effort, and I advocated for this, others advocated for it, to try to look at carbon constraint in that modeling. It didn't happen.

We got to see a quick turn around in my opinion to get on that as soon as possible and not wait to lay the groundwork. So that's generally what I'm talking about, and I'll follow-up if you want more on it.

CHAIRMAN LAFLEUR: Thank you. That was very helpful. It sounds like you're talking about being vigorous in our oversight of Order 1000, which, I mean, I certainly see the Clean Power Plan as it becomes law as one of the public policy requirements that could drive transmission development, but getting that folded into the regional planning processes requires the intercession of the states and regional who would be doing their Clean Power Plan implementation planning, so I understand that.

The second was beefing up interregional, which is in a rather early state, and the third was looking at the seams.

MR. GAW: Yes. And the seams issues are broader -- I think it is on. The seams issues are broader than just planning and cost allocation, but certainly in this era that we're entering into, there are so many opportunities for more cost-effective implementation with additional work on all of those seams issues that will in the end save money, and we should be trying to explore those sooner rather than later. Thank you.

CHAIRMAN LAFLEUR: Thank you. I want to turn to Lauren Azar. I won't call her by any of her former titles, I believe that's a name she still holds, and ask you to expand a little bit more on your suggestion that DOE delegate to FERC its authority under 216, which I believe is this planning for transmission on federal land?

MS. AZAR: It requires DOE to coordinate the permitting of transmission periods. Some of it is on federal land, but just generally it requires DOE to be the coordinator and it does a number of things including -- includes a one-year deadline period from the point in time at which the Secretary of Energy deems that sufficient information has been collected.

So once the Secretary of Energy deems that sufficient information has been collected, the federal

agencies have one year to issue all of their decisions, and that's a pretty significant hook.

In addition to that, it also requires that the DOE create a pre-application process that they're doing right now. It also requires DOE to work with the lead agencies to essentially make sure that they're moving forward in a timely manner, and possibly, I can't say it's the most important, but they are required to set a schedule, and if the schedule is not met, in the end a petition can go to the president at which time the president makes the decision over the application.

So there's a number of different things within that statute that actually very effectively could drive forward transmission permitting.

CHAIRMAN LAFLEUR: Well, thank you. I'm embarrassed that I don't know that much about -- I mean, I'm aware that it's in the law, but haven't had a lot of involvement, but maybe something we'll be hearing more about when the DOE puts out its big plan.

Finally, I just wanted to ask Clair. I don't want to be the one to be like the lightening strike, but were you hinting that we should make the one in ten year -- one day in ten years more conservative because of all the changes in the resources, or -- I

assume if we examine it we're not going to weaken it, or what were you hinting? It was just so tantalizing. I couldn't resist asking the question.

MR. CLAIR MOELLER: Right. So the spot where the states and the FERC touch are at that spot in our tariff. The states having the statutory obligation to resource adequacy have concluded that the risk pooling that generation planning reserve sharing represents is worth being in this risk pool together.

We at the time that the tariff was stood up came to the one day in ten as the appropriate risk profile to work against. The thing that is interesting on the way forward is the types of resources that will confront us we don't have a statistical history with.

So for example, our history around using natural gas is driven by or experienced with natural gas being there when we've called. We just about always call in August. Not a big surprise, it's not a big problem.

The polar vortex shows us that if you're going to use those same kind of resources when it's 32 below zero, you've got a different kind of risk profile, but the statistics on performance won't reveal that.

So the question as we work our way through what assurance of the state plans together will they be reliable will have to do with us making assumptions about future performance, and that's a place that we can use as a launch pad for doing the technical work around the reliability assurance.

It doesn't answer the jurisdictional questions of what do you do with the result, but it is the engineering behind how we can begin to work on those questions.

CHAIRMAN LAFLEUR: Well, thank you very much, and I do think engineering should be oblivious to jurisdiction, so good suggestions. And my colleague to my left who I'm going to turn it over to has been on that scene for some time. I don't know if on the one in ten so I don't know if -- I'll leave it to you.

COMMISSIONER MOELLER: Now I have the other kind of mike so I'm even more paranoid.

Thank you for acknowledging the fact that we've been looking at that general one in ten issue and how we don't want to be lulled into false assumptions based on these going forward. There's a lot more work to do and I'd urge people to stay tuned on that internally and externally.

I want to address a question to Ms. Farrell.

It's a little bit off this topic, but it's certainly related. We talk a lot about gas and how it is fundamentally transformed, the electricity economy because of the abundance of it and the price, but it's also key to remember that the most efficient use of the gas it is a direct application, and in one sense this is maybe a more pertinent question to the EPA assuming they were comfortable answering it, but I'm wondering if you've done any work into state compliance by fuel switching particularly -- I know they're doing it in Connecticut, but trying to move up to fuel oil, more natural gas, that again is going to require more pipes, but I'm just curious if that's an all or part of your analysis of the Clean Power Plan?

MS. FARRELL: So we haven't done specific analysis, numerical analysis, but when we talk about that model and the need, if you're going to rely on gas particularly in peak months, the need to have alternatives there and available is certainly one of the things that we've contemplated, you know, for things like switching to onsite storage, LNG, or, you know, other back up sources to that extent.

And you made the reference to direct use. We haven't as ANGA done anything specific to that. I don't know if you're referring to CHP, but I know a

number of folks have looked at that as a means for a way to work that into compliance as well.

COMMISSIONER MOELLER: Well, thank you. I've been actually talking about for the most part residential and commercial fuel switching at the retail level.

Again, Connecticut's going into it, but then, you know, part of the country that uses a lot more fuel oil than proportionately the rest of the country.

MS. FARRELL: Yeah, we have not done any analysis, but that's a good idea.

COMMISSIONER MOELLER: What I'm getting at, you know, we're locked into the four building blocks. EPA says don't get locked into the four building blocks, but we're not getting a lot of examples outside the four building blocks, and I'm thinking perhaps fuel switching is one of them to try and give the states who have to put these plans together some new ideas, which goes into my second point.

I think I've been pretty outspoken on advocating for new pipes and wires, and yet at the same time we want to make sure we use the existing pipes and wires as efficiently as possible.

And I'm curious either, from anyone on the panel, if you have thoughts about in addition to

expanding infrastructure ideas on whether it's getting more efficiency out of the transmission grid, some of the scheduling issues we've been dealing with on pipelines, and Mr. Moeller would you start it off.

MR. CLAIR MOELLER: Yes. I think I got your microphone, one Moeller to the other one.

Yeah, the notion around gas infrastructure is one that we're just starting to think about in terms of trying to understand how to take a more systemic look at the capacities. The gas pipelines have been very responsive one at a time, but they don't have the kind of structure to do systemic planning for the whole of the footprint. So understanding what's possible, which of those are expensive and which of those are less expensive is hard to discern.

The model that has the how about a power plant here, it'll cost you that much. How about a power plant there, it'll cost you this other number. How about a power plant on this other pipe, that will cost you something different and you've got to go through a different process.

Those kinds of things make it hard to take a systemic look at the gas-electric harmonization. We are trying our first work at doing that by constructing two kinds of generation siting scenarios

against the Clean Power Plan.

One is we retire the postulated 14,000 megawatts is just a hypothesis, and put new plants there and see what the gas infrastructure would be required to reutilize those brownfield sites.

And another idea is put the 14,000 megawatts where we think there are gas pipes, and look at what the electric transmission system would be required to make that work, and then start playing the high/low kind of game like we did in the multi-value projects to look for how to understand the whole of the system simultaneously, whether in the incremental kind of load that has driven most of the investment in the gas system today.

COMMISSIONER MOELLER: What's your timeline on that?

MR. CLAIR MOELLER: Now I'm lost. J.T. where are you?

UNIDENTIFIED SPEAKER: August for potential --

MR. CLAIR MOELLER: So the first work will show up in August.

COMMISSIONER MOELLER: Okay. Commissioner?

MR. KALK: Sir, if I could just throw one thought about the whole pipeline discussion. One

thing that we really see in North Dakota with the growing infrastructure is the renewed importance of -- it's always been important -- the pipeline safety of PIMS inspectors, the, you know, you can increase the capacity of pipeline, but you increase the risk, and so that whole discussion I've heard much about that in this debate, but it's something that we certainly cannot overlook.

COMMISSIONER MOELLER: Good perspective. Thank you. Other thoughts? Former Commissioner Azar? I sensed --

MS. AZAR: I just wanted to comment on increasing the efficiency of the electric transmission system. There right now are a number of newish technologies that actually can be deployed that would increase the efficiency of the existing system that I am hoping will be deployed as a part of the Clean Power Plan compliance.

But right now there's not a lot of incentive for the folks that would be deploying those technologies to deploy those technologies.

So I urge regulators both state and federal to take a look at creating the incentives to ensure that those technologies actually do get deployed so that we have a more efficient system.

COMMISSIONER MOELLER: Mr. Gaw?

MR. GAW: Thank you very much, Commissioner Moeller. I was going to suggest building on the interregional discussion earlier that one of the things that you may not be doing today that may be -- may need some look on the planning side on the interregional side is whether or not we are looking at DC solutions as well as AC solutions in that mix. Right now that's a merchant, basically a merchant solution.

Is that something that should be somehow incorporated, and I don't know how well it fits into the current Order 1000 construct on the interregional planning side, but I think it bears a look as an added tool in the toolbox on this whole thing.

COMMISSIONER MOELLER: Mr. Nickell?

MR. NICKELL: Thank you very much. With respect to transmission efficiency solutions, generally those are good solutions to consider in the short-term operations. They tend to provide external relief, you know, when temperatures are lower than normal, for example, or wind is blowing harder than you might have traditionally expected and so you can -- you know, sometimes those kinds of solutions are very adequate for increasing capacity on the

transmission grid in operating conditions that they're kind of hard to rely upon for transmission planning purposes, because you don't know exactly what to expect in terms of those kind of ambient temperature conditions and other scenarios that you might use to rely upon those kinds of solutions.

With respect to the transmission planning that Southwest Power Pool has done, you know, I think we've done a pretty good job over the last five to ten years of building up the transmission system. I know Mr. Gaw spoke about that, or at least alluded to that, and what I would remind the commission is, is that for the most part the transmission that we have built and we've already constructed about 4 billion since 2006, we've got another 6 billion in the pipeline, that has been to accommodate business as usual assumptions, and the Clean Power Plan is not business as usual.

And in order to be able to deliver resources from the western part of the Southwest Power Pool region, but we -- we're rich in wind, but it's all on the West Coast side of our region. As far as the Eastern interconnection is concerned we're rich in solar. We have the highest solar intensity in the Eastern interconnection in our footprint, but to get it to where it needs to go to help states comply with

the Clean Power Plan, it's not only got to go to the eastern side of our system, it's got to go through the eastern side of our system and into other states that aren't in SPP, and we have a traditional plan for that.

COMMISSIONER MOELLER: Good perspective. Thank you. I'll ask Ms. Kalmbach and Mr. Cashin, but I feel like I've taken a little disproportionate amount of time so if you could be relatively brief, please.

MS. KALMBACH: Thank you. I just want to respond to I think your reference to the gas-electric scheduling, I think that's what I heard you say, and I think those issues can be minimized with the use of those premium services that I was describing earlier, which solve the problem of not having gas supplies that match up to the gas delivery fluctuations that the generator needs. I think that ought to be explored.

COMMISSIONER MOELLER: Great. Maybe we can follow-up with you, you know, it's often pipeline by pipeline as to how specialized those products are, and so I'll follow-up with you. Thank you. Mr. Cashin?

MR. CASHIN: Commissioner, Mike Cashin. I just wanted to respond to your infrastructure question

in terms of planning for CPP by pointing out that as we have in our area been looking at our energy forward plan, the elements that are somewhat similar to what the CPP involves, that's the one-third, third, third. We've utilized their existing infrastructure like the dedicated DC transmission line that runs from North Dakota center to Minnesota and made arrangements to release the coal resource on the North Dakota end and route our wind farm generation off of that line and bring it in. We're looking at establishing that now as a resource corridor that could be used to expand, to address the kinds of things that you're getting into, although whether it'd be brief conductoring or give a transmission line for carrying more of that resource forward.

We also are looking at putting in transmission infrastructure to carry more hydroelectric resource in from Canada that we can use to load balance the intermittent wind, starting off to be a very good synergy for us there.

We also have recently completed a transmission line that allowed us to do a little bit of better voltage support running across from where this DC line runs on into Northwest Wisconsin.

So we're doing those kinds of things within

existing infrastructure, working with the Minnesota rationale for enhancement, and I think that that's the kind of thing that would be helpful across the region as we go forward.

COMMISSIONER MOELLER: Thank you for all your perspectives. I'll turn it over to Commissioner Clark.

COMMISSIONER CLARK: Thank you. First a rather detailed sort of in the weeds modeling question for Clair and the -- oh yes -- it's a discrete issue. So one of the concerns that we've heard just a little bit at the tech conferences, but in other conversations that I've had with certain utilities, is the interaction between the Clean Power Plan and other regs that may be either are being implemented right now or look like they'll soon to be implemented.

One that has been raised is the ozone issue --

MR. CLAIR MOELLER: Air quality?

COMMISSIONER CLARK: Right. And then it looks like EPA is looking at rationing that down. Now the degree to which that will be rationed down we don't know yet, but the concern being that it could throw a number of counties into non-attainment that are currently in attainment.

And so my question is from an infrastructure standpoint to what degree has MISO been able to start taking some of these things into consideration where they're may be as a result of the Clean Power Plan plants that will probably be shutdown, but because of the ozone non-attainment issue may not be able to replace that plant on a one-for-one conversion basis to something like natural gas because the counties could not attain the -- have you been able to start modeling those kind of discrete plant-by-plant issues and how you would replace power if you have this other regulation out there?

MR. CLAIR MOELLER: We have not attempted to model the effect of ambient air quality on the siting of generation. We haven't tried that. Currently we assume that if there's a power plant there you can put one back, so that is an additional constraint that we're going to have to face.

COMMISSIONER CLARK: Okay, thanks. And then Clair remind me on, I think I have a pretty good idea in my head, but the timeline for something like MVP from the genesis of some of the lines, the stakeholder process, getting it approved through the MISO tariff and FERC, and to end construction, what kind of time frame were we looking at?

MR. CLAIR MOELLER: So that whole process started with a letter I received from six governors, including one from North Dakota, that didn't think our process was very effective.

COMMISSIONER CLARK: I remember that.

MR. CLAIR MOELLER: Yeah, me too. So 2006 was when that sojourn began. We got to kind of a regional rough consensus of policy by about 2008 where the rest of the MISO states had either goals or specific requirements around the renewable portfolio standard.

As of 2008 then we started working in earnest to try to produce the business case. In the time between 2008 and 2011 we both produced the business case and then a parallel effort the organization of MISO states and also the MISO transmission owner members had different processes that met at the end that resulted in the multi-value project tariff. We took all of that to our board of directors in December of 2011, and the last of the transmission from that is scheduled to go in service in 2019.

Those RPSs were generally that glide path sort of approach, start out at zero and end at 20 percent or 10 percent or in one case I think one Minnesota utility is 30, but it was kind of a linear

glide path to the goal, which allowed us that luxury of time to do those business cases in a way that both minimized the cost to comply with those RPSs and also provided the production cost savings associated with a thoughtful investment for an efficient market.

So that luxury of time allowed us to do that cost minimization work, which frankly we're still quite proud of.

COMMISSIONER CLARK: Sure. So about -- you've been under I think a fairly -- within a region that I think has made a pretty commendable effort at attempting to work regionally it was something like an 8 to 13-year time frame?

MR. CLAIR MOELLER: Yeah, 13 years.

COMMISSIONER CLARK: I'm curious from SPP's standpoint, there are a number of priority projects that SPP developed as well, and I think it's another example of a region that's worked well together as far as time lines go what were you looking at for infrastructure development?

MR. NICKELL: Thank you, Commissioner Clark for that question. Typically transmission in the Southwest Power Pool takes about six years from the time we begin the planning effort applicable to that particular project. Now we have seen projects take as

long as eight-and-a-half years from, again, from planning through permitting and then through construction.

The one caveat I'll give you is that's based on historical data. What we don't know is to what extent the Order 1000 processes that we are now honoring, to what extent that will prolong that process, because now you've introduced the competitive process so, you know, trying to find the developer. In the past we didn't have to do that. And again, that's the eight-and-a-half years being the longest time frame, that's based on the cost allocation process already been in place. So I didn't go back to Adam and Eve in that timeline, I was just assuming the cost allocation's already been agreed upon from the time we begin the transmission plan to the time the project is in the ground up to eight-and-a-half years now.

COMMISSIONER CLARK: Thanks. Lauren, I'll get to you in just one second. I think I heard from Chairman Nelson this morning 7 to 10 years, something like that, even in Texas with the CREZ project?

MS. NELSON: 5.

COMMISSIONER CLARK: 5, okay. So Texas comes a little bit under the wire, but you only have one

regulator to deal with there.

Anyway, that's all very helpful and I think it bears in keeping in mind and even within a region of the U.S. where I think the efforts have been really pretty commendable from a transmission development standpoint, it's still taking a long time to get it done. Lauren?

MS. AZAR: Yeah, I was just going to point out that those time lines only apply to essentially utility cost allocation-type projects. When you're talking about merchant projects, very different time lines.

And I mentioned in my written testimony that, you know, there's one railway right now that's looking at installing DC high capacity underground lines on their right-of-way, which potentially could be a game changer with regards to how quickly those can get deployed, and they're not seeking cost allocation so they would not have to go through that process.

COMMISSIONER CLARK: Thanks. That actually leads for addendum to one of my next questions, which is to the degree -- and if you as stakeholders could identify hurdles that still exists to developing projects because of various state laws that are out there, something that exists within FERC, could you

identify some of those thinking about things, like, merchant projects where we've heard things, like, it's difficult in some states for their -- their state commission, even if they wanted to site a line, state statutes may not line-up and provide for a siting process in the case of a merchant project where they're not serving any customers in the state, so on and so forth, things like that. Are there still regional hurdles that we're seeing out there that you think could be identified and need to be worked on by other states, or on the FERC side of things, if there's things that we could be doing to remove road blocks?

MS. AZAR: Absolutely. A lot of those hurdles, however, are tied to eminent domain, so to the extent you have a project that doesn't require eminent domain, you're probably going to have a lot easier time getting through any specific state.

But many states can do better, and frankly the states can be coordinating with each over with regards to their hearing processes and certificating processes.

COMMISSIONER CLARK: Great. Thanks. That's all I have. I will turn it over to Norman.

COMMISSIONER BAY: Thank you, Tony. I have

two questions and one deals with electric infrastructure. I've assumed that the Clean Power Plan will actually result in some fairly significant business opportunities for the development of both gas and electric infrastructure, and I'm wondering whether that's the sense of different members of the panel, particularly perhaps the panelists who are coming from the RTO/ISO, so and if you think that those opportunities will present themselves, what advice you might have for developers who are looking to be part of the, what, who want to be in on the possibility of developing infrastructure in your region. Thanks Lanny.

MR. NICKELL: You bet. Thanks Commissioner Bay. I do think that the Clean Power Plan provides tremendous business opportunities to natural gas developers and renewable developers, and those constituents have been very active and engaged in SPP's stakeholder process, and I would just encourage them to continue to be engaged.

That's how SPP operates, we're very stakeholder driven. Our policies and processes heavily rely upon their input, and Steve can attest to that, Mr. Gaw can attest to that, he is certainly involved and engaged in our processes, and that's what

I would recommend.

COMMISSIONER BAY: Thank you.

MR. CLAIR MOELLER: So what we see in our generation interconnection cue around gas particularly is it's dominated by traditionally regulated vertically-integrated utilities, because they've got the ability to finance that sort of project into the future where merchants are having a hard time financing those kind of projects.

The independent power producers both on the gas and the renewable side are dominated by folks who have signed long-term power purchase agreements, again, so they can do that financing.

So the important place for them to begin is to think about their business model and their financing, so that they can, in fact, finance that kind of work.

The competitive developer process for transmission is, as Lanny mentioned, is embryonic and there are going to be some bumps between today and when that's working. There's a lot of money at stake there and a lot of people want a piece of that business, so that's going to be very complicated.

And until we get through those first four things I've talked about, the policy consensus and the

business case, it's hard to proceed with that, so I would suggest that particularly the competitive transmission developers help us think about what the parameters of business cases are, because at least inside our tariff there are several layers of conservatism inside those business case parameters that were appropriate when we didn't -- when it was the first time we were doing these things, but there are things in the tariff like a 20-year economic life when a transmission facility lasts 100 years. So to those kinds of things we're going to have to go back and revisit, and I would offer that the competitive developers have a more interest in changing those than folks that aren't in that space, so that would be the place inside our processes that I would encourage them to engage.

COMMISSIONER BAY: Thank you, Clair. Brian?

MR. KALK: Thank you, Commissioner. Just a little local perspective, you know, we've sited almost 2000 megawatts of wind in North Dakota, and one of the things that we're seeing now with developers, they have integrated of, let's say, 150 megawatts. When they come into the setting hearing they'll say they can use 1 megawatt turbine, but somewhere over the life of that project it'll change to 2 megawatts

turbine, so their certificate's no longer valid.

So then we go back to the land owners and we do the hearings, there's a lot of consternation right now. The sooner the developers can figure out what size turbine they want as they go through the siting certificate, that's really good. I know turbine costs are changing a lot, but that's caused some problems in the state. We're working through them.

And the second thing I would say is for the developers that are building natural gas to electricity. If you can build a plant that's built as a peaker or that be converted some day to a combined cycle, that's what they should be doing. We're seeing a lot of companies in North Dakota just build peakers that they cannot be converted. So if we ever do transition to try to get gas-based load, it would seem like they should be making a little higher investment early so you have a plan in place. That's just some of the frustrations we're dealing with as this thing unfolds. It'd sure be nice to have the ability if you site a peaker why not be able to use that down the road for something.

COMMISSIONER BAY: Amy?

MS. FARRELL: I just wanted to follow-up on that. With one of the observations that we've made

that seems a bit counterintuitive too was the CPP where you anticipate it driving more gas in the base load.

One of the things that will happen, is you'll be able to spread the cost of pipeline across more megawatts, and so it does become cost competitive, and I think one of the things that I've mentioned in the, you know, what can FERC do and create the ability for, you know, pipelines to -- I'm sorry, power generation to anchor a pipeline and to vertically integrate it in the competitive markets. I think that gets to that allowing for that cost recovery to be part of it, and recognizing that that when you have more gas in base load you're going to be able to spread that cost and it's an opportunity to drive that infrastructure.

COMMISSIONER BAY: So this question is for Amy, and one of the things that's interesting about the Central region is that it is very gas rich. There are some major production areas driven by the shale place, you've got Tobagon and you've got Eagles Ford and Haynesville, among others.

UNIDENTIFIED SPEAKER: (Inaudible).

COMMISSIONER BAY: Sorry, don't mean to omit that. And then when you look at the interstate pipeline network across the Central region, there are

a lot of interstate pipes, and to a large extent I think that reflects the historical gas flows from the gulf states to the load centers, and, you know, across the Central region and into the Midwest, and so I don't -- I'm wondering whether ANGA's done any kind of modeling to examine whether or not you believe there are any significant infrastructure that needs for gas pipelines, like, interstate gas pipelines in the Midwest?

MS. FARRELL: We have done a few looks at modeling, and a lot of it was actually started before the CPP was proposed. One of the things that has come about because of the richness of the natural gas resources in areas where it hasn't been before, particularly in the Marcellus is you've now got a lot of pre or push pipelines coming on-line. Where, you know, where you typically had flow going into that region, you now have this abundance and you're seeing the natural gas producers invest in pipelines to get it not only west, you're make sure you're getting some bi-directional pipelines, but also down into the south and southeast both in terms of bi-directional pipelines and some new investment.

And one of the things that it's going to create and does create that we see is some resilience

and reliability advantages along, you know, the Central region is in a prime spot for that, because a lot of that investment's going to be right over the region, it will create that resiliency.

COMMISSIONER BAY: Well, thank you.

COMMISSIONER HONORABLE: Good afternoon, and I want to thank my colleagues who've asked a number of questions about which I have had questions also regarding infrastructure, regarding how the Order 1000 process is working, and getting down to as we say the nitty-gritty of what will be required to carry out this work from a very practical perspective.

So, Mr. Moeller, we -- a lot of us have called upon you today, and I will too, I was intrigued by your description of resource adequacy being the place where state and federal work meets, and it's the first time I've heard it described that way. It resonates with me.

But I also wondered if maybe you were wanting to suggest that maybe there should be changes about how that works? Do you think there's a need for any policy changes as we contemplate implementing the Clean Power Plan, and I would also ask Lanny to weigh in with any thoughts he has, and then I will ask my former state colleagues, if they have any thoughts,

and of course anyone else.

MR. CLAIR MOELLER: So importantly the place of agreement is that the risk profile should be as it's called in the industry one day in ten. There's a lot of math behind that that we won't go into, but essentially it's a statistical simulation given what you believe to be true about load forecasting and the performance of the generation.

As the states contemplate their compliance plan to the degree it removes flexibility from the generation fleet, the things that we know are true today we don't know are true tomorrow, and so our use of that speculation in determining whether or not we are, in fact, in a resource adequate situation would be a new way of doing it.

While I don't think there's a specific policy one way or the other, that would be new policy ground for us, because we would need to then speculate about what the force outage rate of natural gas-fired facilities are in a regime where they're expected to operate more than 4 percent of the year. We'd have to come to agreements on how to model those things so that we have a good understanding all across the board of what risks we're actually taking, because we take that risk on behalf of our customers, we need to

understand that very clearly.

The more volatility the Clean Power Plan compliance plans produce in terms of our ability to understand future expectations, the more difficult that job will be, and that will be a place that we'll need to work together both federally and at the state level to make sure we both understand and build to meet the appropriate risk profile.

COMMISSIONER HONORABLE: And before Lanny jumps in I want -- or Mr. Nickell, sorry Lanny. I know him from home.

Before we get to Mr. Nickell, how would that change from the work that is carried out particularly at the regional level in gaining some consensus or agreement around assumptions that go into modeling today? Tell me what's different about it.

MR. CLAIR MOELLER: So the biggest difference is inside of our resource adequacy construct the participating load serving entities must meet enough generation to meet this requirement, and so it causes them to make serious investments in resources, whether it's demand side management or generation or a participating generation from off system.

In the planning horizon it's interesting, but there's no money at stake, and so it's easier to make

assumptions when there's no money at stake, and so that's the fundamental difference.

MR. NICKELL: Thank you, Commissioner Honorable. To answer your first question head on, I don't know that SPP would advocate that there needs to be a policy decision undertaken by FERC at this time related to resource adequacy. I believe that, you know, the various regions already have approaches for that. MISO has their approached codified in their tariff. Whereas SPP's approach is codified in its reliability criteria, and every member of SPP is expected and required, according to our membership agreement, to abide by those reliability criterion.

Interesting that SPP has recently undertaken initiative to review its resource adequacy construct. And among several things that we're looking at, one of them is can we in fact reduce the amount of reserves, planning reserves, that each of our members are expected to carry. We're doing that evaluation right now.

Some other things that we're looking at are do we need to beef up or enhance our compliance obligations in how we enforce each members responsibility to carry adequate reserves.

So all of these things are at play, and I

expect that with the implementation of the Clean Power Plan that it could influence some of those answers simply because it will change our resource mix. There will be more reliance on renewables, there will be more reliance on energy efficiency. And how do you count that from a planning perspective in terms of reserve margin adequacy.

There will be a higher reliance upon gas and do we need to treat those resources differently than we have in the past. So all of those questions will be answered, and I hope in the very near future at least from our regional efforts that we're undertaking and there's probably going to be an effort to put a lot of that in our tariff and take it out of our reliability criteria so that it becomes more of a SPP regional requirement that's imposed upon customers as opposed to just members.

So you might be expecting something to come forth from SPP in that regard hopefully soon, but, again, that's an initiative that's underway right now.

MR. STOLL: I probably wasn't pressing down hard enough.

But I think the way I will respond, and I'm not exactly sure if this was what you were asking, but if you look at a state like Missouri, and we have our

utilities every three years develop an integrated resource plan, and then that is looked at by the Commission, and the utilities, the -- that belong to either Southwest Power Pool or to MISO, when it comes to reliability and how that's going to be accounted for in the future, I think with our -- with the Missouri plan as is suggested in what we turned in the comments to EPA, that the RTO construct will kind of allow the utilities on the western side of our state to comply with rules that pertain to members of the Southwest Power Spool, and then on the eastern side of the state with MISO, because then down the center of the state we have the electric cooperatives, and so, you know, we require and the integrated resource plan is very important when it comes to reliability I think we and the utilities look to the RTOs to which they belong.

And then also we always have to remember that we don't have the authority to run the company, we don't manage the company, and so they have to make prudent choices, present those in their integrated resource plan, and the other thing that I'll mention is that we are, I guess, most commissions are products of the legislature. So when it comes to renewables and things like that, the energy efficiency, you know,

we look to our -- to what the law says as to what the Commission can do. And I don't know if that exactly answered all your questions, but --

COMMISSIONER HONORABLE: Well, that was part of it. The other part was would you see a need for any of that to change with the implementation of the Clean Power Plan? It seems as though what you're saying, and as a former state regulator, I certainly agree that the state planning processes have taken into account regional participation. Do you see a need for any change to the way resource adequacy is handled at the state level with the implementation of the Clean Power Plan?

MR. STOLL: I will just refer to the comments we made to the EPA, and -- so I kind of stay on that track. The Missouri Public Service Commission it says here suggests it may be more reasonable to allow a state such as Missouri which has different -- differing organizational participation structures to develop multi-state plans applicable to meet the requirements of the different regions of state, and thus aligning the responsibilities for reliability with the applicable RTO structure.

And one other real quick thing before I stop, would be one other thing that we mentioned in our

comments to EPA, and it hasn't been brought up here, is the energy water nexus, and all my friends in water will be happy that I brought this up, but we use about 2 to 4 percent of our energy in water one way or another, and that can be, you know, pumping and cleaning and everything else.

We did make comments in our presentation to EPA to say to look at the pump what they call -- improving the water pump and motor efficiency from the existing average of 55 percent to its optimal efficiency of 80 percent, and I won't go into any more detail than that right now, but I think that's something that I don't believe is contemplated in the Clean Power Plan, but maybe something that should be considered.

COMMISSIONER HONORABLE: Thank you. Commissioner Kalk?

MR. KALK: Thank you, Commissioner Honorable. It's an honor to be in front of you and the rest of the Commission today, especially you and Tony, former neighborhood presidents and colleagues so congrats.

Just explain a little bit on Steve's comments. One of the things that's really interesting is the process I think has worked very well so far where the RTOs kind of figure out what we think we

need and they all submit it, and our industrials and the states are kind of hedging their bets a little bit, they don't need all the generation because it's going to be available.

But we always know in North Dakota that we could require our regular utilities to build more. They would get paid for it, but we could make them do that, so that would be one thing. I wouldn't say change anything, but don't take that away from me, make sure we're retaining the ability that if we decide one of our companies wants to build -- we want them to build more, then let us do that.

Because what we're really seeing now is that MISO's been operating in North Dakota for a long time and doing a good job. They have one reserve margin.

Southwest Power Pool is coming to town. They have a different reserve margin. So we've got people operating in North Dakota with different reserve margins, and as this thing unfolds with what kind of generation we have, my gut tells me that I'm going to want our investor that who owns the billboard base-load generation in North Dakota, because all of a sudden if the RTOs planning numbers are off a little bit and we're short generation, I don't want to be the one holding the cards back home. I'd rather have some

type base-load generation or even a peaker that I could fire up, so I don't know that we need any changes, but just don't take away the state's ability to build generation.

COMMISSIONER HONORABLE: Thank you. If I were a betting woman, I would have bet that's what you would say. Thank you. Any other comments? Of course, Steve Gaw.

MR. GAW: I've been quiet for awhile. So Bill Smith, I tried to get him to confirm this memory with me a little earlier, and since he can't this may be completely made up. But I recall -- I recalled that we were in the Renaissance Hotel a number of years ago discussing another subject when Pat Wood was on the Commission, and that's going way back now, it doesn't seem like it should be. It was also, as I recall, the time when we were talking about the birthing of a couple of organizations, the OMAS and the SPP regional state committee.

And I just want to mark the fact that we're here today with an assumption that those organizations are part of this entire communication, and it is really amazing to think about how far we've come and the fact that we have now organizations that are built in to interact with FERC and with stakeholders and

with the RTOs, and that's very important.

When you're talking about resource adequacy, and I'm going to say it again, seams. One of the things that ought to be at least acknowledged is the fact that when we're dealing with the new horizon and there are areas that have needs on the capacity front, there may be other areas adjoining that are lying just across an artificial barrier that if things were easier, might be -- might help us to solve some of these issues in a better way. And I think that the states, because this is a very important, as the Chair from North Dakota said and Commissioner Stoll indicated, this is a very -- a thing that's very near and dear to their heart, but it's also very important if you're going to see some of these things solved, that FERC be involved in it. That these communications could be critically important moving forward, not just on this front, but this is one of them, so thanks for that.

COMMISSIONER HONORABLE: And thank you, Mr. Gaw, for your work in so many years ago in helping to get some of these organizations off the ground.

Progress, look at where we're sitting today. So I hope in a decade or so we'll reconvene and reflect upon this time, and I also appreciate you

mentioning seams. Any other comments? Thank you.

MS. SIMLER: I'd like to find out if the Chairman or any of the Commissioners have follow-up or additional questions?

We're pretty much on schedule, so I'd like to thank the panelists for all your comments and a very insightful discussion. To stay on schedule we'll be back here at 3:00. Thank you.

(Recess)

MR. DENNIS: Thank you so much. Good afternoon. My name is Jeff Dennis and I will be moderating this third and final panel of the day of potential implications for wholesale markets and bilateral trading.

Just another quick reminder for folks on the panel and for our Commissioners and staff as well, please turn your mike off when you are not speaking to cut down on the feedback we had earlier, and it's also helpful when you are speaking, if it's not clear from the context to identify yourself, that will help our court reporter as well as folks listening in on the phone.

I will now introduce our panelists. Beginning to the left of Commissioner Bay, we have

Chairman Quackenbush from the Michigan Public Service Commission; Richard Doying, Executive Vice President of Operations and Corporate Services, MISO; Michael Schnitzer, Director, The NorthBridge Group on behalf of Entergy Services, Incorporated; Corey Linville, Vice President of Power Supply and Delivery, Sunflower Electric Power Corporation; Doug Scott, Vice President for Strategic Initiatives, Great Plains Institute, on behalf of Midwest Power Sector Collaborative; Jacob Williams, Vice President Global Energy Analytics, Peabody Energy; Jennifer Vosburg, Senior Vice President, Gulf Coast Region and President Louisiana Generating, LLC and NRG Energy; and Jeffery Gust, Vice President, Compliance and Standards, MidAmerican Energy Company on behalf of Berkshire Hathaway Energy.

As we've done with the earlier panels, we'll now give each panelist the opportunity to present the one or two most important points they'd like to leave the commission with today.

Please keep your statement under two minutes. I'm not going to do the pass the iPad trick, it seems disingenuous for a guy in the policy office to be that strict about time, but please do, I don't have the authority Mike Bardee has, but please do try to keep your comments short. If for no other reason

that we do have some folks on tight schedules and so your audience will get much smaller the longer you take so if we can kick it off with Chairman Quackenbush. Thank you.

MR. QUACKENBUSH: Thank you very much. I'm John Quackenbush from the Michigan Public Service Commission. I'd like to add a Michigan perspective to a lot of the things you've heard already today. We do have a capacity shortfall coming up in Michigan as identified by MISO surveys that were mentioned earlier. We have several rounds of coal closures, and our governor recently, just a couple weeks ago, gave a special message on energy to kind of indicate how we have a path to comply with, and it all overlaps with the Clean Power Plan as we think about it.

We have a round of coal closures in 2016, and we also have some coming later in the decade, and the timing of those may be dictated by the provisions of the Clean Power Plan. We currently get somewhere in the high 50 percent of our fuel mix from coal, and we see a path to get down to the mid-30s by 2025. We plan to do energy efficiency, demand response, build new gas generation, build new renewables, and we will move in that direction unless we're given a reason to halt by the EPA.

We have reliability concerns of 2020 with a cliff, and we think that could be somewhat mitigated as we think of coal plant retirements that are mitigated by the glide path. As more retirements occur, we see there being more RMR or SSR type payment situations potentially, and we see those as needed to enhance and provide for reliability, but those payments should be a last resort, short-term of limited duration, and compensatory rather than lucrative for the generator.

On the infrastructure side we have gas pipelines, the staff mentioned -- the FERC staff this morning mentioned some of that Utica and Marcellus gas is trying to move west. We've got Pipeline proposals to move it to Michigan, that will help meet our gas load for heating but also for new electric generation, and there's several different pipelines at various stages of the review process that are under way.

On transmission we're almost done constructing our thumb loop project, the very first MVP, which is a renewable energy facilitator as we look towards new renewables they'll be sited in that wind rich part of our state and we'll already have the transmission there to do that.

Also on the gas generation side we have some

great sites on our lower peninsular where we can site gas-fired generation that's close to transmission and pipeline already. In our upper peninsula it's a different story, and we do need gas generation there as well, and we'll have to do some other things some more to facilitate that to happen.

Finally, on compliance strategies, we're looking for compliant strategies with the Clean Power Plan that don't harm reliability. Michigan has been participating in the MSEER group which you've heard a lot about today already. And we are looking into regional collaboration and studying it. We see that we will need to have a final rule before anyone can really identify to what extent regional collaboration is the way to go, but it does have a promise of minimizing seams issues, you know, we know we have those intrastate to begin with. We need to have some intrastate equity in a way to clear the market in the state and then also with a region as well. And so at the end of the day we see that every state including Michigan will have an emission goal or a target, will have a cost stack that we'll be looking at on how to comply, and we will meet our goal, and we're looking for affordable transparent compliant costs and so we're continuing to study that issue.

Let me stop there and turn it over to the next.

MR. DOYING: Thank you Commissioner Quackenbush and thank you to the Commission, the FERC Commission for inviting me here today. My name is Richard Doying. I'm the Executive Vice President of Operations for MISO.

The MISO region spans a large area from the Province of Manitoba to the Gulf Coast of Louisiana and includes parts of 15 states, and also a very complex boundary of both SPP, PJM, RTOs as well as many nonutility areas, Southern Company TVA and others.

And that boarder and the regional complexity is important, and I'll get back to that in a moment, but when you think about both just within and outside the MISO region, we have many states that contain multiple RTOs and nonRTO entities.

So, for example, Missouri has both MISO, SPP as well as many utilities that are not included in any RTO. We also have utilities that span multiple states, so, for example, Ameren serves load here in Missouri also serves load in the State of Illinois. So when you think about implementation of CPP and implementation at the state level, it's really

important to think about those issues and make sure you get the implementation plant right if you want it to come out in a reliable cost-effective manner.

The diversity and sites of our region provides quite a few benefits. The diversity of supply when you dispatch that across a broad region, lowers the energy supply cost, increases the reliability, and leads to lower required reserve margins.

It also looks at the ability to integrate a large amount of wind and renewable resources are going to be an important element of compliance with CPP. MISO started with about 1,000 megawatts of wind in 2006. We're now up over 14,000 megawatts of wind in the region. Most of that is located in the western part of the footprint, trying to move to the eastern load centers within the MISO region. If you expect to see an increase in the renewable portfolio within the region, that again is going to impact the dispatch of the region and dispatch flexibility, which I'll return to again in a moment, will remain critical.

Based on an analysis that MISO conducts every year with our stakeholders, we find about three billion dollars in benefits to operating over that large region, almost half of which comes solely from

the generation portfolio that's available, so the dispatch that you get the lowered costs from dispatching that fleet over a larger region for both energy and axillary services provides significant value, and that value is potentially threatened by poor implementation of the CPP.

What you'd like to see to comply with CPP is to maintain that dispatch flexibility, and if you do anything with the implementation that impedes the dispatch of generation of that flexible use of generation, you'll start to whittle away at those benefits that one and a half billion dollars or so of benefits.

So how do you avoid that? It's really pretty simple, you monetize the cost of compliance with CPP. That was done, for example, with Dioxine for CO2. That was accomplished through a compliance regime that was based on a system of tradable allowances. Those tradable allowances are easily reflected in generation offers. They're reflected then in the dispatch of energy that clearing of the market and they're reflected in prices.

That preserves the dispatch benefits that you get across the region, but it also accomplishes other valuable things. For one it allows you to

compare the cost of carbon emissions, the value of carbon emissions relative to other options that you have, for example, non-carbon based generation demand response or renewables in order to reduce the overall carbon output in the region.

Finally, the regime of energy of rather compliance allows you to address the seams issue that I referred to a moment ago. It allows you to trade those allowances based on that market-derived value across the seam just as you would with energy. It allows the cost of both energy and those allowances to be reflected through that transparent liquid market for emissions allowance credits.

Alternatives to that compliance regime may be possible. There are others that have been spoken about that were included in some of the comments that were submitted to the commissions. Unfortunately, none of those are as flexible and provide the level of transparencies to the cost of compliance and the value of carbons emissions than a regime based on tradable credits would be.

Another question that has been asked and was asked by the Commission on this proceeding is what other market changes may be necessary to accommodate compliance with CPP?

Unfortunately, if you don't go with the regime that monetizes the cost of compliance, it's really impossible to say. You have to address that one fundamental question upfront before you can address other market impacts that you may see with compliance with CPP.

And with that I will end and look forward to the dialogue this afternoon. Thank you.

MR. SCHNITZER: Thank you, Richard. Good afternoon Chairman LaFleur, Commissioners, staff. I'm Michael Schnitzer appearing on behalf of Entergy Services. Thank you very much for the opportunity to participate.

As the Commission well knows the Entergy Operating Companies have recently become members of MISO, and their customers are realizing the benefits of the MISO markets about which Richard just spoke, which is a good thing.

Their concern with CPP implementation is that if the CPP rule goes forward, it should not undermine or disrupt those RTO markets as Richard was just describing.

So I submitted a statement last week in this docket outlining the potential for CPP compliance to disrupt the markets, and describing why FERC might and

should work to ensure that the final rule facilitates the voluntary election by states of mass-based compliance, the same kind of compliance that Richard was talking about a moment ago, and why that is important and what changes are required to the proposed rule to make that viable options for states that chooses.

So I'd be happy, obviously, to answer any questions you have about that statement, but I won't go on about it anymore as part of my introductory comments.

What I would like to do in the balance of my brief time here is to turn to two issues that were discussed on prior panels that actually relate to this mass-based compliance preference that I've expressed and that I think Richard has expressed.

The first is regional coordination on both of the prior panels there were some discussion about how difficult that can be, the barriers to it, the fact that winners and losers are going to have a hard time coming together for any kind of regional compliance plan. And I agree with those comments as they were talking about something called a Regional Compliance Plan.

But in my statement for those of you who had

a chance to look at it, I describe a form of regional coordination based on individual states first electing the mass-based approach and having a SIP based on the mass-based approach and having EPA's permission/authorization to trade these emission permits amongst similar states with similar SIPs, and that would be a form of regional coordination that doesn't require the grand bargaining, if you will, of all the states trying to figure out, reallocate effectively what the rule does. There's no question that the rule as proposed creates winners and losers, but the mass-based approach with each state electing the mass-based approach can provide every state an opportunity to do better through trading of these allowances or permits. So that I think is -- I think a preferable form of regional coordination, it's one which I think, except in special circumstances may be such as REGI where there already is a, you know, a regional coordination, it's more likely to succeed on this basis going forward, and I think that's a benefit of mass-based compliance.

The second area just to touch on quickly is the reliability assurance mechanism and the RSV conversations from earlier today.

There's a nexus between mass-based

compliance and those reliability concerns, which I'm not sure is fully appreciated. Let me just take a minute to try and illustrate that. Two important ways that reliability can be implicated in a CPP compliance is the deactivation of a generating unit to comply with the CPP, and when it turns out that generating unit is actually required for security constrained operations, then you have a conflict.

Or secondly, a limitation on the operational limits, the hours or the emissions of the unit which make it unavailable during certain periods of the year and also creates a problem for reliability secured operations.

Think about for a moment what kind of study would be required on a rate-based approach to fair out those potential violations and to figure out what to do about them. It would require very detailed contingency set analysis under a number of scenarios across the broad region that was electing this rate-based compliance. That would be, I think, will be challenging if that's where things turn out and will be difficult for FERC to find the problems in the first instance, let alone allocate responsibility for solving them as was discussed earlier.

Consider what would happen instead if all

those same states have elected a mass-based approach, then there's no requirement that any particular generator retire, deactivate, or not be available over a certain number of hours. For the price of an emission permit, any generator could be available as needed for reliability. And the job of ensuring reliability becomes a lot easier in that respect.

There are other issues that would still have to be addressed, but all of that in my mind underscores why FERC should have a strong interest in the mass-based approach being a viable option for states, while the rules should permit it and encourage it to the extent that it can, that will make your job much easier in terms of implementing whatever reliability assurance mechanism or reliability safety valve would be required.

Finally, I just want to state that I don't want to suggest that these changes that I've been describing in my paper for the mass-based approach are alone or a panacea. As many of you know, Entergy does not support the proposed rule for a number of reasons unrelated to today's, you know, conversation, but the company recognizes that if the rule does go forward, it should be designed to be efficient and to minimize reliability impacts, and the mass-based compliance

recommendations we offer defer to that objective.

Thank you very much. I look forward to your questions.

MR. LINVILLE: Thank you Commission for the opportunity to participate in discussion today. My name is Corey Linville. I represent Sunflower Electric. Sunflower is a rural electric co-op located in Western Kansas. We have a peak load of approximately 1000 megawatss, and we are located in an area that has experienced and continues to experience a significant amount of wind integration. In 2001 the first large scale project was installed in our area with a wind capacity of 100 megawatts. Today we have over 1450 megawatts of wind interconnected and by the end of this year we expect to have more than 2500 megawatts of wind interconnected within our footprint.

We have seen firsthand the impacts that this very substantial penetration of wind has had on our participation in the SPP integrated marketplace and on the requirements to add transmission infrastructure in our area. High wind output coupled with inadequate transmission capacity to export that output has resulted in very volatile market pricing, and several transmission projects have been identified to solve these constraints. However, these projects lag the

generation interconnection by years and a disproportionate share of the construction costs are often borne by the local load. Since one of the Clean Power Plant building blocks includes expanding renewable resource utilization, we are concerned about the ongoing impacts of additional wind integration, particularly to utilities located in areas where the wind resources will be built.

We are also concerned about the cost and reliability impacts of redispatching resources and SPP to achieve higher output from combined cycle facilities, which is another building block identified by the EPA to achieve the goals of the Clean Power Plan. In order to understand the potential impacts on Sunflower associated with this building block, we engaged ACES, one of our operating partners, to develop a model to evaluate the differential costs. Redispatch is accomplished in the model by increasing the cost of coal-fired generation to drive the increased utilization of combined cycle gas-fired resources. This cost increase is the equivalent to a carbon tax on coal. The result of the modeling effort showed that energy prices would range from 40 to 70 percent higher than base case assumptions.

The modeling effort also did not take into

account how the different compliance goals among the different states in SPP might impact resource offered parameters in associated dispatch. It is interesting to note that there are no existing combined cycle resources in Kansas so there are no direct actions that utilities in Kansas can take to accomplish this objective. Furthermore, we expect that a carbon tax is not politically possible in Kansas nor many other states within SPP.

The modeling effort also did not take into account the reliability impacts associated with the redispatch required to achieve the fuel-switching objective. Other models have shown several areas in SPP, including a large area in the Sunflower footprint, would not be able to sustain voltage under these redispatch scenarios without reliability and must-run units being committed. As we've seen firsthand from our experience with wind integration, substantial redispatch results in system topologies that were not planned for and which cannot be sustained without significant infrastructure additions. This means even more incremental costs for our rate payers.

While the wholesale markets might provide a mechanism to achieve carbon reductions, the economic

impacts on our rural economy will be substantial. The millions of dollars that SPP members invested to implement a wholesale energy market with the goal of reducing power costs will instead result in a market that will be utilized for purposes driven around emissions and result in power costs that are unaffordable for many of our customers.

With that I'll pass it on and look forward to our discussions. Thank you.

MR. SCOTT: Good afternoon Chairman LaFleur, Commissioners, and staff. Thank you very much for allowing me to speak today on the topic of the Clean Power Plan and potential implications for wholesale markets. My name is Doug Scott, I'm Vice President for Strategic Initiatives with the Great Plains Institute. Prior to joining Great Plains I was both the Chair of the Illinois Commerce Commission and prior to that the Director of Illinois Environmental Protection Agency, so I've seen environmental rule compliance from a couple different perspectives and also worked on a number of regional groups over the last several years that have been looking at greenhouse gas reductions and the implications for markets and how that might work through not just Illinois but through other states.

Illinois is also part of MISO and PJM continuing with the theme that we've heard earlier in the panels, so the experience with the seams issue as well is something that I've dealt with in the past. As we start to talk about the Clean Power Plan, the flexibility for the states that you heard about from the Assistant Administrator McCabe today means that states can choose to develop and implement the state plans as we've heard a little bit earlier in this panel that are consistent with existing wholesale electricity markets and don't require specific actions at specific power plants.

We have several examples of flexible air regulatory programs that are in place already and that function in harmony with existing wholesale markets and also understand as we've heard a lot of times today there are a lot of differences between the states, both in terms of their RTO joining, whether they're vertically-integrated or restructured states, and so there already a lot of differences that the RTOs are dealing with. So states have the ability to adopt approaches that can work well with existing competitive electricity markets which leads us to the question of what states will do with respect to CPP and compliance and that's fairly early to say right

now, because obviously as you've heard today a lot of the states are looking forward to the final rule to figure out exactly how some of the changes might have been made, but while they're doing that they've also been working on trying to figure out what compliance pathways might be. As you've heard today what I think is a very encouraging development that suggests states are looking at this issue about markets and how they will function with Clean Power Plan compliance, is that all of the regional discussions that are underway in various parts of the country, including the one here in the mid-continent, by our estimation 41 of the 50 states are currently taking part in some discussion or in other -- with other states trying to figure out the potential for multi-state collaboration, obviously you've got the nine-state regional greenhouse gas initiative in the Northeast and Mid-Atlantic, but there are also regional discussions underway in the southeast, western states, and then right here in the mid-continent as well, and you've heard about the MSEER group a couple of times today. That's energy and environmental regulators from 14 states who have participated coming together in what we like to call a no regrets effort, they're there because they want to learn about what the potential pathways might be on a

multi-state basis and whether that will work for them in their individual states. We at the Great Plains Institute help to staff that effort along with our colleagues from the bipartisan policy center. We also staff an effort of Midwestern stakeholders called the Midwest Power Sector Collaborative. The MSEER group is just environmental and energy regulators from the states that are participating. The Midwest Power Sector Collaborative is a larger effort of stakeholders representing NGOs, utilities, communities, co-ops and state officials throughout a number of states in the Midwest. Also looking at Clean Power Plan and compliance and exploring multi-state options as well.

It should be noted that these regional discussions with the exception of REGI probably have not reached any conclusions about whether a multi-state coordination will actually be the choice of the states, but I think we can consider a positive thing for electrical reliability and consistency with wholesale electricity markets that these states are talking and exploring ways to implement the Clean Power Plan flexibility across multiple states.

And Michael already tee'd up the last issue that I was going to mention that I think is probably

maybe for my purposes the most important is that when we think multi-state arrangements or agreements, if you look at the rule it looks like rate-based merging rates among states very complicated and very complicated practically, politically, technically for a lot of reasons, but I think Michael actually hit on it that what we've been exploring in the Midwest is more of the setting up a trading ready kind of enterprise that states could choose to adopt, have their own state plans, but adopt this trading mechanism as a part of the plan that would allow the utilities within their states the ability to trade across state lines, and I think as we've heard a couple of times just in the last few minutes, that really has a good impact not only on reliability but on cost but also on some of the seams issues that we're dealing with irrespective of the Clean Power Plan, but obviously it could have an influence on those as well.

So I look forward to that part of the discussion as we go forward, and again thank you very much for allowing me to be here today.

MR. WILLIAMS: Thank you. My name's Jacob Williams and I work with Peabody Energy. Peabody Energy for those of you who don't know, essentially

provides fuel for 9 percent of the electricity that's produced in the nation. My background Vice President of Global Energy Analytics my background is 15 years, roughly 15 years with one of the predecessors to the Alliant family of companies and the power marketing trading generation dispatch advanced plan rate cases. It was beat into our head in Wisconsin our goals are reliability and least cost planning. Now, as I reflect in the time since I've stepped away from that role and with Peabody, you look at the energy prices and the electricity prices, and that's part of what we're here to talk about.

Since 2000 the average cost of electricity to all consumers across all states has went up by 53 percent, from 2000 to 2014. At the same time the median income for families in the United States has went up by 24 percent. In other words, people have lost their ability to pay for electricity. Similar stat for gasoline and oil products as well.

Now, that's what's happened up to now. Now, let's look at what's going forward and for that we employed EVA to do a study essentially taken the EPA assumptions for all the plant retirements and everything around the 11D as well as the MATS and the Regional Haze proposals or the rules that are coming

into place. The only assumption change we've made to that analysis was we assume that block 1 would not happen because as most of the coal generation people have I think by now communicated. There is very little efficiency, if any, for the existing coal fleet. In fact, as you meet the mass requirements in that you'll actually get less efficient, you'll emit less but you'll get less efficient. So that was the only change. We use their identical fuel assumptions going forward.

In that analysis we looked at what would the ultimate impact to customers both gas and electricity customers be, and in that there was a 60 percent increase in the cost of gas and electricity to customers between 2012 and 2020. That's a 284 billion dollar impact to customers on an annual basis. Household bills would go up by an average of $680 a year, that's around a 35 percent increase. The industrial customers power bills, because they've paid mostly commodity cost would go up by 50 percent on average. 50 percent for the -- is a very difficult thing especially for many of the industries. Especially the aluminum steel folks who that means for them they probably lead this country, because aluminum mills like Noranda, Alcoa, Century Aluminum in

Kentucky, they compete on a world market and can't survive.

The other thing that is pointed out is a map we'd like you to use and there's a bunch over there on the wall or at the table on the wall is the cost impacts vary dramatically across the nation. The green part in the middle, which is everyone not in the northeast and not in California, we pay about 9.4 cents per kilowatt hour this year for our electricity. The Northeast and California pay 15 cents a kilowatt hour. They pay 60 percent more for their electricity than the middle part and yet this rule predominantly hits the middle part of the country for more than it does the coastal areas. So you have a very disproportionate amount. The middle part of the country gets 48 percent of their electricity from coal. The Northeast and California get 2 percent. There is a significant geographical diversity in where the impacts hit, which is something the Commission needs to recognize.

The second thing that I'd like to point out very briefly is the rule if you cut to the essence of the rule, it essentially moves displacing coal with gas generation. If gas is forever going to be cheap, that's fine. There's one problem with that. We are

in the middle of and FERC is in the middle of permitting all the new LNG terminals which will export natural gas. By 2020 we'll have 10 to 20 percent of our natural gas will be exported globally. The global price of gas, but for the last six months, has been 10 to 15 dollars a million BTU. They pay a lot more for gas around the world than we do in the U.S. So we'll tie not only the home heating bills but the electric bills directly to the international price of natural gas right at a time that we're going through this process.

I would say the last time we said the gas would be forever cheap and low was in the late 90s when we went through deregulation, and I lived that dream courtesy of Enron and everyone, and we saw how that played out and there were some comments earlier. By the way Enron was the biggest proponent in the carbon trading at the time as well everyone should know, because they knew they'd make a lot of money at it which is absolutely true.

So and for those who say that natural gas will always be cheap, may I remind you the Saudis can produce oil for $20.00 a barrel, but they don't sell it for that. They sell it for 50 to 100 dollars a barrel is the going rate. The international price for

natural gas around the world is 10 to 15 dollars a million, and that's something that we all need to be aware of.

I'll save the rest of my comments around CO2 dispatch in the state-by-state implications. They do have dramatic -- I lived that as well doing the SO2 program. The SO2 program is nothing compared to what CO2 would be. Thank you.

MS. VOSBURG: Thank you, Commissioners. My name is Jennifer Vosburg, and I'm here representing NRG Energy's interest in the central region. NRG is a large independent power producer with over 50,000 megawatts in every major market. They serve around 3 million retail customers. Here in the central region we have approximately 17,000 megawatts between MISO, ERCOT and SPP. As well as a large retail business and ERCOT. We are truly and above -- all of the above company. With a large weight of fossil fuel generation as well as renewables, nuclear, coal, gas, wind, solar, both utilities scale and distributed, other forms of distributed generation plus both retail and wholesale businesses. Many of their comments both written and made today have a similar thing. We need more time. It will cost more money. Reliability is in danger. And while NRG agrees with many of these

things, we do support reduction of carbon and a more sustainable future. We believe that technical conferences such as this will foster constructive discussions about the best ways to achieve that goal what minimizing the negative impacts that are a real concern in regions with substantial amounts of coal generation.

I do want to add another thing to the discussions. The threat to competition that could result from a rush to comply to meet the deadlines set forth in the current plan, especially in the Central region. The benefits of competition in wholesale markets are real and well-demonstrated. Yet despite this we have seen a significant amount of planned or announced utility self-build generation in multiple states. With little discussions on how to encourage or protect competition in all types of clean new resources.

We must also recognize that despite best efforts there are already some inefficiencies in the market that will only be compounded if not addressed before the CPP deadlines occur.

It's difficult to set baselines to develop a plan when there are existing problems such as current seams issues are existing more and more due to

existing local issues.

Thank you for allowing me to participate on this panel, and I look forward to our continued discussions.

MR. GUST: Good afternoon, Commissioners and staff. My name is Jeff Gust. I appreciate the opportunity to participate in today's technical conference. I work for Mid-American Energy Company, a rate-regulated utility based in Des Moines, Iowa that serves customers in three Midwestern states. By the end of 2015, Mid-American will own almost 8500 megawatts of generating capacity of which almost 3500 megawatts will be wind generation.

Mid-American is wholly-owned by Berkshire Hathaway Energy Company, which submitted a prepared statement in advance of today's technical conference. I will limit my participation to topics involving just the electric markets in the Central region.

So first, the Commission should ensure that generator interconnection requests are processed promptly.

Second, the Commission should ensure that market rules foster the efficient integration of variable renewable resources since the Clean Power Plan is likely to trigger a surge in new wind and

solar projects.

Third, the Commission should ensure that its rules foster transmission expansion when required for new resources and to improve market efficiency.

Fourth, the Commission should support market rules that foster the free flow of energy and capacity across market boundaries and give particular attention to seams between RTO markets.

Finally, the Clean Power Plan will likely lead to a greater reliance on natural gas as a fuel. As such RTOs may find it prudent to institute financially-binding unit commitments more than one day in advance. The Commission should remain open to RTO proposals for binding, multi-day unit commitments as the Clean Power Plan is implemented.

Berkshire Hathaway Energy appreciates the time taken by the Commission to closely examine wholesale market issues related to the Clean Power Plan in the Central region. I look forward to your questions. Thank you.

MR. DENNIS: Thank you very much. We will now turn to the Chairman and Commissioners for questions, and we'll begin with Commissioner Bay.

COMMISSIONER BAY: So Jeff I saw in your comments this suggestion that a market be created

before the day-ahead market, and I thought that was very interesting and wondering whether you could describe that or if you could flush out that idea a little bit more.

MR. GUST: Sure. What we've experienced at least in our part of the market is quite a bit of volatility in market prices from day-to-day. We think a lot of that has to do with the amount of wind generation that's on our system. We've seen market prices vary from as low in the single digits to highs in the 40 to 50 dollars a megawatt hour. It has caused unit commitment issues both with our gas plants and our coal plants.

So we think a longer term look is needed as you look at unit commitments, as you look at unit commitment to ensure more efficient use of these generation, especially as the Clean Power Plan is implemented, we think more gas-fired generation is going to be utilized, and the issues of scheduling that gas and buying that gas is very important in knowing a longer term in advance when to buy that gas and how much to buy is important. That's the basis of our comment.

COMMISSIONER BAY: So how would that market relate to the day-ahead market?

MR. GUST: So it would be part of -- each day you would come up with a binding two-day or three-day unit commitment that's binding, meaning you're committing those units in advance and those costs will be part of the market.

COMMISSIONER BAY: Okay. Thank you. It's an interesting idea that that is the first time that we've heard that idea in these technical conferences. So this is the fourth and last technical conference. I know that a number of you have been coming to each of these conferences just as we have and I'm sure you're kind of regretting the fact that they're coming to an end or maybe not. But, you know, I'm struck by the fact that for this panel in each of the conferences a number of panelists have said that from an economics perspective, the most cost-effective way to proceed would be for states to adopt some sort of regional approach, whether it's formal or informal in nature.

Richard, I see that MISO's done a study estimating that the MISO states could collectively save about three billion dollars a year if they used a regional approach, and I'm wondering what suggestions you might have for FERC in terms of things that FERC might be able to do to encourage the adoption of a

regional approach.

MR. DOYING: Everyone's jumping in here, so I'll go first, I guess. I think the Commission can do a couple of things. One, it can support the markets that have been in place and continue to be in place, and a critical element of that is to work with both the RTOs as well as all of our members and stakeholders to make any changes that might be necessary as the states determine how they'll implement the compliance plans. So it's as simple as continuing to be open and pursuing the policy objectives that you have having efficient energy markets to result in low cost to consumers.

I think the second and perhaps the more important one in the near term is to use the ability that you have today as the federal regulators of electricity markets to work with the EPA to ensure that they appreciate the consequences of all the various elements of the proposal that they have that they're seeking comments on today. You've heard input from lots of people on the panels today about the various challenges that that will pose for them. I think FERC is uniquely positioned to express the concerns that you've heard from people here today to the EPA as you work with your -- with your -- I was

going to say associated, but not quite associated, but with your friendly federal entity, the EPA, to finalize those rules.

MS. VOSBURG: Commissioner, I would add to that, that as I mentioned several times as well, in many states you have multiple RTOs and markets to excess even in Louisiana we have MISO and SPP. To the extent that the focus to resolve seams issues would go a long way as well to be able to help the states work together to work toward a mass-based trading situation.

COMMISSIONER BAY: Thank you. Michael?

MR. SCHNITZER: Yes, Commissioner. Two things. First is -- was outlined in my statement. I think that there are four specific things that FERC can encourage EPA to tweak or fix the rules so that the particular form of regional compliance, which is based on mass-based compliance at the state level, you know, can have equal footing in the rule which it doesn't presently, and you heard I think on the first panel this morning it was expressed as, well, mass base might be better. Rate base accommodates economic growth and mass base is an absolute cap, and so there's a disincentive to take the mass-based approach because it accommodates economic growth not as well.

So that is an example of an impediment that's in the rule presently that should be addressed, and I outlined that and three other suggestions.

I think the second set of issues in terms of FERC itself might have to do or what discretion it might have to do have hinges on how the market rules will be modified to accommodate those that choose rate-based compliance. How forgiving the Commission is of units that are run limited or fuel limited in terms of how much they count for capacity. Those sorts of choices and rules which the Commission itself will face will also have an effect on the incentives of utilities to recommend to their states one approach versus another based on the consequences in the organized markets.

COMMISSIONER BAY: Chairman Quackenbush?

MR. QUACKENBUSH: Yes, just one more observation about the rate to mass-base conversion, you know, it is possible, you know, it seems like the mass-based approach lends itself more readily to a regional cooperative approach, and there are ways to potentially build and projected growth rates into a mass-based approach, which, you know, there might be a need to be some kind of true up down the road, because generally when we project -- when anyone projects

growth, you know, over a long time period, you don't hit it exactly. So there could be ways to not have that disadvantage of the mass-based approach if you can project the growth rate in there subject to a later true up.

COMMISSIONER BAY: Mr. Scott?

MR. SCOTT: Thank you very much, Commissioner, and I agree with everything that's been said. Just to add a couple things there, but re-emphasize the growth issue is important, because that's being listed as a reason why people do not want to delve into the mass-based approach, and depending on what you project, your growth issues for your state to be, that may be one of the most important characteristics.

I also think it goes back to what Mr. Doying was saying a moment ago. There are probably going to be rules that need to be altered within each of the different RTO structures, but I think you're going to have a hard time with all of us trying to figure out and tell you exactly what those will be today.

I think part of that will be as people are doing additional exploration of these issues and starting to work through on a practical basis. If we did this, how could this work within the existing

structure? So I think it's that whole idea of being flexible and being open to working with the states on those issues.

And then I also think, and this isn't necessarily your issue at all, but just in keeping with what we've heard in a lot of the comments from states, the timing issue seem to favor multi-state compliance, but because in the rule, as we talked about, the really only multi-state compliance that specifically set forth is the rate based and blending of the rates that we talked about a little bit earlier, which would require a specific agreement by individual states to do that. As you're hearing we don't think that's how a lot of this may work if states choose to work on a multi-state basis, and so clarifying through the final rule what exactly is multi-state compliance and can states take advantage of that extra time if they're not going through to a complete multi-state formal agreement, I think that would be very helpful for the states as well.

COMMISSIONER BAY: Thank you.

COMMISSIONER CLARK: Thanks to all the panelists. I'm curious about the flip side of an issue that we have heard about in an earlier conference, which I think it was the representative

from the State of Arizona, which has a very impressive target under the current proposed rule, said, We're the ugliest guy at the dance. No one wants to partner up with us.

And looking at a map of the Midwest and the differences in the different state targets, I find it interesting that in at least a few cases you have some of the best looking guys at the dance right next to states that have very aggressive targets. One that pops out, and probably because it's my home region, is if you look in the upper Midwest, Iowa and North Dakota have two of the top ten least aggressive targets just by the way the math worked out. You have Minnesota which is the large load center in the middle of that which is one of the top ten most difficult targets to meet, what's the incentive for the states that have a low target to get into a regional plan and where they're probably giving up -- they're helping everyone else meet their goal, but what do they get in return? Whoever wants to answer on the panel, feel free.

MR. SCHNITZER: I wouldn't be surprised if there's a couple of us who will take a shot at that, but, Commissioner, I'm glad you asked that question, and I think the answer to it really requires one to

specify what do we mean by regional compliance? Okay. The kind of regional compliance that the rule describes where you have to come up and effectively reallocate your rates and average your rates and all the rest. The types of disincentives and problems, you know, with disparate emission rates that have been described at all the technical conference are absolutely right.

But if you define regional compliance the way that I've defined it and the way I think that Doug is defining it, which is the foundation of which each state does a mass-based SIP, and then EPA says states that have mass-based SIPs can trade their emission permits across states or the affected entities can, then you sit there and you say, you know, I forget exactly who the -- Iowa and the other state who are on the good side, effectively if it makes sense for them to over comply to reduce their tons even further so that they can sell them to Minnesota, which is cheaper for Minnesota than doing the next most onerous thing in Minnesota, that's how it's going to work, and that's basically it's self-interest for both states at that point. You have a platform where everybody can go alone if they want, meet their own mass-based standards, but if there's a trade opportunity that is

mutually beneficial, that can happen.

And that is precisely why I think the form of mass-based compliance and regional cooperation based on mass-based compliance at the state level is a much more likely thing to happen, because everyone's going to argue and everybody is arguing with EPA that EPA has been unfair and the emission rates they are assigning are wrong and they're unreasonable, et cetera, but the final rules are going to have a set whatever they are.

And then this approach can take whatever that set of emission rates is and provide an opportunity for people to convert and then to trade with one another for mutual benefit when it makes sense to do so.

COMMISSIONER CLARK: Does that work if one of the lucky states, the lower emission target states, is also a state that happens to be experiencing high load growth and so they're naturally inclined to want to move towards the rate base?

MR. SCHNITZER: Well, that's the issue that I described earlier. It's the EPA -- that needs to be fixed. The state shouldn't have to take a bet on whether it's load -- economic activity growth is going to be high or low, it should be entitled to what it

could have gotten under a rate-based approach in terms of tons and not have to make that tradeoff, but until that's fixed then the problem she described I think is a real one.

COMMISSIONER CLARK: Okay, thanks. Doug?

MR. SCOTT: Thank you, Commissioner. The only thing I want to add to that is on behalf of the Power Sector Collaborative and MSEER, we're still exploring rate-to-rate trading as well. It doesn't have to be just mass-to-mass. Now, if you do rate-to-rate, it becomes a lot more difficult. There are a lot more things that you have to look at, you have to start looking at energy efficiency, compliance trading desks and other issues for that. But I just want to make sure that to not paint an inaccurate picture of what we're looking at here in the Midwest, so people are still looking at those issues.

I will say the one thing that is very difficult is if you start looking at states that have rate based -- a rate-base system and try to figure out a way to trade with mass-based system, that gets very complicated and very difficult. But I think, you know, just so we're putting out there the range of options that are available to states, I think it is possible for the rate-based states to also trade with

each other.

The other thing I would say without trying to ascribe good looking or ugly in any particular states, I'll leave that for you, Commissioner, but the, you know, it's not just a matter of the state plans, it's also a matter of the regulated entities within those individual states, and they may very well find they may be in a couple of different states themselves, and they may also find that there are advantages either to trading within their company across state lines or trading with other entities that, as Mike will describe, have credits that they need to sell. So there may be -- I agree if you go on the blending rates, somebody's going to win and somebody's going to lose, and that's why I said it makes it very, very difficult to do politically and practically. But there are lots of good reasons if you're not blending rates with other states for regulated entities within those states to want to be able to trade back and forth.

COMMISSIONER CLARK: Mr. Gust?

MR. GUST: Yeah, so we're in the State of Iowa and the rules aren't final yet, we know they may change so -- the numbers may change, but I guess we've been involved with REC trading quite a bit, because of

our large wind generation portfolio, and we would envision that when you sell renewable energy credits you also sell the Clean Power Plan attribute to another state.

So that's another way of doing it whether you go mass base or rate base you can do it that way and a state then can comply by buying a neighboring state's renewable energy credit.

COMMISSIONER CLARK: Thanks. Then one last question for Mr. Doying on -- this is similar to the question that I had asked at a previous conference I think to a representative of PJM, but I'm curious in if you have a region, let's say within the Midwest, let's make an assumption that you've got a few states, and who knows how many that will be, that say we're going on our own, we'll meet it ourselves, we think we can do it, which we've heard from a number of states around the country in different regions.

What challenges does that present to the fidelity of the market where you might have certain states who, because you're running a regional LMP maybe in an essence complying twice. They're complying on their own, but then because they're next to states which may be operating through more market base mechanism or ends up paying both the LMP for the

higher price as well as meeting their own compliance cost with whatever they're doing on their own. Does that raise price discrimination issues that MISO may need to deal with?

MR. DOYING: There's a regulatory issue embedded in there someplace. I'm not sure it's a market-based issue, and it depends in part on whether you have an underlying trading regime and whether or not you viewed the allocation of permits that maybe allocated, if they're allocated relative to a baseline, as to whether or not you were shorted on your allocation versus what you paid for electric energy. If you have the allocated emission and you trade it in as it were for the emissions you produce then you're held harmless as it were relative to the market impact.

There's a whole bunch of underlying regulatory pieces of the question I guess is the probably shorter way of answering it, but I just didn't think we'd have to really determine what the outcome would be.

COMMISSIONER CLARK: Okay, thanks. Mr. Williams?

MR. WILLIAMS: In a state approach where some states opt-out, it would likely be that they would

essentially value CO2 differently than the rest of the market, and it would be generation disparities that occur, either all their gas units would run head of the rest or behind the rest, and that's the problem with the state-by-state approach as well, because certain states like Texas with the $50 CO2 penalty, they'll never run their gas generation and they'll be desiring to import, you know, everybody else's gas when it's really the same gas, and so that will happen in a microcosm if a few states opt-out they'll be sitting there as islands within.

The other question I wanted to go back to Chairman -- or raise a question for a moment about the recommendations for FERC and one of them is in regards to the encouragement of the EPA. He said if you're going to a regional method, it takes time and you heard it over and over again from Warner Baxter and others throughout the time, it takes time to work through this and the time lines do not work in that process. We lived through it in MISO, we've all lived through it, it will take time and that is one that FERC does have the stick with EPA to say, We are in charge of the reliability and the wholesale markets within the United States. We cannot solve this problem as fast as the timeline you put out there.

That you can suggest to EPA, and that is very much within your purview.

COMMISSIONER CLARK: Thanks. Mike?

MR. SCHNITZER: Yes, just one quick comment on the pay twice, you know, part of your question. As I understood the hypothetical, but if I've got it wrong you can correct me, but if you've got an effect of vertically-integrated companies, and you've got a state with vertically-integrated companies that think I'm good, I can do our doables, redispatch, whatever, and I can meet my new emission rate target and I'm fine.

COMMISSIONER CLARK: Sure. Or even nonmarket-base solutions that EPA's tee'd up, like, energy efficiency programs --

MR. SCHNITZER: Yes.

COMMISSIONER CLARK: -- or state or whatever it is.

MR. SCHNITZER: Right. So in that circumstance, those customers don't pay the LMP, they pay the fuel cost of the units, they pay the renewable cost of the unit, they pay for the energy efficiency, but if all their energy is being supplied by generators owned by their utility, they're not paying LMP.

So the fact that LMPs may go up because adjacent states, you know, put on a carbon of price because they're in a mass-based approach, doesn't affect what the customers in that hypothetical pay. If they're net short, if they are relying on the market, Jason was alluding to in his hypothetical, you know, where Texas tries to import all its power, et cetera. Well, then the price, the power they buy may have a cost of CPP compliance in it, but that's not paying twice, that's paying for the CPP compliance that somebody else is doing because you're buying their power.

But for the CPP compliance you do yourself, you get your energy at cost just like integrated utilities do today, you know, in the RTOs for the portion of their energy they meet with their own resources.

COMMISSIONER CLARK: Okay. Thank you. That's all I have. Commissioner Moeller?

COMMISSIONER MOELLER: Thank you. It's been a terrific panel, great discussion on a very good topic, and I won't have any questions. I just appreciate the effort that people put into this, because this is the key issue for me let's do no harm to wholesale markets that have basically been in place

for 15 to 20 years. We take a lot of the benefits for granted, except when people like Mr. Doying can point them out with numbers which is good, and I'm just very, very concerned that the Clean Power Plan can upset wholesale markets whether they are part of the day two market or a larger footprint of the bilateral market, that's really what we have to be concerned about. It's a little frustrating because we have some groups that have been critical of us and the decisions we made on infrastructure, and they don't recognize or perhaps they haven't been informed.

(Noise interruption)

They quieted down now. Regardless, I'll keep going. The efforts we make on wholesale markets in the larger dispatch areas make a significant impact on improving the environment, and it's something that needs to be recognized more than it is.

With that I'll turn it over to our Chairman.

CHAIRMAN LAFLEUR: Well, thank you, Phil, this is the 12th of 12 panels that we've had in all of the days, so we are literally in the 11th hour of the tech conference, but it's never too late to have new discussions, and I particularly appreciated the discussion in the comments -- wait a second -- in the comments from Mike Schnitzer and Richard Doying about

the mass base versus rate base, which I had focused on to an extent that I'm not sure I ever fully understood why it was difficult for states to choose the mass base, so I think all my specific questions have been answered, but if anyone has anything to add on that, because I think that's a very important contribution to the discussion.

So assuming we were going with a mass base, or even if we weren't, as I see it there's -- we're all interested, I think, in how best to integrate the Clean Power Plan while retaining the benefits of markets for customers and also using markets to achieve any more environmental improvement as economically as we can.

And as I see it, there's at least three different ways, unless I'm missing something, to use a regional approach. One is an actual regional carbon market. We haven't talked about that at all here. Like such as the regional greenhouse gas initiative or CARB or what they have in Quebec. Haven't heard any proposals for that in the mid-continent area, but those are a way to explicitly quantify that.

A second is just to use the regular organized markets we have that dispatch power over large regions, but monetize the improvement into the market.

That's a way to use the market but get the improvement, and perhaps that's abetted or helped, abetted is a negative word, right? That's enhanced by the mass-based approach doing that.

And the third is just bilateral trading of allowances themselves, which are traded on exchanges, and I wondered if anyone could comment on of those three approaches some kind of regional carbon trading, which would require state law changes probably, monetizing improvement in the markets, and bilateral trading of allowances. If you think how much potential there is for that in these regions -- in this region -- or the several regions, because I know ERCOT is its own region.

Thanks Mike. Sorry it was a little garbled.

MR. SCHNITZER: No, I think I got it, and, you know, Doug and I did a silent coin flip to see who would go first here, so he reserves all his rights.

But what I think, you know, the concept of at least I was describing in my paper and my comments today would be a combination of two and three. In other words, so that states would elect a mass-based approach, we would fix the rules so that there were no impediments of doing so, EPA would state clearly that states that adopted mass-based approaches could trade,

you know, emission permits amongst themselves, and that that was allowed, and then there would be bilateral trading, which would set the price which would go into the MISO dispatch market or the SPP dispatch market, that that bilateral price on carbon CO2 would basically affect the price at which a generator would offer into the day-ahead in real-time market and then the MISO and the SPP Day 2 markets would do that superior job of minimizing costs, you know, including the costs of the CO2 emissions over a large footprint and that at least is what I had in mind as, you know, the first one to the extent it requires nine states like REGI to agree on target to decide how many -- what their repective responsibilities are. I think that one is much less likely to come to fruition than this other approach that I've described.

MR. SCOTT: Thank you. The only thing I will add to that is I think one of the things that's important -- first of all, to guess as to how many states or which states, it's really premature for that, because they're all being very diligent in going through their processes to try to understand this. They're going to need to see the final rule to understand, you know, how all of this will work for

them and what might work best, and then probably to do some modeling or almost certainly to do some modeling that will compare for them different alternatives, and so I don't think you'll know from a state perspective how likely it is any states are likely to do that.

The other two things that I'll point out that we haven't mentioned as much, we tend to talk about it today because we're here and because there's work going on in the mid-continent states, that that's your group that you're looking at, and I think the reality is if you have an approach as Michael has laid out and as I've talked about, the states that you partner with can come -- you're not necessarily even partnering from a state-to-state basis, you're setting up a trading platform that your utilities can utilize along with utilities in other states. And so you may not even know exactly who your trading partners might be at any particular time, and the other part of that is having with it some sort of minimum requirements and one of the things that's being talked about a lot is in terms of the EPA rule, what would the minimum requirements be for them to allow that kind of trading platform to be set up between states and the less onerous obviously the better, because you want states to at least have that as an option and see if that

makes sense for them. So those are the couple things I would add to that.

CHAIRMAN LAFLEUR: Well thank you for making that nongeographic point. We do see trading between CARB and Quebec and those are obviously far from contiguous.

Mr. Williams in Massachusetts we call it Peabody, but --

MR. WILLIAMS: I understand. I understand. I think no matter whether you have a market for carbon or not, implicitly everyone has to value carbon even if it's mass base or rate base. There is a price on carbon, whether it's a shadow price or a formal traded market. There is going to be a value for carbon. That's the only way this works. I can't run a generator and say how am I going to get to the end of the year and not violate or how's the state going to get to the end of the year. They've got to price carbon somehow, so whether it's formal or not, it's going to happen.

CHAIRMAN LAFLEUR: Well, that's a great point, and I guess what -- if I'm understanding it correctly, the advantage of a mass-based approach it more exclusively prices the carbon, and what has captured my imagination about this idea is that by

comparison to a lot of the ideas we've heard, would require the Commission or someone else to make tradeoffs between environmental improvement and reliability, or, you know, to say we have -- because of these other important social values we have to slow down or do less or something which may be necessary. Those are important social values, but this, if I understand it correctly, wouldn't actually compromise the level of environmental improvement, it would just compute it differently so it might be able to be more efficiently achieved. That seems pretty positive.

MR. SCHNITZER: Yeah, I think that's right, but just to be clear, and I alluded to it briefly in my opening comments, but even if everybody goes to a mass-based approach, if the cliff as it's been described is so severe that you can't reduce emissions enough for anybody to over comply to trade with anybody else, then going to a mass-based approach does not solve the cliff problem.

All it says is that you can look over a broader region to judge the aggregate feasibility of the required reductions. I doesn't have to be in a particular state, you know, or anything like that, but in an aggregate EPA still has to set a set of standards that translate to emission reductions that

are feasible and mass base won't cure that.

CHAIRMAN LAFLEUR: Thank you for that clarification, and I didn't mean to suggest in my new founded exuberance for the mass base that it was going to solve every problem that we've heard about in the last six weeks. It just seems like it has some advantages that make it more readily adoptive than some of the more difficult things we've talked about.

If we're coming to an end, I was going to make a couple closing comments, but I'll offer it to my colleagues if they wanted to first.

I just want to acknowledge that this is the end of this set of conferences, although clearly by no means the end of our work on the Clean Power Plan. It's somewhat Churchill yet. It's just the -- it's not the beginning of the end, it's just the end of the beginning of our work on the Clean Power Plan, because if this is to be in place until 2030, I think there's a lot of work ahead, and I'll be stepping back with my colleagues and thinking about next steps from here, but I think that the conferences have been very valuable. We've heard from a wide-range of voices. I think it's been valuable to be out on the road at least a little bit to be in a different place and

sometimes interact with different players. Some of the folks we've heard from, for example, environmental commissioners don't normally cross our paths and clearly are at the center of the compliance with what we're talking about here.

I just wanted to take a second to acknowledge the work of FERC staff, which has pulled this together in a pretty short period of time, and none of their other work went away nor did they add any staff. Earlier I had said that at the last tech conference I wanted to have a thing where they played music and the names went on the screen, like at the end of the Olympics when the last day after the closing ceremonies, but we didn't manage, I didn't pull that off.

So but it really has been a tremendous amount of work of all of the folks, some of them are here and others traded -- they traded off between different ones. Finding the panels, setting up the panels, organizing the testimony, putting all the arrangements together, so I very much want to acknowledge that and thank you very much.

MR. DENNIS: Any Commissioner have closing remarks? Seeing no one reaching for a microphone, thank you very much for everyone's participation

today. We really appreciate it, and I echo the Chairman's thanks to all the many staff that participated in this. It literally took a village so thanks --

CHAIRMAN LAFLEUR: And thank you to our reporters that kept -- I can't imagine how miserable it is to take all this down so thank you.

(End 4:45)

(Whereupon, the hearing was adjourned)