FEDERAL ENERGY REGULATORY COMMISSION

Technical Conference regarding
Resource Adequacy in the
Evolving Electricity Sector Docket No: AD21-10-000

TECHNICAL VIDEO CONFERENCE

Federal Energy Regulatory Commission

888 1st Street NE

Washington, DC 20426

Tuesday, March 23, 2021

9:00 a.m.

Welcome and Opening Remarks from the Chairman and Commissioners

Panel 1: Commissioner-Led Discussion of Capacity Markets in ISO New England Inc., New York Independent System Operator Inc., and PJM Interconnection L.L.C. (PJM)

Panelists:

Manu Asthana, President and CEO, PJM Interconnection, L.L.C.

Richard J. Dewey, President and CEO, New York Independent System Operator, Inc.

Gordan van Welie, President and CEO, ISO New England, Inc.

Judge Judith Williams Jagdmann, Commissioner, Virginia State Corporation Commission

Willie Phillips, Chairman, Public Service Commission of the District of Columbia

Kathryn Bailey, Commissioner, New Hampshire Public Utilities Commission

Katie Dykes, Commissioner, Connecticut Department of Energy and Environmental Protection

Robert Rosenthal, Counsel to the New York State Public Service Commission

Stefanie Brand, Director, New Jersey Division of Rate counsel

Dr. Joseph Bowring, President, Monitoring Analytics

Dr. Pallas LeeVanSchaick, Vice President, Potomac Economics

(Cont'd.)

Panel 2: Staff-led Discussion of Implications of Status Quo MOPR in the PJM Capacity Market

Panelists:

Frederick S. "Stu" Bresler III, Senior Vice President - Market Services, PJM Interconnection, L.L.C.

Dr. Joseph Bowring, President, Monitoring Analytics

Jason Stanek, Chairman, Maryland Public Service Commission

Talina R. Mathews, Ph.D., Commissioner, Kentucky Public Service Commission

Marji Philips, Vice president, Wholesale market Policy, LS Power

Ralph Izzo, Chairman, President and CEO, PSEG

Susan Satter, Chief, Public Utilities Bureau, Office of the Illinois Attorney General

Casey Roberts, Senior Attorney, Environmental Law Program, Sierra Club

Patricia DiOrio, Head of Project Development and Growth, North America, Orsted

Betsy Beck, Director, Regulatory Affairs - Central and Western U.S., Enel North America, Inc.

Edward D. Tatum, Jr., Vice President of Transmission, American Municipal Power, Inc.

Panel 3: Alternative Approaches for PJM Capacity Market

Panelists:

Frederick S. "Stu" Bresler III, Senior Vice President - Market Services, PJM Interconnection, L.L.C.

Dr. Joseph Bowring, President, Monitoring Analytics

Abraham Silverman, General Counsel, New Jersey Board of Public Utilities

Daniel R. Conway, Commissioner, Public Utilities Commission of Ohio

Kathleen Barr n, Executive Vice President, Government and Regulatory Affairs and Public Policy, Exelon

Ruth Ann Price, Deputy Public Advocate, Delaware Division of the Public Advocate

Dr. Roy Shanker, Independent Consultant

Susan Bruce, McNees Wallace & Nurick LLC, Counsel to PJM Industrial Customer Coalition

Elise Caplan, Independent Consultant, on behalf of the Sustainable FERC Project.

Sari Fink, Senior Director, Electricity & Transmission Policy, American Clean Power

Closing Remarks

P R O C E E D I N G S

Welcome and Opening Remarks from the Chairman and Commissioners

MR. ROSNER: Good morning. My name is David Rosner, and I am from the Commission's Office of Energy Policy and Innovation. We are happy to welcome you to this Technical Conference to discuss Resource Adequacy in the Evolving Electrical Sector.

Before we begin with opening remarks, I will outline some logistics for the Conference. We will have one panel this morning, let by our Commissioners and Chairman, followed by a lunchbreak, and two panels this afternoon. We will also have breaks in between and during panels as appropriate.

This Conference is being webcast and transcribed, however the Conference is not being recorded for future viewing. I would also like to remind all participants to refrain from discussing the specific details of the pending contested proceedings listed on the supplemental notice issued on March 16, 2021, and to refrain from any discussion of other pending contested proceedings.

If anyone engages in these kinds of discussions, my colleague Kit Shook from the Office of General Counsel will interrupt the discussion to ask the speaker to avoid that topic. With these initial matters out of the way I

will now turn it over to Chairman Glick for his opening remarks. Go ahead please Mr. Chairman.

CHAIRMAN GLICK: Thank you David can you hear me?

MR. ROSNER: I can.

CHAIRMAN GLICK: Great. Thank you. And I want to thank you and the entire team for putting together this Technical Conference. I know in such a short period of time you've put together a great list of panelists that we'll be hearing from today, and also on framing the issues which I think is extremely helpful. So thanks again for all you do.

And in addition to that I wanted to thank the panelists for participating today and taking time out of your busy schedules for participating. I note that some of the panelists will be appearing on more than one panel, and in particular, Joe Bowring I think is on all three panels, so Joe I hope you are sufficiently caffeinated for the rest of the day. You're probably going to need that.

You know today we're kicking off a series of technical conferences on market design which I think is an extremely important issue. Everyone knows we are in the midst of a very serious transformation in the electric generation sector. We're moving toward much more increasing amounts of clean energy resources, zero emissions generation resources.

That provides a lot of opportunities. But it

also provides some challenges as well, and I think that's something we need to take a look at, especially with regard to not only our capacity markets, but our energy and ancillary services markets as well.

Now you know, today we're going to be taking a look at the three eastern RTOs, and those are New York ISO, New England ISO, ISO New England and PJM. And particular, those particular ISOs and RTOs have mandatory capacity markets, and that's what we're going to be taking a look at this morning.

And I want to start by noting you know I think these RTOs around the country have provided substantial benefits in terms of reduced costs to consumers, enhanced reliability and really the way to facilitate the transition that's underway in terms of modernizing our electric general fleet which has been great.

But in particular, in the three eastern RTOs with the mandatory capacity markets, the debate has kind of fallen apart. We're focusing on state resource decision-making quite often. We have constructs, market constructs that aren't necessarily related to what you and I, what people generally think of as a competitive markets.

We're really moving away in some ways from what is true competition. And you know in addition to that we're causing consumers to spend billions of dollars extra in the

name of trying to address price suppression. And I don't think that's sustainable in the long-run. Now this afternoon we're going to be focusing on the PJM minimal offer price rule issues, and there's plenty of them.

And I'm not going to go into any in great length in terms of reiterating the many comments and criticisms I've had where the Commission is headed with regard to the MOPR rules in the past. But suffice it to say, I think we need to figure out a better way. In large part because the future, and the benefits of the RTOs that I was just mentioning, the future of the RTOs are really at stake, especially in the eastern states.

I know in all three of the eastern RTOs several states are looking at either withdrawing completely from the markets, or partially withdrawing from the markets. And again these markets provide sufficient benefits. We need to focus on you know the benefits that these markets provide, and in a way try to keep everyone together if we can.

Now you know in PJM in particular, and throughout the other RTOs as well that use MOPR type programs, it's becoming increasingly apparent that these programs are not sustainable, in large part because again, we're not focusing on accommodating the states, which I think we need to do. Instead of attacking, we're trying to block the state programs, the energy programs.

And it's not just clean energy programs, it's all programs that states have adopted in the name of their authorities over resource decision-making. So with regard to the PJM MOPR in particular, as I mentioned, I don't think it's sustainable. I know that PJM specifically has already held several workshops. I know they have at least one more in the works, to examine new approaches because I think they even recognize that the MOPR is not sustainable, and that we need to do something else.

So I'm going to be following those discussions closely, and my personal believe is that you know I think we should to the extent we can, allow, enable the RTOs themselves, and the stakeholders to come up with their own proposals, to organically come up with an approach that's different on the current MOPR rules around the country. I think that's the best thing to do.

But to the extent they don't come up with something, I think we have an obligation under the Federal Power Act to act where rates and terms of these markets are unjust and unreasonable. In my opinion, as I've said several times before, they are, and certainly in PJM.

And so if for whatever reason PJM and the stakeholders aren't able to act, in my opinion I think we need to do it for them. So with that I'm going to turn it over to the best of my colleagues for their opening

statements, and start with Commissioner Chatterjee. Thank you.

MR. ROSNER: Commissioner Chatterjee?

COMMISSIONER CHATTERJEE: Can you guys hear me?

MR. ROSNER: We can now yes.

COMMISSIONER CHATTERJEE: Perfect. Sorry for that. Good morning and thank you Mr. Chairman. I'm pleased to be part of this Conference today. I truly appreciate the time and effort our panelists have put into preparing for this conversation, and I'm really looking forward to hearing from everyone.

And of course, I want to extend my thanks to David and the rest of the staff team who have taken on this challenge and done the work to get us here today. We've all come here to talk once again about the issues that arise at the intersection of state policies and the competitive wholesale markets we oversee.

These issues are neither new, nor easily navigated. This Agency, the states that are part of the eastern RTO footprint, market participants and stakeholders have continually wrestled with these issues in centralized capacity markets of today. And we've all wrestled with it because the stakes are high.

Keeping the lights on is job one. What we've seen in Texas and California, highlights for me the need to

think holistically about resource adequacy and reliability, the market structures that underpin them, and the policies that certain states have enacted to accelerate the changing resource mix.

I know we have a lot to cover today, so I just want to make three points before I turn it back to Chairman Glick and my colleagues. Number one, I want to be clear from the jump that I'm here with an open mind and an eye towards shaping what's next. Since I've been at FERC, made some tough and frankly controversial calls affecting our market.

Our priorities have been clear though, whether it be in Orders 841 and 2222, our carbon pricing policy statement, or the PJM MOPR orders, I feel strongly about market-based mechanisms and believe that are markets should ensure reliability at least cost by leveraging competition and creating an even playing field for all resource types and market participants.

But it's clear that we are at an inflection point for thinking about whether our capacity markets are currently designed to support the general mix that many of the eastern RTOs states want. Indeed certain states want cleaner energy resources and are willing to pay for it.

And so, although I voted for our MOPR orders, and believe those determinations were supported by the record,

I'm not wedded to the policy calls of the past, and I'm open to better accommodating state policies so long as we're still able to meet our statutory mandate.

Number two, while I'm looking ahead and want to help steer our markets toward better reflecting the current landscape, I also want to emphasize that we shouldn't over correct here. We can't lose sight of how successful our organized markets have been, not only in producing substantial cost savings to consumers, but also by pushing us toward our energy future.

Over the years our organized capacity markets have been a core part of driving investments in more efficient, cleaner, technology. Competition has been -- and in my view, should remain, a key driver towards decarbonization goals. There is so much power in well-designed competitive markets. So much power to deliver a cleaner grid at reasonable cost, and so much power to drive innovation that we should not through the baby out with the bath water, so to speak.

We should not go backwards. We should forge ahead by building on the market successes we've seen in a way that better accommodates state policies. I was heartened to see some common drum beats across the prepared statements of Mr. Asthana, Mr. Dewey and Mr. Van Welie, the leaders and thinkers at the helm of the RTOs we are focused

on today.

One of those drum beats was a shared view that although our organized capacity markets must evolve, they also have played and should continue to play a vital role in ensuring resource adequacy. Competitive organized capacity markets in combination with well-designed energy and ancillary services markets, are key to efficiently achieving reliability and resource adequacy on a forward basis.

And that gets me to point number three. The task we face here is complex. So we need to approach it with deliberate care. It's not just about adjusting MOPR regimes, it's about tackling a set of interrelated market issues, everything from making sure that the products and services offered in our energy and ancillary services markets are calibrated to ensure reliability now and in the future, to continuing to bring online and integrate emerging technologies and appropriately crediting resources.

Looking at an ambitious interrelated set of potential reforms like this requires thought and collaboration, and a lot of listening to all voices. I've learned some of these lessons the hard way over the course of my career. So speaking from that place, I'd urge everyone to roll up their sleeves for an extended effort, and avoid a rush to judgment on an artificially compressed timeframe.

We can make targeted improvements in the near term, that's absolutely true. But the real win for consumers will come when we've taken the time to map out a thoughtful set of reforms that's built to last. We're all here because most, if not all of us have a shared goal.

The eastern RTOs put it succinctly in their joint submissions, so I'll borrow from them. "We are here to harmonize the wholesale electricity markets with environmental policy goals and consumer preferences ensuring a reliable, competitive and efficient power system for the future."

That's an elegantly stated goal that will take time and all of our best thinking and effort. So let's press forward deliberately together. I'll close by thanking you Mr. Chairman, for convening this conversation, which I believe all five of us on the Commission have been eager to have. And I'll again thank the panelists and staff for all the work you've done so far, and all the valuable thinking and collaboration you'll continue to bring to these issues, thank you.

CHAIRMAN GLICK: Thank you Commissioner Chatterjee. I will now turn to Commissioner Danly.

COMMISSIONER DANLY: Thank you Mr. Chairman. I wanted to start with a couple of fundamentals, and we have to keep these basic principles in mind throughout this

process, both during discussion and when it comes to our deliberations within the Commission. And there are basically three points that we have to keep in mind.

The first one is that Congress charged us with ensuring the reliability, the bulk power system. Number two, Congress also charged us with ensuring that the wholesale prices that develop in our competitive markets are just and reasonable. And number three, we have to ensure that the actions that are taken by one state do not end up foisting costs on other states.

These are principles that are necessary for us to follow even if they conflict with a desire to respect the state policy goals that the states are implementing more and more all the time. But when we talked today about this subject of resource adequacy, what we're really talking about is -- and I think it's necessary to boil this down so it's clear. We have a clear idea of what we're trying to accomplish here.

What we're really talking about when we say resource adequacy is how are we going to keep the lights on as the states are increasingly putting into place public policies that favor intermittent generation? And it's obvious that the states have the ultimate say in what kind of generation is built and operated within their borders, but we as the regulators that are charged with ensuring that

the lights do stay on, we can't shy away from recognizing how profound the challenge is to accommodate those state goals as they attempt to integrate more and more intermittent resources into the mix.

And I acknowledge of course that the conventional resources have their own reliability challenges of different types, but compared to intermittence those that are relatively well understood. And as we are dealing with the legacy system that was planned for and around the conventional resources, it's something that we have learned over many years how to predict and accommodate properly.

So anyway, the reason I bring this up is because I think we have to have a clear idea about what it is we're talking about here. This inquiry boils down to whether or not our markets are procuring the correct kinds of generation in the correct quantities to keep the lights on.

And as it stands today the RTOs are actually procuring more capacity than they deem necessary to ensure reliability. And we need to make sure that in the process by which the markets procure capacity and compensate generators that the mix is correct, and not just immediately, but over the long-term. We have to ensure that these price signals and the incentives created are durable and continue to maintain the proper mix of resource to ensure reliability.

Now the panelists comments seem to have a general consensus that a significant quantity of conventional resource capacity is going to be required over at least the near immediate term to ensure reliability. And the question, I guess the challenge really of constructing markets is to ensure that the dispatchable generation services that we're procuring the correct quantities are compensated such that they do not retire.

And so we have to figure out in this process, or I should say not that they don't retire, because we want retirements of those resources that are no longer needed, or that are insufficiently efficient, but we want to ensure that we hold on to the market incentives, the resources that are required at any given time as the technology evolves, and intermittents are capable, as I presume they're going to be, of ensuring greater reliability that then can today.

So how do we achieve these goals? The short answer to put it bluntly is money. Our markets have to properly compensate through you know we're talking about all of them, energy ancillary services and capacity markets, they have to properly compensate the necessary generation resources to maintain reliability.

And this is a challenge because as more intermittents come in, energy prices are already low. We're already procuring more capacity than it's necessary to

maintain reliability. So as more intermittents come in, because they have such low variable costs, the prices are going to be driven down further, which is going to make it increasingly difficult for the conventional resources that do have high variable costs to remain competitive.

Our written questions ask what can be done to address the question of energy ancillary service prices, price suppression. And I'm curious to see what our panelists have to say about that. I know that there have been suggestions that enhance scarcely pricing, or new ancillary services for flexible ramping products that are a possibility.

I'm not exactly sure how that would work. I'm curious to hear more about it, and despite my skepticism I hope that I'm wrong. But if I'm right, that means that we have to look to the capacity markets to ensure that we get the proper revenues to provide the proper compensation to keep the required dispatchable resources in the market.

And that of course is one of the reasons for our past MOPR rulings. As many expect the Commission ends up eliminating or curtailing the MOPR, the capacity prices are going to plunge, and it's worth reiterating at this point one of the three fundamentals I led with, which is that we're obligated to ensure just and reasonable rates.

All of the orders that we've issued that allow

the competitive markets to supplant the traditional cost based rate mechanisms that we have had forever, rather those orders were premises on the idea that competitive markets will result in prices that are just and reasonable.

And if the capacity market sets prices that are below a competitive level because resources are coming in that are subsidized in a way that the Commission resources aren't, then the entire premises, the foundation on which this house has been built, it collapses, and the premises that these are just, and reasonable rates simply can't be true anymore.

So if we eliminate the MOPR and we fail to replace it with something that provides the needed conventional resources with the revenues necessary to earn a just and reasonable return, then they're going to retire. And premature retirement of these resources have obvious consequences for reliability.

Now I've given a parade of horribles to explain how complicated this job ahead of us is, but that I don't want to seem entirely pessimistic. But just because this is challenging doesn't mean that there isn't a potential solution, and I know that a great number of people have given this a lot of thought, many of them are here today on our panels.

And I'm quite interested in hearing what they

have to tell us. My hope is that we get as robust a record with as much hard data and analytical thinking as possible. Hopefully, they'll be able to give us insights that are going to help the Commission meet this challenging and somewhat daunting task.

So with that I'll turn it back to the Chairman, and just a final thank you to everybody participating today. I appreciate it.

CHAIRMAN GLICK: Thank you Commissioner Danly. Commissioner Clements?

MR. ROSNER: Commissioner we are not hearing you. Mr. Chairman I would propose that we go to the next Commissioner and we will have - oh, now I see Commissioner Clements. Let's try one more time. We still don't hear you.

CHAIRMAN GLICK: Well why don't we go to Commissioner Christie and then we'll come back to you Commissioner Clements.

MR. ROSNER: We'll reach out to you Commissioner, apologies.

CHAIRMAN GLICK: Commissioner Christie?

COMMISSIONER CHRISTIE: Okay. Can you hear me?

CHAIRMAN GLICK: Yes we can.

COMMISSIONER CHRISTIE: All right. Well good. Well first of all let me thank you Mr. Chairman. First of

all I want to just thank you for scheduling this Conference, and I want to compliment the Chair Rich Glick, and his Chief of Staff Pam Quinlan, and the whole FERC staff who worked on this, for all the hard work they've done and invested in setting this up and developing the questions.

They're really good questions, and I look forward to hearing from all the speakers. And what a great lineup of speakers we have. I know too many of them, and have worked with too many of them, to name check everybody, but we would be here all day, and I don't have that much time. But I do want to recognize my successor as Chair of the Virginia State Corporation Commission Judy Jagdmann is one of the speakers today.

I gave the gavel to Judy the second I was sworn in to FERC, and I also want to note that Judy is going to be the next President of NEHRU, so I'm very glad that she's here today as the Chair of the Virginia Commission, and in her role I think as the next President of NEHRU.

For me, this whole topic comes down to really two questions, and I just want to put those on the table. The first is rather simple. And the first is whether the public policies of the individual states can be accommodated in these capacity markets while maintaining the goals of delivering reliability and least cost power to consumers.

And if you think they can be accommodated then

please tell us how. So I'm going to call those questions 1 and 1A. Now the second question is much broader, and I noticed the Chairman talked a lot about sustainability in his opening statement. I think sustainability is a very important issue, and I think it's actually broader than just a MOPR question.

I think it's time to put it on the table. And let's go back and remember why these capacity markets were established in the first place. They were part of the wave of what was then called restructuring that took place in the late 1990's and early 2000's, and I think maybe half the states did it, I'm not sure of the exact number, but I think it was roughly half the states did it.

And under restructuring, states were ordered -- and states ordered their vertically integrated utilities to divest or at least "functionally separate," and I put that in quotes, their generation resources from the wire side of the business. The theory was that the wires network was a national monopoly that the generation was not.

The incumbent generation should be taken out of rate base and forced to compete with independent power producers, a/k/a merchant generators, in regional multi-state energy markets. And of course there was a couple of at least one single state. That's New York, as we know, but New England and PJM are multi-state RTOs.

But to make sure there's enough power supply available to ensure reliability, capacity markets were created. And they were supposed to deliver what was called the "missing money" that the generators could no longer get from the rebates.

Now whether the restructured models from that period have actually been better for consumers than the state regulated vertically integrated model, is still very much a live debate, and that's not our topic today, but it is pertinent. It's pertinent because that's where these capacity markets came from. And so when we are looking at the path forward on these capacity markets, it's important to know the path behind us to know how we got here.

Now restructuring was said to be a textbook solution to the cost overruns of rate-based generation. And if it was the textbook solution, then it was an economics textbook. But as so often happens, the reality over the last 15 years, specifically the political reality of a large multi-state RTO has impacted the economic theory.

And it's important to remember as we look back at that and seek to draw conclusions, that these capacity markets are not and never have been true markets. They're administrative constructs. And I've said that many times. One time somebody said to me well you're just engaging in semantics. No it's not a semantic game at all.

In a true market that's competitive, consumers and efficient sellers win, and the inefficient sellers lose. A competitive market regulates itself. The rules of a competitive market, a true market, are not set by the participants. The regulators job is not to regulate for outcomes, but to protect competition itself from rent seekers.

But an administrative construct where the rules are set by the participants is far more vulnerable to rent seeking than a truly competitive market. So over the past 15 years when these constructs have delivered competitive results, consumers have won, and benefits have been delivered. And I want to recognize that. I'm not saying there haven't been benefits delivered from these administrative constructs.

There have been benefits delivered when the results have been competitive. The problem is that the losers in these markets have gone to the politicians in the various states, and they've lobbied for subsidies and other forms of rent. As a PJM independent market monitor, Doctor Bowring has often said -- and this is a great quote, I wish it were mine, but it's not so I have to give him credit.

He says, "Subsidies are contagious." And they are contagious and there has been a variable contagion of rent-seeking, certainly in PJM because it's simply so big,

it covers so many states. And I don't have to recite all the examples. You're well aware of some of them. And by the way, that's no knock on the dedicated people who run PJM over the last 15 years.

People like Carrie Boston, Andy Otts, two on the market side. I have tremendous respect for them. I have tremendous respect for Armani Restaud who's taken over now and Gordon van Welie in New England. I hope I got the pronunciation right Gordon.

I've met people from the other RTOs, they're all very dedicated. They did not cause the rent-seeking. The political reality is what caused the rent-seeking. In fact the people who run PJM have often tried to stand up to it, often you know, have done their best, but the political reality is they've not been able to resist all the rent-seeking.

Now the second thing that's happened in the last 15 years as a matter of policy some of the states moved away from the goal of least cost power and decided to pursue environmental goals, and so they enacted mandatory portfolio standards and other policies that were directed to -- that were intended to change the resource mix in the capacity markets, and change the generation supply mix.

And let me emphasize, I don't question for one second the prerogatives of any of these states to adopt

their own preferred policies. They're all clearly within their sovereign authority, and I actually respect that. Tip O'Neill said all politics is local. He was absolutely right, and I absolutely respect the right of every state to adopt the policies that they wish.

But after 15 years of this experiment, and it is an experiment, we now have to ask while these multi-state administrative constructs called capacity markets may have been based on a sound, or at least a defensive economic theory at the beginning 15 years ago, does the realty of politics and rent-seeking in a multi-state RTO, and PJM is 13 states and D.C. It's the largest, simply make it impossible for these administrative constructs to consistently deliver on the economic goal of least cost power.

And by the way, to also recognize and accommodate individual state policies, as the policies at different stage diverge. And if the reality is they cannot, it's just not sustainable to use Chairman Glick's term. It's the most realistic path now for the states to reclaim their authority and reclaim their responsibility. Because responsibility goes with authority, for resource adequacy and chart their own course to achieve the resource mix they want that's consistent with their own chosen public policies.

And that doesn't mean the capacity markets go

away. It doesn't mean that we roll the clock back to 1998 at the beginning of restructuring. It does mean that the question arises of what will be perhaps a future role for capacity markets. Perhaps they will not be the primary or mandatory, perhaps states will see them as a resource, but not necessarily as the mandatory place they have to go to get to achieve resource adequacy.

So really it's not about saying should they go away, and should we roll a clock back to 1998, and for those states that did choose to restructure. But I do think we need to ask about sustainability. We need to ask whether the competitive results, the benefits that we're all expected and certainly have been delivered in many cases, how sustainable is that given the political reality of a multi-state RTO?

Now I think a single state RTO is a different beast, but a multi-state RTO is a political reality simply. You cannot fulfill the economic theory that these constructs were based on. I haven't prejudged any of these questions, and I look forward to hearing from today's speakers. Now back to you Mr. Chairman, and thank you again for setting up this very helpful and I think very pertinent Technical Conference.

CHAIRMAN GLICK: Thank you Commissioner Christie. And I think Commissioner Clements technical problem has been

worked out, so we're going to go back to her. Commissioner Clements?

COMMISSIONER CLEMENTS: Can you hear me?

CHAIRMAN GLICK: Great yes we can hear you.

COMMISSIONER CLEMENTS: Thank you Chairman. And thank you for setting up these important technical conferences so quickly. You put together a great, you and your team, have put together a great set of panels today with an impressive group of panelists, so thank you to David and the rest of the staff team who have worked on this.

I'd just like to say I'm thinking of the members of our FERC community who are based in and around Boulder today. I know that they are suffering this morning, and that it's probably hard to think about paying attention to a technical conference like this under the circumstances, so certainly our thoughts are with you, including my friends at the Rocky Mountain Institute.

Okay. Eastern RTO and ISO markets have provided competitively prices, and reliable electricity -- excuse me, reliable electricity across the region for several decades. These markets have never been an end unto themselves, but a mechanism to harness competition towards just and reasonable rates.

Given the structure of cooperative federalism embodied in the Federal Power Act, the Commission's approach

to resource adequacy regulation in different regions has rightly varied according to the regulatory approach of the states in those regions.

As Commissioner Christie just referenced, capacity markets in the eastern regions in particular were a regulatory response to the restructuring of the underlying states, stepping in to guarantee achievement of target reserved margins in the absence of state regulation in the area.

Remember states already had policies shaping resource mix in place when these markets were first developed. Over time, of course, these state policies became more ambitious, increasingly driving entry and retention of capacity resources.

In response to this pattern of state regulation, rather than continuing its prior tradition of regulating for efficient market outcomes in light of what the legitimate policy choices made by other regulators and legislatures, the Commission engaged in increasingly heavy handed attempts to insulate its markets from effective state policies.

This approach, in the words of former Chairman Norman Bay who's already a celebrity this morning, is "unsound in principle, and unworkable in practice." Simply ignoring the presence of an ever-increasing amount of state preferred resources, leads to oversupply of capacity,

unnecessarily high costs for customers and muted energy market signals.

Deeper issues with the capacity market must also be addressed. With or without state policies, the resource mix is changing due to technological and economic factors. As the Commission addresses the minimum offer price rule, it must do so in a manner that keeps an eye towards ensuring that the mix of services procured matches future needs, providing reliability at affordable rates.

I concur with Commissioner Chatterjee's note this morning that we should pursue necessary near term changes while not losing sight of the need to follow through on these longer term issues. My hope is that this technical conference will provide a springboard to concrete solutions, and that stakeholders will move expeditiously toward a just and reasonable outcome to file with the Commission.

Appreciating we don't want to prejudge any of the issues, a few things that are known, and in terms of potential market reforms I will be listening for an outcome that avoids requiring customers for care redundant capacity. To the extent that a proposal involves any FERC jurisdictional market component that combines capacity, procurement with the procurement of state created clean energy attributes, I'll be looking for an outcome that is optional for states, not mandatory or coerced.

I'll be looking for an outcome that is at a minimum, compatible with these longer term market changes that Commissioner Chatterjee and I mentioned, that address capacity over procurement, properly value resource adequacy in a resource neutral manner, and place greater emphasis on energy and ancillary service markets that compensate resources for tangible services delivered.

I'll also be looking for an outcome that unlocks the bilateral market which I believe has the potential to enhance the ability of the market to cost-effectively deliver what customers want. But here I'm also interested in hearing how reforms can do so, while at the same time addressing potential concerns regarding market power and affiliate preference.

I'm interested in hearing about ways states, municipalities and cooperatives and other customers can be empowered by these market designs, to exercise greater control over the amount and type of capacity they buy. These considerations will ensure that the states and FERC can travel comfortably, and consistently in their respective jurisdictional lane.

I'd hope that a technical conference will be productive and specific. To the panelists, I ask that you not just stick to your litigation positions, which have been made clear over the many years the Commission has considered

more of a policy, but instead answer these questions and provide thoughts with a forward looking approach.

And with that I thank you and I look forward to hearing what you have to say today, thank you Chairman.

Panel 1: Commissioner-Led Discussion of Capacity Markets in ISO New England Inc., New York Independent System Operator Inc., and PJM Interconnection L.L.C. (PJM)

CHAIRMAN GLICK: Thank you Commissioner Clements, and thanks to all of my colleagues for their opening remarks. I think you can tell from the opening remarks that this is a very important issue, and people are paying attention and I think we have a lot of interest in here.

So this morning the first panel we're going to be discussion is the capacity markets and the three RTOs, New York ISO, ISO New England and PJM. I'm going to turn to each of the panelists. They're going to have an opportunity to make opening remarks for up to three minutes, and then at the end of that we'll open it up for questions.

So I'm going to start today with Manu Asthana. He's the President and CEO of PJM. So please go ahead Mr. Asthana.

MR. ASTHANA: Yeah Chairman Glick, I just want to start by checking you can hear me.

CHAIRMAN GLICK: We can yes.

MR. ASTHANA: Excellent. Well Chairman Glick,

Commissioners, staff, good morning. It is great to be here with you today. Chairman Glick as you said PJM has been engaged with our stakeholders on resource adequacy topics through a series of workshops, and in other conversations. And these conversations are ongoing, and they have helped inform our perspectives on these topics.

So I wanted to start by sharing a few of those perspectives. And really four. So the first perspective is our capacity markets work together with our energy and ancillary services markets to try and achieve a reliable power system at least total cost.

And we do believe that our markets need to evolve in certain targeted areas, but I wanted to start by acknowledging up front the tremendous value that our markets have delivered over time, and that includes almost a 40 percent reduction in carbon emissions since 2005, significant growth and demand response in energy efficiency, stable, total wholesale prices for the last two decades with prices coming down in the last several years, and above all reliability, which is our number one priority.

The second point or perspective I wanted to share was that we at PJM believe that our MOPR rules as formulated today do not sufficiently accommodate state policies related to resource mix, nor do they accommodate long-standing, self-supplied business models such as those pursued by

public power entities.

In fact today's MOPR creates the potential for consumers to have to pay for resources to meet public policy objective, but then not receive a credit for the contribution of those resources to grid reliability. Simply put, we believe these MOPR rules are not sustainable in the long-run and should be reformed.

The third point I wanted to share we also believe in addition to MOPR that there are other issues regarding the capacity market that should be examined holistically. Specifically, considering the need to strengthen qualification and performance requirements for capacity resources so that we know they're going to be there when we need them, evaluating all aspects surrounding the appropriate level of capacity procurement.

I've had discussions around procuring too much, and I think that needs to be examined holistically. Considering the need for additional reliability based services, and then finally developing the potential for clean capacity auctions to help states meet their policy goals through those auctions.

The fourth and final perspective I wanted to open with today is that our capacity markets do send important price signals to new and existing generation, demand response providers, energy efficiency providers, and others.

And it is critical that these auctions continue to run on their already delayed schedules as we work through these issues.

Thank you for your attention. I look forward to the discussion today. Back to you Chairman.

CHAIRMAN GLICK: Thank you Mr. Asthana. Next up is Rich Dewey, he's the President and CEO of the New York ISO. Mr. Dewey?

MR. DEWEY: Good morning Mr. Chairman can you hear me okay?

CHAIRMAN GLICK: Yes we can.

MR. DEWEY: Okay. Mr. Chairman I want to thank you. And I want to thank Commissioners Chatterjee, Danly, Clements and Christie for inviting me to participate in this important discussion. We did file our full comments, but I'm just going to hit a couple of key points in the interest of the time that we have.

Capacity markets have operated in New York successfully since its inception in 1999. We believe they continue to be the most cost-efficient and cost-effective means to achieve reliability and resource adequacy in New York. We also acknowledge similar to Mr. Asthana that it really needs to be viewed in concert of the enhancements of the energy and ancillary energy service markets, and you have got to look at the markets operating together.

Recently New York State, as you know, passed the Climate Leadership and Community Protection Act, which is groundbreaking legislation that mandates certain levels of renewables with specific targets that are required under the statute in the law, 9,000 megawatts of offshore wind, 6,000 megawatts of behind the meter solar, 3,000 megawatts of storage.

70 percent of the supply needs to be from renewable sources by 2030, and by 2040 it needs to be a carbon free electric system. In order to leverage markets in a way that continues to maintain the cost-effectiveness, and the ability to achieve that level of reliability, changes are needed to these markets.

When you think about why markets were adopted, it was very clear goals, introducing competition to drive down consumer costs that provide a locational signal to incent siting at the most valuable point on the grid for reliability, and maybe most importantly, shift risks from consumers to investors.

And I think Commissioner Christie hit on these. These points and these reasons are still valid, and they're still valuable. And we encourage the Commission to consider the benefits that we get from these. It is better than all the non-market alternatives that have been explored.

We recognize this in New York, and over the past

two years we've launched a couple of key initiatives. One is our grid in transition program which seeks to identify market rule changes in the energy ancillary service and capacity markets that accommodate the changing resource mix, and also as our comprehensive mitigation review program which attempts to look for changes to our mitigation regime, our bar-side mitigation test that allows the entry of the state-sponsored resources, while still maintaining the efficacy of the price signal for those dispatchable resources that are necessary to achieve reliability.

And I'm happy to talk about specific examples of any one of those when the time is right. I'm confident that New York's stakeholder process can generate effective solutions to both our grid and transition program, and ongoing analysis of our comprehensive mitigation review.

I look forward to bringing some of those solutions to the Commission in the coming months, and I appreciate due consideration of those ideas. At that I will stop. I want to thank you for the opportunity. I look forward to some questions, and I appreciate the engagement, thank you.

CHAIRMAN GLICK: Thank you Mr. Dewey. Next up is Gordon van Welie who is the President and CEO of New England ISO.

MR. VAN WELIE: Good morning Chairman Glick can

you hear me?

CHAIRMAN GLICK: Yes we can thank you.

MR. VAN WELIE: Excellent thank you. Good morning Chairman and Commissioners, and thank you for the opportunity to participate in this important conference. The topic of resource adequacy brings together the issues that are top of mind for us, including the Clean Energy Transition and reliability in the wake of the events in Texas.

As indicted in our comments in the joint statement of the three ISOs, we believe that capacity markets are the right vehicles to ensure both the clean energy transition and reliability. Currently markets cost-effectively ensure reliability by making sure that we have enough resources, including those that run infrequently, but are needed to balance intermittents and generators with just in time fueling.

New England's full capacity market meets its objective by paying enough missing money to procure supply to meet the mandatory one day in 10 years reliability standard. The missing money is the compensation to make a resource whole over and above what it earns in the energy and ancillary services markets.

Losing money is particularly critical for resources that do not run off it and have low energy, and

ancillary services revenues, but are still needed when others are unavailable. The capacity market's importance will only grow for these resources as New England's fleet, as more low marginal cost intermittent generators.

The transition in the fleet will further reduce energy market revenue while simultaneously increasing the need for those infrequently run bonus resources. While we believe that capacity markets are still the right vehicles for insuring resource adequacy, we must also acknowledge that they must evolve. Most immediately, we must examine how best to eliminate the minimum market price rule while still ensuring reliability.

We are concerned that without additional action the elimination of the MOPR creates cost recovery risk to investors and unsponsored resources. This risk is created because increasing numbers of renewables will tend to reduce energy prices, and if the MOPR is eliminated capacity prices as well. These distinctions matter because for many years to come a reliable power system will continue to be dependent on merchant generating facilities.

Accordingly, we believe it is important to identify market rule changes that would eliminate the MOPR and thereby give capacity credit to responsible resources, while appropriately compensating merchant resourcing investment for that higher level of risk.

We also know that AFCM has transitioned from achieving resource adequacy to promoting energy adequacy. Resource adequacy generally refers to the procurement of sufficient nameplate generation capacity. We know from experience that procurement of nameplate generation is no longer sufficient because the energy inputs to generators are no longer sufficient or stable under a variety of conditions.

Instead the capacity market must evolve to ensure energy adequacy through resources that can provide on call energy for extended periods where energy is unavailable from intermittent generation, and generation with just in time fuel sources.

We know there are significant challenges ahead, and we look forward to working with the Commission, the New England States and us stakeholders to meet those challenges, thank you.

CHAIRMAN GLICK: Thank you very much Mr. van Welie. Next up is Judge Judith Williams Jagdmann who is a Commissioner with the Virginia State Corporation Commission. Judge Jagdmann?

MS. JAGDMANN: Good morning Chairman Glick. I thank you for this opportunity to address resource advocacy within the RTO structure. My message is straight forward. First, it is imperative that any mechanism for resource

adequacy of a self-supply option.

Second, state policies should accommodate to the fullest extent possible -- they should be accommodated to the fullest extent possible with the understanding that there should not be cost shifts between states, or RTO zones in accommodating these policies.

With respect to the capacity market going forward, Virginia, as a vertically integrated state, must have the option to self-supply within any future capacity market construct whether something like the MOPR exists or not. That is because capacity resources in vertically integrated states are paid for by customers through base rates, and will continue to be paid for with these rates regardless of what happens in the auction.

Without a self supply option, ratepayers may be required to -- or capacity, or resource adequacy mechanisms. Accordingly, in the future market construct that requires resources to submit bids to meet the regional reliability requirement must provide at a minimum the opportunity to self-supply.

Now on a historical note, PJM has always had provisions either in the fixed resource requirement alternative, or the self-supply exemption to allow the participation of vertically integrated states in the PJM market. This concept is fundamental to Virginia's

participation.

Now with respect to the PJM states, the PJM states have varying regulatory structures, some with vertically integrated load serving entities with cost of service recovery for their resources. And others with load serving entities that worked at the market for full requirements.

The Virginia Commission is a member of an organization of PJM states. It is not easy to get unanimous approval on any course of action due to this regulatory diversity. However, the organization at PJM states was able to progress around four principles with respect to resource adequacy.

Generally, they are first, state procurements, policy choices or clean energy requirements must be respected and accommodated by PJM market rules. Second, states should have the option of specifying the clean energy emission levels or other characteristics of their own resources in which the PJM market would then account for, or procure on a competitive least cost basis consistent with reliability.

And recognizing that the states retain primary authority for resource adequacy under the Federal Power Act, any reimagined resource adequacy solution must contain and allow the states the option of meeting resource adequacy

through a mechanism similar to self-supply and fixed resource requirement options.

Four, effective and appropriate market power mitigation is important for a thoughtful and functioning market design and for PJM administered markets generally. So in closing, the self-supply option must be preserved in a mandatory capacity market construct and state policies should be accommodated to the fullest extent possible with the understanding that there should not be cost shifts in states where RTO -- in accommodating these policies.

Again I thank you for this opportunity.

CHAIRMAN GLICK: Thank you very much Judge Jagdmann. Our next speaker is Willie Phillips, the Chairman of the D.C. Public Service Commission. Chairman Phillips please go ahead.

MR. PHILLIPS: Good morning Chairman Glick and Commissioners. Can you hear me?

CHAIRMAN GLICK: Yes we can.

MR. PHILLIPS: In D.C. 60 percent of our residential customer bill is related to wholesale generation and transmission functions. 40 percent covers distribution. As a restructured jurisdiction there is no doubt that wholesale policies have a significant impact, a customer impact in the District.

Unfortunately, I'm sorry -- fortunately, we are

included in PJM, a well-established RTO that has the track record of reliability. I've never been prouder to be a member of PJM than in the past few weeks. When reporters ask me about extreme weather events, I credit PJM as a major factor in our regional success.

Still, it is not lost on me that FERC policies and PJM implementation can, and do have an impact on the rights that are reserved to the states under the Federal Power Act. But setting aside the federal state jurisdictional question for the moment, I note that D.C. has some of the most aggressive clean energy policies and climate goals in the nation.

A legislative mandate to achieve 100 percent renewable energy by 2032, 50 percent greenhouse gas reduction in 2032, and carbon neutrality by 2050. If we are to achieve these goals, we should be asking ourselves three fundamental questions. Are we prepared to meet the clean energy needs for all PJM states, including D.C. that have renewable mandates?

Are we doing enough to incentivize, and not discourage investments in clean energy technology? Are we using every tool in our toolbox, both on the demand side and the supply side to be prepared for possible contingencies in a resilient manner? As a state regulator, my three-pronged approach to address these issues focus on assuring service

reliability, affordability, and sustainability.

I believe that the capacity market can be useful for reliability and resource adequacy, however, I share the concern with the members of this Commission regarding customer's bottom line. If we cannot do this affordably, we will not do it successfully. Of course, we look forward to further guidance from FERC regarding MOPR reform, and I look forward and thank you for the opportunity to participate today.

CHAIRMAN GLICK: Thanks very much Chairman Phillips. Our next guest is Kathryn Bailey. She's the Commissioner with the New Hampshire Public Utilities Commission.

MS. BAILEY: Good morning. Thank you Chairman Glick, and thank you members of the Commission for the opportunity represent our thoughts on this subject. New Hampshire does not have a carbon emissions reduction mandate. Our state law in fact, requires us to ensure that the costs of other states policies do not get shifted to New Hampshire ratepayers.

New Hampshire recognizes the need to find a regional solution that allows each state to implement its mandates and that the current forward capacity market rules may frustrate other state's efforts to implement their policies without paying more than is reasonable.

The New England states have been working together to find a solution. We have a fundamental agreement that any such solution should not cause consumers in any one state to fund the public policy objectives mandated by any other state's laws. To that end, we're working on a market-based solution. The Forward Clean Energy Market, or FCEM have had the potential to achieve other state's clean energy goals without shifting the resulting costs to New Hampshire customers.

That investigation is well under way, but it is not yet complete. Elimination of the MOPR at this time risks disrupting and possibly ending that important market development work. We acknowledge that eliminating the MOPR could result in state subsidized resources clearing the FCM and in turn receiving credit for the capacity provided.

And that would eliminate the so-called double counting problem. While that would allow out of market contracted resources to clear the capacity market, it may create other significant problems over the longer term. I believe eliminating the MOPR will encourage more out of market, long-term contracts driven by state policies.

That would decrease demand in the capacity market as newly received capacity market revenues lower the costs of those long-term contracts. Although those changes likely would reduce capacity market prices in the short-term, New

Hampshire is very concerned that eliminating the MOPR prematurely could result in an increase in long-term capacity prices, so long as the capacity market remains the primary mechanism to secure regional resource adequacy.

Elimination of the MOPR in New England is not necessary at this time. We're in the process of developing a forward clean energy market as a potential alternative mechanism for buying and selling clean energy attributes. A key design issue that would allow state-sponsored resources a clear to capacity market is to permit revenue from the FCEM to be counted as in market for purposes of capacity market participation and MOPR implementation.

Another critical design feature would be to ensure that states like New Hampshire would not be required to buy those attributes in the FCEM and the costs of other states purchases would not be shifted to the consumer. Under that approach states with carbon reduction mandates would have a marketplace alternative to TPA's they can use to achieve their clean energy roles, while states without such mandates would not have to pay the associated costs.

While it may be more expedient to eliminate the MOPR and satisfy most states concerns, I ask that you give New England the opportunity to continue our work to satisfy all of the New England states concerns. Thank you.

CHAIRMAN GLICK: Thank you very much Commissioner

Bailey. Next we have commissioner Dykes who is with the Connecticut Department of Energy and Environmental Protection. Please go ahead Commissioner Dykes.

MS. DYKES: Thank you so much. Good morning Chairman Glick and members of the Commission. Thank you for the opportunity to offer my comments on behalf of the State of Connecticut. Over time Connecticut has been concerned to see the capacity market construct in New England evolve in ways that thwart our state policies from the elimination of self-supply rights to the elimination of the renewable exemption, to the misapplication of the MOPR to our state's legitimate pursuit of clean energy mandates.

Connecticut is not contracting for clean energy resources to manipulate the market, we're doing so because our state laws and policies require us to reduce emissions, and because the ISO New England market is failing to produce investment in the clean energy resources that we need.

Connecticut, we are concerned that we're not receiving credit for contracted resources contributions to the wholesale capacity markets. The CASPR Mechanism here in New England has cleared only 54 of the hundreds of megawatts of renewables that Connecticut and other New England states have contracted in recent years.

We're also very concerned in Connecticut about the value that we are getting in terms of actual reliability

for the hundreds of millions of dollars that Connecticut ratepayers are paying annually for this capacity market. In ISO New England, in spite of iterative reforms, like pay for performance, CASPR and so on, we're still sending a significant share, about 20 percent, of our capacity revenues to obsolete, high-emitting power plants, many of them located in environmental justice communities in my state.

They run very infrequently relative to the ratepayer investment that they receive, and they generate an enormous amount of air pollution when they do. At the same time, the capacity market has failed to retain resources that are vitally needed for reliability, like the Millstone nuclear facility in Waterford, Connecticut.

Connecticut contracted with that facility because the market failed to value its contributions to regional reliability. And because the market failed to protect us from exercises of market power by resources that are critically needed for reliability. To meet Connecticut's policy goals outlined in our recent integrated resource plan, we need not only new renewables, but the retention of baseload emission free resources and investment in flexible resources that can reliably integrate renewables with the least cost and least emissions.

Our focus on reliability and cost has never been

greater as we shift transportation and building energy needs to the electric grid, and as we take steps to ensure that critical infrastructure around our state is prepared to withstand extreme conditions of climate change.

So as we consider reforms to the capacity market, including the FCEM and ICCM, it's important that we also examine energy and ancillary services markets to ensure that baseload emission free resources like nuclear are compensated for the reliability and resilient services that such resources can provide to the entire region. We will also need reforms to the ancillary services markets that will develop new products to compensate characteristics we need for the grid of the future, like fast ramping capabilities.

With those reforms clearly in view we can more effectively identify the specific resource adequacy gaps that a capacity market should fill. Capacity markets have the potential to shield consumers from volatile prices, and they have a role to play in the evolving electric sector.

The capacity markets are administrative constructs, so they require heightened scrutiny for the assumptions and preferences that underlie them, and special consideration for the views and policies of the states these markets are intended to serve. So I appreciate the opportunity to offer these comments today and be part of

this dialogue.

CHAIRMAN GLICK: Thank you very much Commissioner Dykes. Next up is Robert Rosenthal, he's Counsel to the New York State Public Service Commission. So please go ahead Mr. Rosenthal.

MR. ROSENTHAL: Good morning Chair and other Commissioners. Let me start by reiterating some of the problems with the MOPR as currently constituted. First, as applied to state policy resources the existing MOPR framework is not just and reasonable, because it results in higher capacity prices as others have already noted.

Second, it incentivizes otherwise uneconomic resources through me and online, and third, it's based on an interpretation that conflicts with the states role under the Federal Power Act. We believe there's a need for different legal framework, one based on cooperative federalism, and that FERC can get there by revisiting some first principles.

For example, the New York Commission has been statutorily committed to ensuring reliability as a top priority since 1910, 111 years ago. And even though New York went to competitive energy markets in 1999, the New York Commission has maintained its authority over reliability through among other things, it's approval of the annual update of the installed reserve margin.

At the very least, the states infer -- share

responsibility for ensuring electric system reliability. It is also important to revisit the purchase of the Federal Power Act which was enacted to address a narrow jurisdictional gap resulting from a 1927 Supreme Court decision.

To address this gap Congress enacted the Federal Power Act in 1935 for a specific purpose -- to provide FERC's predecessor with authority to regulate the interstate wholesale sales and rates of electric energy, not capacity. The FPA, however, also includes Section 201-A, which provides that FERC's authority both extends only to those matters which are not subject to regulation by the states.

FERC's Order 888 and 2000, both of which were adopted to facilitate the creation of the ISOs and RTOs, should also be revisited. These orders made clear that FERC did not intend to "affect or encroach upon state authority, over among other things, reliability of local service, integrated resource planning, and utility generation and resource portfolios."

Another law to revisit is Congress's amendment of the FPA in 2005 to provide a role for FERC in setting bulk system reliability standards. As part of that amendment, Congress added a new section 215-I, specifying that this authority does not "preempt any authority of any state to take action to ensure adequacy and reliability of electric

service within that state."

Finally, although Section 205-A also authorizes FERC to regulate matters affecting wholesale sales of electricity, and it is through this authority that FERC regulates capacity markets, there's nothing into a 5-A requiring FERC that this favors state policy preferences. To the contrary, given the broad statement clauses under the FPA that I already noted, a more appropriate interpretation is one that balances FERC's interest in maintaining bulk system reliability to capacity markets against the state's traditional role in addressing local reliability, resource adequacy and resource mix.

Our view is that through this balance state programs to provide support for clean energy resources can, and should be categorically exempted from any MOPR rules. So of course I'm the lawyer, and so that's why I'm giving the legal spin on this. I want to note that you know every -- basically every word mentioned by the Commissioner from Connecticut, you know, if I had read them previously, we would have signed on to those.

And I look forward to your questions moving forward. Thank you for allowing us to participate.

CHAIRMAN GLICK: Thank you Mr. Rosenthal. Next up is Stefanie Brand. She's the Director of the new Jersey Division of Rate Counsel. Miss Brand?

MS. BRAND: Thank you very much. I'm Stefanie Brand and I'm the Consumer Advocate for the State of New Jersey and I very much appreciate the opportunity to be here today to speak to you on behalf of the New Jersey customers. I don't think it's going to be a surprise that our primary concern is maintaining reliability at the lowest reasonable cost.

And we do look to the RTO and ISOs and the markets that they run to help ensure that. But I think the capacity markets have gone a little far a field from what we are looking for from them, and what we expect for them to do for us. We look for them to be a backstop on resource adequacy for us, not the only way to ensure it.

As Chairman Glick noted, we are in a transformational period in terms of our resource mix, and as envisioned by the Federal Power Act, states are making policy decisions on what resources to rely on. As a result, the capacity markets do not determine entry and exit from the market as they once did, and so the markets need to change and need to accommodate that, and compliment the state policy choices that are being made.

So what do we want from the RTO markets? Well first we want accurate load forecasting. We've heard several people mention today that we are acquiring too much capacity in these markets, and I think that that is a place

to start in looking at reforming them. We want realistic determinations of what is needed for reliability and reserve margins that reflect that.

We also want a residual market for states and load serving entities to obtain what they need beyond the policy initiatives that are being undertaken. And markets can also be helpful in terms of the operational needs so that we can obtain diverse resources to meet those operational needs to address some of the intermittent issues that arise given the new types of resources we are obtaining.

What we don't need are rules that are so draconian that they lead to endless litigation and uncertainty in terms of the markets, or that risk customers paying twice for resources, or paying billions of dollars more. Right? In my book that by definition is a failure.

Or rules that end up contrary to the structure of the Federal Power Act, or what is now national policy. I would posit that any market that puts a state in a position of on the one hand having to decide if it exercises its authority under the Federal Power Act, then it risks paying twice for resources, or on the other side, having to decide whether to just leave the market all together is by definition a failure.

It's just an impossible choice, and we need to

get back to where the markets were intended to be, which is to provide reliability at reasonable rates. And we're asking them to do too much and in doing so we are making them unsustainable. And with that I'll leave it and I look forward to your questions.

CHAIRMAN GLICK: Thank you very much Miss Brand. Next up is Doctor Joseph Bowring. He's the President of Monitoring Analytics, and the floor is yours Doctor Bowring.

DR. BOWRING: Thank you sir. Thank you Mr. Chairman, thank you to all the Commissioners. Thanks for the opportunity to be here. I come to you from the trenches of doing unit specific MOPR reviews. So one of the interesting things I can tell you is that we actually find that renewable energy has been demonstrated to us, renewable energy is, and will continue to be competitive.

So that's something to bear in mind during all these discussions. All wholesale power markets share the same fundamental issue, which is that in order to be reliable, extra capacity has to be built. The result is that energy prices are competitive and quite low most of the time. We certainly see that in PJM.

And the result is the so-called missing money problem. There's a number of solutions to that, which have been mentioned today including contracts, including cost of service regulation, including energy only markets where the

administrative charge pricing in capacity markets which lowers pricing.

In my view having seen how all those work, the PJM energy markets are clearly the best option. They're not the perfect option, by far, but they're clearly the best option. And that means PJM wide energy capacity markets including must offer, or must buy non-residual option.

But at the same time I think it's become very clear over the last year, if not before, that state authority -- states have the clear authority over generation resources, and state policies in favor of renewable or other types of resources do have to be accommodated.

The energy and ancillary service pricing, which is really the entire purpose of the whole effort, that is we're trying to provide energy rather than capacity, should be efficient. But it would be a mistake to attempt to artificially create high energy prices to reduce the role of the capacity market, rational and effective capacity prices are a good signal for investment exit and entry.

But there is some key elements of the capacity market that need to be defined correctly for all of this to work correctly, and for the capacity markets to function while accommodating state authority. One is -- and all of these have been addressed. One of these is market power. We're aware the markets are for cap issue.

Another is, and perhaps most fundamental, is that the definition of capacity has to be clear. It's clear that as we add more of a particular resource type it's potential contribution to reliability goes down. And if we're going to have the right mix, and we actually have a reliable mix of renewable resources and traditional thermal resources, then it's essential that we define reliability and the reliability contribution of each resource correctly, otherwise we will end up building an unreliable system.

We have to address our forecasting which has been referenced. We have to address the obligation of all capacity resources. One of the reasons to have an integrated PJM-wide market is to ensure that all supply resources, all capacity resources have similar obligations. They have to perform. If they don't perform there are penalties associated with it.

Part of that in PJM is the question of firm fuel and interaction with a gas market has to be identified. And finally, the definition of the main curb in the capacity market needs to be revisited and redefined. At the moment the maximum price is too high, and the reference resource used is incorrect.

So again, I thank you for the opportunity to be here today. I look forward to the conversation.

CHAIRMAN GLICK: Thank you very much Doctor

Bowring. Our final panelist is Doctor Pallas LeeVanSchaick, Vice President with Potomac Economics. Did I get your name correctly Doctor?

DR. LEE VANSCHAICK: You're good, it's Pallas LeeVanSchaick, so close.

CHAIRMAN GLICK: Sorry about that. Go ahead please.

DR. LEE VANSCHAICK: Thank you for having me today. And I appreciate the Commission's focus on these very important issues. I want to say that I've heard a lot of agreement today that these wholesale markets were regulated being third generation and investment and the shift risk from ratepayers to generation developers.

And I'm glad that there's agreement on that. I think these markets have motivated large scale investment to maintain resources needed for reliability, and this has lowered costs and removed large financial liabilities from ratepayers since the 1990's.

In recent years states have sought to cut carbon emissions by promoting investment in renewables outside the market. While justified by environmental goals, this can create artificial capacity surpluses that undermine investment incentives for flexible resources, which is concerning, since studies of decarbonization consistently find that large amounts of flexible resources will be needed

to integrate renewables efficiently.

Therefore, it is critical for policymakers to realize that competitive markets can help attract investment they need to achieve their ambitious policy goals at the lowest possible cost for ratepayers. At the same time major energy and ancillary services market reforms are needed, and capacity market roles should be refined to compensate each technology based on its marginal reliability value.

These reforms would provide more efficient incentives for intermittents and flexible resources such as battery storage. In this proceeding, the Commission must examine how markets that set just and reasonable rates for competition can also allow states to state the characteristics of their generation fleet.

In a competitive market framework, states can use the regulatory authority to reward clean resources, protect sturdy resources, on an equitable basis using mechanisms like carbon pricing. It goes back to cleaner generation fleet. However, allowing states unlimited flexibility to enter into long-term contracts could eventually develop into a central planning framework which subsidize the entrants, push down wholesale prices until no resource is financially viable without a contract.

Some limits are needed to prevent this sort of outcome. The controversy around MOPR currently pits the

interest of conventional generators against the environment. In reality however, this issue is about the interest of new subsidized units against all existing units. As the resource mix evolves, we will see a divide between the interest that exists in renewables, and new renewables.

We already hear existing renewable generators express concern regarding state policies that in new units more than existing ones since this drives down prices for existing renewables. So it is critical for the Commission to encourage a competitive market framework that compensates all resources, both new and old, equitably based on the wholesale products and the environmental attributes they provide.

This will allow the market to continue satisfying reliability objectives efficiently, while facilitating the environmental goals of the states. Thank you.

CHAIRMAN GLICK: Thank you. Thanks to all the panelists for the participation this morning. We're now going to turn to a question and answer session. Each Commissioner is going to get about 25 minutes for questions, and our moderate David Rosner will keep track of the time and keep us on schedule, and let each of us know when our time is expired.

If panelists would like to answer a question please raise your hand through the Webex function, but if

you're having problems with that, just let us know through the microphone that you're having some issues and we'll make sure you're called on anyway.

Our moderator is going to call on the panelist and indicate when they'd like to answer, or when it's their turn to answer I should say. At that time, after you've finished answering, please turn off your microphone after you respond to the question, and lower your virtual hand in Webex.

So I'll start with a couple questions. And one of the questions I wanted to ask was kind of the purchase of capacity markets are in general. So you know in general, we understand that you know as people described this morning, that you're supposed to -- the capacity markets are essentially supposed to ensure resource adequacy adjusted reasonable rates.

My question is how does that work in the context of a situation where you have the states increasingly more active in terms of resource decision-making, and essentially in trying to have an influence over the exit and entry decisions that are made among the generators in a particular RTO region.

And I thought maybe the best way to assess that question, of course, maybe turn first to each of the state representatives and whatever order you'd like and then move

to the RTOs, ISOs to respond, and then have the market monitors respond after that.

So with that I'll open it up and see which of the state representatives would like to respond to that question initially.

MR. ROSNER: I'm looking for hands here. Who would like to start?

MS. DYKES: So this is Katie Dykes from Connecticut. I'm happy to jump in and start the conversation. Thank you so much Commissioner Glick. I think that you know for Connecticut's purpose you know we think that the capacity markets objective in terms of meeting resource adequacy has to be set alongside our public policy goals which call for meeting our needs, meeting resource adequacy, increasingly with emission free resources.

I think that there are a variety of different pathways that could be available to harmonize those objectives in a you know, in a sort of climate federalism context, where we do not have a federal carbon policy in place. Certainly, we need the FCEM, ICCM model that my colleague, Commissioner Bailey mentioned would be one way to address that.

Moving to residual capacity markets would be another. But I also would emphasize that to the extent that

we can enhance ancillary services in energy markets to help value those particular attributes, or aspects of performance, in terms of flexibility, in terms of base load resources like nuclear that are critical for meeting reliability and our clean energy objectives, it minimizes the need to have bifurcated markets or for states like Connecticut to have to pursue our objectives of clean, cheap and reliable outside of the centralized capacity market approach.

So I think we are open to a variety of different options, but we certainly believe that you know, we deregulated in Connecticut for a reason, two decades ago, because we wanted to get the benefit of shifting risks to shareholders of regional competitive markets to achieve our respective goals and to the extent that those different attributes that performance that we're seeking is valued in energy and ancillary services markets for example, it minimizes the need for us to pursue these types of contracts, or investments outside of the capacity market construct.

MR. ROSNER: Next we have Miss Brand and then Commissioner Bailey.

MS. BRAND: Thank you. I'd say from a customer perspective in some ways I see the markets as protection so to speak. You know we are going through this

transformation, and it's exciting. But I'm not yet ready to put all of my eggs in a single basket, so I'm grateful for the fact that the markets are there to provide us with the assurances that we are going to be able to maintain reliability.

I don't know that I think that some of the subsidized resources are going to be able to provide us with all that we need in terms of reliability and ensuring that you know all of those ancillary services and everything are met. So I know that we feel as though that there's a protective nature to maintaining these markets in the meantime.

But they do need to be complimented as a residual I would say, market, to allow the states. It also provides choice for the state. Some states are not moving forward with these policy decisions, and those states would have the ability to resort to these markets for all of their needs if they chose. And I am very mindful of the other states.

Certainly, we work with other states in PJM, some of whom are not looking to do what New Jersey or Connecticut, or some of the other states are doing, and we're mindful of that and we think the states should have the opportunity to make those choices as well. So the markets are still very important to us, but they provide that level of flexibility and insurance so to speak.

MR. ROSNER: Thank you Miss Brand. We have Commissioner Bailey, Mr. Willie Phillips and then I see also whenever we're ready to switch from states, we've got Mr. van Welie's hand up. Please go ahead Commissioner Bailey.

MS. BAILEY: Thanks. I think that we still need a capacity market to ensure resource adequacy, and it's going to become even more important as we add more intermittent renewables to maintain reliability. I agree with my colleague that we should -- well let me take that back. She didn't say that.

I think we should continue to work on the forward clean energy market in New England because it will address the issues raised about the double counting problem, and allow those resources to get into the market, but there are problems with the market. And we need to address all of them.

And this is where I agree with my colleague on, is I think we need to do some tweaks to the ancillary service market. I'm not sure we need to increase the price of energy, because that will shift costs throughout the region, so I will hold my remarks there.

MR. ROSNER: Thank you Commissioner. Next we have Chairman Phillips, and then if we remain with states we also have Mr. Rosenthal with a hand up, and then all of the, or each RTO has a hand up as well when we're ready, so it

would be Mr. Van Welie, Mr. Asthana and then Dewey if we're ready Mr. Chairman. But go ahead Chairman Phillips.

MR. PHILLIPS: Thank you David. Thank you for the question Chairman Glick. I agree with my colleagues and I view so many of these issues through the prism of reliability. Resource adequacy is a central function of a capacity market. I think the other basic function is providing incentives for generators to enter and exit the market, and that's really what I'm more focused on.

I believe that we have an opportunity here. We have an opportunity that we should not miss to harmonize and align some of the state's policies regarding clean energy. I think that we have an opportunity to provide the incentive to encourage clean energy technology, and that includes energy efficiency, demand response, distributed energy resources.

We also have an opportunity to avoid costly transmission upgrades by using energy efficiency and demand response storage. I believe that we can work together with FERC and with PJM to advance our clean energy goals. And so I don't believe that we should as Chairman, former Chairman Chatterjee said, throw the baby out with the bath water, but I do think we should seize this moment.

MR. ROSNER: Thank you Chairman Phillips. Next I have Mr. Rosenthal.

MR. ROSENTHAL: So I certainly agree with some of the points that Chair Phillips just raised. The capacity markets should be really about ensuring the availability of adequate resources to peak demand. When you add other interests and issues to it that's where we think it gets messed up.

A related purpose like any market as it should be competitive, and you know thus provide you know price signals to resources to enter and exit. The more specific the better on that front. There's four different capacity regions recognized by the NYISO and those have been shown to provide that kind of granular signal to potential new entrants.

I also want to reiterate my agreement with the Chair from Connecticut. We don't disagree that there may be a need to refine the ancillary markets, particularly on market related to operating reserves to address the growing variability and the resources connected into the grid. The only way we're going to be able to implement our clean energy resources in New York is to ensure reliability, and I think that's a pathway that is potentially to revise the ancillary markets, you know, at the ISO.

A final kind of you know point which is that we're simply lucky in that we're a single state ISO, you know, so the points raised by the Chair from New Hampshire

really don't apply to us. We don't have the concern of what happens if there's you know different sets of rules, you know.

If one set of rules applies to several states, but you know, one of those states doesn't like those rules, we don't have necessarily that problem in New York. You know I've stated this before, we have a very good working relationship with the NYISO.

I don't think these issues -- they are hard issues, they're about the grid of the future. I think that we have available to us the tools to address those issues and we're happy to you know address those issues with the ISO moving forward.

MR. ROSNER: Thank you Mr. Rosenthal. Any other states wish to respond at this time? Hearing none, Chairman Glick shall we go to the RTO/ISO representatives?

CHAIRMAN GLICK: Yes please.

MR. ROSNER: All right. The order there was Mr. van Welie, Mr. Asthana and Mr. Dewey, go ahead Mr. van Welie.

MR. VAN WELIE: Hi Chairman Glick. You raise a great question, and just thinking about the various viewpoints that have been shared over the last hour or so, it strikes me that the Commission is in a very tough spot, and then the ISOs are in a very tough spot.

So having you know thought about this issue long and hard over many years, I think it does come down to the reality that there's no perfect system here, and that it is really just a case of managing a state of trade-offs, achieving balance between the trade-offs.

I think the first question that we have to ask ourselves is does FERC have responsibility for ensuring the reliability of the system as a whole? With New England experiencing it's first blackout in 1965, that is really what forced the integration of six independent state systems to one regional system, and a common dispatch across that footprint.

And the moment you connect the systems up and you put them under a single dispatch, I think it's impossible for there not to be some form of cost shifting that occurs, and it's impossible to avoid the fact that you are now going to be managing trade-offs.

So I think it starts with does the FERC have responsibility for ensuring reliability? And do the ISOs have responsibility to ensuring reliability? These capacity markets are administrative constructs. They're seeking to achieve an administrative outcome which is a one day in 10 standard, which by definition is administrative.

And so then the question becomes given that the states have rights to pursue their goals with regard to the

clean energy transition, how do you marry those two things together? And I would say that there's really two objectives that we have to think through. The first is what's the best way to ensure that clean energy arrives through the marketplace, and that's a conversation around forward clean energy markets and carbon pricing and so forth.

And then the other objective is to figure out how to maintain reliability knowing what will happen to energy and ancillary services prices. And so as I think about this conundrum around the capacity market, it's unlikely we're going to solve the missing money problem through ancillary services. I would view the capacity market as the foundational reliability service that gives us the call option on energy to supply load.

And so though we need to answer that first question, who's accountable for the reliability of the system?

MR. ROSNER: Thank you Mr. van Welie. Next we have Mr. Asthana, followed by Mr. Dewey and then I see a hand raised from Doctor Bowring. Go ahead Mr. Asthana.

MR. ASTHANA: Thank you very much. Yeah I think this is a really interesting question, and a very central question because in PJM you know we have a relatively low penetration of renewable resources, but that penetration

appears to be increasing rapidly. We have 145,000 or so megawatts of generation in queue and over 90 percent of it is wind, solar, battery or some hybrid of those.

So this is not a theoretical question of how the capacity markets need to evolve to accommodate what is happening with renewable penetration. The first thing I'd say though is that I think of capacity as Gordon said, as the foundational reliability product that we procure. And it has been boiled down to this point of the missing money.

And I just want to unpack that for one second because yes, the capacity market does help ensure revenue adequacy for the generators we need to maintain reliability, and that's what's known as the missing money. But I think the capacity market does more than that.

And I know underlying this discussion is this question in some people's minds where hey should we just go with an energy only market? And so I just wanted to address this point of the missing money and what else it does. So the capacity market in my mind does at least three things that are critical to think about for a second.

Number one it makes a procurement choice in a competitive framework years ahead of time as opposed to an energy only market in which when you're sending the price signal around scarcity, it may be too late to actually build the generation that will resolve that scarcity four years to

come.

And I think in that the capacity market is certainly superior in my mind. The other thing that it does, or that it can do, is send that price signal in a much more stable and predictable way that avoids some of the wild price outcomes that we've seen in Texas recently. And I think that's important to reflect on.

And then the final thing that it does is with capacity performance which actually was pioneered by New England and then adopted by us and others, the penalty for not showing up for general resource through a capacity market is more targeted towards that resource as opposed to all market participants.

And so I just wanted to address this point around the capacity market performs a lot of key reliability functions, and it performs them on a timeframe that is actionable which is really critical. And for that reason and the other reasons that I mentioned, PJM continues to support a capacity market construct, even in this new paradigm where states are driving more of the resource entry. And I just wanted to make those points, thank you.

MR. ROSNER: Thank you Mr. Asthana. Next we have Mr. Dewey followed by Doctor Bowring.

MR. DEWEY: Thank you. Thank you Mr. Chairman for the question. I think you know for all the reasons that

Manu just described, ISO New York we firmly believe that the capacity market is still the most viable and effective means to achieve reliability.

And I differentiate, I say reliability a little bit more broad than resource adequacy as you pose the question. I think when we look back to on the very clear cost saving objectives in mind when we created these capacity markets, it was very focused about resource adequacy because we look at the resource mix that we're starting to see come on to our system as well as what we fully anticipate to be in the future, the nature and characteristics of a lot of these new resources make us examine, make us want to examine the capacity market benefits and delivers more than just resource adequacy, the things like flexibility and transmission security that needs to be considered.

And I think that there's an opportunity there to continue to look at those solutions, more than just entry and exit. You know we look at it as the ability to both attract and retain the types of resources that we need, not just megawatts, but the types of resources that we need. And I think that there's a way that we can still balance that entry of the state sponsored resources that helps each of the states achieve their very important climate goals and still maintains the reliability characteristics of the

existing fleet that we need to support that transition.

Then it comes into the question of are you paying twice right, because nobody wants to pay for double the resources that you need. And I think then we have an opportunity and an obligation to really look at each of these resources, and what is their practical contribution to reliability.

And I think that the value of each of these resources contributes to reliability in a very different way, and for the benefit of consumers I think we need to come up with sets of rules, and we've started to look at some of that in New York, but certainly ways that you recognize that certain limited duration resources, certain intermittent resources, certain capabilities, lack of flexibility in existing fleet, contribute less valuably to reliability.

And I think there's an opportunity to work within the constructs of our capacity markets to make sure that we're not paying for something that doesn't contribute to reliability, and doesn't benefit consumers. And those are the practical solutions we're looking at.

MR. ROSNER. Thank you Mr. Dewey. Next we have Doctor Bowring and then Doctor LeeVanSchaick. Go ahead Doctor Bowring.

DR. BOWRING: Thank you. So it's in PJM's state

policies, can you hear me?

MR. ROSNER: Loud and clear.

DR. BOWRING: Great. So state policies in PJM are not, and are not likely to be the primary driver of resource entry. One of the things we're seeing as I said at the beginning, I'd expect renewables to be competitive. And one of the things we should be careful not to assume is that state policies will be needed forever to subsidize renewable resources.

Renewable resources are competitive now and as the technology continues to evolve which is doing very quickly, I expect that will be even more the case. So competitive markets are essential to this whole enterprise. And if renewables are cheaper, they'll outcompete thermal generation.

But it's essential to have a market design that allows competition to provide capacity, correctly defined in a so-called ELCC issue, and will also continue to find the need for thermal flexible resources.

So on the question of reliability I don't think of the capacity markets themselves as providing reliability, capacity markets are essential to ensuring that we have reliable energy and markets work together. And as was pointed out earlier, we need to think about this dynamic as you see more and more low cost renewable, zero marginal

costs renewables, it's going to drive the energy price down.

Which holding everything else constant would make the capacity market price higher, but the result of introducing subsidized resources in the capacity market has offset that somewhat, and we have to be sure that in the longer run we're not developing a dynamic which eliminates both capacity and energy prices.

I don't think that will happen if we define capacity properly, thanks.

MR. ROSNER: Thank you Doctor Bowring. Doctor LeeVanSchaick go ahead.

DR. LEEVANSCHAICK: Thank you. Yeah, so the capacity market plays a critical role even in the context of significant state policy motivated entry. You know provides a price signal for you know planning reliability value, resource adequacy. And you know that's going to attract resources that can provide that at the lowest cost and encourage the departure of resources that don't.

It plays a significant supplemental role in the state procurements where you know there's a -- even though maybe the primary motivation of renewable entry is going to come from state and federal incentives, it still, the wholesale markets play a really critical supplemental role that helps guide investment towards more efficient places.

And that's based on both energy prices and

capacity prices as well as how we compensate different resources of other technology. Now you know but what this means is we need to still encourage market-based investment and flexible resources, you know, whether you know they're battery storage or more conventional resources.

And that means for those resources that rely more heavily on capacity there is a need to maintain a degree of prices at levels that are not the result of significant price suppression from the subsidy.

So there does need to be some balancing there that recognizes that as an important objective. And so, you know that's one reason why in the markets we monitor we've sought in implementation of the MOPR and enhancements in prior side mitigations, we've sought to find ways that subsidized policy resources can enter the market, and sell capacity, and you don't have a situation where they're unable to do that.

But what that means is there has to be rules in place that facilitate retirements, or as to be that state policies are actively encouraging some policy-driven retirement. So it has to involve a mix of those things, and so you know, that's why we've encouraged buyer side mitigation rules that encourage entry to be matched with a certain amount of exit.

MR. ROSNER: Thank you Doctor. Those are all of

the hands on the queue Chairman Glick. And just a quick time check. It looks like you have about two minutes.

CHAIRMAN GLICK: Yeah I see I don't have much time, so David I want to just get to one other question, maybe just call on two people to answer it if that's okay. And you know, Mr. Asthana you had made this point about the missing money, and a lot of people we talk about list the money issues, and it's something I've tried to learn a lot about over the last couple of years and why in capacity markets versus energy and ancillary services markets.

But I was curious from an efficiency perspective, does it make sense to address the missing money issue, in terms of the capacity markets, or is there a way to actually bolster or improve the energy and ancillary services market in such a way that actually rewards the actual services provided, as opposed to just sitting there as a plant sitting there that may or may not provide the value when you need it.

So I was wondering if I could ask Mr. Asthana to start off with, and then Doctor Bowring to respond if that's okay given our limited time.

MR. ASTHANA: Yeah absolutely. So the answer is yes. There are other ways other than capacity markets to make up the missing money, and the most obvious one is energy only markets, or energy ancillary services only

markets. And certainly be buttressed to provide that pricing.

But the issue is that as we have more and more variable renewable resources on the system with lower or zero marginal costs, in some cases negative marginal costs because of tax structures that we're setting up for a large amount of time where that price signal is not sent.

And so then the price signal to send to build or to retain a large dispatchable generator has to be sent during very few intervals in the year, and then you end up with extremely unpredictable, and extremely high prices that are sent in those few intervals. And there is no guarantee at that point that a generator can actually count on getting that revenue.

They may be down in that exact interval due to some fault not of their own. They may be hedged. And so it's a very unpredictable, unstable way to send that price signal, and I believe that it actually leads to a less of an incentive, and less of an adequate revenue structure for generators to perform the types of maintenance and asset hardening that they need to do to be available in extreme events.

So the answer is yes. There are certainly other ways, but I believe that the capacity market is a superior way, at least for the PJM region. So happy to turn it over

to Joe for his perspective.

DR. BOWRING: Yeah so I agree with everything you said Manu. I would just add a couple points. So one is what we saw in Texas, energy prices can be administered as we said also, so the Public Utility Commission of Texas as we have all heard now set prices at $9,000.00. That was not the market. That was administrative.

So simply putting something in an energy price does not mean it is non-administrative, or it means that it's somehow more magically more market-based. So I agree with Manu that the capacity market makes sense as a way to provide reliable low-risk signals for entry and exit to generation.

And what's essentially in PJM is that the capacity be defined properly, so that the actual contribution to reliability of every type of resource is correctly compared to one another thanks.

CHAIRMAN GLICK: Thank you Doctor Bowring, and thank you to everyone for answering these questions. I'm going to turn it over now to Commissioner Chatterjee for the next round of questioning.

COMMISSIONER CHATTERJEE: Thank you Mr. Chairman and thank you panelists. Again, I appreciate all of your statements. I particularly appreciate the joint RTOs making clear that they remain committed in capacity markets, as

outlined, but there are five principles which I wholeheartedly support.

Looking at the Conference's supplemental notice three lines of questioning stood out to me as worth digging into a bit more. Questions surrounding eliminating the status quo MOPR, questions about the extent to which so-called enhancements to energy and ancillary services markets could supplant capacity markets, and questions that seem to be getting at whether a residual capacity market like what we have in MISO would work in the eastern RTOs.

And so I would like to dig further into these issues more directly. I agree with the joint RTO statement that retaining the capacity markets is superior to an energy and ancillary services only market. The notice seems to explore whether the role of capacity markets could or should be minimized to enhance energy and ancillary services markets.

That's certainly a pathway. But we're here today because states are taking actions to advance their environmental goals by providing revenues to cleaner energy resources, many of which are renewables that have low variable costs. So I'll direct this question to Mr. Bowring first, then open it up to others.

As these trends continue, is it fair to say that subsidized renewable resources may be able to offer in the

capacity energy and ancillary services market at near zero prices, and is it likely that as a consequence revenues from these markets will remain flat, or even decrease in the future. Why or why not?

And what do these trends mean for the broader market design reforms we're going to need to see?

DR. BOWRING: Yes. Thank you sir, this is Joe Bowring. So I agree that if we see an increase in subsidized resources in the markets, just imagine we're eliminating MOPR entirely, that that will tend to decrease prices for energy. As I said as we increase the level of zero marginal cost energy, and it will -- holding everything else constant, reduce the price of capacity, which is why it's essential in thinking about all this to ensure that we define capacity correctly.

And I know I keep saying this, but it's really essential. That is that we defund the capacity contribution of a wind resource or a solar resource such that it is not considered to be a one to one replacement with a resource, but that we correctly define it.

And we recognize that as the penetration of renewables grows, that the marginal value, therefore the appropriate value to attribute to those resources declines. And in some cases, quite sharply. So you're right to be concerned about that dynamic.

I think it is addressable, but unless we do it explicitly, the type of dynamic you suggest will occur. And the other point I would make there also is that I am assuming, perhaps naively, that the states will eventually decide that it's not necessary to subsidize competitive, renewable resources, and that it's more efficient for their customers and their state to allow competition to proceed, and allow renewables to compete to win a larger share of the market. Thank you.

COMMISSIONER CHATTERJEE: Thank you. I actually have a number of questions that I'd like to get into. So if it's okay I'm going to move on to my next one being conscious of my time. I'll direct this one to Mr. Asthana and Mr. van Welie to start, and then again on this one I'd welcome opinions from others.

The supplemental notice and some of the discussion today seems to ask the question about whether the RTOs should move away from all in centralized capacity markets and towards resource adequacy construct that more like the one you see in MISO today.

We've already touched on this some, what you think a MISO type resource adequacy construct will work in your RTOs, or is it better tailored for a footprint like MISO's which consists of predominantly vertically integrated utilities whose states have integrated resource planning

processes?

MR. ASTHANA: Yeah that's a great question Commissioner Chatterjee. My view is that the MISO construct is constructed for MISO. And it's as you pointed out, that most of the generation is contained within vertically integrated utilities, and so there really is sort of a marginal procurement around the edges.

In PJM we have a mix of vertically integrated states and utilities, and we structure states and generators. And so there's a much larger and more active market for generation services, for retail services, that I think needs the type of market structure that we have. And so I think our market structure where it is not a residual market, but is an all-in market with a must offer requirement, is actually better suited for the type of region that we serve.

I think one of the points -- well let me leave it there and pass it off to Gordon. I may come back. Thank you.

MR. VAN WELIE: Thanks Commissioner, great question. So I think the short answer is MISO will not work in New England. And as you and Manu said, the reason MISO works is because it's largely based on vertically integrated utilities, where the state regulators oversee those utilities and make sure that the costs are recovered through

consumer rates.

And they know who to hold accountable if the lights go out in their state. So we do not have any vertically integrated utilities left in New England, and so the question really then becomes how do you ensure that it's regionally imperative to ensure that there's enough resources to keep the lights on?

I think already in MISO if you're speaking to folks within MISO, there are states that are leaning on their anchors by making I think optimistic assumptions about imports from neighboring states. And we saw how that worked out in California. So I think that's the problem. The moment you have a system that is integrated across multiple states, if you have one state start making more optimistic assumptions about their resource mix, they're inherently leaning on their neighbors.

And so you need somebody who is going to be the referee in that conversation. And you know for now I think the best solution that we've come up with is the capacity market construct.

MR. ASTHANA: Commissioner Chatterjee if I could just add one more point.

COMMISSIONER CHATTERJEE: Sure.

MR. ASTHANA: Our markets do allow bilaterals. So this concept of you have to procure everything in the

market I think is not right. There's a lot of bilateral activity, both financial in terms of contracts as well as physical, people contracting for capacity resources that occurs and then gets scheduled into our capacity market.

But of course the resources themselves have to offer to the market, but I just wanted to point that out as well.

COMMISSIONER CHATTERJEE: Thank you. My next question, Manu maybe I'll start with you, but I definitely want to hear from others. The supplemental notice asks about the long run implications of continuing with the status quo MOPR framework, and whether it's a durable situation.

But I think we should also ask this, given that PJM stated in 2018 that doing nothing was not an option, it's simply removing the expanded MOPR without any other reforms, a durable solution, why or why not?

MR. ASTHANA: Yeah, great question. So I will go back to I think that is a really good question. In my perspective there's a difference between the theoretically perfect answer, and the practical answer. And so to what you said PJM did argue for some form of protection against price suppression.

And I think to what Gordon said, this remains a balancing act. I think we do need to continue to balance

all sides of this discussion. But any, in my mind, any capacity market structure that doesn't accommodate our states, and doesn't accommodate self-supply models just fails the practicality test, because what we're telling those states is you have to pick between all of the benefits that your consumers get from the capacity market, and the ability to sponsor certain resource types if you want.

And if the outcome of that choice is that states have to then leave the capacity market, then we might have perfected the capacity market design, but at the cost of participation in that market. And so I think it's a hard question to answer. I do think there continues to be a balancing act, but I do think any replacement for the MOPR, and I do think the MOPR does need reform, should accommodate states, so that states then can stay in the market, and their consumers can continue to get the benefits of those markets.

COMMISSIONER CHATTERJEE: Would anyone else like to weigh in on this one?

MR. ROSNER: We've got Commissioner Bailey and Mr. van Welie and Commissioner Dykes, and Mr. LeeVanSchaick all with hands up. So I would propose Commissioner Bailey, I think I saw your hand, and then we'll do Mr. van Welie and then Commissioner Dykes.

MS. BAILEY: Thank you. I don't think removing the MOPR is a durable solution because it will continue to promote state out of market contracts, and they will get credit in the capacity market, and the capacity prices will go down so low that the resources that we need for reliability will exist.

And if they exit it will either be very expensive to get them back, or they may just choose not to participate.

MR. ROSNER: Thank you Commissioner. Mr. van Welie please go ahead.

MR. VAN WELIE: Just building on what Manu said. I think we can't just eliminate them and hold off the price rule without doing something else. And the solution space we all know what it is. We can either try and put more money through the energy and ancillary services markets, and ancillary services is one way to reduce the amount of money that all flows through the capacity market, but not eliminated.

Another way that we might you know it's not on the agenda today, but we've talked about the carbon pricing, and I think there's a whole set of reasons why carbon pricing would be a smart thing to do, but that's not politically achievable either.

So then we're left with managing what we have

within the capacity market which is a trade-off. And you know we leaned in the direction of trying to protect reliability, protect prices for these forms of resources and produced the substitution auction as a way to try to mitigate that.

I think it's clear to us however, that's no longer a sustainable solution given that the majority of the states in New England don't want it, and I think the Commission doesn't want it further either. So that leaves us with having to manage the trade-off in a different way, and it really comes down to if we're going to take the minimum offer price rule out, and produce more risk of cost recovery for unsponsored resources in the market, then we're going to have to go back in and calibrate the parameters in the capacity market to try and restore some balance.

That's going to be a difficult and controversial discussion.

MR. ROSNER: Thank you. Next I have Commissioner Dykes followed by Doctor LeeVanSchaick, and then I see Mr. Rosenthal would also like to respond, and Mr. Asthana as well, so go ahead Commissioner Dykes.

MS. DYKES: Thank you so much, and thank you Commissioner Chatterjee for these questions. Just very briefly, I'll just note that you know, we -- our prices are

already very flat in the capacity market with the MOPR, with Casper in place. So I think as we contemplate the future I think it's really important to look at what's been happening with these barriers to state policies in place, in the present moment.

The capacity market is not providing a price signal for the efficient exit of resources, absolute resources are not retiring despite some of the lowest capacity market clearing prices that we've seen, even for a sustained period of time. And some of the resources that are getting these payments are offering very questionable reliability value to our ratepayers, so I think that's really important to point out.

I'll also note that we are in a self-supply situation in Connecticut without getting credit for it in any regards. Where Connecticut currently had to contract about 91 percent of our energy supply in order to not only pursue our renewable aspirations, but importantly to prevent the retirement of nuclear resources that were needed to you know, avert the risk of rolling blackouts associated with fuel security challenges, which our capacity market has not solved.

So I think the core issue is the deserved scrutiny is the capacity product itself. What is this product? What are we paying for? And I think that with

that, with more refine on that, with more consensus and agreement around the value of that product, and how it is aligned to the evolving electric grid, I think that we can find a lot of productive solutions that will gain consensus across New England in terms of how to best procure that, you know.

Shifting at, you know, looking at what are going to be the future load shapes, not just procuring capacity around summer peak, but around seasonal peaks and with different fuel mixes and climate driven weather extremes, ensuring that we have drafted transmission cleaning processes, and adequate consideration of the performance of demand side resources when we're calculating how much of this capacity product we require.

I think those types of refinements around that capacity product can help us move forward and transcend some of these challenges that we've been having around the accommodation of state policies.

CHAIRMAN CHATTERJEE: Thank you. Hey Dave, how am I doing on time?

MR. ROSNER: You have 10 minutes left, and in the queue you have Doctor LeeVanSchaick, Mr. Rosenthal, Mr. Asthana and Doctor Bowring all seeking to respond.

CHAIRMAN CHATTERJEE: Okay. I've got two more questions, so if you all could please just be concise I

would greatly appreciate it, thank you.

MR. ROSNER: All right. So go ahead Doctor LeeVanSchaick.

DR. LEEVANSCHAICK: Okay. I'll do my best. So I think if you're contemplating removing the MOPR, it's important to think that you know this will lead to some challenges in the years ahead. I think that the, you know, a lot of the states in the northeast are looking to enact policies that will increase demand and through electrification.

And you know we may transition from pretty much flat, or even falling capacity requirements over the last 10 years. It's a situation where we need to add capacity. And you know so it becomes important to have market rules in place that minimize the reasonable extent the risks that suppliers face who you know, where they rely on more on capacity than other revenue streams.

So like Gordon was mentioning, if you're not going to you know, if you're not going to have something like a MOPR that limits the potential risks associated with periods of oversupply, then you know it's going to require things like higher capacity demand curves, a better reflection of those market risks, you know, a return of investment capital over shorter periods of time than we have been able to previously.

So I mean those things have become expensive, and so you know it would be better to have a MOPR rule that helps manage the supply and demand balance, so that doesn't become necessary.

MR. ROSNER: Thank you. Mr. Rosenthal go ahead.

MR. ROSENTHAL: Sure. You know there's sort of a FERC doctrine call, one size doesn't fit all. I read it in a lot of decisions. And so whatever construct, you know, we come up with, it has to be flexible enough for states like New York to move forward with our very broad CLCPA mandates which as Mr. Dewey laid out, is 30 percent renewables by -- 70 percent renewables by 2030, and that's the direction that we're moving in.

We think it is flexible enough for that to happen. We've heard a lot of ideas today about how to do that. And just a word on just kind of language that we use, and just for you guys to know. Language like price suppression, really that doesn't work here.

I mean that's not how we see it. We see that the capacity markets should be built upon state policy. State policy is what it is. If there's financial support to particular resources, that's the way it is. You know, don't look at that as some market fault or market problem, that's just the function of the market in New York. It is not price suppression.

I also get concerned when I hear the term missing money. You know the capacity market as we see it is about resource adequacy. The more we add to it, I think the more problematic it gets. The term, you know, missing money implies that these resources aren't getting enough money. We're not seeing that in New York.

So I think there's a need just for change terminology, particularly missing money and price suppression. Thanks.

MR. ROSNER: Thank you and Mr. Asthana followed by Doctor Bowring, and if we could be succinct, we can then get to Commissioner Chatterjee's final questions, thank you.

MR. ASTHANA: Yeah really quickly, the one point I wanted to make is that we are working on an ELCC construct, as are several other ISOs and RTOs. And you can certainly make reasonable arguments around what is the right construct.

But any ELCC construct I think also helps mitigate some of this, because as states sponsor more variable renewable resources, or consumers sponsor those resources, the capacity contribution of those resources if we get ELCC right, is measured correctly, which then gives us a good signal for what remains to be procured. So that was the point I wanted to make.

MR. ROSNER: And Doctor Bowring?

DR. BOWRING: Yeah I'll skip my comments so that the Commission can get to his additional questions, thank you.

COMMISSIONER CHATTERJEE: Thank you. Dave, how am I doing on time?

MR. ROSNER: Five minutes sir.

COMMISSIONER CHATTERJEE: All right. I really want this question out there. If folks could just weigh in you know 30 seconds. At some, not all states in your footprint use taxpayer dollars to fund or subsidize the preferred resources, as we work towards better accommodating those state policies, how do you see competitive independent power producers fitting into the picture? Someone will take it.

MR. ROSNER: Looking for hands here. Who would like to respond. Okay I've got Mr. Asthana and Doctor Bowring and Mr. Dewey.

MR. ASTHANA: Yes. Really quickly, I think independent power producers continue to remain a big part of the landscape. And so the rules have to make sure that they are getting adequate price signals to keep those reliability resources in the market.

The other thing I'll say that I hear a lot from our independent power producers is they want clarity and stability of the rules, and then the markets typically will

adjust around that. So I think it's really important for us as we think about these changes, to really target rules that we think are doable and sustainable.

MR. ROSNER: Thank you Doctor Bowring go ahead.

DR. BOWRING: So you know so very quickly agreeing with Manu. It's essential that the market continues to provide signals to independent power producers to remain in the market, to continue to enter and exit as is needed. And part of that, and I know I keep coming back to the term, but it's essential we define capacity properly, not only for DLCC, its possible we do it wrong, it's possible we do it right. It's essential that we define the capacity contribution of thermal resources correctly so that we pay enough for them so that we induce them to stay in the market, and continue to enter as needed.

So they will, in my view, continue to be a very significant and substantial role for independent power producers in PJM for the immediate and the long-term future effects.

MR. ROSNER: Mr. Dewey.

MR. DEWEY: Yes. Commissioner Chatterjee I agree with Doctor Bowring. You know it's going to be vitally important to identify what the attributes that we need in place to ensure that we can manage the entry of the renewables, that we've got the right kind of performance

characteristics of the existing incumbent fleet to make sure that they're for reliability, and making sure that we appropriately price and value that contribution.

And I think that that provides an opportunity for a lot of these independent power producers to provide a very, very valuable service, even if they don't run as frequently as they do today because I think that when you even look at our own studies, and even a lot of the studies that are done in various states including New York, you know, even when 70 percent of the load is served by renewables, there is a fairly large component of dispatchable generation that's going to be necessary to maintain reliability.

And we've got to make sure that it's valued appropriately, and then we start looking at the requirements of what the fleet is, you know, I think we can come up with an acceptable solution that will still satisfy the revenue requirement for those valuable resources in that situation.

MR. ROSNER: And we have a hand from Miss Brand. Go ahead Miss Brand, oh I'm sorry and Mr. Rosenthal. So Miss Brand, then Mr. Rosenthal go ahead.

MS. BRAND: I just wanted to make the quick point that unfortunately the states aren't using taxpayer dollars to subsidize the resources. They're using ratepayer dollars, and so the funds are coming out of people's rates.

It's going on to their bills, and there's a snowball effect to all of this.

So we're paying both coming and going. And in terms of the independent power producers, I would agree with everything that's been said so far, because they are essentially funding themselves. They are not necessarily coming, being paid for out of ratepayer dollars, so we certainly support that.

But the problem with all of these subsidies, and I certainly hope that Doctor Bowring is correct that eventually the subsidies will go away as well, and won't be needed, but everything is coming out of the ratepayer bills from one pot or another. And that is the problem. It's one pocket or another.

MR. ROSNER: Thank you. And Mr. Rosenthal go ahead.

MR. ROSENTHAL: It's obviously very important, however, you know there's been -- what has created a lot of the uncertainty has been the actual application of the MOPR rule and let's be honest here. In New York you know there have been three different decisions on special case resources, SCRs, you know, FERC going in three different directions over a series of three years.

FERC rejected stakeholder changes to tariffs that deal with exemptions, certainly exemptions for renewables.

Those are stakeholder processes, it's supposed to provide certainty, yet those tariff amendments were rejected. So we need you know, just kind of restating what I said earlier, we need a flexible way to address these issues that can be applied across ISOs and RTOs.

You went to single state ISO, what we need in New York is for the you know BSM construct to be flexible enough for renewable resources and other policy resources in this state to be exempt. I've heard a lot of ideas today. We do talk to an ISO regularly. I think there are certainly you know issues to be dealt with in the capacity market that I have heard today and otherwise, and within other markets that can address these issues.

COMMISSIONER CHATTERJEE: Thank you. Dave, I know I'm out of time. I just want to ask my last question, and obviously, there's no time for anyone to answer it, but I want to have it in the record and perhaps thoughts on it might be reflected in responses to some of my colleague's questions.

So just picking up on the thread of some discussions about MOPR reform, the questions I want to ask or just put on the record, if we were to shift to more limited MOPR regimes, would any state subsidized resources be subject to the MOPR, or perhaps framed a different way, was the decision the MOPR, such a resource be based on the

intent of the state action, or should we be thinking about this in a different way?

Again, no time to answer. I will turn it back to the Chairman, but I just wanted to put that into the record. Thank you.

CHAIRMAN GLICK: Thank you Commissioner Chatterjee, and thanks to all of the panelists for the answers here so far. What we're going to do now is we're going to take a 10 minute break and be back here at 11:25 Eastern time. Please in the interim turn off your mics, and your cameras, and we'll be ready to go at 11:25 thank you.

(Break 11:15 a.m. - 11:25 a.m.)

CHAIRMAN GLICK: Okay. We are back and we're going to turn now to Commissioner Danly for the next set of questions. Commissioner Danly?

COMMISSIONER DANLY: Thank you Mr. Chairman. So I wanted to begin with just by saying that I completely agree with Mr. Rosenthal that stability and predictability are necessary, and that's one of the reasons why any plan that is developed by the Commission to reform the markets has to be a durable one.

I however, completely disagree that we should avoid using particular terminology. The two phrases I think he mentioned were price suppression and missing money. Those terms are valuable, and they're used because they have

meaning, and help us illuminate the problems we're facing.

And in keeping with my injunction in my opening remarks, I think that we should all avoid using circumlocutions because we need to be clear-eyed about this, and I would counsel everyone to do that going forward.

So as far as the first question goes, I want to ask Mr. Bowring if he could give a little bit more on the subject of properly defining capacity, which as he himself noted, he has said several times, how exactly would you properly define capacity to meet these requirements?

And in doing so, and this is kind of a two-part question, how do you consider the marginal capacity provided by new entry?

DR. BOWRING: Thank you sir. So the definition -- so the answer to what's the definition of capacity I think falls into two broad areas. One is how do you calculate, as you just said the marginal contribution, which is the ELCC question which I'll come back to.

And the other is what are the obligations of the capacity resource once you're there? So part of the reason for maintaining a single unified PJM market, think of it as a residual, retains the supply obligations of all capacity resources that PJM is relying on for reliability.

It's essential that every capacity resource be treated comfortably, and that would mean must offer

obligations in the energy markets. It would mean having a flexible parameter, it would mean limited rights to receive outputs and so on. So all those rules are essential. But going back to the question of what's the incremental value of capacity, I think you need to do a careful from the ground up analysis which reflects the dynamic nature of this, and it has to be done on an ongoing basis to calculate what the actual reliable contribution of a resource -- say solar, wind, or combined cycle is.

Because clearly, clearly the contribution of wind, solar or battery is very different than a combined cycle, typically substantially less. And it's important not to overestimate the impact of renewable resources on reliability. It's important not to underestimate it as well. It's important to get it right.

It's also important to recognize that the marginal value of that contribution goes down pretty rapidly as injury occurs, as we've seen elsewhere in the country, not yet in PJM. So defining the obligations, and then defining the reliability contribution are essentially, otherwise we will be in the situation where we are not paying enough for thermal resources.

We are not retaining enough thermal resources to maintain a truly reliable system, and we get into an issue that none of us want to get into which is not actually

having a reliable system. So I hope that was responsive. Thanks for the question.

COMMISSIONER DANLY: It was. So I guess I just want to make sure I understand. So you are envisioning something that looks like a dynamic continuous, I guess almost rating process in which you revisit the subject of what the reliability value is. And so if that's correct, how easily can people predict down the road what their capacity value is going to be if the actual, let's call it the assessed value of the resource changes?

DR. BOWRING: Yeah no, I think that is a very important point, and I don't want to overstate how uncertain it is, but it would be uncertain. So it has to be, basically it has to have an understanding of what the functional relationship is among the resource types given what you have, and that would change, even as a result of the capacity auction.

Because the ultimate clearing and the marginal value will depend on how things clear in auction, but that will make for particularly for renewable resources, it will make the amount of capacity less certain. And then the question becomes do you then guarantee certain kinds of resources of longer term payments in the capacity market or not, and I would say not.

And that's just one of the uncertainties that

investors have to face. Markets as we know, appropriately assign risk to investors and that's an appropriate risk. I think that would reduce the risk for the independent power producers we've talked about which are providing to the extent that providing traditional combined resources for example.

COMMISSIONER DANLY: So as resources clear, the assessed value, which is the term that I just created alters, that is during the process of an auction, the assessed value alters based on who's actually in the stack, and then that is all going to be revisited periodically down the road.

DR. BOWRING: Yeah. So you would have this, you would have a function of a surface basically of where you ended up on that surface would depend on how people offered in the auction. So if all of the wind resources in the capacity market are at zero, and all the solar resources are really high, then you get a different answer then if you had difference of the MOPR.

So it was still a market. It is an administrative construct, but it's also relying heavily on market forces. So yes, the capacity contribution particularly for renewables would be a function of the engineering interaction, and the engineering interaction with the markets.

COMMISSIONER DANLY: Thank you. I gather we have a couple hands up, so if anybody else wants to respond to this question about the assessed value, to use the new term, please do.

MR. ROSNER: Yes. We have Mr. Asthana, Mr. Rosenthal, and Doctor LeeVanSchaick. Go ahead Mr. Asthana.

MR. ASTHANA: Yeah, actually I had my hand up from the last session, so I will pass for now.

MR. ROSNER: Okay not a problem. Mr. Rosenthal?

MR. ROSENTHAL: Thank you Commissioner Danly. And I just wanted to address your issue, your question about price suppression. You know the capacity market is everybody calls it is an administrative construct. It was created by the ISOs and approved by FERC. In a lot of ways one could call it a government subsidy. It's approved by the government. It's paid by ratepayers.

One could look at what people are calling you know a subsidy with respect to RECS as a proper value of a commodity. It's an environmental attribute. It has value just like any other commodity. It's you know required to be purchased by utilities in the same way that capacity is.

So that's sort of my point about it. It has to be seen as the baseline market, just like the other markets out there that are interactive, you know, ways that markets work. The you know, the RECS market in New York is having

an interactive effect on the capacity and energy markets, that's the way markets work.

Our assumption is that the capacity markets and the energy markets can be you know addressed in ways that deal with that interaction, and I think we just have to make the capacity market flexible enough to do that, but just going back to the issue of framing. We don't see it as a subsidy. We see it as a proper valuation of an environmental attribute.

In the same way that the capacity market is a proper valuation of resource adequacy. It's all government created. Thank you.

MR. ROSNER: Doctor LeeVanSchaick go ahead.

DR. LEEVANSCHAICK: Oh yeah just regarding the question. You know, in a market that properly values resources for their -- credits them for their capacity consistent with the marginal reliability value, it's very important to provide those incentives for obvious reasons like you want new entrants to consider you know, whether you know what the marginal value of the capacity is.

And so doing it in a way that's very frequent, you do that stuff frequency, so in a way that's as often as you're clearing the market is providing an updated assessment of this is really the best sort of model.

But it's important to think about how this can

facilitate some of the policy objectives, because I don't want it to seem like this is only for something that applies to conventional resources. If you have a saturation of a particular technology in a particular area, let's say renewables, that's something that should provide very strong incentives to particularly storage, you know, that can be added onsite at times renewable developers sites.

And that offers a great sort of hedge against the risk that you'll have with load capacity accreditation. So you know having market rules that actually give investors incentives to do things to manage those risks, I mean there's no one else that can manage those risks for them as effectively as they can by putting storage in places that supplements their renewables.

So I think that's a really critical incentive to give. It's also something where if you get a saturation of renewables and it requires a lot of ramping situations, we've talked about the need to change the capacity accreditation to reflect the reduced value of resources that have low availability. And so as you get higher intermittent penetration, you know that should eventually work into the capacity accreditation for some of your less flexible, conventional resources.

So all of these things are going to work together and certainly efficient capacity accreditation is something

that would really facilitate the policy objectives.

COMMISSIONER DANLY: So in your comments you talked about implementing a mechanism which would compensate each technology in accordance with its reliability value. And can you just talk a little bit more about that? Give me an idea of the mechanics of how we would do it.

We're kind of we're edging into that territory already in the discussion, but a little bit more would be helpful.

DR. LEEVANSCHAICK: Yeah. So into the New York context what we've advocated for is something that utilizes the resource adequacy models, the sort of probabilistic models to estimate how under a certain set of conditions where you have penetration of different technologies, if you add additional amounts to those technologies, how valuable are they as you add additional amounts of it?

And so, you know as the research mix is changing, it's important to do that frequently. Right now the NYISO has essentially promised to do that every four years, but this really would have to be much more frequent. But essentially using these resource adequacy models to try to estimate marginal reliability values is the basic framework.

COMMISSIONER DANLY: And how do you square that with a potential state policy that regardless of the reliability attributes because the state has made a public

policy choice, the particular type of generation is what they want to have built, perhaps even to the exclusion of all else.

If they enter in and the marginal value of every additional megawatt keeps dropping, you know, you can imagine some sort of an exponential drop-off, how exactly does the capacity market function and accommodate that?

DR. LEEVANSCHAICK: So if you had this process for updating things frequently, updating the capacity valuation frequently. If these goals result in a situation where you have really a saturation of energy at certain times when those resources have a lot to offer, they're going to have very little, or maybe no marginal reliability value.

Now I think you know the way that New York State is contracting with resources now is designed to place more of that risk with the developer. If I recall under their new contracting structure, you know they essentially would have the developer sort of agree to terms based on a certain capacity valuation. But if the actual capacity valuation falls below that, the risk would be retained by the developer.

So that's just you know one feature that has learned from past contracting mistakes in trying to keep the market risk where it belongs.

COMMISSIONER DANLY: Right. Okay. Thank you. My next question is again back to Mr. Bowring. You know you said several times that you would hope that in the future the states would find the subsidies aren't necessary, and renewables can be competitive even in the absence of them.

So before we get ready to chuck the MOPR overboard, wouldn't you agree with me that if we were to get the MOPR right for intermittence, that it shouldn't actually harm their ability to participate in the market in any case. It would be in the same competitive position as anybody else if they are in fact competitive.

DR. BOWRING: Yes. If the MOPR were done right as you said that would be the outcome. As a matter of fact we have said a number of times in our review of even the existing MOPR, we expected to have very little, if any, effect on the market, at least in the near term, and we think renewables are competitive. We think nuclear is competitive, and so it would not have an effect.

I know that people are worried about the apparent attempt to supersede the state's authority to define their own generation mix, and I clearly respect that. But I do not think that the existing MOPR as it would be implemented at least for the next few auctions based on what we see, would have any really demonstrable negative effect.

And just to answer your question directly, yes,

if it were done correctly that would be the outcome, competitive renewables would clear.

COMMISSIONER DANLY: So this one I want to make more widely available for answering. So if the Commission were to either drastically narrow, or reject the MOPR altogether going forward, there have been various people have commented that the enhanced energy ancillary services payments can in some ways make up for a shortfall that the dispatchable generation would ordinarily expect to receive from the capacity markets.

Does anybody want to talk about what that would look like in the mechanics of it?

MR. ROSNER: We've got Mr. Asthana and Mr. van Welie, both with hands up, and Mr. Dewey.

COMMISSIONER DANLY: Okay great, thank you.

MR. ASTHANA: Yeah actually I wanted to address the prior question if I could just really briefly. Just one example I would offer those of state policies that are very likely to not clear as a result of the MOPR is offshore wind. And in PJM we have over 14,000 megawatts of offshore wind being developed. So I think we just need to keep that in mind. Those plans are really important to our states, and they at least as of now appear unlikely to clear.

The one other point I just wanted to make really briefly was to your earlier question before that

Commissioner Danly, around what changes to capacity markets might we contemplate. I think there is this, you know, as I reflect on ERCOT and what happened there, there is this element of not just having capacity on paper, but making sure that in extreme events the capacity is actually available to provide energy.

And so you know one of the in our testimony we talk about the need to revisit qualifications to be a capacity resource, as well as performance requirements, as well as extreme weather preparation, things like firm fuel and the like.

And so I think that's an important element of what needs to happen next as well.

MR. ROSNER: We have Mr. van Welie, Mr. Dewey, and I see Doctor Bowring also. Go ahead Mr. van Welie.

MR. VAN WELIE: So Commissioner I'm going to try and answer both questions that you asked in some way. The first would be the point about saturation. I think if we look at the 30 year journey that's ahead of us with regard to clean energy transition, by definition we have to saturate the market with clean energy resources, in order to take the carbon out of the system, and then power the other sectors of the economy that require clean energy.

So I think that will result in periods of time during the course of the year where renewables are going to

produce surplus energy. So let me now bridge across to the ancillary services point. So I think you know you heard me say earlier on that I see the capacity markets to be adjusted as a foundational reliability service.

But if I look at our situation in New England, we know what happens in the wintertime. The pipelines get constrained, we end up with supply side scarcity from an energy point of view. And today we burn oil in order to keep the lights on.

So the question is what's the solution for the future? It's clear to me that's it's not lithium ion batteries which you have two to four hour discharge times. If we've got to get through a week or two of really cold weather, what's the fuel source that's going to get us through that wintertime? And I think the previous point that I've made offers the opportunity to solve the second.

If we have an ancillary service that can signal to the marketplace that it's valuable to store energy, clean energy in some way, perhaps taking the surplus renewable energy in the springtime and converting it to high region, so that that fuel can be used in the wintertime. And I think we've matched two things up.

And the opportunity then gets translated into a market service to solve another problem. So I look at the ancillary services journey ahead of us, I see multiple

dimensions to it. The nature of contingencies is going to change. We saw this in Texas a month ago, and in California last year, which is because of the weather impacts, we're going to see much more correlated contingencies.

We also know that energy demand is going to increase overtime because we're going to be electrifying the economy. So for periods of time when the weather is not cooperative, we're going to see these massive energy gaps that have to be filled with something, and that's really where we need the on call energy, and I think the ancillary services can be expanded to cover some of the contingency events under those circumstances.

And in the long run, the other thing we're going to have to pay for is temporal characteristics that are today basically free, you know, so the ramping, inertia and so forth are zero marginal costs because of the nature of the fleet we have today. The fleet will change over time and then those services are no longer going to be free. We have to pay for them.

But I think in aggregate, all of those ancillary services are not going to add up to enough money to deal with what the capacity market is trying to address. Thank you.

MR. ROSNER: Thank you. We have Mr. Dewey followed by Doctor Bowring.

MR. DEWEY: Thank you. Commissioner Danly, not unsurprising, I'm going to sound a lot like what Gordon and Manu said, because we talk about these together all the time. I look at it as in answer to your question, and maybe a couple questions ago, there is no one single solution right now. There's no one step that we can take right now that is going to put in a very durable long-standing set of market rules to get us to the end of this journey.

It's going to be a continuous evolution of changes that we've started to delve into and identify. You know in the near term you're focusing in our grid and transition plan in New York, we're still fixing, sharpening the ancillary service signals that value ramping and flexibility. That will incentivize the right kind of performance we need, and also will enhance the revenues available to some of those units that might be impacted by the entry of now renewables and the subsequent question of capacity prices.

You know when you think about the medium term, two questions ago you correctly identified that as we get deep penetration of high runs of renewables, the incremental value of those renewables is going to go down precipitously. That's where we have to start thinking about energy ancillary service solutions that would benefit and provide revenue for those renewables.

And in New York we've explored opportunities for carbon pricing in the energy market and other solutions that would help value the attribute. And then I think the end state, and Gordon touched on this, is you know what are those new technologies?

You know I firmly believe in New York it's going to be achievable to hit 70 by 30 which is the target with just wind, solar and batteries, but nobody has demonstrated that a study or analysis that indicates you can get a carbon free electric system without some dispatchable resource that is carbon free. And we need to come up with the right kind of pricing to you know incentivize the development of that new technology.

Hydrogen is one promising opportunity using the excess renewables to generate clean hydrogen that can then be combusted when there is no wind and there's no solar. So this is going to be an evolution. We're going to be having tech conference after tech conference I predict, as we find our way through this journey to get to these goals that ultimately the electric system has.

MR. ROSNER: Thank you. We have Doctor Bowring and Commissioner Dykes.

DR. BOWRING: Just very briefly. I think it's illusionary to imagine that we can or should change energy and ancillary service market prices to make up for an

assumed shortfall in the capacity market. There's no point in adding administrative elements to the energy market which are not consistent with the underlying supply and demand fundamentals.

So we should take advantage of the fact that energy prices are low. I think all the ancillary types of services that Mr. van Welie was talking about really all can be wrapped into the capacity characteristics of certain kinds of solar resources that can, will, should provide those capabilities, and should be paid for them.

So I agree with the concept that they need to be paid for. I'm not sure we need to start developing complicated separate markets for ancillary services, thanks.

MR. ROSNER: Commissioner Dykes go ahead.

MS. DYKES: Thank you. My only comment would be that capacity markets are administered in constructs, and so for that reason I think it's important to first prioritize you know, the reforms to energy markets and ancillary services, and then turn to the administrative construct to fill in for the resources that we're not receiving, the performance that we're not receiving through those markets.

I think that you know products forward fast ramping, for voltage support, for frequently regulation are going to be important as we look at ways to integrate intermittent renewables. I can't emphasize enough that for

Connecticut our state policy goals are not just about seeking the buildout of new renewables, but minimizing greenhouse gas emissions and air pollution, especially in environmental justice communities, as much as possible, while ensuring a reliable and affordable electric supply.

So we see ourselves as partners, as you know very committed and invested in helping to achieve these holistic solutions across these various markets. While you know I appreciate what Mr. van Welie has shared, you know looking at these operational characteristics of these different resources is really important under different conditions.

We don't want to be relying on high emitting resources to provide for flexibility in those two to four hour increments that we were integrating renewables if that's going to require us to exceed our air emission standards for example. At the same time those types of resources may be needed to address multi-day periods in winter extremes where renewables may not operate.

So this is why the focus on different seasonal characteristics, and specific types of operational performance is critical. But starting that discussion within ancillary services and energy where we can talk about the performance and how to value the performance that we need is important. Then we can turn to the capacity market where we're necessarily making assumptions and building on

an administrative construct to fill in the gaps that are necessary.

But those require a special scrutiny because that market relies on you know, on those administrative determinations.

COMMISSIONER DANLY: Thank you very much. So it looks like my time is up. I'm just going to close by saying that I have to say I share a little bit of Doctor Bowring's skepticism about using energy and ancillary services as a true up for losses in the capacity market, but I certainly have an open mind to it.

And to the extent to which people file comments in that direction, the more specificity the better for our decision-making at the Commission. But then lastly I'll do what my colleague Neal did a second ago, which is just offer something for thought for everybody which is if in fact we get rid of the MOPR and prices are suppressed in the capacity market, how is it that we ensure that we meet our obligations under the Federal Power Rate to ensure that the rates are just and reasonable given the fact, as I said in my opening, that the entire market construct, the idea that we have is premised on the concept that competitive markets yield just and reasonable rates.

With that I will give it back to the Chairman, thank you.

CHAIRMAN GLICK: Thank you Commissioner Danly. Commissioner Clements?

COMMISSIONER CLEMENTS: Thank you Chairman Glick, and thanks to panelists for hanging in there. Fourth of five is always a bummer of a position to start in, but I'm going to try and cover some ground that we haven't gotten to you, and I'll start with thinking about some perspectives of the states.

We've been talking about the fact that resource adequacy differs from region to region, of course, based on underlying state regulatory structures. We talked about MISO where state regulation -- with the Commission's regulation, takes more of a hands off approach, and as I mentioned in my opening comments, FERC jurisdictional markets took on the role.

They filled the gap to maintain resource adequacy in states that chose utility restructuring. It is not clear to me though that the states or the RTOs that have formed, intended a one-way ratchet towards declining state control over the markets.

And so with that context, some of you representing states have made clear that you're hoping for respect for state policies, and appreciating that all of you are in different states with different policies, and not similarly situated, this is a question for Commissioner

Dykes as a representative of a state in a multi-state RTO who has made this point today.

Is a construct that has a voluntary bilateral contracting for capacity with a backstop, it's like a chase or an adventure, but I'm giving you the steps, so I'll go slowly. A voluntary bilateral contract of the backstop of a residual capacity market with no, or a limited MOPR, your preferred outcome, or at least an outcome that meets your state's needs.

And if not, what concerns do you have with that model, or what would you prefer to see instead?

MS. DYKES: Well thank you for that question Commissioner Clements. I think that you know that approach certainly would give us the reassurance that we will be able to again restore respect for our role in meeting resource adequacy needs for our states under the Federal Power Act. I think that you know as we were among several states across the country that expressed concerns around the application of the MOPR about a year ago, we can't, you know we are bound by state legislative requirements to meet these goals, these objectives for our states in terms of decarbonization and addressing air pollution.

And so for these reasons it's critical for us to have the assurance that there is an avenue for us to be able to meet those objectives. So I think that that pathway

would be you know, would be helpful to provide that clarity, that option for our state. That said, we have also been you know appreciative of the regional collaboration, and cooperation that we've always enjoyed in a multi-state RTO, even respecting the different public policy news and perspectives of the various New England states.

We strive very hard to work together to reach consensus because we recognize the value and the efficiencies that are ratepayers enjoy in terms of being able to meet our respective resource needs in a collaborative and regional market.

And so I think that, you know for that reason we have also been working very closely with the other New England states through the issuance of the vision statement last fall, to articulate those types of common principles.

We have engaged in discussions around the FCEN and ICCN models which could be a pathway for us to achieve this balance of state public policy objectives in a regional manner. It's also a reason from Connecticut's perspective that we have highlighted the importance of governance in that vision statement discussion because there could be an opportunity for RTOs and ISOs to play a role in helping states achieve our policy goals through centralized resource procurement, but we would need to be assured that states would have a voice as appropriate to pursuit of those

state goals in such a model.

COMMISSIONER CLEMENTS: Thank you Commissioner. And that is a good transition to my next question which is for all of the representatives of state commissions. We haven't talked about governance mechanisms and I'm wondering if from where you sit today there are any specific changes to governments approach over the markets, and I'm thinking of examples like SPP's regional state's committee 205 filing rights, that you would like to the Commission to require to restore state's ability to have a say in resource adequacy decisions should you so choose.

MR. ROSNER: Thank you. We have Mr. Rosenthal with a hand up and Chairman Phillips.

MR. ROSENTHAL: So it's a very good question. I appreciate the question. So as people may know the New York Public Service Commission commenced the resource adequacy proceeding August of 2019. Since then we had, we looked at basically the same set of questions that are at issue in this Technical Conference, and we had two public comment periods. We then had a technical conference at which Brattle you know laid out an economic analysis that it did showing that under existing rules ratepayers would pay an additional 400 to 900 million dollars per year to pay for capacity.

So obviously, that concerns us. New York, you

know, having a single state ISO, you know with whom we have a good relationship is definitely interested in you know what we say taking back resource adequacy. Resource adequacy was a state issue and is a state issue, as provided for in the Federal Power Act under Section 201-A and 215-I, as noted in my opening presentation.

We're at the same time very interested in working with the NYISO in trying to solve this issue. It certainly is going to influence the outcome of what we're otherwise considering, but ultimately you know, comes back to certainty. The reason that we started the proceeding in the first place is it felt like we didn't have control over our environmental future.

You know we did it right after the CLCPA was enacted. You know Mr. Dewy laid out what the broad goals are of that statute, and we're moving a piece at meeting all the mandates under that statute. So at the end of the day, I mean if there is a mechanism that provides that the state can ultimately take back the issue, I think that that is you know optimum.

I think also at the end of the day what you know FERC's overall responsibility is, is ensuring bulk system reliability. And so you know you see a lot of that in you know, I'd hate to use California as an example, but the La Paloma decision sort of lays out the foundational issues in

a lot of ways, and California does itself have its own resource adequacy structure.

So if it can have its own resource adequacy structure, we think other states can as well.

MR. ROSNER: Chairman Phillips?

MR. PHILLIPS: Thank you. Thank you for the question, and the focus on state policy. I'll say this, you know, the decisions that we make now are going to determine our ability to go where states want to go with the Commission. And so I looked at Manu's testimony at the Senate last week, and I was encouraged to hear him say that he is committed to working with the states.

And I believe that that is essential in order for us to move forward. You know we talked about some of the things that we can do to improve the markets. This is a small thing, but I'd like to talk about this. I love to talk about school buses. When you think about it school buses are the largest transportation fleet that we have in the country.

And if we are to focus on them just as an example, a way that we can improve reliability for everybody. You look at a school bus parking lot and you see a parking lot. I see a power plant. I see a storage facility. How great would it be for us to tap into that resource to benefit the system?

These are the type of long-term planning decisions that we have to make now from COVID-19, it's a great example that we can't wait until we're in the middle of a crisis to start fixing the crisis. We have to plan right now.

MR. ROSNER: Thank you Chairman. I don't -- oh, I have another hand from Miss Brand. Go ahead Miss Brand.

MS. BRAND: Well you know I just need to put in my two cents, or my two billion cents here because you know I need to remind everyone that while it is the administrative construct is being constructed by the RTOs and the state subsidies are being constructed by the Commissions, it's actually the customers who are paying for everything.

And while we're not making the policy on the state side or on the RTO side, although many of us are members of the RTOs, we are the ones who are paying the bills. And so it is, if we're talking about governance, I do want to put in certainly a plus for listening to the ratepayers, and listening to us in terms of the RTO governance, and listening to us in terms of the rules, and making sure that whatever solution we come up with are designed not only to improve reliability, but also to make sure that our costs are just and reasonable.

And that for example, if we're buying school

buses, that it's not on the backs of the ratepayers. Those are things that should be paid for through other means. And that whatever solution we come up with keeps in mind the ultimate costs to the ratepayers, because all of these solutions are being imposed on us in a way that many -- very often we have no control over. And there are many solutions that you know we hear this is going to cost 400 million more, or this is going to cost a billion more, 2.7 billion more, and that adds up to real money.

So you know keep in mind that the decision-makers are not necessarily the ones who bear the brunt of the decisions, but there are definitely real people on the end of that.

COMMISSIONER CLEMENTS: Thank you Miss Brand.

MR. ROSNER: Oh pardon me, there is also a hand from Judge Jagdmann if you would like to proceed.,

COMMISSIONER CLEMENTS: Great thanks.

MS. JAGDMANN: Thank you Commissioner for that question. I want to start by applauding PJM, PJM's work with OPSI, which is an organization in states. They meet with us often. Particularly lately that are voices have been heard in the discussion of many aspects of what's going forward.

Some of the things that we're discussing is the appropriateness of considering the board, in board

qualifications, making sure that someone with regulatory experience, that that be a qualification that is -- maybe that qualification which may take qualification.

Another suggestion that we're exploring is that when there liaison committee meetings, and we understand that there are all types of meetings, but there are certain meetings where it ran in the nature of the board to be appropriate, or someone from the states, maybe the president of an organization to be present, that they had that option be explored.

So again, looking forward you know, and I said Opsi's been very flexible with their relationship with them, and that's the areas that we are continuing, thank you.

COMMISSIONER CLEMENTS: Thank you Judge Jagdmann. I'm going to move on to the next question in the spirit of efficiency. And this is for the RTO CEO's. In response to Chairman Glick's questions you all spoke to the capacity market rule of sending signals for entry and exit.

And there's a reality that currently state policies are driving substantial new entry and retention, and in the future may continue to do so. I think Mr. Gordon, Mr. van Welie referred to the potential desirability of clean firm resources. Mr. Dewey pointed out a net zero goal requirement in New York by 2040. So these policy drivers are not simply a passing fad, at least through 2040

let's say.

In this context should the goal of the capacity markets be to maintain existing resources to meet a target reserve margin, rather than incenting new entry?

MR. ROSNER: I see Mr. Dewey, followed by Mr. van Welie and Mr. Asthana. Go ahead Mr. Dewey. You're on mute so. There you go you're off mute. Go ahead.

MR. DEWEY: Sorry about that. Thank you Commissioner for the question. I think very clearly the install reserve margin is a very important component of defining requirements of the capacity market. We do an annual very thorough integrated process in New York every single year looking at probabilistic energy for loss of load, not less than one day in 10 years.

That's a joint collaborative effort on the part of New York State. Mr. Rosenthal described how, you know, that's done in concert with the New York State Reliability Counsel, so it is a very critical component of that. The other element which I think is important to understand from a value standpoint is our demand curve, specifically in a slope demand curve, provides the opportunity for the procurement of additional resources above the actual install and reserve margin.

And that's to the benefit of consumers because the slope of the curve identifies that the value of that

additional capacity is greater than the cost, because of the declining cost. So I think it's not just to hit the install reserve margin, it's to look at all of the reliability attributes that are going to be important to manage the reliability of the system.

I mentioned earlier you know, looking at it outside of the context also of just resource adequacy. You start thinking about the performance characteristics and the attributes that we need for that dispatchable fleet with a deep penetration of removal. So things like the requirements brought on by transmission security obligations and requirements, also can be factored and considered into that.

And then the capacity market is not just focusing on resource adequacy, it's thinking about the total reliability of the system. And we think that there is a tremendous opportunity to use it as the vehicle by which we can share those -- we can share reliability operation in the grid.

MR. ROSNER: Mr. van Welie go ahead.

MR. VAN WELIE: So I agree with everything Rich just said, so I won't repeat his points. I will try and build upon them. I would say the capacity markets are calibrated to both incent exit as well as entry, and the thing we've observed is that it's harder than we think to

actually build all the new renewable energy infrastructure that's needed, because it's any large infrastructure is a difficult thing to get sited.

So I think the resources will retire as prices are lowered in the energy and ancillary services capacity markets. Both retirements are going to come in big lumps. They're not going to be one megawatt at a time. And at the same time as this is occurring we're going to see electricity demand go up, because we're electrifying both transportation and heating.

So I think we need to maintain the ability of the capacity markets to attract new entry. I think on the time that new entry is going to change. So you know today if you look around the ISOs we all use a reference unity, either a combined cycle or combustion turbine, but it could be that in the future those technologies shift to be, for example, fuel cells powered by a hydrogen gas mix, and then later on a hydrogen fuel source.

So I think if you're going to do it through some kind of centralized construct, you need to preserve the ability of the market to attract new entry.

COMMISSIONER CLEMENTS: Thanks. Those are helpful points and will be interesting to take on as we think about the accompanying changes in addition to MOPR reform that we're thinking about. Mr. Asthana, before I

have you answer if you had your hand up, I'd like to make your question a two-part because I want to get in some follow-up in addition to this rule that the capacity market should play in light of what's driving entry and retention.

You mentioned this residual bilateral model earlier as distinct from the MISO model, and I'm wondering if you can also talk a little bit more about how this model might work both to meet resource adequacy goals and also to respect state policies.

Mr. ASTHANA: Yeah happy to address both of those points. and I agree with everything Rich and Gordon said on the prior question. The one thing I just wanted to build on from a PJM perspective was you know, I did talk about the size of our queue.

But historically 15 percent of our queue has been constructed. And so if you look at starting from a big queue, derailing that down to 15 percent that gets built, and then further reducing that down for the ELCC value of the capacity that those resources can carry. What's happening is that state sponsored, and other renewable resources aren't entering.

The amount of capacity that they can carry is still a very small proportion of the system, and so that's why this question around sending the price signal to retain existing generation is critical for what

was the meat of your question is well isn't it enough just to retain the generation? You have so much generation.

I think that's true for PJM specifically. I think in the near term the signal is around retention and what generators get the signal to retire. I think in the longer term though, because renewable resources still will for a while contribute a smaller portion of the capacity of the system. We may well have retired enough generation where we need to set a new entry price signal.

So I think it's really important to build a market that can send both the retention signal and a new entry signal. To your other question around bilaterals, the way I think about this question is what problem are we trying to solve? And the way I answer that question is one of the big problems you're trying to solve here is trying to enable the states to set their resource policies, and not subject their consumers to having to pay price for that generation.

That's how I see the problem. And so today we have bilaterals in our market for capacity, but we have a most offer requirement that goes with that. And so what in that construct prevents states from pursuing their policies? I think it's the construction of the current MOPR.

And if we move that MOPR and you've got bilaterals that are subject to the must offer requirement,

but certainly people who are buying bilateral capacity can offer it in at zero if they wanted it clear and mimic a market that was a residual market.

But what you get that you don't get with the residual market is tremendous transparency and a much more robust price signal, and you get some market power mitigation because you have this must offer requirement. And so that's why I think it's important to try to figure out what problem we're trying to solve, and I think actually reforming the MOPR without moving to a residual market is a better construct for PJM because it's solving the problem and retains those benefits that I talked about.

COMMISSIONER CLEMENTS: Thank you. Those are helpful comments also, and you've also teed up the last question that I wanted to -- or set of questions. I won't get through all of them for Doctor Bowring and Doctor LeeVanSchaick, excuse me.

So let's pretend that we have a residual market that the Commission has been asked to approve, or has asked the regions to consider. A residual capacity market where a sizeable fraction of the capacity is procured bilaterally. What measures could we put in place to control market power and affiliate preference concerns in that type of situation?

DR. BOWRING: So this is Joe Bowring. So first of all to partially give what Manu said. I think the

problem with bilateral markets is they are, as you suggest in your question, non-transparent. They include asymmetric access to information, and they are very much subject to market power.

So I also believe that bilateral markets are facilitated best by operating within the framework of an active spot market, in the case of the energy market or the equivalent of that in the case of the capacity markets. If you have a transparent capacity market signal, then everyone who wants to trade bilaterally has that as their reference point.

They can do a contract for differences around it, but it remains transparent, the market will address. So I don't actually think it's possible to resolve the market power if you go to an all bilateral market, or even bilateral residual. But in a way I'm not sure, I mean like I said I don't think about it that way. I think about it as if you think about the current capacity market, and you think about state policy.

So state policy would provide incentives for a significant amount of renewable standard. It doesn't make the rest of the market a residual, it still all has to work together. One of the key points about an overall market run by PJM is that it accounts for reliability consistently across the entire footprint, across the whole resource, and

again I think that's essential, and that's one of the positive outcomes of having it not be purely bilateral, but be subject to the basic rules, but still have any bilateral attributes that market participants want to enter into.

So I mean I think we can get to the same place you're thinking about, but maybe I'm just describing it differently. I think it's really effectively the same thing. I totally agree that states have the authority to do what they want, and that has to be accommodated.

I believe that resource owners and buyers have the ability and option, and should have it to enter into bilateral arrangements. But I think the most efficient way to structure the whole thing is still as a centralized capacity market with a clear transparent price and good market power mitigation rules, so thank you.

MR. ASTHANA: I think I'm up. Yeah just I agree with what Joe said just to emphasize you know if you have the market power mitigationals that we have on the supply side for you know in say New York and New England, and you have a mandatory market. Those are adequate to ensure that the supply side is appropriately -- the market power on the supply side is appropriately mitigated.

You know one of the benefits of a centralized wholesale market is that you have transparent price signals. And so you're constantly setting prices that you know that

policymakers and see and compare to if you have an integrated utility where you're concerned about preferential contracting practices right there is a benchmark that you can use to evaluate these contracting practices.

So you know having a robust wholesale market with transparent price signals is an excellent way to police those preferences.

COMMISSIONER CLEMENTS: Thank you. My time is up, so I appreciate you all's responses.

CHAIRMAN GLICK: Thank you Commissioner Clements. Last but not least, we have Commissioner Christie.

COMMISSIONER CHRISTIE: Can you hear me?

CHAIRMAN GLICK: We can now yes.

COMMISSIONER CHRISTIE: Okay. I don't have that little hand signal to wave anyway. All right. I want to ask at least a follow-up on a couple questions. It was a very good morning session and I have a couple questions. First I want to start with Doctor Bowring, but also to anyone who wants to respond. And that's on the question of subsidies.

And I think Doctor Bowring you said at one point that subsidies would go away, or you hoped they would go away. I don't know when in history that's happened, but nevertheless, I just want to ask you about the effect of subsidies, and certainly on new entry.

So if one state is going to subsidize a certain resource, and by subsidizing what it's doing is it's trying to guarantee your results in the capacity market right? It's trying to guarantee that it clears. So if that resource which is subsidized is competing against a resource that is not, how do you have a market -- anything that you can even call a market and sort of an add on to that is why would the unsubsidized resource ever put capital forward to invest in that resource if its going to be basically guaranteed to lose because the other resource is subsidized?

DR. BOWRING: So you know how I feel about subsidies. But its also the case as you and others have said today and at other times that states have the authority to create these subsidies if they want to pursue particular attributes. So if for example, New Jersey decides to subsidize, or the coastal states decide to subsidize large amounts of offshore wind, that will make the price of energy lower for other states.

They're actually going to be subsidizing cheaper energy for other states, it will reduce the price of energy, but also for other resources reduce the price of capacity for other resources. So it will have those effects, those are unavoidable.

The question then is how do we retain incentives for other investors to continue to invest in thermal

resources and go by the system? And I think that comes back to the issue of defining capacity correctly. Because even 1,000 megawatts of offshore wind is not 1,000 megawatts of capacity. It might be 400 megawatts capacity depending on what the D-rating factor is.

And the balance of that will have to be made up by other resources. So as long as you define the capacity contribution property, you are defining the remaining capacity requirements properly. That is what has to be met by thermal resources. And the supply and demand fundamentals there again if we do that correctly will result in the right price, in a price sufficient to induce entry.

But I mean but another factor that's being introduced by all this is uncertainty, and others have talked about it. Uncertainty is antithetical to investment in long-life assets, so that's certainly also a concern. But part of the reason they have a set of rules is basically going to be standard going forward is to try to remove that uncertainty.

But your basic point about subsidies is absolutely correct. They will affect the market. They will reduce prices in the capacity and the energy market.

COMMISSIONER CHRISTIE: Mr. van Welie, I'd like to hear your view on that.

MR. VAN WELIE: Well you know I think whether or

not renewables become naturally competitive I think is going to depend on how quickly the costs of the renewable technologies drop amenative to the drop in the energy prices. And so I'm not sure that that will happen that quickly.

It's obviously happening in certain areas and in certain locations, but as we press on into decarbonizing the entire economy, it seems that we're going to end up on average driving down energy prices, and we're going to need something that's going to make resources that don't really often whole.

And so I think we have to solve that problem. I think the reality is the states have got these legislative mandates. They will press forward to decarbonize, and so therefore the markets have to solve for reliability. Whether we can solve for the environmental objective and the reliability objective in one market remains to be seen, that's a conversation that's ongoing with regard to mechanisms like the FCEM and the integrated peak capacity market.

But from a reliability point of view we're going to have to make sure that the so-called missing money is available. The urgent resource is going to want to see an opportunity to recover the capital investment, otherwise they will retire. They will do the logical thing which is

to retire.

If we're not careful, that will set up a situation where you have the RTO rushing around outside of market entry to reliability agreements to prop the system up. And we've seen that movie before. Nobody likes it very much. So I think we have to make sure that we calibrate these markets correctly so that we kind of avoid that outcome.

COMMISSIONER CHRISTIE: Anybody else want to respond?

MR. ROSNER : Doctor LeeVanSchaick?

DR. LEEVANSCHAICK: Yeah hi. Thank you. So I think it's important to make some distinctions between some key concepts. So when we're talking about subsidies, I think there's a notion that that involves some kind of direct payments for specific characteristics, but if some of those characteristics are valuable. They involve environmental attributes that state or federal institutions want to promote.

That has some value that is appropriate to consider in the market clearing. So if you have one resource that you know is sort of a conventional netter, and then you have another resource that provides a lot of the same value, but it also has better environmental characteristics, there's some degree to which you might pay

more for the cleaner resource right?

And that's, you know, there are a lot of reflections of that in state and federal policy. But ultimately, you're paying for something. It's not an arbitrary distinction. I think the difficulty becomes when instead of you know providing additional revenues for these attributes, it's done through you know more individualized contracting mechanisms where there's not a clear transparent price signal, and there's not a clear understanding that a new resource and an old resource are going to get compensated equitably.

So you know in a lot of these markets, you know, older existing renewable resources are seeing you know there's a different like the one you proposed in your question, but the problem is between a resource that provides these environmental attributes, and a second one that provides the same environmental attributes, the only different is its newer, and you're trying to attract it to come into the market.

The problem with continually doing bilateral contracts though is that you know ultimately developers get burned, and at some point they're going to want you know much higher contract revenues to make up for the market risk that's driven by these you know the way that some of these contracting mechanisms are carried out.

MR. ROSNER: And we also have Mr. Asthana with the hand raised.

MR. ASTHANA: Yeah thanks for the question Commissioner Christie. The only thing I'd add to the great points already made is that you know I view those very pragmatically. We have the situation of various different sovereigns making policy. And we have created a set of rules that says that well certain policy, by a certain sovereign, is acceptable.

So production tax credits for wind that are promulgated by the federal sovereign are fine, but state equal subsidies are not acceptable. And I think the pragmatic reality that I sort of end up with as I analyze this over and over is that various sovereigns have the right to do what they're doing, create incentives for their preferred policy, and we need to create markets accepting that landscape.

And I do think that we shouldn't let the perfect be the enemy of the good. I think there can be markets that can facilitate a tremendous amount of competition, even in the face of that landscape, that benefits at the end of the day consumers. And I think that's our task.

MR. ROSNER: Commissioner I don't see any other hands for this question so back to you.

COMMISSIONER CHRISTIE: Okay. I want to just go

back to my very first question I asked in my opening remarks, and I think it's a good time. Commissioner Clements said you know you don't want to be fourth out of fifth. Well you don't want to be fifth out of fifth before lunch either.

So let me just basically I want to wrap up this session with the big question that I asked at the beginning, question number 1 and 1-A, which is really why we're here. And it has to do with you know, with how you satisfy state public policies and of course it came from the controversy over the MOPR order.

So I have listened to everybody very closely, and I've heard a lot of ideas. I've heard about well let's use the ancillary markets, maybe it's a way to supply the missing money. Others have disagreed with that. We'll talk about bilateral markets and maybe the capacity markets as a residual as opposed to the primary source of reliability.

So I want to get everybody who wants to speak. I really haven't heard -- my question was very straightforward. Please tell us how to accommodate state public policy in the capacity market and still maintain the goals of the capacity market, which is Mr. Asthana you said in your written comment that the goal has always been reliable power at the least cost.

So I would just like everybody to take one more

chance and if you could with specificity, how are we supposed to do -- how can we accommodate state policies across? In PJM we're talking you know 14 jurisdictions, so it's tough right, it's big. It's a big sprawling diverse multi-state RTO.

How do we accommodate all the different state policies in the capacity market? Is it through some -- and Manu you've made it clear, you don't want to go to a residual market concept. I think Gordon you made that clear as well. Please just give me with specificity if you could, how do you want to see state policies accommodated, and so in the original goals of these markets which is reliable power at least cost to consumer?

And that's open to everybody if you want to address that with specificity.

MR. ROSNER: We've got Mr. Dewey and Mr. Asthana and Mr. van Welie. So go ahead Mr. Dewey.

MR. DEWEY: Okay thank you. Thank you Commissioner Christie. You know I kind of look back at this as there's no one step. There's no one element that you know it's not as simple as eliminating the MOPR or keeping the MOPR. You know I kind of look at it as you know first off you need to define what your requirements reliability are, and you need to revisit that on a regular basis.

We talked about the IRM. Commissioner Clements

asked about the IRM. So that's where it starts in New York. And through that process we define not only what the resource advocacy requirements are, but we're starting to now think about other elements of what's going to be necessary to achieve reliability in New York for the study year we're talking about.

So you know and then it's putting the right value on those different elements to make sure that the consumers are protected, and those resources are compensated appropriately. So recognizing that the renewables are going to come in, because it's a state policy, it's a mandate, it's the law in New York, that the procurement of those renewables is going to come into the system.

We have to very carefully look at the contribution to each of those resources over time, because as we've talked about you know the first quantity maybe contributes a little bit more to reliability than we're going to realize it in state, so over time we've got to be willing to vary the value that we're willing to pay for those kind of resources.

Then we have to really look at the existing fleet and identify you know, what are the pieces that are missing in today's performance that's going to be necessary and value it appropriately. So it's things like ramping, it's things like quick response. It's things like flexibility

that are going to be increasingly more valuable and increasingly more important as we introduce a lot more intermittency in renewables onto the system.

So you know, so when we come down to FERC from New York with solutions to put in front of you, it's not going to be one solution. It's going to be a portfolio of five or six or seven solutions that will incorporate changes to the requirements in the capacity market.

It's going to be variations to the level of compensation that each of the resources that the appropriate attributes are entitled to. It's going to be looking at it in concert and in tandem with what we need to do to the energy and ancillary service markets to off-set some of those resource shifts.

And that's how we look at it in New York. We call it our grid and transition, but we're trying to look at it very holistically, recognizing that there's going to be no one lever, no one piece that's going to allow us to get the level of reliability that we absolutely need, accommodating and acknowledging that New York State has these mandated entry of more resources and still recognize and appropriately valuing for the duration of time that we need them.

The fossil units that still have that dispatchable characteristic and can be incentivized for

flexibility and ramping.

MR. ROSNER: Thank you sir. We have Mr. Asthana, Mr. van Welie, Commissioner Dykes and Doctor Bowring all in the queue, so go ahead Mr. Asthana.

MR. ASTHANA: Yeah. Thank you for the question. I think it's the 8 billion dollar question. And I don't have the answer. The first thing I would say for us at PJM it's very important to try to get to stakeholder consensus and try to get stakeholder input first of all to help us shape this answer, and to try to get to stakeholder consensus.

Because implementing that is the greatest guarantee of coming to a durable solution. I do believe there's a solution, you know, and we have put forth in fact and recommended sequencing off the questions with MOPR reform being the first, but then shortly thereafter a package of additional questions that evaluate the right amount of capacity procurement.

And we evaluate the performance and qualification of capacity resources. And think about questions like you know should an amount of uncleared capacity and expectation for unclear capacity built into our capacity procurement so we end up purchasing less, as well as this question around additional ancillary services, whether they're explicitly ancillary services, or as Doctor Bowring said, they're built

into the performance qualification of the capacity market.

The other question that I think is a very timely and topical one is the possibility for a clean capacity auction that supports our state's policies in a competitive and transparent way. So we've got a recommended path and a series of questions that we're asking. But we really want to try to get there is a way that brings our stakeholders along with us and actually allows their input to shape the final answer.

MR. ROSNER: Thank you Mr. Asthana. We have Mr. van Welie, Commissioner Dykes, Doctor Bowring and I also have a hand from Chairman Phillips. Go ahead Mr. van Welie.

MR. VAN WELIE: I agree with both Rich and Manu. I'd add something to do in terms of timing. So I think we're facing a 5 to 10 year journey ahead of us that will require changes in all of the major market components. The capacity market, the ancillary services market, the energy market. I don't see the patience to wait while we figure out elaborate to do ancillary services markets, and therefore do nothing about the market price rule.

So the way I'm thinking about it is that ultimately if we have to go and tackle the minimum market price rule first, that's going to require some calibration of all the various parameters we've talked about them today, the ELCC, the various parameters in the capacity market to

deal with the consequences of removing the MOPR.

But that will require some time, maybe 5 years to continue to work on all the other elements that have been mentioned before clean energy market. Is it possible to do an integrated clean capacity market? What ancillary services markets are needed?

Once we have specified those additional components, we're going to have to come back to the capacity market to see if it's still properly calibrated given all the changes that are made in these other components of the marketplace. So that's how I see the 5 to 10 year journey ahead of us, and I think the question then is where do we start this conversation?

And perhaps that's a conversation for another day, but my thinking is we're probably going to have to start it with dealing with the MOPR and then dealing with these others in sequence.

MR. ROSNER: Thank you. Commissioner Dykes go ahead.

MS. DYKES: So just following from Mr. van Welie, I think that one thing that we should try to avoid is more sort of short-term fixes and patches on the existing capacity market construct. I think that we have been talking about this challenge of whether or how to accommodate state policies since before 2015.

And I applaud FERC for bringing us together in this conversation. It's very promising dialogue that you have states, you have the ISOs and others at the table. We are very focused on making progress here. The to do list is quite long. I agree with Mr. van Welie, but the longer that we take to tackle this in a holistic and a comprehensive way, the harder it's going to get to solve this problem, especially as states have 20-30 targets.

We're already 91 percent contracted in Connecticut, and so there's a great urgency for us to ensure that whether it's through the ISO markets, or through state policies that we're investing the right resources that we need to achieve a reliable and affordable grid.

So in addition to stopping MOPR and state public policies, I think we need to prioritize and move quickly on addressing ancillary services and energy enhancements, and carefully scrutinize the capacity market product itself. That's one thing I would emphasize in terms of looking at seasonal conditions, load shapes that are net of renewables, different fuel mixes, performance under climate driven weather extremes and calculating what types of resources we need, and how capacity contributions should be valued.

So there's a lot for us to do, but I think FERC by bringing us together today, hosting this conference, and then hopefully directing the ISOs to work with states, we

can seize this moment to make a comprehensive change that will set us on the right path for all of our ratepayers.

MR. ROSNER: Thank you Commissioner. Commissioner Christie we have a few more hands up to your question. We have Doctor Bowring, we have Chairman Phillips, we have Commissioner Bailey, and we have Miss Brand. Shall we proceed?

COMMISSIONER CHRISTIE: We're not going anywhere.

MR. ROSNER: Okay great. All right Doctor Bowring please go ahead.

DR. BOWRING: Yes so very briefly. I mean I think we want to avoid over engineering this, and over micromanaging it. So relying on market and market incentives to the maximum extent possible, but I think there are a set of things that can done that can be identified.

One is to keep the state resources as part of supply subject to the rules for capacity part of the overall market construct. The second is to consider an aggregate demand curve for the state resources to make that a competitive procurement within the framework of PJM markets.

And as I said define the contribution to reliability, and define how that's created or how it's defined on an ongoing dynamic basis. To find the requirement to be a capacity resource, to find the obligations of capacity resources, and last but not least,

fix the existing capacity market issues, market power for procurement and so forth. Thank you.

MR. ROSNER: Thank you Doctor Bowring. Next we have Chairman Phillips, go ahead please sir.

MR. PHILLIPS: Commissioner Christie, I have to say I'm pleasantly surprised by the amount of consensus that I've seen on the response to this question. I won't repeat everything everybody said. I will say I agree that this requires balance. I agree that the markets will need to change with the resource mix, and I believe that it is not an all or one construct.

I believe that it's going to involve more than just capacity market. But I'll note this, what we have to get right and a way to integrate state policy is load forecast. We have to get it right, and PJM has taken some steps to improve it. I believe there's further room for improvement on load forecasting.

And once we get that right I think we need to revisit and reevaluate everything else.

MR. ROSNER: Thank you sir. Commissioner Bailey go ahead.

MS. BAILEY: Thank you for the question Commissioner Christie. I think that without a national policy we have to find a way to balance public policy with reliability concerns. And we know from experience that the

most cost-effective way to do that is through market solutions.

So rather than just throw out the MOPR, I think we need to focus on creating market reform that values carbon reduction, while at the same time some market reform to compensate for the reliability that we need to shore up from intermittent resources that we expect the system to add in the future. Thank you for this opportunity.

MR. ROSNER: Thank you and Miss Brand, you are the final hand.

MS. BRAND: Yep okay, so I'm batting clean-up here. I'm going to be very brief. I just want to end by talking a little bit about the consumer confidence and the need for us to keep that in mind. I think all the back and forth, I think all of the up and down to FERC to the circuit courts to back to PJM is really damaging.

And you know I think Commissioner Dykes was right when she talked about how we need to act with some urgency here. And while we do need to develop a consensus. I think that the world is actually watching us. Texas brought a lot of this to the attention of regular people, and I think customers are a little concerned right now about not understanding how this all works, and feeling as though they're not sure that it really does work.

And so I think it's very important for us to keep

in mind that it's important that we move forward with some confidence and that we develop a solution that the public can feel confident in, and that we move with some confidence and some speed, and try to reach a consensus and try to move forward so that the public can feel confident in the solution.

COMMISSIONER CHRISTIE: All right. I don't have any more. I know it's already in the lunch period so, Mr. Chairman I'll give it back to you.

CHAIRMAN GLICK: Thank you Commissioner Christie. And I want to thank all the panelists and each of the Commissioners which was a very good discussion, very helpful and important discussion. Before turning it to Dave, I just want to make a couple points quickly.

This afternoon beginning at 1:30 we have a couple of panels that are focusing directly on the PJM MOPR, and subsequent to that at a later date we are going to have a couple technical conferences, one focusing on ISO New England, and the other one focusing on New York ISO, so we'll be able to get in all the issues.

And I want to make a point that I was going to make at the end. I do think we need to move -- personally, I think we need to move quickly on some of the MOPR issues. I know some of these market reform issues which are equally important are probably going to take a little bit longer to

address, but we need to do that as well.

But my personal view is we should certainly move forward with the MOPR issues to the extent we can, on a relatively speedy basis. Having said that I want to turn it over to David to take us out to lunch, and we'll be back at 1:30.

MR. ROSNER: All right thank you Mr. Chairman and to all the panelists and Commissioners. We'll now take about a 45 minute lunchbreak. We'll begin our next panel at 1:30 p.m., so Panel 1 panelists, thank you. You may now sign out of the Webex. If you'd like to continue watching please pick up the public webcast at ferc.gov.

The Chairman, Commissioners and panelists for Panel 2 please sign-in at 1:00 p.m. We will run through brief technical logistics at that time, and make sure everyone's able to connect. So thank you very much and we'll see you at 1:30.

(Break 12:45 - 1:29 p.m.)

Panel 2: Staff-led Discussion of Implications of Status Quo MOPR in the PJM Capacity Market

MR. CHRISTIANSEN: Good afternoon. Welcome back to the Conference. My name is Matt Christiansen and I'm the Commission's General Counsel. I will moderate this panel this afternoon, the first of two staff-led panels, along with my colleague Pamela Quinlan, who is the Commission's

Chief of Staff. For those of you tuning in for the first time today I want to go over a couple logistics.

First of all as I mentioned there will be two staff-led panels this afternoon, and we will have a break between them. Second, this Conference is being broadcast and is being transcribed, but the recording will not be available for future viewing.

With those reminders out of the way let's get started with the second panel which is entitled, "Staff Led Discussion of Implications of Status Quo MOPR in the PJM Capacity Market. In lieu of opening statements we will begin this panel by asking each panelist to respond with an initial discussion question.

If at any point during the panel the Chairman, or a Commissioner would like to ask a follow-up question for a panelist's response, they should raise their hand using the Webex raise hand function, or in the event that's not working, simply unmute themselves and interject. We will also reserve some time for Commissioner's questions at the end.

Before we get into the substance of the panel, I want to remind everyone to refrain from discussing the specific details of anything that is in contested proceedings, including those listed in the March 16 supplemental notice. If any of us, including Commission

staff, come close to the line, my colleague Kit Shook from the Office of General Counsel will interrupt and ask the speaker to avoid discussing those topics.

With that let's turn to the questions. And we'll begin with the first question at the beginning of the second panel in the supplemental notice that you received last week. For the benefit of the record I will read it verbatim.

As the public policy goals from the PJM member states increasingly affect a significantly higher proportion of the resources, what is the appropriate role of the PJM capacity market? Should it continue to be limited to ensuring resource adequacy? What challenges, if any, does the current MOPR pose in ensuring resource adequacy at a just and reasonable rate? And what challenges, if any, would the elimination of the current MOPR pose in ensuring resource adequacy at a just and reasonable rate?

I'm now going to call on each panelist in turn and ask them to give their answer, being brief where possible. In addition, Pamela and I may have a follow-up question with respect to their responses. And then finally before I hand it over, I want to say that we had a brief meeting of the panelists yesterday to talk about logistics, and we agreed that we're going to use each other's first names and be as informal as possible. So with that we'll

begin with the states, and I'll hand it over first to Jason Stanek, Chairman of the Maryland PUC. Go ahead Jason.

MR. STANEK: Thank you Matt. Good afternoon and I appreciate the invitation to participate in this very critical discussion. The issues of resource adequacy capacity constructs, and the extended MOPR have been an area of frustration for Maryland in recent years.

A tremendous amount of our time and resources have been spent trying to look at ways to explore circumventing, neutralizing, or minimizing the effects of the extended MOPR, in defense of the state's exclusive right to determine its own resource mix. And that fact is crystal clear in the Federal Power Act.

However, fortunately we now find ourselves in a place where there's dwindling support in PJM to retain this obstructive rule, and the MOPR is quickly becoming an orphan without an advocate. My state has clear policies related to economy-wide decarbonization as reflected in our state's statutes supporting renewable energy, our commitment to the Paris Agreement and our participation in RGGI.

These and other GHG reduction programs make Maryland a leader in pursuing cost-effective measures to obtain our environmental goals. Important to this resource adequacy discussion, and in answering this first question, Maryland has been exceedingly clear in signaling to the

market participants the types of resources we support, how we support them, and when we want them in place, thus forming the foundation for clear market entrance and exit signals.

The expanded MOPR has gone well beyond addressing buyer side market power, and poses a clear and ongoing threat to just and reasonable rates, to state's sovereignty, not to mention the market it proports to protect. While Maryland will continue on its path towards cleaner energy regardless, if the role stays or goes, our citizens face a penalty for doing so by paying for resources that now lend their support, but by paying for other capacity resources that could detract from our states policies and goals.

Simply put, if Marylander's preference were for 100 percent renewables, ratepayers should not be forced to pay for another 100 percent of something else. MOPR effectively requires this double payment. It must be eliminated or appropriately contained prior to December's BRA. Anything else is unjust, unreasonable and unduly discriminatory.

At the Maryland PSC, we use four principles to guide our reliability and modernization efforts including affordability, reliability, the customer and the environment. Our retail programs are designed to work with each other for the benefit of our ratepayers, and for

example we have an aggressive 50 percent RPS. We're actively soliciting new off-shore wind and battery storage proposals, and we have a program to support 300,000 electric vehicles by 2025.

In closing, the key point here is that the status quo MOPR threatens all of these programs by increasing the cost of renewable resources to unreasonable levels while protecting higher emitting resources that impede our state's policies. This is an urgent issue, and I'm glad that we're having this Conference today and working through the PJM workshops that are ongoing.

I do appreciate FERC's outreach and interest in the state's perspective as we pursue our own sensible climate and clean energy policies. Thank you.

MR. CHRISTIANSEN: Thank you Jason. Next we have Doctor Talina Mathews, Commissioner with the Kentucky Public Service Commission.

DR. MATHEWS: Hi. Thank you very much for the opportunity to participate in this important discussion. Kentucky is blessed to be in more than one RTO, and I said to myself as I was getting ready that PJM has resource adequacy to spend time on, and MISO has cost allocation to spend time on, so those are the differences.

I need to say the disclaimer that I speak only for myself and not for the Public Service Commission. I

think of the things you've seen today is that states are extremely engaged on these issues around capacity markets and resource adequacy. In addition to the folks that you normally see in these roles, I think it's interesting that more of us are starting to talk to our governor's offices, our environmental agencies, state legislators, economic development cabinets, and so forth.

So we've stretched our tent a little bit. And the reason being because as the resource mix changes and we see state public policy goals, corporate sustainability goals, and economic development targets, and I'm just going to take a side note there: I think we spend a lot of time talking about state goals around clean, green, carbon-free power, and corporate goals around the same.

In some states, it's an economic development issue. Are you going to be able to use your resources to, you know, improve your states position? I think I'm going to talk longer than this, but I could really just say I agree with most of the speakers that we've heard from today, and most of the Commissioners most of the time.

I don't believe that the capacity market -- I think the risk to the capacity market is greater than the rewards in meeting these goals. I think there are other ways to meet the goals that don't create the distortions that trying to have the capacity market be all things to all

people.

I think the capacity market going back to ensuring reliable power at just and reasonable prices, and I appreciate Mr. Asthana earlier saying that you know PJM's responsibility is the reliability of the bulk power grid at reasonable prices. And even though we love to talk about competitive markets giving you just and reasonable prices, I think we're beyond the point of the capacity market trying to be all things to all people giving us a competitive outcome.

So I think it should be limited to ensuring reliability and resource adequacy. The MOPR for some states, if you're deep into FRR and self-supply, maybe it had no impact on you, but other states certainly were harmed, or their goals were potentially harmed.

And furthermore, just placing too many goals in a capacity market, you're taking a distortion from the out of market payments, and you're fixing it with another distortion of MOPR.

MR. CHRISTIANSEN: Sorry Commissioner we're at time.

DR. MATHEWS: Okay that's it. Well that's actually where I was, was market failure on top of market failure.

MR. CHRISTIANSEN: Thank you. Next we'll go to

Stu Bresler, Senior Vice President, Market Services at PJM. Please go ahead Stu.

MR. BRESLER: Thank you Matt, and good afternoon everyone. So I'll start I think with the most basic premise that was I think emphasized this morning, and that is PJM's primary responsibility is reliability. Maintaining the reliability of the bulk power system, both now as well as in the future.

The goal of the capacity market is to work in conjunction, in tandem, together with the other markets that we operate in order to reinforce grid reliability through maintaining and incentivizing resource adequacy for the PJM region. So as such, the capacity is the reliability based product.

And as a result the market design really should be able to be flexible enough to accommodate state policies while the focus of the procurement should remain on, again, maintaining the reliability of the bulk power grid.

And so sometimes we don't really see this necessarily as a blanket question you know, should or shouldn't the markets be able to incorporate or accommodate state public policy choices, but rather is the market acting actually to frustrate public policy goals?

And we think given to where we have gotten to with the MOPR, that certainly indeed can be the case. And

so that really is a challenge with the current MOPR, and it's been emphasized on the earlier panels, I think certainly Chairman Stanek and Commissioner Mathews emphasized from their perspectives as well that the results of the MOPR can be for consumers to end up basically paying twice for a certain level of capacity because they pay for the preferred resources of the policymakers, using the clean resources that they're looking to bring on to the system, but then also they have to pay for capacity through the markets as well.

And so the final cost to consumers obviously is higher with the broadly applicable MOPR we have today than it would otherwise be. So that's really the primary challenge that we see with the MOPR as its currently been effectuated.

And then as was also pointed out earlier this morning, it also has the potential to interfere with the self-supply business model; to also incorporate vertically integrated utilities as well.

That's really the current challenge with the current MOPR. Removal of the MOPR, certainly all together, could also have challenges again, primarily to the long-term, because in the short-term, given the quantity of resource we have on the PJM system today, as well as the level of flexibility we have with the resources

that are on the system today, we currently don't see a near-term reliability issue.

The challenge for us, I think, is to make sure that the resource mix remains reliable in the future, and there's several aspects to ensuring that. The first, as again was mentioned earlier today, is to make sure that capacity is appropriately credited to resources. That's the effective load carrying capability, that is the ELCC concept that we talked about earlier to make sure that in the aggregate we have, sufficient supply of resources to maintain reliability.

Making sure that we refine and improve the qualification and performance requirements of capacity resources, so that they actually do perform when they're necessary, is important as well. But then I think it's also, it also means recognizing that the definition of resource adequacy is broader than just meeting the peak demand on the peak day, and ensuring again that as the resource mix evolves, it does so in a way that we can reliably meet demand in every hour of the day.

So how do we make sure that the resource mix evolves in a way that resources that possess the reliability attributes that we need on the system continue to be those that are maintained on the system as well as incentivized to enter as we need resources.

So really, from PJM's perspective again, reliability is job one. It's incumbent upon us to make sure that we accurately and specifically define the products that we need in order to maintain grid reliability, make sure that they are priced accurately and transparently through the markets that we operate, so that really all resources that are capable of providing those services can compete to do so.

So as we look forward to how we reform --

MR. CHRISTIANSEN: We're at time Mr. Bresler.

MR. BRESLER: Other issues need to be taken into account as well. So thank you very much.

MR. CHRISTIANSEN: Thank you Stu. Next we have Doctor Joseph Bowring, President at Monitoring Analytics.

DR. BOWRING: Hello and thank you. So I fully expect as many do, I think, the existing MOPR to be eliminated. States clearly have authority over the resource mix in their states, and they have made it very clear that they are not happy with MOPR. And as a result of the states' views, the existing MOPR in my view is not viable, simply because we can have what some might regard as a perfectly designed capacity market, which is immune from impact of all subsidies, in which no one would participate -- hardly an optimal outcome.

The purpose of markets as they go forward,

including the elimination of MOPR, is still to provide energy at the lowest possible cost to customers. In my view reliability is most efficiently -- reliability and really energy -- is most efficiently provided for in a PJM-wide market, not in sub-markets, not in individual state markets, not in residual markets, not in bilateral markets, but in the PJM-wide market which provides transparent price signals to all who participate.

As Stu pointed out markets work together. The purpose of the capacity market is not to stand alone as a capacity procurement device, but to help ensure the reliable supply of energy. So I think we can have two basic short-term options, given that if the MOPR is eliminated before the December auction, there needs to be something done quickly to address any implications of that.

One is simply to eliminate the MOPR and let the markets work, treat it as supply, and as part of supply, whether it's locational characteristics have met the dynamics of the capacity market, and go and see what the prices are. The second option, which I think is preferrable to that, would be to eliminate the MOPR, but to add a competitive procurement for a state to find resources for use in the capacity market.

This is analogous to the proposal from the Maryland Commission for something similar. So the idea

would be to have a centralized procurement for the resources that the state wants to procure. There are other details to be addressed in the short-run, clearly; not exactly what the attributes of capacity to be, and we can talk about those in more detail.

But I think it's important that if it's going to happen quickly, that we define a clean solution, and don't try to bring all our ongoing agendas to bear here, but try to create something that will work effectively in the near term to address the replacement of MOPR. Thank you.

MR. CHRISTIANSEN: Thank you. Next we have Marji Philips, Vice President of Wholesale Market Policy at LS Power.

MS. PHILIPS: I'd like to thank the Commission for extending the honor of participating in today's session on behalf of LS Power. Policy and consumer choices are already driving LS Power's investment strategy. We expect to spend billions of dollars over the coming years in assets that deliver carbon free electricity, as well as natural gas fired generation, which is necessary to get to a net zero emissions future reliably.

We will fail, and our industry will fail, if, as we transition to net zero emissions, we cannot keep the lights on. PJM has done an excellent job of explaining what it's capacity market has accomplished, and continues to do.

Maintain reliability by providing efficient price signals to incent investment in the development and operation of resources required to meet reliability criteria.

The support for more regional markets to enable entry of cleaner resources is a testament to the efficiency of markets such as PJM's. We all should have zero tolerance for curtailments, especially when they cause economic destruction, lead to loss of property, and most importantly can result in the loss of lives as occurred in Texas and California.

And RPM has successfully steered us clear from such events. The capacity market is designed to mimic supply and demand fundamentals in a world where the reserve requirements for excess electricity confuse signals. The capacity market has provided price transparency, which would likely be muted in a bilateral or residual market as Doctor Bowring mentioned this morning.

The capacity market drives to enhance performance. For example, after the polar vortex suppliers made weatherization investments. The forward price signals enable access to lower financing costs as well. Historically, the cost of capital in the ERCOT market was 3 percent higher than in PJM, and the primary reason is PJM's forward capacity market.

We anticipate that difference will be higher

after the events that occurred in Texas in February. That is a significant expense when it's applied to the billions of dollars of investment needed to decarbonize the electric supply. Moreover, we strongly supply the merchant model for resource adequacy, which is an insurance policy that shifts performance risk to suppliers compared to the lack of insurance we saw in Texas.

What does the MOPR do? As previously described, it prevents a distortion of capacity prices that can facilitate the financing I just described. MOPR isn't a perfect tool to be sure. We share concerns it's overly broad and discriminatory, for example, the way it differentiates between utility and energy efficiency products, and fails to differentiate between competitively procured RPS resources, and contracted for resources.

We should re-evaluate PJM's capacity market in light of existing underlying assumptions that don't reflect the grid today, let alone in the future. Planning assumptions, such as the one in 10 years LOLE, the use of non-coincident outages, failure to model longer duration weather events, forecasting, and assumptions around homogeneity of capacity supply must be considered.

All that said, LS will continue to invest in intermittent and duration limited resources, not because of a reliance on the capacity value, which will diminish with a

properly functioning ELCC, but because of RPS programs and the expectation that energy and ancillary services will reward cleaner resources.

That's why the PJM capacity market needs to remain focused on ensuring resource adequacy. Procurement of resources we need to be available to maintain reliability 24 by 7. Thank you and I look forward to more discussion.

MR. CHRISTIANSEN: Thank you Marji. Next we have Ralph Izzo who is the Chairman, President and CEO of PSEG. Please go ahead.

MR. IZZO: Thanks Matt. So in direct response to the question: yes, for PJM capacity markets, the primary goal must be to ensure resource adequacy. Having said that, despite the paramount nature of resource adequacy, I would be remiss if I didn't suggest some refinements to PJM markets that need to take into consideration the increasing importance of battles that we have encountering the reality of climate change.

So I'll offer four modifications that the Commission should consider in no order of preference, but not necessarily in order of feasibility. Number one would be a transparent uniform price on carbon that was technology independent, so that we could allow for clear and accurate pricing signals to then allow the market to operate in a way that assured both resource adequacy and an environmentally

benign supply stack.

Failing that, we would recommend the Commission consider a restoration of the prior MOPR, one that continued to counter buyer-side market power attempts at price suppression, but did not interfere with state's abilities to take on carbon emissions issues that candidly the federal government seems either unable, or unwilling, to take on.

A third opportunity would be a unit specific FRR that allows states to surgically remove specific resources along with the commensurate amount of load, thereby allowing the residual market to be as robust as possible for the carbon emitting sources.

And the least preferrable, but also possible would be to create what I'll simply call a threshold for inaction, which is to say that as long as the out of market payments for the state subsidies were less than some federally established costs of carbon that those units would not need to be mitigated, and could participate freely in the capacity market.

And all of this to avoid as has been stated by others, the double payments associated with the current MOPR design. And with that I'll conclude my remarks and be happy to answer questions later. Thank you.

MR. CHRISTIANSEN: Thank you Ralph. Next up we have Susan Satter, the Chief of the Public Utilities Bureau

at the Office of the Illinois Attorney General. Please go ahead.

MS. SATTER: Thank you. And thank you for having me today. I want to add a disclaimer. I'm speaking for myself and not for my office. First, restructured states like Illinois can face a conflict between the goal of decarbonization and relying on competitive markets for least cost power when markets alone set prices and select which resources provide power.

I think if we continue to rely on the capacity market to keep prices reasonable, even if states step into resource selection. And even if states decide to pay more to some resources, to promote decarbonization goals outside the market.

So I think one question that you're asking is will state participation in these resources mean that capacity prices will be depressed as when the MOPR is present. First, I wanted to point out that given the high reserve margin in the PJM capacity market, the market should be able to function effectively with resource adequacy even if prices reduce as a result of subsidies.

We have more than we need maybe because the prices are higher than they need to be. I'd also like to point out as somebody who represents consumers that although there may be lower prices for capacity on the PJM capacity

market, that does not mean that consumers are paying less, because these subsidies are included in consumer's energy bills.

So overall the energy market, the capacity market as a whole, is receiving more revenues than they might have even in the absence of the subsidies. The second thing that I want to point out is that subsidies do not inevitably mean lower prices. Illinois is the only state that had subsidized nuclear in the last PJM auction, and in our zone, in the Con-Ed zone, prices actually increased not withstanding these subsidies.

So with the MOPR price of $15.00 for existing nuclear, which has been accepted by FERC, I don't think can be expected to have a serious affect when the price in the PJM zone has been between $188.00 and $215.00. At least in Illinois, subsidies did not depress the capacity prices.

And that probably is because of the concentration that exists in Illinois, and in many other districts. But ultimately what to do, I think ultimately PJM and FERC have to recognize that there are challenges with the current capacity construct, there are challenges with the MOPR, and that the assumptions that gave rise to the MOPR might not be as robust as that order implied.

And that in any event the capacity construct does not need to be abandoned simply because of state subsidies,

even if they do result in price decreases, thank you.

MR. CHRISTIANSEN: Thank you Susan. Next up we have Casey Roberts who is a Senior Attorney with the Environmental Law Program at the Sierra Club, excuse me, please go ahead Casey.

MS. ROBERTS: Okay. Thank you Matt and good afternoon everyone. I want to thank the Commission for the opportunity to speak today. Sierra Club has worked for decades to enact clean energy policies at the state level, and has been deeply concerned about how capacity markets have created the many tasks and health benefits of the state policies from being realized.

State and local governments are exploring efforts to encourage the development of clean energy. These policies, along with direct consumer purchases of clean energy, and other forms of long-term contracting support investment in new generation, storage and demand side resources in the PJM region.

The capacity market also helps to support investment in new and existing resources, but in recent years has been regulated as though it alone is responsible for sending entry and exit signals. This is unrealistic and unfair to consumers. In my view, the appropriate role for the PJM capacity market is to compliment and backstop these other market and policy mechanisms in order to ensure that

the region's resource adequacy requirements are satisfied.

It's inappropriate to regard the capacity market as the sole legitimate source of investment signals, context that gets rules like the MOPR that work against the other policy and market forces attracting investment or signaling the need for exit. The notion underlying the MOPR is that it protects against price suppression -- that is prices lower than would be needed to attract or retain resources, as if the capacity market were the only game in town.

The capacity market is not, and never has been, the sole driver of entry and exit decisions. States have long exercised their prerogatives to shape the resource mix. And to the extent those policies result in lower prices in the capacity market, then those lower prices are appropriately signaling that less new generation is needed, or that older, less efficient power plants should retire.

The MOPR as currently applied in PJM leads to unjust and unreasonable rates by raising the cost of capacity higher than the price of the marginal unit needed to ensure resource adequacy. The MOPR does not help to ensure resource adequacy, but instead works against that aim.

Resource adequacy isn't just a floor to be surpassed, it also means not requiring consumers to pay for capacity beyond the point at which it has meaningful value

in reducing the risk of service interruptions. Excess capacity is a future of MOPR and one that is inconsistent with any conception of just and reasonable rates under a statute centrally concerned with consumer protection.

One final note, I do not believe that the capacity market should be expanded beyond this limited role in ensuring resource adequacy. For example, I've heard proposals to augment the capacity market to procure certain flexibility attributes for minimum quantities of balancing resources.

Additional grid services may be needed to integrate high levels of variable energy limited and demand side resources. But these are better procured through the more granular ancillary service market. I heard that timer, so I'll just wrap it up there thank you.

MR. CHRISTIANSEN: Thank you Casey right on time. Up next we have Patty DiOrio, who is the Head of Project Development and Growth, North American, for Orsted.

MS. DIORIO: Thanks Matt. I'd like to thank the Commission, and especially Chairman Glick for convening this Conference on this critical topic. I'll attack your first question right off the bat. We do think that resource adequacy is an appropriate role for traditional capacity markets.

But that's not to say that the existing market

constructs are the only way to ensure the resource adequacy. In our view, there's also nothing particularly sacred about the current constructs that we see in PJM, New York or New England. You know, to be sure, there are plenty of interesting discussions going on about possible alternatives.

And while we don't necessarily have a favorite at this point, we are very interested in helping the shape the future direction of these markets, but I would add here, and I understand that plenty of people said this morning as well that flexibility to accommodate some of the state's wishes would be key.

It's no secret of course that the PJM MOPR is something that we'd like to see change, and we'd like to see it change quickly. For those unfamiliar with us Orsted is the largest developer of offshore wind in the world. In the states, we've got about 3 gigawatts of projects under contract, and we're progressing about 5 gigawatts in development.

Our contacts are possible because the states recognize the potential of offshore wind to meet their climate economical development goals in a cost-effective manner, and we feel real strongly that the wholesale markets should fully recognize the state's authority to control their resource mix, and to allow all resources the

opportunity to participate in the markets.

We have the 1,100 megawatt ocean wind project off the coast of New Jersey, and 120 megawatt Skip Jack project off the coast of Maryland. Both of these are challenged by the PJM MOPR. It's critical to understand that in these states any capacity revenues would not flow to us, instead it goes to the ratepayers, so this is not a revenue issue for us.

For us it's an issue of fairness to the ratepayers. Offshore wind resources can and will provide highly valuable capacity to PJM and other markets. It's a capacity product that's particularly valuable on cold windy winter nights. This is helpful obviously for any kind of electrification, hearing electrification includes for the PJM region.

This is when you need -- this is when the offshore winds are cranking away at full strength and providing a really low-cost alternative for the grid operator. The MOPR fails to recognize contributions like this. And in our opinion it is time for it to go.

And then therefore we also believe that the MOPR does not lead to just and reasonable rates because ratepayers are on the hook to pay for unnecessary capacity, this double payment that people have been referencing. On this note I'll just add one more thing. You hear the

assumption tossed around that somehow the state sponsored resources are not competitive.

From the perspective of the person who's responsibility for bids for Orsted, I can assure you that that's not the case. These RFP processes that the states conduct are very highly competitive, and I'll stop there, and I do look forward to the rest of the discussion. Thank you.

MR. CHRISTIANSEN: Thank you Patty. Next up we have Betsy Beck who's the Director of Regulatory Affairs, Central and Western U.S. for Enel North America. Please go ahead Betsy.

MS. BECK: Thanks Matt. Good afternoon Mr. Chairman, Commissioners and FERC staff. Thank you again for the opportunity to speak at today's Technical Conference on the critically important topic of PJM's capacity market. As I said my name is Betsy Beck and I represent Enel North America. For those who are not familiar with them now, on the large generation side, we own and operate about 60 renewable energy plants in North America: wind, solar, geothermal and storage, including PJM.

And on the distribution side we manage nearly 5 gigawatts of demand response, over 70 battery storage projects, and have deployed about 60,000 EV charging stations, including in PJM. So as most other panelists have

noted already today, the current MOPR in PJM is unsustainable.

The demand for clean energy across the region has never been greater, and the existing capacity market design will force customers to pay twice for capacity, and leaves states, cities, universities, corporate buyers, and other customers falling short of their goals.

If left to linger in place too long, states may choose to exit, and the robust capacity market that we rely on today may cease to exist. In the near term, eliminating or scaling back the existing MOPR would relieve tensions around identifying and mitigating state subsidies and crafting unit specific MOPR.

It would ensure that more clean resources supported by state policy could clear in the capacity market, helping to stem growing separation between clean energy and capacity procurement. It would leave a financeable market mechanism in place to retain clean, flexible and non-energy intensive resources, and enable the development of new renewable resources.

This interim fix to MOPR would return the capacity market to its original narrow purpose of mitigating buyer-side mitigation, and buyer-side market power. But with that being said, it is not an adequate long-term solution. We strongly believe that there is an urgent need

to develop a stable long-term solution for PJM.

A redefined capacity market can have, and should have, an expanded purpose first for least cost reliability and resource adequacy, but also to co-optimize for state and consumer preferences for certain resource attributes.

The capacity market is absolutely critical for attracting these resources in PJM and increasingly for renewable resources, but the markets need to evolve to attract that investment at the necessary scale. Thanks for the initial question, and I look forward to the follow-up.

MR. CHRISTIANSEN: Thanks Betsy. And last, but by no means least, we have Ed Tatum who's Vice-President of Transmission with American Municipal Power. Please go ahead Ed.

MR. TATUM: Matt thank you so much. With the sound check can you hear me?

MR. CHRISTIANSEN: Loud and clear.

MR. TATUM: Thank you so much. AMP is a small not for profit public power organization. We have a vested interest to keeping the lights on and providing affordable power to our members. And when the lights go out, we get the calls. We support competitive markets, but we make long-term resource decisions based not only on projected capacity prices, but also on our view of energy, ancillary services, and environmental attributes.

We take a holistic, long-term and enduring approach to our decision-making, and by no stretch of the imagination has public power ever been a subsidy. I agree with Commission Christie: RPM was never a market per se, but rather it is a necessary resource adequacy construct.

I go back to 2006 when it was the reliability pricing model. And that attempted to meet reliability requirements via a resource adequacy construct, but that didn't consider intermittent and renewable resources for a significant portion of the requirement, but it also had what was a called a base residual auction.

I mentioned this because we think the capacity construct should be focused on reliability, but reflect the physical and political reality of the world, as well as the change in resource mix. Capacity is not fungible, and it needs to be reliable every hour of the year, not just during the peak.

Look at relative to MOPR, a MOPR void of consideration and intent no longer has a place in this construct, and it's continued existence will ensure consumers pay too much for a product that doesn't address today's realities. The original MOPR, 2006 recognized that intermittent and renewable resources can't efficiently, economically and intentionally suppress prices.

This MOPR was an 11th hour addition to the

settlement. It was not part of the original grand RPM scheme. It was applicable, but constrained LDA's. It included a role for our market monitor to police the officers and take action if needed, and it prescribed zero dollar prices for base load, hydro, upgrades, as well as capacity moving forward under state mandate.

If power were present it would re-clear the auction with self-supply clearing first. The current MOPR doesn't target intent, is over-reaching and involves wide-scale applications throughout the entire RTO. No public power entity has ever exercised market power nor could it. We are too small within the entirety of the PJM footprint.

With a few moments left I would like to say that in PJM we haven't been sitting still over the last 15 years. There's been a number of significant changes to the energy market that I think need to give us some consideration and give us a good landing path and transition to elimination of MOPR in short-term, and revision of the capacity construct in the long-term and I'll stop there. Thank you.

MS. QUINLAN: Thank you Ed, and thank you to all the panelists. We are hearing that there may be a connection, and I see a little bit of the fuzzy image, but it sounds like the audio is going, so we're going to keep going while they continue to try to address that.

So thanks again. I want to follow-up. There's been a lot of discussion today, including in some of the answers for this initial question, that focuses on what changes will we need to make to wholesale markets with the evolution of the grid, and the changing resource mix, increased electrification as these new resources come online.

I want to better understand how that specifically relates to the MOPR and any potential changes to the MOPR today. If I can start this question directed to Stu, you mentioned if I heard you correctly, you mentioned that over the long-term there are challenges.

And potential efforts on ELCC, making improvements to capacity performance, potentially a shift away from thinking about this, about peak demand on a summer afternoon in August, and I want to understand of course these are all really important issues, and actually I think we hope to address a lot of those in the technical conferences this year.

But are these issues that would need to be addressed regardless of what happens with MOPR? And is there a concern about looking at the MOPR rules first? I believe I heard you say that there is no short-term reliability challenge, and I would like to see if you can expand on that a little bit and help us to understand how

these kind of longer efforts, which I think are important to undertake relate to the potential consideration of what changes should be made to the MOPR rule?

So to Stu, if you can answer that, and then if anyone wants to respond if you could raise your hand.

MR. BRESLER: Yeah thanks Pam. Certainly, a few thoughts there. So as I think folks heard Manu say this morning, of the things that we think on PJM's part need to be examined with respect to PJM's markets, primarily what we're talking about here, the capacity market. In conjunction with what we've heard from our stakeholder community through a series of workshops that we've been holding.

We do see the MOPR has probably the highest priority to address. Our point though simply is we shouldn't stop there. And so sometimes when you hit the highest priority item, the temptation is maybe to not have as much focus and as much effort on other things that need to be examined as well.

And so that's really our point is that this really should be viewed as more of a holistic, or sort of a package of items that need to be reviewed. I do think that in the near term again, we don't have what we consider to be a reliability issue with respect to resource adequacy with that expanded definition for the reasons that I said before.

The direct answer to your question as to whether we would have these issues with or without the MOPR, I would say probably. But I do think that to the extent that we can properly reflect these policy choices, you know self-supply decisions, all these sorts of things, in the capacity market, it does have the potential I think to maybe accelerate the need for that review because of a resource mix evolves maybe a bit faster than we otherwise would.

And so again from PJM's perspective I think it's incumbent upon us to be looking forward to say what is the evolving resource mix mean? What are we going to need to operate the system reliably so that we can really stay ahead of that as opposed to being reactionary.

MS. QUINLAN: Stu that's really helpful. I know we have a bunch of other questions to get to, but I do want to -- I see some hands up, so Casey if you want to go next.

MS. ROBERTS: Yeah. Thanks Pam. My thought on that question would be that eliminating the MOPR now will accelerate the retirement of some less efficient units that are otherwise you know retaining market share and not being displaced by renewables, and it could slow the development of some new gas resources.

And so, if you assume as some have today, that these thermal resources are necessary for reliability in an increasingly decarbonizing system, then you could say that

eliminating the MOPR is bringing about those issues more quickly. But I think that it's false to presume that we need thermal resources on the system, or that particular large quantities exist in PJM today in order to maintain reliability in a decarbonizing system.

And as Stu and others have noted, you know, what we really need to do is think ahead to what kind of services the system is going to need and then you know make sure that the market is competitively procuring those services instead of assuming that only these existing thermal resources are capable of providing them.

MS. QUINLAN: That's helpful. Another hand up is Marji.

MS. PHILIPS: I have a couple things, one from the investment perspective. We kind of support Doctor Bowring's assertion that probably most units are going to clear the MOPR in the short-term, and rather than strip everything off and sort of undermine it from an investment point of view we'd rather PJM take a little bit longer and get it right as opposed running, maybe there's some band-aid solutions, but we'd really rather see the market done right so we could go out for our long-term financing.

We think the ELCC, as I mentioned will be a big help in taking pressure off of the importance of MOPR. From a financial perspective, the energy and ancillary services

will not cut it. We can't finance on them so much right, we can't go and say look, this is the quantity we're going to produce, and this is how we expect.

There's no muster on obligations, so we think really focusing on the capacity markets is important. And I'd just like to address what Casey said, because I think everybody has this misconception about what less revenues in the market means. You don't know what units will retire.

You could have an old, cold depreciated unit that needs very little money to stay on the system, and instead you force out a flexible state of the art unit that's still in a major cost recovery state. So I think as everybody mentioned, exit is a problem that the market hasn't done as well, but we need to define what do we want to exit? That's why carbon pricing is so efficient because it says we want non-clean emitting resources to exit.

So I think as part of the MOPR consideration, we need to have rules that target the right kind of exit, not the assumption everybody makes that these old clunkers will get off the system. They very well may not, thanks.

MS. QUINLAN: Thanks Marji. Ed?

MR. TATUM: Thanks Pam, it's Ed Tatum. I don't think MOPR rules will really have an impact on market exits. I think the actual price will. I am of the camp that I think we can with minimal, and actually perhaps little

impact at all, remove MOPR today.

I know that that's one of the Chairman's primary goals is to do this in an expeditious way, but at AMP we do believe we need to take a look at the whole construct. But I'm not uncomfortable at this point given all the major rule changes we've made over the past 15 years in the energy markets in PJM.

We have this operating reserve demand curve. We have a scarcity pricing, we have this fast start, this ELCC. We've got to take a look at how that's all going to work, but I think we're much better positioned now than we were back in the olden days when Judge Brenner locked us in to let this one go.

MS. QUINLAN: That's helpful. I'm trying to see if there are any more hands up. I think if you've already spoken if you can take your hand down then we can figure out what to do with it. But I'm going to stick to the next kind of question which goes to really to the actual price signals.

So there's been discussion about the kind of risk as we understand it from the MOPR potentially you know, and this might grow over time, depending upon which resources it would prevent from clearing, but that essentially there's a potential risk for the procurement of redundant capacity.

And what I'd like to get your thoughts on is

without addressing -- with the current MOPR in place over time, how well can the market actually send a price signal to reflect system needs? If those resources aren't clearing, is there a concern and if you can kind of elaborate on it, that the price coming out of the market is going to potentially be sending the signal to build new capacity if that's not needed.

Or is that not a concern with the current MOPR? So that is if you can address that at the price signal that comes out of the capacity market today, with the current MOPR and potentially what a change in the MOPR might do to that price signal, so I'll open that up for who wants to answer. Please raise your hand. I see a hand now. Chairman Stanek, or Jason.

MR. STANEK: Thanks Pamela. Well the problem with the current MOPR is it overrides the price signals that are being sent by the state either to procure too little, or too much of a particular capacity resource. And we see that because while investors look to the capacity market, in terms of making their investment decisions, they should also look to state actions. I suspect we have a number of Wall Street analysts listening to this Tech Conference right now and determining what type of risk to assess to a particular resources.

We have a lot of other signals aside from state

law that we're passing in Maryland including the OREC's that we've awarded to projects such as the project developed by Orsted. We have a very successful REC market that sends market signals to resources, both within Maryland and within the PJM control area.

So I would say that we have a whole array of market signals, and we shouldn't just assume that the capacity market is the one and only, but there are plenty of others we should be mindful of.

MS. QUINLAN: Thank you. Ralph?

MR. IZZO: Thanks Pamela. Starting to fill the gap with an invisible hand. Yes, no I would agree with that comment that it's not the only, but it is a critically important one. And in the particular case of capacity markets, I would simply point to other regions of the country which is not prepared quite as well in terms of their clear signals set to enter and exit the market.

As it pertains to the MOPR though, the fact that we would be ignoring vital state resources that are instrumental in achieving the carbon reduction goals of states, what we would be doing simply is introducing even an additional oversupply situation which would further depress energy prices and further increase capacity prices in the way in which we calculate things.

So we're going to be increasing supply at the

same time increasing capacity prices, which does not benefit the consumer in any way, shape or form. And as was stated earlier, in many states, New Jersey being one of them, the capacity payments received by these projects are credited back to customers, so you really would have a case of customers paying twice for precious resources, overpaying in the capacity market, and just benefitting no one.

MS. QUINLAN: Thank Ralph. Betsy?

MS. BECK: Sure. Thanks Pam. One thing I wanted to highlight that's a problem with the existing extended MOPR is how it treats existing energy only resources. So you may have existing energy only resources that are built and operating today, but then later go through to obtain capacity right, but then they're treated as new resources in the capacity auction, and all of the initial capacity costs, including up front costs for when the resource was energy only are considered as part of the offer for under net comp.

And we think that this is an inappropriate treatment of those costs and it would be more appropriate to use something like net ACR as the offer floor. But I highlight what may be somewhat of a narrow example, as a specific example of one instance in where you certainly would see over procurement because that capacity is already there, and is operating. It's going to be delivering and

it's not being accounted for in the capacity auction.

MS. QUINLAN: Thanks Betsy. Joe Bowring?

DR. BOWRING: Hello. So I like the net ACR comment. That reminds me of SMR, which I'm sure you all remember. But I don't need to go there. So one of the assumptions that's being made of a continuing is that renewables are, and will continue to be non-competitive, and I don't think that's true.

And I think it's really important to think about that. I mean looking at a bunch of unit specific MOPR exceptions, we see a lot of renewables that are extremely competitive. So it's important to ensure that competitive resources of all types have the ability to be trailing into the market, and I fully expect renewables will continue to be competitive.

I mean there is some that are not competitive, and they're not likely to be, like offshore wind just in terms of the straight costs of it. Not competitive in the sense that they're not as low-cost as those that are clearing in the market, not necessarily you can go through competitive RFP process was to take objection to that point.

But for the very expensive resources, I don't see a real issue with over procurement. But one of the other issues to think about is, and I take Jason's comments seriously, about there being multiple price signals. So one

of the questions, one of the points we've made over time is that the RPS signals are very inconsistent among states, so we see applied carbon prices of $5.00 and applied carbon prices of $300.00.

So one of the suggestions where we've made, and it's actually consistent with the Maryland proposal, is that the market think about whether there should be an aggregate demand curve for state supported resources, so there can actually be competition, there could be systematic transparent pricing across all of them.

So that wasn't a direct answer to your question, but thank you.

MS. QUINLAN: Thanks Joe, and I think we want to get to more questions, so although there's a lot of hands up, I think we'll just Susan if you can go, and then I'm going to turn this back over to Matt to going to get to another question before we want to hand it over to the commissions, so Susan. Susan are you there? Can you hear us?

MS. SATTER: Was I on mute, okay. I'm sorry. I'll be brief. I wanted to make a distinction between existing resources and new resources for purposes of the MOPR because the price implications and the bidding implications are very different. So I think there's a short-term issue, and a long-term issue. The long-term

issue is if you're using net cone for the MOPR, you are going to disadvantage new resources particularly off-shore wind and other solar.

But for existing resources, particularly existing nuclear, the MOPR I think will have a minimal effect, thank you.

MR. CHRISTIANSEN: Thanks Susan. I want to ask a question about the flip side of the issue. We've talked about the impact it has directly on ratepayers and how they pay for resource adequacy, but I'm also curious if any of you have thoughts on the impacts that over procurement through a capacity market might have on the energy and ancillary service markets.

And other aspects of this overall market design, we heard about this morning, it's certainly intended to work in tandem. I'll give it a second for hands to go up. I see Joe has got his hand up. Joe, please go ahead.

DR. BOWRING: Thanks if I understand the question one of the implications of for moving MOPR for other prices is that we will see an increase in zero marginal cost resources. We will see downward pressure on energy prices, and at least initially until we get all of the aspects of the capacity market straightened out, we may well see downward pressure on capacity market prices as well.

Normally when you would see a decline in energy

and ancillary service revenues, you would see an offsetting increase in the capacity market price, but to the extent that an influx of zero offers in the capacity market reduce the capacity market price you wouldn't see that offset, which is why it's essential that a capacity contribution, the definition of the capacity contribution in the new resources be defined, and there are a whole series of detail, fixes that need to be made in order to ensure that happens but I think that's what the immediate short-term impact would be thanks.

MR. CHRISTIANSEN: Thank you. Next let's go to Stu.

MR. BRESLER: Yeah thanks Matt. And I agree with what Joe just said. It's a question with reference to what happens if the MOPR is no longer in affect. I thought your question was if the MOPR is still in place what happens with respect to the energy and ancillary service markets.

And with respect to that question, I think Ralph hit the nail on the head where if we are seeing resource entry by virtue of state support, to Joe's point, zero marginal cost resources, then we're still procuring other resources because those state sponsored resources are being MOPR'd out.

You have more resources participating in the energy market, and it further reduces energy market prices,

and it almost gets you sort of into a vicious cycle. So I think that is a potential issue with the MOPR as it exists today if it were to stay in place.

MR. CHRISTIANSEN: Thanks Stu. Since you mentioned Ralph, I see he has a hand up. Ralph, do you want to go?

MR. IZZO: Yeah, I get the impression that there's a mistake in an assumption here and that is to say that the MOPR will have an affect on carbon free resources, and I by no means want to speak for Maryland or Illinois, or Kentucky, but in New Jersey that horse has left the barn. Those carbon free resources are going to be built. We're in the middle of the second stage of off-shore wind solicitations that will get us to 3 and 1/2 gigawatts.

I have no doubt we're going to 7 and 1/2 gigawatts. I have no doubt we're going to 1,200 megawatts of rooftop solar. I have no doubt that we're going to preserve carbon free. So you're going to have states recognizing the imperative of battling climate change. The question is do you have a market that recognizes the value of these carbon free resources and works in tandem then with the carbon emitters.

That will be necessary for the foreseeable future in terms of dispatchability and grid reliability. But to think that the MOPR will or won't affect whether or not

those carbon free resources get built I think is a mistake. It will affect the willingness of states to remain part of RTOs to avoid the double payment, and that would be a very painful decision for companies like ours that were founding members of PJM, but it wouldn't be off the table.

MR. CHRISTIANSEN: Thanks Ralph. Casey I saw you had your hand up? You're on mute Casey.

MS. ROBERTS: Thank you sorry. I was agreeing with you Ralph when I was muted, and I'll do it again, which is that these carbon free resources are coming on the grid, kind of regardless of what happens with MOPR, because they're required by state policy, and so that's what we're going to see. And those effects on energy prices will occur regardless of MOPR.

But to your question Matt, I do think that to the extent that RPM price signals are already incenting too much new entry on the grid, and retention of too much existing capacity, and that MOPR is only going to make that worse, that oversupply does dampen the energy and ancillary service price signals, and we saw some discussion of that in the PJM ORDC proceeding.

And you know looking at why our reserved price is so low, and that was because there was just simply so much capacity on the system which prevented the existing ORDC mechanism in that case from sending a more robust price

signal. So I do think we could see those price signals being enhanced and working better to incent the actual operational performance that we need if there was less over-supply on the system.

MR. CHRISTIANSEN: Thanks Casey. I want to move on to the next question shortly, but Marji also had her hand up quickly, so Marji is there something you'd like to say or add?

MS. PHILIPS: Yeah thanks Matt. I think you know in an ideal world these clean resources will run all the time, and what we need for reliability will not. So we're setting ourselves up for a problem in 10 years right, which is when we have so much penetration of intermittent zero cost in terms of energy cost, what do we pay those capacity resources?

But it's kind of ironic we're in this transition where these resources are going to penetrate in the energy market regardless of whether they clear, and I have to just get in that some of the assumptions made about these resources coming on, I can bring as much as I want because I'm going to rely on the rest, lean on the rest of PJM when the wind doesn't blow and the sun doesn't shine, or I don't have generation for my battery storage.

That is a primary assumption that has to be understood when we talk about the impacts of the MOPR and

raising it and the consequences, thank you.

MS. QUINLAN: So Marji just one follow-up question. So you're saying there's a challenge, and this just goes back to some of the timing questions I have. If you're saying that you're looking forward 10 years down the road there might be a real challenge related to how are we compensating the resources that are needed to essentially balance out this system, and provide for other services.

Are you arguing though that we need to solve that problem before we allow offshore wind to count towards meeting the resource adequacy needs, because I think at least -- and I appreciate Joe Bowring's point that a lot of these resources are coming in with pretty competitive, not in terms of solicitation, but low enough offers, but I think for the offshore wind resources that have high capacity factors, it's going to be hard under the current MOPR rules for those resources to count.

So should we not count those resources until we can solve this 10 year out problem, or I guess how do you think about that?

MS. PHILIPS: So I think a functioning ELCC is going to help us right, because you know if you look at the New York reliability study, they looked at we're going to add 12,000 intermittent resources, and their resource requirement needs went up by 24 percent.

Because the assumption is as we add these resources we're meeting capacity and we're not. So with the offshore wind as we see continued penetration in the same spots, each megawatt actually decreases the reliability value. So I think that with the properly functioning ELCC, we may actually solve that problem before we get there.

But Pam, honestly, we're going to have a problem in the future because energy prices are going to go, drive to zero because these resources, they're capital intensive, and that's where they need the recovery, not from the energy market.

But personally, I'm willing to wait a couple years to solve that one. I think we have enough on our plate if that makes sense.

MS. QUINLAN: Okay. I appreciate that, and I look forward to getting comments from everyone on our post tech conference questions related to some of these challenges that I think the Commission wants to explore later this year in some more tech conferences.

Before we hand this over to the Commissioners for their questions, I want to just ask one more question, that we had put into the notice which is related to whether or not this idea that if states want to take kind of action over their resource mix that they need to take responsibility for resource adequacy, and I'd like to get

some thoughts on whether or not this really is a necessary trade-off, and kind of what are the pros, cons and trade-offs to different approaches?

I know in PJM there's been a lot of discussion about FRR there was you know, there were states looking to potentially consider doing that, and this is an argument that we've heard plenty of times as we talked about the intersection in public policy and markets, and I'd like to just get the panelists perspective on whether or not this is a necessary trade-off.

So if you guys can use the raise hands function I'll look and try to call on you. Joe Bowring?

DR. BOWRING: Hi, just very briefly I think the answer is no. That the states can exercise their rights over the resource mix, and that does not mean they have to be responsible for resource adequacy. Resource adequacy I think is best thought of at the level of PJM. They're interactions among and between all the states.

It doesn't make sense for New Jersey or any other state to try to be reliable on its own. It's inefficient. So all the way back to 1927, that's why the states created, or that's why the individual utilities and the states created PJM in the first place. So I don't think it's a necessary trade-off at all, and I think that the state resources can work just fine with the capacity market. We

need to think a little bit more detail about the rules, but absolutely they can work fine, thanks.

MS. QUINLAN: Commissioner Mathews, or Talina?

MS. MATHEWS: Thank you. Let's remember that there are 14 jurisdictions in PJM and 7 of those states are responsible for resource adequacy, whether it be through an IRP, whether it be through insuring that reserve margins are met, so let's -- I mean I think that's a pretty common thought process that PJM, everyone relies on the market, but that's not the case.

I think states should be able to -- Jason, and it's really hard for me to say ours, I want to say Chair Stanek. He should be able to make sure his state gets the resources they need, and gets enough of it right? That the market provides enough learning.

I think the market construct was built when all kilowatt hours were equal right? A kilowatt hour was a kilowatt hour and you said I had this much need, this is my load forecast, add 16 percent to that and we're good.

But I think now, really there's a bifurcated market and that may be how it could work is that you have a market for the green, the renewables, carbon free and have that based on their ELCC values until you get state goals met. And then a market for everyone else also based on ELCC. That's all I have to contribute.

MS. QUINLAN: Chairman Stanek?

MS. STANEK: Thanks Pam. Like the resource mix states are responsible for resource adequacy. Of course, we rely on the talent and expertise of the folks at PJM to execute that for us, but in no way have we surrendered jurisdiction over this very important topic.

I would tell you that since December of 2019 it has pained us to have to investigate the FRR. I could tell you that's been a debate that's been handled in Springfield, in Trenton, and definitely in Annapolis where you hear legislators talking about the MOPR and whether we should consider changing the state law to allow our utilities to participate in an FRR.

And I would tell you that it seems rather bizarre that you would have 14 jurisdictions have to pass a law in order to comply with a tariff or with a public utility, that being PJM, where there's plenty of other options that are seriously being considered through the PJM work group right now, that it would allow the states to go forward and pursue their own individual policies, without unnecessarily burdening their neighbors in PJM with additional costs.

So this is an issue that we've been obviously focused on a lot. We've seriously considered leaving the capacity market, but our hopes is that we won't have to do so, and I think the first step is to repeal the MOPR.

MS. QUINLAN: Thanks Jason. Ed?

MR. TATUM: Pam thank you for that. I think the original question is are the return over resource capacity at the states. I think that really what you got here is a combination of both. PJM has a role to tell us what we need, and the states have the ability to say well this is how we'd like to do it.

You asked earlier questions about price suppression, pricing signals and back and forth. Here's the deal. We're getting ready to have a bunch of renewables coming in, and we saw what happened in Texas, and we've got to come up with a different way of doing the resource adequacy constructs so that we do have the right mix and the right type of generation in the future.

And so I'm less concerned about doing the MOPR now and then rolling up our sleeves to actually get a capacity construct that does take that into account, and I think that would be helpful. It can be simpler, it can be residual, and I think that we should just get moving on it right now. Pam thank you.

MR. CHRISTIANSEN: Thanks Ed. I see there are a few hands still up, but we're at the point in the program where we're going to transition to FERC Commissioner questions and I'll start with Chairman Glick, first name basis and when you're talking about your bosses.

CHAIRMAN GLICK: Thank you Mr. Christiansen. No thanks to everybody. I really appreciate, this is a great discussion, I really appreciate it. And I just want to say to Chairman Stanek I also hope that you don't have to leave the capacity markets too, and hope we can help you with that.

Given in the interest of time I have two very targeted questions I think. One of them is, Stu this might be directed at you, and maybe Joe if you want to comment. But you know I know that we have in the last several years messed things up quite a bit in terms of the PJM process, in terms of auctions and so on, and we've had a delay auction on several occasions.

And I think, I don't want to speak for my colleagues, but I think everyone's onboard that it's important that you move forward with your May auction to provide some certainty in the markets. But I understand your next auction is scheduled for December.

And my question is for you how quickly, if PJM were to propose significant changes to the MOPR, or if the Commission were to pursue that through a different mechanism how quickly would we have to get everything in order if you were to keep the timetable of having an auction in December, so that people have some certainty on a going forward basis?

MR. BRESLER: Yeah thank you Chairman Glick. I

think the basic answer to your question is we would need certainty, meaning probably a FERC order approving our tariff changes by the September timeframe if we were going to keep everything the sort of the normal course of order that would lead up to that December auction.

And when I say normal, I mean accelerated, brought up to the December auction that we have in place in order to run auctions more quickly than we normally would. So that's the basic timeframe. I would say that I think between now and when that process would play out it would be important for us anyway to get as much stakeholder interaction as we possibly could because as Manu pointed out this morning we think really robust stakeholder interaction is important to arriving at a durable, sustainable solution and certainty of rules if very important for those that participate in the capacity market.

CHAIRMAN GLICK: Thanks. Joe, Doctor Bowring, anybody else want to comment on that?

DR. BOWRING: This is Joe thanks, just very briefly. I mean I think Stu's timeline is about right, although we start before that in dealing with individuals for example, MOPR exceptions. So even if the order were not signed until the dates Stu was talking about it would be excellent to have a clear signal to the market if the rules are changing because there are a lot of detailed work that

people have to do before that, but I think Stu's timeline is right thanks.

CHAIRMAN GLICK: I appreciate that thank you. My second question is directed at Marji. Marji I was wondering you know you just commented and there was a really good discussion about some of the entry and exit and some of the approaches both at MOPR and just the general rules in the PJM RPM process, how they relate to entry and exit. And you had indicated that you know some of those problems might be down the road, you're willing to wait a few years. I just want to clarify.

Are you suggesting that you think we should go ahead and address some of the MOPR issues, or all of the MOPR issues first, and then address some of those other market design issues several years down the road?

MS. PHILIPS: So I don't know if you heard the rumor. LS had a proposal in PJM to lift the MOPR, but find a way to try and preserve price integrity. So that's a way of saying we respect that the MOPR is not working, and I think it's what you heard in the earlier panels, particularly from Gordon van Welie that you can't just rip the MOPR off without having a backup plan.

With that said, our view of the whole capacity construct needs to be reconsidered in light of the evolving grid. So what we'd like to see is a short-term fix that

addresses this. We have a little time until the offshore wind really comes in, which is the one resource we all agree is probably most profoundly affected.

But we would like to see you know maybe a year-long process that really looks at how do we define resource adequacy? What do we need? Do we continue with the assumption that it's a homogeneous product, or do we recognize it's different and have seasonal, and all of these are really profound questions that we don't want to rush into an answer where you know we're changing because we've not thought about everything.

And so I think that's a way of saying we see this as a two-step. One is getting rid of the MOPR as it exists. It's obviously not acceptable, making sure a disaster doesn't come from doing nothing, but then really taking a hard look at how do we guarantee, what is it that we need for resource adequacy in a grid that doesn't look like today, but looks like tomorrow. So it's a bifurcated process.

CHAIRMAN GLICK: Thanks very much. That's really helpful. In the interest of time, because I know we have other Commissioners here I will yield back.

MR. CHRISTIANSEN: Thank you Chairman Glick. I'll pass it over to Commissioner Danly now, but can I please just ask everyone who has a hand up to take it down,

so that we know what are new hands in response to the Commissioner's questions. Commissioner Danly?

COMMISSIONER DANLY: Thank you. So the question I have, and I'm going to let anybody respond to it is the first panel there was something approaching consensus that the traditional resources were going to be needed for reliability for at least the short and medium term.

And in the absence of the minimum offer price rule, if in fact it is eliminated or narrowed, there is going to be the drop in capacity market prices as subsidized intermittents increase in prevalence. So how is it that in the absence of a MOPR if it is removed, are we going to be able to properly compensate those traditional resources to ensure that they are there for reliability purposes? And whoever wants to answer can.

MR. CHRISTIANSEN: Commissioner would you like me to call on names as they appear?

COMMISSIONER DANLY. Yes please do. Sorry you're the MC here.

MR. CHRISTIANSEN: Roger. In that case we'll start with Stu Bresler.

MR. BRESLER: Thank you Matt, thank you Commissioner Danly for the question. I think one key to that is the ELCC approach, so it's getting the capacity contribution of the resources that do enter correct from the

standpoint of the amount of capacity they can provide.

And then you know I think it is likely that we would see some resources that's higher, but I want to come back to a point that Marji made which is making sure the resource mix evolves in a way that supports reliably efficient -- so efficient reliability. In other words making sure that the less efficient resources are the ones that retire, and the more efficient resources, the more flexible resources, the ones that benefit grid reliability are the ones that stay.

And I think that's a combination of qualifications and performance requirements for capacity resources and some of these other efforts that we mentioned as well.

MR. CHRISTIANSEN: Thanks Stu. Next up we have Ralph.

MR. IZZO: Yes. So I think it is vitally important that PJM continue to oversee the mechanisms by which the carbon free energy is secured through these FRR processes. You do run the serious risk of the free rider syndrome becoming a burden on those states that are not participating. However, I would respectfully disagree with Marji that it is not too early to begin to think about the fundamental disconnect that we are creating for ourselves.

We are introducing capital intensive assets that

rely on their inframarginal revenues if they were participating in a free market to justify their economics, yet they are bidding into a zero marginal cost basis into an energy market where they are crushing inframarginal revenues. Those two cannot equally co-exist. So something has to be done, not just for the capacity markets, but with the evolving energy markets sooner rather than later.

Particularly, if we want to accelerate the retirement of coal in the interest of pursuing climate change. The retirement of coal presently will result not only in increased investment in renewables, but it will result in increased investment in natural gas, and if those units see their intramarginal revenues crushed because they are not receiving out of market payments, we're setting up for investment disasters.

MR. CHRISTIANSEN: Thank you Ralph. Next up we have Susan.

MS. SATTER: Hello can you hear me now.

MR. CHRISTIANSEN: Yes.

MR. SATTER: Thank you. I think the assumption and the question is that in the absence of the MOPR prices will crash, or prices will decrease, and I'm not sure if that's really the case particularly in the short-term because of the use of the net ACR and the nature of the subsidized units today.

So for example in Illinois we've got the subsidized nuclear units, and because of the nature of our zone, we did not see a decrease in prices. So I would just question the premise that in the absence of a MOPR, at least in the short term, the prices will decrease to a point that it would be a problem. Thank you.

MR. CHRISTIANSEN: Thank you Susan. Next we have Ed.

MR. TATUM: Okay thank you for that. And again I go back to we haven't been sitting around for the past 15 years. There have been major changes to our energy rules. We've got fast start pricing, we've got this ORDC, and I think that as you look at what we need to really, really get on is as Ralph said, it's happening now, and we need to really be mindful of beginning to work on the next construct.

We need to have the right resources and make sure that they are paid properly. But our energy markets right now I think can get us through the short term Commissioner Danly.

MR. CHRISTIANSEN: Thanks Ed. We have Casey was the next with her hand up.

MS. ROBERTS: Thank you Matt. Commissioner Danly thank you for the question. My answer to that would be that while the elimination of the MOPR may place downward

pressure on capacity market prices, that price can't fall lower than the offer of the marginal unit that's needed for reliability.

That's just the way the supply and the demand curves work in the auction. So to the extent that traditional generation types are still needed, and are essential to meeting the demand in the market, then they will be able to receive the revenues they need through the capacity market in order to clear.

MR. CHRISTIANSEN: Thanks Casey and then last with their hand up was Marji.

MS. PHILIPS: So Casey I have to disagree that what you said is true in the future, but without an ELCC there is no distinction between a megawatt of a short start you know battery storage. Well today the rule is eight hours, but say a wind resource that's onshore and the wind is not going to blow, versus a thermal unit, or a nuclear unit that clears.

So today the marginal unit is not distinguished by its characteristics, and that really goes to my comment to Chairman Glick that we need to figure that out in the future. And Commissioner Danly you ask a great question. I think I have to agree with everybody in the near future raising the MOPR is probably not that significant because everything -- there's not a lot coming on the pipe, but with

offshore wind it will.

And I have to point out the irony of we're trying to suppress prices in the capacity market to ensure really expensive capacity resources clear. And that's an irony that I think we have to be -- we're disingenuous if we don't address the fact that we're trying to get very, very -- some are very expensive. The offshore, as Joe points out, wind to clear.

Everything else is going to be competitive. As an investor you're not relying on the other renewables, maybe 20 percent of your revenues come from the capacity market. So you're going to depress it short-term, but the longer-term problem hopefully an accurate ELCC would solve for.

MR. CHRISTIANSEN: That's everyone Commissioner Danly.

COMMISSIONER DANLY: Great thank you. I'm assuming other Commissioners have questions, so if they do we can move on.

MR. CHRISTIANSEN: Okay. In that case Commissioner Clements is up next.

COMMISSIONER CLEMENTS: Thanks Matt. I have one question for Casey Roberts in the spirit of getting some more details around some of the other issues that were put on the table this morning, and ideas appreciating that this

isn't only to the MOPR question.

Casey at a recent PJM, one of the PJM workshops, you proposed a voluntary residual capacity market where PJM sets the capacity value of each resource type, and then buyers have a choice to the centralized auction, enter into bilateral contracts, or otherwise self-supply.

And this morning we heard some concerns about whether what is left in terms of a capacity market under this scenario may be insufficient to ensure resource adequacy and in fact garner reliability. And I'm curious do you agree with this concern, and why or why not is that the case?

MS. ROBERTS: Yeah, thank you Commissioner for the question. I think that as long as PJM is accurately valuing the capacity contribution of the resources that are being procured through the bilateral contracts which are outside of the organized market, but there's no concern that the residual market would somehow be inadequate to sort of serve as that backstop to make sure that you're having resource adequacy provided when you look at the combined effects of the bilateral market and the centralized market.

COMMISSIONER CLEMENTS: Thanks. And a quick follow-up there. Does this proposed model solve all of your concerns or what you perceive to be the set of shortcomings with the capacity market today, and some of these were

touched on at the beginning of this hour. If not, what would you prioritize as other issues of other elements of the market design that we need to get to quickly?

MS. ROBERTS: Yeah. Thank you so much for the question. No we see the movement towards a voluntary residual market as primarily addressing the MOPR and sort of the issues related to that around states and other buyer's ability to pursue the resource mix that they would like.

But that does leave a large set of issues relating to capacity over procurement as well as I think some of the longer term questions about how we're valuing the resource adequacy contributions of different resources, and whether that should continue to be done on a resource by resource basis, or whether we should move more towards looking at how portfolios of resources complement each other and provide for resource adequacy.

So I do think those additional issues would not be addressed by the move to the voluntary residual market. Though the ability to address them would not be impeded in any way. And in terms of sequencing, I think that the MOPR is the highest priority issue to be addressed, simply because it goes so much to the core of the ability of FERC's markets to provide what states need, and for there to be a collaborative relationship, and that those other issues could follow within a year or two.

I do agree they're, you now, much, more complex issues that are worth a deep stakeholder discussion whereas I see resolving the MOPR as something that is a very clear legal issue in terms of the Commission providing for just and reasonable rates.

COMMISSIONER CLEMENTS: Great, thanks Casey.

MS. ROBERTS: Thank you Commissioner.

MR. CHRISTIANSEN: Commissioner, I saw that Stu also raised a hand in response to that question. Can I call on him?

COMMISSIONER CLEMENTS: Yes please.

MR. BRESLER: And I just wanted to point out I'm anxious to consider our stakeholder discussion on these issues because I really think that the kind of thing that Casey is positing with respect to a voluntary residual market really can work through a market structure very similar to what we have today as long as the MOPR doesn't apply to resources that are bilaterally procured.

And I think if instead you were to adopt an approach where bilateral and self-supply resources and the associated demand were pulled out of the market, I think you would lose several very important components.

There's the transparency benefit of everything participating in the market. There's market power mitigation benefits that you, Joe pointed out before, and

then if everything is pulled out you lose the benefit, but I think we've discussed since the beginning of RPM what they slope the demand curve that applies to the system-wide loads, from the standpoint of valuing resources even beyond the IRM.

So I really am anxious to continue the stakeholder discussion, because I do think the benefits that states are looking for from that voluntary residual concept, really can be gained by addressing the MOPR in the existing market structure while retaining some of these other benefits as well.

COMMISSIONER CLEMENTS: Thanks Stu. I'll look forward to follow-up coming our way on those other issues that you've identified.

MR. CHRISTIANSEN: Do you have any other questions Commissioner Clements?

COMMISSIONER CLEMENTS: I'm good thanks Matt.

MR. CHRISTIANSEN: In that case I'll hand it over to Commissioner Christie.

COMMISSIONER CHRISTIE: All right thank you. I have two questions and first I want to start with going to Doctor Bowring. And I want to follow-up Joe on something I heard you say, I may have wrote it down wrong, but I think you said that as far as specifically the path forward, the first you know, if we get rid of the MOPR, if we do get rid

of the MOPR it should be combined with, I think I heard you say this -- getting rid of the MOPR should be combined with some sort of competitive procurement for subsidized resources.

Would you elaborate on that? And also what you're proposing and if you think that should be part and parcel of the repeal of the MOPR?

MR. BOWRING: Sure yeah, so I think you wrote it down correctly. So what I was saying at the moment we have very different employed carbon pricing, all the RPS programs in the footprint. So recognizing the state's authority, and recognizing that it would be great to apply competitive market forces to the procurement of those resources.

There would be a demand curve within the PJM market solution for the level of state resources the states wanted. It could be procured competitively. There would be a clearing price, and then those few services would be clear and be paid. Of course I mean that depends on having a correctly done ELCC and the rest of those details, but that's really it.

And it looks a lot like what Maryland proposed. I don't regard it as a carve out at all, but it would nonetheless provide some competitive procurement process to the acquisition of renewable resources. And of course, I mean if the states don't want to do it, then the states

don't want to do it that way, but I think it would be somewhere between simply getting rid of the MOPR and letting everything rip and trying to apply some competitive forces to the acquisition of the state desired resources.

The states get to define what they are, but they would be procured in aggregate through the capacity market, was that clear or?

COMMISSIONER CHRISTIE: Yeah, I'm just asking, I'm not sure maybe Matt can tell us, I think there's an opportunity to supplement testimony with the trial website. I sure appreciate if you would follow-up with some more detail on that because that's you know I said at the very beginning this morning, I'd like to hear some very specific proposals and that is one. So that would be combined with getting rid of the MOPR.

My second question really I want to get at the question of states reclaiming their authority and their responsibility for resource adequacy which is, you know, if you know the MISO model is very different, the SPP model is very different for states. They are of course they're almost mostly vertically integrated, so it is a different ballgame.

As Talina pointed out in PJM you have a 7-7 split and who's vertically integrated and who's not. So obviously, I realize PJM is a different composition of

space. But I want to ask about, and I'll throw this out first to Jason, Chairman Stanek of Maryland Commission, and anyone else who wants to comment.

So let me know please whether the FRR is a realistic in your mind way of reclaiming state authority, reclaiming state responsibility for resource adequacy, and if FRR is not, please tell me what needs to be done to FRR to maybe make it more palatable to states who would want to reclaim their authority, and reclaim their responsibility for resource adequacy.

MR. STANEK: Thanks Commissioner. FRR is one tool. It's not a desirable tool necessarily, but it was the only one that FERC provided us back in the summer of 2018 to explore. Only a part of one state has since used FRR back in 1999. So it would allow us to reclaim resource adequacy. But at the same time we've been relatively content in the capacity markets up until the Calpine decision, and we'd like to stay if possible.

We are in a very constrained portion of PJM right now, trying to find a bilateral contract without market power issue would be difficult for the utilities in the State of Maryland. So to answer your question yes, that would allow us to take control of resource adequacy.

At the same time there is a question of concern, and I know Monitoring Analytics and Doctor Bowring performed

his study of the State of Maryland, and what an FRR would mean to us. And in five out of six models it would be an increase in cost to Marylander's. Now when Marylander's are willing to pay for some of these you know resources, we don't see the need necessary to pay additional on top of that the FRR when the capacity markets for the construct has provided for us in the past.

COMMISSIONER CHRISTIE: Is it the five year lock out that's the big concern, or is it other concerns? And by the way I read that conference report and Joe you can speak for yourself, but I think he basically just assumed there would be more rent seeking under FRR than already is, so I think that was an assumption he made.

But nevertheless, so Jason is it the five year lock out that's the big concern?

MR. STANEK: That is a concern. Doctor Bowring obviously, he ran a number of assumptions in looking at the six different models, but having a five year anti-toggle where we couldn't go back and forth between the capacity market, that does make sense, but it could trap a state in a different construct where our state may be paying well above what it needs to in terms of what could pay under the capacity market.

So there's lots of pros, there's plenty of cons, and that's why we've been taking closing in on two years

now, and that are examination and investigation of the FRR.

COMMISSIONER CHRISTIE: Okay. Anyone else want to comment on either one of those questions?

MS. QUINLAN: It looks like Stu Bresler has his hand up.

COMMISSIONER CHRISTIE: I can't see the hand up, but I thought he might.

MS. QUINLAN: We can manage the hands for you. Stu if you would like to go ahead, it looks like your hand is up.

COMMISSIONER CHRISTIE: Okay.

MR. BRESLER: Sorry Pam I didn't put it down before, my apologies. I would say though that from the standpoint of you know states sort of taking over the entire responsibility for resource adequacy as opposed to remaining in the regional market and potentially making you know some resource decisions to the extent that they desire to, it seems to me and Chairman Stanek referred to this, it doesn't seem to me necessarily to be a cost-effective approach either, because you know as large as we can keep this regional competitive approach to resource adequacy, I think you know historically it's proven to be beneficial, so it would be good to be able to keep as much of that as we can.

COMMISSIONER CHRISTIE: Well Stu can we follow-up real quick. I'm glad you came on here, because you made the

comment that if states engage in bilateral contracts for resource adequacy and they at least ought to be run through the PJM for the price signals.

And so I think I understood you correctly that the benefit of running bilaterals through the PJM is it does give the price signals. I understand that. But since I think Marji Philips made this point. The main effect of the MOPR is against offshore wind, I mean that's the main effect.

And I think Doctor Bowring said the same thing. That's about the only resource that wouldn't clear because of the MOPR. So if states want to procure offshore wind, whether it's New Jersey, Maryland, I started saying New York, but they're not in PJM, that's taking the back route, but Virginia, want to procure offshore wind.

If they want to procure it through bilateral contracts with you a state-based, with the LAC's under their regulation, what would be necessarily bad about that? If they have a policy, as New Jersey does, and they want to procure offshore wind specifically, you know because their statute requires it, what's wrong with just doing it through bilaterals?

MR. BRESLER: Nothing whatsoever Commissioner, nothing whatsoever. What I was saying was I think that it's questionable right now depending on how that's structured

whether the current MOPR as it exists today would apply to those resources. And so whether those bilateral purchases would then get MOPR'd through auction right, and we have the same issues we have with any other resource.

COMMISSIONER CHRISTIE: I'm assuming MOPR is gone. Okay.

MR. BRESLER: Okay, then nothing at all.

COMMISSIONER CHRISTIE: I'm just asking you if the MOPR was gone, what would be wrong with New Jersey, Virginia, procuring offshore wind strictly on a bilateral contract between the LSE and you know pursuant to their state law?

MR. BRESLER: And then you're saying just carving that out of the larger resource adequacy auction?

COMMISSIONER CHRISTIE: Yes, yes.

MR. BRESLER: Well like I said I think it may be in very specific instances, you know, nothing, but even then if you don't worry about the transparency on the market, power mitigation benefits of getting it to the larger market.

From a regional basis I still think you lose the benefits of the other kinds of characteristics, how you maintain locational requirements. Again, the impact of a regional based VRR curve, all those kinds of things. So the more you carve out the less benefit you have of that

regional approach.

COMMISSIONER CHRISTIE: Okay. I don't have any more.

MR. CHRISTIANSEN: It looks like Marji also had her hand up.

MS. PHILIPS: Yeah Commissioner I just wanted to go back to and make it clear, as an investor we completely support competitive procurement for resource attributes. So for example, a competitive RPS program, or what you said, putting the competition for offshore wind, making it a competitive product that LSE's have to purchase every year.

All of us take risk every year that our investment may become obsolete.

COMMISSIONER CHRISTIE: Right.

MS. PHILIPS: The idea is putting us on an equal basis, and it benefits consumers too, because they you have the resources competing annually on the same basis. You don't have customers signing out of market contracts for 10 years. 10 years ago New Jersey wanted a long-term gas fired plant.

That's something they wouldn't want today. So to make it clear, we think states should procure what they want, but it should be done through a competitive process that sort of puts everybody on an equal footing, and they have the tools, RPS, their permitting requirements and

things like that. So thank you.

MR. CHRISTIANSEN: Patty I see that you had your hand up?

MS. DIORIO: I did. I was double muted sorry. So actually Stu made the point that I was going to make earlier, but I would like to just add that -- and this is something that hasn't come up yet. You know with regard to offshore wind. It is you know it's been a resource that has come a long way in Europe.

It's been a key contributor to European climate initiatives. Here in the states we're really just starting, and we have some of the best marine wind resource on the planet at our doorstep, and we're starting a whole new industry. So it stands to reason that the states are interested in adding that into their mix, and the point that we would make is that it should be compensated for a pretty good stream of capacity value that provides regionally, so that was what I wanted to add. Thank you.

MR. CHRISTIANSEN: There are no more hands Commissioner Christie.

COMMISSIONER CHRISTIE: Okay thank you.

MR. CHRISTIANSEN: In that case we've reached the end of our time, in fact we're a little bit over the end of our time with the panel. I'd ask the panelists on Panel 2 to sign-out now. Commissioners you can remained signed-in

and then panelists for Panel 3 will you please sign in now. We'll start Panel 3 on time. Thanks everyone.

(Break 3:14 p.m. - 3:29 p.m.)

Panel 3: Alternative Approaches for PJM Capacity Market

MS. GADANI: Good afternoon everyone. My name is Jignasa Gadani and I'm from the Commission's Office of Energy Policy and Innovation. I will moderate this panel along with David Rosner from the Office of Energy Market Regulation. Let's get started with our third panel today entitled "Alternative Approaches for PJM Capacity Market."

Just to repeat a few reminders from the earlier panels, we will begin this panel by asking each panelist to respond to initial question for three minutes each. After all panelists have responded we will proceed through the question and answer session. During the question and answer session, if the Chairman, or Commissioners would like to follow-up on a panelist's response, they will use the Webex raise hand function, or unmute and interject.

We will also have time for questions from the Chairman and the Commissioners at the end of this panel. As we begin I would also like to remind all participants to refrain from discussing the specific details of the pending contested proceedings listed on the supplemental notice issued March 16, 2021.

And to refrain from any discussion of other

pending matters, or pending contested matters. If anyone engages in these kinds of discussions, Kit Shook from the Office of General Counsel will interrupt the discussion to ask the speaker to avoid that topic.

I will now begin with our first question for the panel. If the Commission were to direct revisions to the currently effective MOPR and replace it with a MOPR designed to address only buyer-side market power, which we will refer to as targeted MOPR, what additional changes to PJM's market design would be necessary for a just and reasonable outcome?

Please explain what other changes would be needed. I realize that we've covered several of these issues earlier in the day, but we would like to hear from this group on their thoughts. I will turn to each panelist in turn to give their response. First up is Stu Bresler, Senior Vice President Market Services at PJM Interconnection. Please go ahead Mr. Bresler.

MR. BRESLER: Thank you Jignasa and good afternoon again everyone. The first question I think was whether or not a targeted MOPR could be just and reasonable. The short answer is we do think it could be just and reasonable. I realize that this is a bit of an evolution where PJM has been on this issue in the last several years, and I think some of the points as to what has led to that

evolution were made in the last panel as well.

But there have been a lot of things that have changed. I would point out number one that the MOPR that we have today and are in the process of implementing is not the MOPR that was suggested. Several years, sort of going into this process, really mainly we had proposed several exemptions to the MOPR that were not accepted, and so we're left in this choice between basically MOPR everything, or you know reel the MOPR back in to be really what is addressing the market power, and we're in that later camp at this point as what is really the just and reasonable solution.

I could tell you stories about the administration of this MOPR and what it entails digging into PPA agreements, and these types of things, that really we don't believe or should be our role, but it's probably too much detail. The other thing I think is there's a lot that's changed over the last several years.

The points were made in the last panel that we have reserved pricing changes, the ORDC's that are being implemented in May of next year. The ELCC methodology, very important, that is under significant development at this point, and those are big changes that we think can support moving forward with significantly scaled back minimum offer price rules.

We do think that there are other things that we should consider, and again we went through them in the last panel, but the qualifications and the performance requirements for capacity resources, the reliability attributes, what they need to be looking forward into the future as the resource space evolves.

Where they should be procured, how to sustain transparent and accurate price signals for those services, all those things should be evaluated as well as we move ahead. So those are things that I think we would point out as far as we'll probably move forward after the MOPR.

MS. GADANI: Thank you Mr. Bresler. And next we turn to Doctor Joe Bowring, President of Monitoring Analytics, please go ahead Doctor Bowring.

DR. BOWRING: Okay. Thank you. So let me surprise you by saying my answer to the first question is yes, but only advisedly because since we believe that the negative impacts of leaving the MOPR in place would be almost zero. Correspondingly the negative impacts of removing it, what else would be close to zero.

So we think that in general renewable resources as we've talked about today are competitive, and therefore that the MOPR would neither require any significant amount of temporal payment, temporal procurement or significant dollar impact.

But the answer for the longer term, and even medium term is no. We do think some additional changes need to be made, but nothing of the dramatic type, for example, moving to a bilateral market which you think really makes no sense. We could talk more about that later.

But eliminating the MOPR is certainly preferable to FRR as a number of commenters pointed out, particularly some of the states. But the rule changes that we think are necessary, and some of them are already in the works. And I'll just mention them and hopefully not run afoul and talking about details about ongoing Commission dockets. But we need to address the market power, we need to address the over forecasting issue. We need to address the firm fuel issue. We need to address the definition of the VRR curve. We need to address the obligations of capacity resources and last but not least, we need to address -- and this has been talked about today, what is the definition of the reliability contribution.

All of those things, even though they sound too complicated, are all in process right now. They're all being considered right now, and need to be addressed and resolved within a relatively short period of time. Thank you.

MS. GADANI: Thank you Doctor Bowring for that answer. Up next is Abraham Silverman, General Counsel of

the New Jersey Board of Public Utilities. Please go ahead Mr. Silverman.

MR. SILVERMAN: Great to be here, thank you. I'm also a no. I think we have an ample evidentiary record to support returning to a pre-2019 MOPR today. As you all recall we had for seven years a stable MOPR that was adopted in 2012. It lasted really up until 2018-2019.

You know and with the response to these orders, the Board here in New Jersey undertook a detailed analysis looking at the various implications of MOPR and the resource adequacy implications.

You know and our analysis shows that you are going to have about 300 million dollars annually of excess costs imposed on New Jersey consumers, starting in 2025. That number increases to 2 billion dollars when you look across the entire PJM footprint. Now you know there's a number of analyses out there that all come up with slightly different numbers, but it's a large number, and has a lot of potential harm to consumers.

And I think the point is consumers receive no benefits, no additional clean energy, and little, if any, reliability benefits for this extra money that they're spending. Frankly, I think the Commission has the legal authority in the evidentiary record to tell PJM tomorrow to simply return to reinstate the tariff language that existed

for you know, seven years prior to the 2018-2019 orders as an interim measure.

That's why I really want to emphasize this. Longer term the Commission has to look and incorporate carbon value into these capacity markets in order to have a just and reasonable market. It makes absolutely no sense for there to be a federal system, a federal grid focused on reliability and costs, and to have states, you know, running an entirely different grid at the state level, largely focused on decarbonization.

You know the competitive markets save consumers in PJM and across the country billions of dollars a year, and it's really unfair to tell states that somehow they have to choose between the benefits of competitive markets and their clean energy aspirations.

You know but it doesn't have to be this way, and I think we should all you know, walk away from the Conference today imaging that there's a system where PJM actually helps states to achieve their clean energy goals, allow states to dictate the carbon content of the capacity supply stack, even have a forward clean energy market that's integrated into our capacity market.

You know I'll just sort of end by noting you know I was really struck that desired access competitive regional wholesale markets to achieve clean energy goals is not

unique to New Jersey. As Judge Jagdmann earlier this morning, is on record as supporting, allowing states to you know specify the clean energy levels with emissions of their content, of their energy supply, which the PJM market was an account for or procure on a competitive least cost basis, consistent with reliability.

That's a really powerful concept. And you know to me that's what a just and reasonable future capacity market is going to look like. That's what a successful exercise, a cooperative federal thing is going to look like. So you know, yes today, getting rid of MOPR, absolutely J and R, but as we go forward it needs to be more than that.

We don't want to squander this unique opportunity to really drive clean energy procurement through wholesale markets.

MS. GADANI: Thank you very much Mr. Silverman. Next up we're going to hear from Commissioner Daniel Conway, Commissioner with the Public Utilities Commission of Ohio. Please go ahead Commissioner Conway.

MR. CONWAY: Thank you very much. Good afternoon. Thanks for the opportunity to discuss these matters with you. And while my comments are my own, my intention is actually to represent Ohio's interest in this discussion. Before getting to the actual question, just a

minute of background because it's important to me for everyone to understand Ohio's background and where it stands currently.

We restructured retail generation service markets in 2000. We had retail competition. Our vertically integrated utilities were required to separate from their generation assets, and they did and Ohio has a default standard service option procured through a competitive wholesale auction process which is provided by utilities for customers that don't shop.

Our transmission owners were required to become members of and transfer control of their facilities to a FERC approved RTO, which they did, that is PJM. So Ohio restructured, joined PJM based on the expectation that PJM would provide a reliable transmission grid, and that the wholesale bulk power markets that PJM oversees would provide adequate supplies of power at all times, and also at peak times.

And we relied upon the competitive model for those bulk power markets that deliver reasonable prices. So far I would say PJM and our participation has met expectations. We have a reliable grid. We have adequate supplies of energy at all times, and at peak periods, and we have reasonable prices I would say. So now the question that's been posed.

I think that FERC and PJM can accommodate the state policy preferences at this point without engaging in the complex and frankly, arbitrary approach, the current expanded MOPR. I don't think there was an adequate record that was made to support the institution of the expanded MOPR.

The selective approach that was taken with regard to how it was applied I think is problematic, but in any event our view is that at the bottom of it the price suppression case at this point that was made for the expanded MOPR was too theoretical. More concrete evidence of price suppression should be required before going down that track.

So not surprisingly we favor reverting to a targeted MOPR. However, that's not to say that we shouldn't keep a close eye on future developments, including whether state policies, preferences in the future, or other factors do have a material impact on price formation in the capacity market.

We should do that. And I think there have been other panelists, some of whom are on this, members of prior panels, and they're on this panel like Doctor Bowring, have made this point. We should keep an eye on it for the future. I'm resource technology and state policy preference agnostic.

The type of generation or resource technology that a state wants to deploy or retain demonstrates its ability to meet demand consistently and when most needed. And that type of resource should be able to participate and compete for capacity revenue from the PJM capacity market, but only to the extent that it actually provides capacity performance value and no more. And that point has been made by other panelists, prior panels too, and I agree 100 percent with it.

I just think at this point the case hasn't been made that there's a problem, so let's not complicate our lives with the expanded MOPR. Let's go back to the targeted MOPR. So I think that would be a just and reasonable result, and I think it should be -- and the consensus seems to be that it should be done.

So Ohio would go along with that. I do have one final caveat, and this has also gotten some attention from some of the prior panelists. And I direct this to the FERC Commissioners. Please don't do anything in the near term that would disrupt our ability to get back on schedule with the capacity auctions. We need to do that, and we need to do it in an orderly fashion.

We don't need to open another Pandora's box while getting out of the one we've already created. Thank you.

MS. GADANI: Thank you Commissioner Conway for

your thoughts. Our next panelist is Kathleen Barron, Executive Vice President, Government and Regulatory Affairs and Public Policy at Exelon. Please go ahead Miss Barron.

MS. BARRON: Thank you Jignasa. It's great to see everybody. Good news for all of you. You seem to have unanimity so far on this panel. It will not surprise you as the nation's largest generator of clean energy, one of our every 9, zero carbon megawatts comes out of one of our machines, that we are in agreement that the Commission should immediately eliminate the current MOPR in PJM.

I'm just going to start off by saying that you know I noted that two days ago on March 21, that was the five year anniversary of the date that a number of fossil generators first filed a complaint asking for FERC to expand the existing -- that existing MOPR beyond its original purpose of addressing buyer side market power.

And a number of us told the Commission then that the tariff did not need a change, so you do have an extensive record that RPM was just and reasonable without the expanded MOPR that we're all dealing with right now. There's ample testimony in the record from Professor Willig of Princeton who sponsored, who explained that these programs have actually improved the efficiency of the wholesale markets by internalizing and externality, a real cost evolution of generation sources in the market.

And I looked back at our first pleading in this docket this morning and it said, "The Commission should not embark upon rule changes with such sweeping implications for the operation of the markets, and implications for a state's ability to achieve its legitimate objectives, without a determination that there's actually a problem to be solved, a clear statement of what that problem is, and a detailed consideration of various options for addressing it, and the consideration of the social cost and benefits of those options."

And needless to say that did not happen, but I commend you for calling this Conference today and doing exactly that, and getting it on the schedule so soon into the new administration, so very pleased to hear so many people here today tell you that the original decision was a mistake, the expanded MOPR should go away, and that we should work on solutions.

But unfortunately, the fact remains that while we've been litigating this policy for the last five years, the U.S. has added 9 billion tons of carbon dioxide into the atmosphere, just from the power sector. And the co-pollutants that have been emitted associated with that carbon pollution we all know have caused tens of thousands of premature deaths.

And I am not saying that the pollution was caused

by the MOPR. What I am saying is that instead of using the last five years to try to find a way to use the markets to assist the states, and really the planet in making a dent in carbon pollution, we've been working on ways to make clean energy more expensive. So I'm glad that there seems to be a sufficient amount of support to change course.

I will note that there are some folks who have said that MOPR really has had no effect, or will have no effect. Others have said capacity prices are going to plunge without the MOPR. I don't think it can simultaneously be true that MOPR is going to have no effect at raising prices, and then say that prices for conventional resources are going to plunge without the MOPR, but I don't think it matters.

I think Stu Bresler gave us a pretty clear answer to that, and in his view there is not a near term reliability issue from getting rid of the expanded MOPR given the quantity of resources in PJM at the moment and the level of flexibility that PJM enjoys as a result.

So I think you've heard also unanimity that we do need some other changes to address the evolving resource mix. I think we should get on with those and if the Commission wants to put PJM on a tight clap to get those changes evaluated and on file, that's great, but the states, consumers, the self-supply community and certainly the clean

energy community have spent a lot of time trying to deal with how we're going to achieve our goals and deal with MOPR at the same time.

And so I do not think we should wait for those longer term solutions to get addressed and filed in an expanded MOPR. Thank you.

MS. GADANI: Thank you Miss Barron for that. In fact our next panelist is Ruth Ann Price, Deputy Public Advocate for the Delaware Division of the Public Advocate. The floor is yours Miss Price.

MS. PRICE: Thank you very much for inviting me to participate in this panel. I want to say first that yes, a targeted MOPR is preferable to what we have now, the expanded MOPR. The disturbing trend for consumers is the erosion of the benefits from the fundamental aspects of the PJM capacity market caused by some supply side faults.

For example, the targeted reserve margin is 15.8 percent, yet PJM has been procuring at least 50 percent more than that over the last few years at a cost of billions to consumers. The flawed market seller offer cap, and I will stop there. The consumer advocates have argued that CT is the long reference of sorts.

These supply side fundamentals must be addressed. In other words, nothing is just and reasonable until you fix the supply (audio dropped).

MS. GADANI: Miss Price we cannot hear you.

MR. ROSNER: It looks like you pressed the mute button accidentally.

MS. PRICE: The supply side of the demand side of the equation will not remedy the supply side. That is our priority. We are about to see wholesale prices jump significantly for most parts of the region in 2021. Capacity market prices will jump in the RTO by almost 100 percent, for most of the PJM region on June 1.

Transmission costs have increased by 50 percent over the last five years. Energy prices are climbing up from the historical low that gratefully gave us relief during the pandemic. Consumers want and expect reliability. Now that has changed somewhat to reliability at least cost while meeting particular state policy goals.

It should be changed to reliability at the most efficient cost while meeting policy. Consumer advocates want deliberations done correctly rather than fast. States should have the right to elect the resources needed for reliability in their state. It is a fine line and a hard one to draw to determine what subsidies are good and bad.

Further, almost all of the traditional resources are getting some level of subsidies. I would also like to say that the Commissioner from Ohio has made an excellent point in noting that the expanded MOPR was premised on very,

very light evidence, if any. Thank you very much.

MS. GADANI: Thank you Miss Price. Our next panelist is Doctor Roy Shanker, Independent Consultant. Please go ahead Doctor Shanker.

DR. SHANKER: Thank you. And I'd like to thank the staff and Commission for having me today. Unfortunately, for Kathleen there's always a fly in the ointment and that's going to be me. I don't agree. I don't agree with the rest of the panel so far, partially maybe with Doctor Bowring.

As a reminder for everyone, when addressing all these types of subjects it's important that people distinguish between market design and design principles which would have their own benefits and problems, versus how such designs interact with the presence or absence of the types of subsidies and out of market payments we were discussing.

They are separate but they interact, and the key to understanding this is understanding the interaction. And too much of what we've heard today, at least I've heard, comingles those, it makes it hard to distinguish what we're really talking about.

With respect to the first question I believe that a terminated MOPR would not be just and reasonable and once the action is proposed to be omitted, would truly go to the

subsidy issues and non-market payments. And even things like carbon pricing were dealt with in some other functionally equivalent in a just and reasonable manner.

They're a package. And segmenting them selectively to the benefit of one party is just improper. I broke this answer into pieces with respect to the second part of the question. The question in and of itself effectively acknowledges the basic problem with subsidies. In a competitive market design it would not be sustainable to maintain a supply side paradigm where one segment of the market gets no subsidies, leasing prices are lowered by the subsidies and the remainder receives both the market payments and the subsidies are non-market payments.

It's irrational to believe that the unsubsidized facilities can survive in such an environment. It should be clear that either the party receiving the subsidies is being overpaid, versus some appropriate just and reasonable rate with the other party providing the same or superior services is being underpaid. It can't be both ways.

Further differences in state by state temporal implication of their programs and their responses to these issues virtually guarantees that any programs being implemented will have equal and pre-emptive results between the various states. Ultimately, first movers in most of this can bring together much better DL than those that wish

to see the proof in the pudding in how they implement their programs.

I don't see any of the characteristics I just mentioned as being acceptable results under the Federal Power Act. Resolving this problem falls directly in removing the bias in payments. The unequal payments for what are assumed to be comparable, reliability products fundamentally fails the J and R test, and that's basically what you would be doing by looking at a targeted MOPR.

Either there is a market mechanism to do this which I doubt exists. I don't think this can occur. I believe there's really no mid-point. If you want to deal with this problem, and you want to deal with it explicitly in terms of the choice of picking winners and losers, I think there's nothing really between a fully non-discriminatory market and going all the way to the other side of the process service. I'd be happy to talk about that more.

The source of the problem is obvious, and the question should be resolved around how to solve the problem head on. The subsidies. Right now the only two available to resolve this obvious bias and deficiency from my view, is the MOPR. And I would agree it is a crude tool, but no one has come up with one in the middle.

What they've come up with is designs that don't

work. There may be other ways to address this. For example, bilateral resources that are not subsidizing, instituting costs of services, something I think would be horrible, or --

MR. ROSNER: Dr. Shanker we're at time.

DR. SHANKER: Let me finish the paragraph. In any event that would probably trigger buyouts I'm trying to avoid.

MS. GADANI: Thank you Doctor Shanker. You have given us more to think about given the different opinion than what we've heard so far. So maybe we can get into that a little bit more. Next we're going to turn to Susan Bruce with McNees Wallace and Nurick LLC, Counsel to the PJM Industrial Customer coalition. Please go ahead Miss Bruce.

MS. BRUCE: Thank you so much. Good afternoon to FERC Commissioners and staff. Thank you for this opportunity to share the large customer perspective on this very important topic. To give you some background, I do think it's relevant for the conversation.

PJM licensees, a coalition of 30 large industrial and institutional energy intensive customers within the PJM footprint. Some of our members have facilities in states pursuing public policies designed to support a more sustainable resource mix. Some members have facilities in states with different policies. Some have facilities in

both.

Customers pay for these policy decisions in many ways, including but not limited to, non-bypassable charges on their retail electric bills. Some PJM ICC members are pursuing measurable sustainability initiatives on a private basis, including investments in renewable PPA's.

Many are energy intensive and trade exposed business where all in energy costs is the only consideration that matters. In all cases, PJM ICC's require reliable electricity at the lowest possible cost in order to produce their products and services.

PJM ICC acknowledges the challenges presented by the MOPR and shares the Commission's concerns about customers paying more than they should for resource adequacy. Truly customers are at the crosshairs here of being asked to pay for state policies as well as wholesale resource adequacy.

Numerous ideas have been offered on how to best ensure this can be harmonized, and we have our own ideas which we can get into later. But I think that there is a fundamental tension that exists and should be recognized that the objective functions being served here are different between resource adequacy and resource design decisions.

PJM ICC acknowledges the benefits of the centralized capacity construct that leverages competitive

forces, accountability and transparency to advance reliability. If the Commission were to pivot to a targeted MOPR, you know, we've heard a lot of interesting things here today about the timeline whether or not that would occur, when things get of concern.

But I think from our view vantage point there needs to be some type of mechanism to isolate the supply and demand impacts of state policies and exclude those impacts from capacity pricing. If we are to have a long-term durable market. If the resources supported by state policy is only economic, as a result of the state support it seems counterproductive to include that policy decision in pricing outcomes.

At the same time, customers should have some sort of explicit recognition of the resource adequacy of those megawatts that they are paying to support, as long as they have comparable performance requirements. PJM ICC believes there are other incremental changes to PJM markets that are of value, and we look forward to discussing that.

To close though we would say that energy intensive businesses really do look to FERC to fulfill its responsibility to ensure the long-term durability of the PJM capacity construct, and I look forward to the questions and conversations. Thank you.

MS. GADANI: Thank you Miss Bruce for offering

that perspective. We'll turn to our next panelist, Elise Caplan, Independent Consultant on behalf of the Sustainable FERC Project. Please go ahead Miss Caplan.

MS. CAPLAN: Thank you so much Jignasa. So generally the consensus at a broad conceptual level that moving away from the current MOPR and its recent expansion to a theoretical targeted MOPR does seem to make sense.

But I do want to talk a little bit about the concept of a targeted MOPR to start with. Given the history of what we've been through with the MOPR discussions and the rule changes over the past 10 years, I would urge extreme caution in developing such a targeted MOPR.

I don't think there is actually any evidence of what people describe as buyer-side market power. I don't even think we know what that really looks like. So for example, a state decarbonization policy may result in the procurement of new offshore wind, and when that enters the market you could have a reduction in energy and capacity prices, and that could be even less than the present value of the cost of the contracts.

That does not mean there's any kind of buyer-side market power happening there. So I'd be nervous of any kind of analysis or threshold that would determine what is buyer-side market power. Instead, I would say if there's going to be a targeted MOPR, you would have to have a

similar concept as regionally in the capacity market where you just exclude certain types of resources, so any resources development pursuant to state policies or for integrated utility self-supply would just automatically not be included.

I would much rather see no MOPR and even a move to a residual market. I think as has been pointed out throughout the day, there's a lot of really critical issues to be addressed. Re-examining resource adequacy, re-examining whether capacity is currently defined even makes sense, looking at energy and ancillary services market.

So I think it's really important to kind of you know move the MOPR out of the way, but if you're just going to create this sort of new little window under this targeted MOPR, that allows for the reopening of that problem, I would really urge against anything like that and define it extremely narrowly.

MS. GADANI: Thank you Miss Caplan, I appreciate that insight. Our final panelist is Sari Fink, Senior Director, Electricity and Transmission Policy with American Clean Power. Please go ahead Miss Fink.

MS. FINK: Thank you for inviting me to participate in this panel. I think that replacing the current broad MOPR with a targeted MOPR that only addresses

buyer-side market power could be just and reasonable. We really need to get back to refocusing our market power mitigation on things that it should be used for, to protect consumers from an exercise of market power, and not to dictate their capacity choices.

I do not believe the just and reasonable standard was ever meant to replace consumer choice, and I include in this state policies which in my view are a reflection of consumer choice within that state. So the state wants to support a set of energy resources to meet its particular goal, in the day ahead standard should not be used to silence legitimate expression of consumer choice.

While I strongly support transitioning away from MOPR, completely eliminating the MOPR would be insufficient. If the policy objective is to decarbonize your energy system in the most competitive, reliable fashion possible, as our resource mix changes, I believe we will need to create bold new ways of operating and planning for a different type of portfolio.

We need to rethink resource adequacy at large, and ensure that we are still using the right metrics when planning for the right scenarios. Peak reserve margin as a metric of resource adequacy is becoming less and less meaningful. Reliability threatening scarcity events have been occurring at off-peak times of day and times of year on

many systems.

I believe that we need to get to a place where PJM's market rules don't just accommodate, but actively facilitate the attainment of state policy goals and consumer choice with respect to what types of resources they want their capacity to support.

I believe this could be a chance to create a truly residual market. There's been a lot to learn in models proposed, and I think it will be very important to fully examine all of these options, and to understand the implications of each. The MOPR has been particularly challenging for many renewable energy projects.

Due to the high default offer prices, project developers have had to use the unit specific exemption process, as it is the only way open to them to be able to have a bid price that represents their true costs. This process has been administratively burdensome.

To fully construct the definition of what constitutes a state subsidy has put PJM in the untenable position of trying to police state policies, and trying to parse through and understand the myriad of ways in which renewable project developers commercialize their various revenue streams.

PJM's job is to maintain reliability, not to be forced to try and understand the intricacies of renewable

developers financing models. I think we need to end this as soon as possible, and I really urge the Commission to institute a fix to this unjustified MOPR before another cycle begins, thank you.

MS. GADANI: Thank you Miss Fink. I appreciate it and thank you again to all panelists. I was going to follow-up on a question, but it's anybody else who has a response to what they've heard or if the Chairman or Commissioners want to ask a question please raise your hand.

My follow-up was to Doctor Shanker and Miss Bruce. Having heard the discussion today about the state's desire to sponsor certain resources and their statements that this is something that is adequately -- is within the state's rights. How would you recommend states implement that desire? I ask Doctor Shanker to answer first, and then Miss Bruce if you have anything to add. Thank you.

DR. SHANKER: Well actually it's interesting to put your question in the context of the comments of Mr. Izzo regarding what he said. He said those resources, the plan is there, and the ship has sailed. And somebody should think about that and understand that that should tell you that the state values those resources and the implications of those resources, whether or not the MOPR changes.

And if they're sunk they made a decision to spend those resources independently. And that's a good thing and

that's perfectly consistent with what I believe the Commission would agree is in their state prerogative in making those choices.

They ought to give this Commission pause, and start to ask the question if you can make that decision, and if people are willing to make that decision, where does the Commission -- FERC's responsibility lie, particularly under the Power Act, and with respect to just and reasonable?

I'm a very strong believer in climate action. I'd like to see it done through a carbon tax. I notice that there's not one federal legislator, Senator or Congressman on any of the panels. That's where this really belongs in the address. The Commission's mandate is fairly clear, go for just and reasonable rates. I don't think they include having a subsidized plant fund.

If people want to do certain things, the states certainly are willing and welcome to do that, but there's consequences. And there's also a fix, but the fix isn't here and it's not by arguing in favor of subsidies that in general for most of the panelists I think with the exception of Doctor Bowring, favors no particular interest.

Let's get a uniform policy where it belongs in the legislature. Let's recognize that people are going to spend more than the people paid twice problem. They're

willing to do that. They've already obviously taken on that risk. And let's approach it a little more rationally about who has what responsibilities.

And I think that's an overreach to think that the entire state policy problem relies on the Commission acting in a small sector of the economy. I don't see it in the Power Act. I don't see it anywhere really other than in this I think concordance notion which I find sort of trouble.

MS. GADANI: Thank you Doctor Shanker. I know Commissioner Conway has his hand up, but I'll go to Miss Bruce first and then Commissioner Conway. Miss Bruce did you have anything to add? Miss Bruce we can't hear you.

MS. BRUCE: So sorry, so sorry. I certainly acknowledge state's rights and authority to pursue resource mix changes within their state. That is certainly within their prerogative. I think where some of the issues rest then is you know sort of being forward looking as to what this means for our region's our economy and the region, development.

We are in a time of tremendous change within the industry, and I think that we've seen the capacity markets operate well to facilitate a big fuel switch. And so I think that there are forces there that from a large customer perspective that we want to see maintained.

Not all states when they are pursuing their state policies are being driven by renewable and sustainability, and that's fine, and that's fair. So I think we have to look at what the wholesale market is going to provide, and how you know if we're in a place where we're looking at perhaps more piecemeal approach to resource mix decisions, and that is meant in the most you know, without any rant to it.

But if we're looking at long-term contacts for example, how that impacts the customers years from now. We're very mindful of this time that we're sitting at in terms of the fuel mix change, and this bridge that's necessary, and we see the competitive market as being the place to drive that engine, for the economy as a region. So thanks for the question.

MS. GADANI: Thank you Miss Bruce. Commissioner Conway you have your hand raised?

MR. CONWAY: I do. My comment is really prompted by something that Sari Fink, she made a comment at the introduction to which was if the policy objective is to decarbonize in the most efficient and reliable manner, and then went on.

I would just like to make clear that everyone understands that my position, and Ohio's position is not opposed to decarbonization, but in the

context of how this capacity market should be run, how it should provide that resource adequacy for a state like Ohio, which has cast its lot with PJM and its wholesale markets, including the capacity market.

The policy objective is not to decarbonize in the most efficient and reliable manner. The policy objective is to have a reliable and satisfactory resource, and adequate resource supply from PJM in the most efficient manner, and also I think we can do that while accommodating state policy preferences, including those that are directed toward decarbonization efforts.

But reliability is non-subservient to decarbonization efforts in my view. I think that is a wrong path to be taking. Not that there's anything wrong with decarbonization. It is a good objective, but let's not make a mistake about what's driving, you know, where the cart is and where the horse is here in this discussion.

Reliability is key. It's non-negotiable, it's not subservient to decarbonization efforts, thanks.

MS. GADANI: Thank you Commissioner Conway. I will move on to the next question. I know we're short on time, but I would like to get one additional question for the panelists here. Next question is would removing the current MOPR in PJM and simply replacing it with a targeted MOPR shift costs among states, or otherwise favor certain

states over other states?

Could it result in shifting of one state's public policy preferences to another state. And what do the panelists think is the role of the Commission in addressing such cost-shifting? Are there ways to mitigate this? If these concerns exist. I'm going to do, I know Commissioner Conway just answered for his state, what their focus is, but I will turn to him to see if he would like to address this question.

MR. CONWAY: Sure. Thank you. Thank you Jignasa. I would. I think that arguments about cost shifting can miss the primary point. In this regard I think the capacity markets can serve its purpose, regional reliability. That's at the top of the list of things to be keeping in mind. Keep the lights on, while at the same time not undermining individual state preferences.

The key to it is appropriately evaluating resources based on their capacity contributions and capabilities. Price floors should be only employed when there is true market price suppression demonstrated by the evidenced, and they should be applied on an even-handed, not an arbitrary basis.

And as I said I'm generation and resource technology neutral. I am a fan of decarbonization, but I am not neutral about whether a resource participating in and

getting payments from the RPM capacity market must provide capacity performance value that's commensurate with the level of the payments it's getting. There must be a matching of those two things.

And in that vein, I also would say the consumers from a state like Ohio, which having restructured are entirely dependent on PJM for generation resource adequacy, particularly during critical peak periods as well as other times during the year, shouldn't be required to help pay for other state's generation technology preferences through payments that are greater than the capacity performance value that we are receiving from those resources.

The capacity market's purpose to incent long-term commitments to resources that are dedicated to, and that are capable of performing consistently at the most critical times to assure that there are adequate generation supplies to meet consumer needs. I do agree that it should not be used as a source of funds whose primary purpose, or even ancillary purpose is simply to support state public policy preferences.

So I don't think that removing the current expanded MOPR in PJM and replacing it with a targeted MOPR like the prior MOPR, would result in improper cost shifting as long as the state policy preferred resources are appropriately valued, based on their capacity contributions

and capabilities.

So the devil is in the details. How do you value these resources and their capacity contributions? And there's been a lot of conversation on this point during the previous panel that I was listening to, and I think Doctor Bowring's comments you should take to heart, and we should be really focused on that, because I can tell you if Ohio -- if we go down a track where we improperly value these state policy preferred resources, which frankly are the intermittent resources like the offshore wind.

If we improperly value them, and as a result we end up having reliability problems or cost shifting, there's going to be hell to pay. And if you look to Texas to see what's happening when not enough attention is paid to that primary point. So with that I'll stop. Thank you very much.

MS. GADANI: Thank you very much Commissioner Conway. I see a few hands raised, but before I go to them I wanted to see if Miss Price had anything she wanted to add to this conversation. Miss Price? Miss Price if you're speaking we can't hear you.

Okay. We will move on, but if Miss Price has something she wants to share please raise your hand. I think I had Mr. Silverman's hand up first, so we'll go to Mr. Silverman, and then Miss Caplan, and then Roy Shanker

and then after that Joe Bowring, so in that order, so please go ahead Mr. Silverman.

MR. SILVERMAN: Great thank you. In regard to cost shifting, I find this argument a little bit curious, and I would recommend people take a look at the modeling work that we did here in New Jersey as part of our resource adequacy proceeding. And what we actually saw is when you eliminate MOPR, and when you increase state clean energy incentives on a state by state level, what you actually see is prices falling across the whole PJM footprint for capacity.

So I think that you know, there's a really you know, a really interesting element here that I think sometimes gets a little bit confused when people talk about cost-shifting. Because in New Jersey you know values clean energy resources, and we buy more of them. We're going to be decreasing prices for a lot of consumers.

And yes, absolutely we have to maintain reliability. Of course that is all job one and we all see what happens and Texas is a real tragedy. But the goal is not to think of clean energy resources as the enemy of reliability, it's to make sure that we're applying the appropriate reliability metrics so that we achieve exactly what my colleague from Ohio was just suggesting.

But yeah, no I don't think we need to worry that

we're somehow promoting revenue inadequacy, or otherwise you know shifting costs from state to state, because as long as the cost of the subsidies is borne by the individual states, that's not a concern.

MS. GADANI: Thank you Mr. Silverman. Elise Caplan you had your hand up.

MS. CAPLAN: Yes thank you so much. Abe actually just made a couple of really excellent points, but to sort of touch on these as well. I always find this topic of cost shifting very confusing and it seems to be a bit of a red herring to me, because in fact it is the MOPR itself that would then push the cost-shifting.

If a state is able to bid, or if the owner of a resource is able to bid that resource into the capacity market at an offer for the capacity remedies that are needed, accounting for other sources of revenues such as through bilateral contract, then you would actually have this sort of the true need for capacity market revenues. When you have a MOPR then you have an artificial floor on that offer and it actually does increase capacity prices.

And it does impose costs on other states. So I'd say it's the MOPR that sort of artificially creates a cost-shifting. And I would also think that you know when we look at changes to the capacity markets, it's important to look at sort of what's happened over the past few years. A

lot of folks on today have talked about the excess procurement which does have a cost to consumers.

And not only that, if you look within PJM and somewhat within the other eastern RTOs, almost all of the new development has been new natural gas fired resources. And those are pretty much developed by merchant developers, and it's really not clear, and I guess the time will tell what the reliability impacts are of increasing the reliability of so much natural gas during times of system stress.

We don't know if they have any kind of firm contracts for natural gas. We saw what happened in Texas. So there's reliability questions from any kind of overreliance of one resource, and as has also been noticed, the whole way that resource adequacy metrics that are currently used have been developed, really doesn't fit the new kind of group of resources, decarbonized grid, renewables, and storage and a more active demand side.

So all of that does need to be rethought in a way that's beneficial. I don't think we should just make any assumptions about detriments to reliability.

MS. GADANI: Thank you Miss Kaplan. I was going to jump to Mr. Shanker, but I know that some of the Commissioners have questions as well. So why don't we go to Mr. Shanker, and then I'll give Commissioner Clements a

chance to ask a question. I know there are others who want to respond too. I'll get as many people as possible.

DR. SHANKER: I'll try and be quick. First I would refer the Commission to testimony or statements submitted by the State of Pennsylvania in 2011, comments 2012 in response to the first round of subsidized combustion turbine units that brought MOPR issues.

And then Chairman of the Pennsylvania Commission, Commissioner Powelson wearing that hat submitted for the Commission very strong words saying he didn't want other people -- in this case, Maryland and New Jersey, dropping prices when he preferred to follow a path where there were strong market price signals indicating whether or not people should be consuming.

So lower prices may sound good just by themselves, but it is not the end of where state policy comes in and that's a good example. The second thing to understand is there's a temporal aspect to this, and that over time somebody is going to be last in this, and lower prices mean higher subsidies.

And the person that's at the end of the line is going to be facing the highest out of market costs. Other market costs in general may be lower for them, which does raise some questions about market power activities or not. But the bottom line is the person at the end of the line is

going to wind up paying higher subsidies if they want to achieve comparable objectives.

MS. GADANI: Thank you. I realize there are people who have their hands up, but I would like to give the Commissioner a chance to ask her question. I expect some of these folks that have their hands raised will be responding to her. So Commissioner Clements would you like to go ahead and ask your questions?

COMMISSIONER CLEMENTS: Thank you Jignasa for indulging my question, and I don't mean to throw us off. I'm also kind of fair about the etiquette of these technical conferences. I do want to make sure we have a chance to get as many of these ideas on the record, and flush out some things that have been brought up, but we have loose ends around. So I'm hoping to ask this question to Doctor Bowring and Mr. Bresler, and it's related to some of the things that folks have been saying about customer choice, state's preferences and bilateral contracting.

And I'm wondering if you've had a chance to look at the proposal that Sari Fink and others put together on the commodity, or the capacity as a commodity proposal at one of the recent PJM workshops. I'm curious if you see the benefits or drawbacks in that model relative to a more targeted MOPR approach with no other immediate capacity changes as we've talked about.

And I'm also curious if it would help address the market power and affiliate preference concerns that you raised earlier, as well as the locational considerations that I think Stu you raised earlier relative to bilateral contracting and a residual construct.

MS. GADANI: So we'll start with Doctor Bowring first to answer Commissioner's question and then Mr. Bresler.

DR. BOWRING: Sure, sorry I was waiting for Stu to go. So yes, so thank you Commissioner. So I mean I think my answer on this is similar to the answer I gave earlier today which is that I mean first of all capacity is a commodity right now, and that's really the point. It's a homogeneous commodity that's one of the fundamentals of the way the capacity markets work.

And I think it's essential that we continue to do that which comes back to defining capacity properly using the ELCC, and when done correctly and obligations. And I also think that capacity is a commodity, that the capacity market as it's currently designed meets the objectives of allowing bilaterals, because it allows -- there's no prevention of bilateral.

And I didn't hear anyone explain how it is that bilaterals are not permitted under a transparent market. In fact, it makes it easier and more competitive for bilateral

transactions. Bilaterals are less transparent, pretty much non-transparent, subject to market power and subject to the provision of asymmetric information.

So I think that the current capacity market actually allows for what you want, which is that it's the freedom of participants to engage in any bilateral they want. And there's nothing about the capacity market that prevents it. So again, I hope I'm answering your question, thanks.

COMMISSIONER CLEMENTS: Thank you. And -- sorry go ahead Stu, and I can as a follow-up.

MR. BRESLER: Thank you Commissioner, and just very quickly, I think one of the fundamental underpinnings of the PJM markets and the capacity markets certainly is no exception, is that bilateral contracting and self-supply should really form the bulk of the trades within the market.

And I don't think like I said, the capacity market is any different. I think to the extent that the current form of the MOPR gets in the way of bilateral contracting, because of the way the MOPR would apply to contracted resources, that I think is problematic. And so if there's a way we can deal with that part of it, then I think we should.

And I think the proposal that Sari and her folks have put forth is one that we should consider as part of our

stakeholder discussion and see how it plays out when we compare it to really some of the principles that we've put forth as to what the capacity market should do in the space of again, clean energy goals on the parts of the state.

COMMISSIONER CLEMENTS: Thanks and I guess when I was thinking about a capacity product, I was thinking of a more formalized geographically based product with a tracking system that provided some transparency. And one other question on the bilateral front, it we were in a residual construct and others can answer this question as well. Sari might have thoughts that she wants to start with in terms of the benefits of that proposal.

The other part that I'm trying to get at and have been trying to get at is the idea that you know if we have a residual capacity construct with a set of bilaterals and customers get to choose, and customers within states can inspect whatever calls they want to inspect, a choice they want to make.

Is it a necessary outcome that there's market power concerns, lack of transparency, and it's really a preference, or can we do things to protect against those. I've seen another context for example, I've seen it put forward the proposal things on the Allegheny principles to get at competitive procurement, and raises your process. Those reporting processes we can put in place. So I'm

curious in both, specific to the commodity proposal, and then also other ways to get at the issues in the bilateral context.

MS. GADANI: Commissioner Clements, Sari does have a hand up and so does Doctor Shanker. Would it be okay if they proceeded in that order to answer your question?

COMMISSIONER CLEMENTS: Thank you did you mean Sari?

MS. GADANI: Yes Sari Fink.

COMMISSIONER CLEMENTS: Thanks.

MS. GADANI: Miss Fink please go ahead.

MS. FINK: Thank you. I really appreciate that viewpoint. And just I wanted to say that I really view this from a very personal lens in a lot of ways. You know I live in Maryland and people come to my door and they sell me green energy as an option. And I know those are based on RECs, and while that's fine, it's what he have at the moment.

I also know that my electrons are actually coming from you know, the coal plant down the road, and my capacity dollars are going to that coal plant. But if somebody could come to my door and tell me not only can I sell you green energy, but I can sell you capacity credits for the solar plant down the road, or that regional wind plant, so that my dollars are not supporting those coal

plants, you know. I would take that deal. I'd be willing to pay for that. I would be willing to pay additional dollars for those capacity credits.

And I think that is one thing that's really missing in the markets right now is this capturing consumer preferences, and consumer willingness to pay. And I think that's why I support, you know, the residual market auction construct that Ian and the folks at Gable put together is that you know if I agree, I correctly agree that decarbonization is not every state's goal, but then if you have a residual reliability backstop auction, Maryland and New Jersey can make the deals they want.

And Ohio can get their reliability needs out of the residual backstop auction. And I don't think we can say that all of renewable energy is not reliable, and if you leave it up to the market to come up with solutions, I think there's a lot of innovation out there that's untapped, because there is no clear path to selling that to consumers that want it, so thank you.

MS. GADANI: Commissioner Clements, Doctor Shanker had his hand up. I was wondering if it's okay to have him speak, and then I know Commissioner Danly had a question for Doctor Shanker as well.

COMMISSIONER CLEMENTS: Okay.

MS. GADANI: Thank you.

DR. SHANKER: May I answer now? Okay. Commissioner Clements let's assume for the purposes of your question that there is no MOPR, so that will make things a little easier. Maybe a little expansion of what Doctor Bowring was trying to say might help. You can accomplish exactly what you described. You can do any bilateral you want, you can you know, buy a wind farm and then go market REC individually if you want and set up a company to do that. You can do that today.

You then simply bid into the auctions as a price taker, and you get all the benefits that Doctor Bowring mentioned of transparency, market power issues become -- they're never gone, but they're always better off if they're transparent. There is absolutely no notion to a residual that is beneficial. And this is where the make the point earlier.

Partition subsidies are MOPR-like actions against subsidies for market design. The current market design is totally flexible in this respect. It's a function of the initiative and business arrangement by people who want to support different kinds of resources with different characteristics and attributes. Totally accepts that. There's no barrier to it, and in fact what the auction does if it's done right, and I probably have some questions about some of the transmission modeling in the new world.

But if it is done right, there's no reliability issues here, and what it does is assure that there's no reliability issues. As it gets down to some of the more detailed transmission load and generation vulnerability modeling when you have a lot of intermittent resources.

But assume again, for a moment, it's done correctly. You can do exactly what you want to do in a more reliable and efficient manner under the PJM auction market design as it stands.

MS. GADANI: Thank you Doctor Shanker. I'm clearly not doing this as well as David does in terms of collaborating this. But I know there's a very good conversation going on, so I apologize for interrupting. I did want to see if Commissioner Danly wanted to ask his question, and then I might turn this over to the Chairman so that we can get into the Chairman and Commissioners part of the conversation, because I know we're running out of time, so Commissioner Danly would you like to ask your question?

COMMISSIONER DANLY: Yes. This is for Doctor Shanker. My question is you seem to say that the only rational choice is to go either with a full MOPR, or to abandon the markets and return to traditional costs of service ratemaking. So if I understood you correctly, could you explain why that is and could you also tell us what the effects of having a limited or targeted MOPR would be on

both capacity prices and reliability?

DR. SHANKER: Okay. Let's try and do it in two pieces. And you may have to remind me the second question. The reason I say there is only -- there are other things that we can do. We can go to an energy only market, okay, and that would be something of an alternative.

But where we're driven to is if you really want efficiency, and you really want to work in a world where you assume that you're getting auction for fungible products, some people are going to get outside payments and some people are not, because you're effectively picking winners and losers. This is no longer an auction. It's just a display stand for the preferences that are coming out of the states which some ought -- the majority of this panel thinks are appropriate, and I have a lot of questions about.

But then as you move, and now this is question of design, design interacting with any of these preferences along the path starts to integrate the subsidy issue. The example I just discussed with Commissioner Clements is a good example. That discussion only makes sense in the removal of a MOPR and therefore an open door on potential subsidies.

And I would like to think there were some middle grounds. I think there are some holding positions potentially, but I spent a lot of time thinking about it,

and I always get to the other side that in the middle you're going to be stuck with somebody making subjective judgments and expressing their favoritism, picking winners or losers in one way or another.

They'll do it by the nature of the subsidy, or they'll do it by the nature of the design. And you swing all the way to the other side, and only when you get to costs of service you say hey, let's find the most efficient way of integrating the resources that interact with each other and the strong interactions between wind, solar and storage as a good example. But they do so in a non-divisible manner.

And if I can mention this is an issue of discussion at the ELCC docket. I won't go into who said what. But if it's not divisible, then you don't know who to give credit to at the end. You only know what's the best solution from a potential reliability view, and that doesn't help you in the market.

It helps you in the cost of service world because if I was in planning, and I was in charge of a cost of service rule, I'd be an idiot not to use a tool like the ELCC. The moment you tell me I have to give somebody credit 3 megawatts instead of 2 megawatts, and we go into an auction, I've done something very bad if I've interjected some sort of subjective judgment in there.

And it's even worse if I've done an interaction with subsidies. And there isn't a logical stopping point in between. I'd like there to be, but there isn't, and I'm more than willing to listen to people propose logical stopping points. I was asked to look at some of the various proposals that came up including what we -- and they are -- you can't avoid it.

MS. SHOOK: Jignasa can I jump in for a moment. This is Kit Shook from OGC.

MS. GADANI: Yes please.

MS. SHOOK: Thank you. And so I appreciate the folks who brought up the ELCC a couple of times in their conversation this afternoon. We kept it at a very broad and high-level, but that is an open docket at the Commission though, so I would request that we keep it either stop talking about it, or keep it very, very, high-level. Thank you.

MS. GADANI: Thanks Kit for that reminder. I appreciate you jumping in.

COMMISSIONER DANLY: Jignasa can I, this is Commissioner Danly, can I just ask Roy to very quickly just answer the second half which is given the lack of limiting principle that you just highlighted, what would happen? What is your prediction of what would happen if there is either an eliminated or a targeted MOPR going forward.

And because we do have time constraints, we should probably keep the answer short, thank you.

DR. SHANKER: Real short is that I think it will push us -- Gresham's law you know, bad money pushes good money out. This is a variant to that. You're going to see a drift towards something where competitive markets are less, if not totally intended. I think it's a question of time. I can't think two years or 10 years, but I know that's where we're going.

I see it already. I reviewed financings for a number of parties. Less so because I'm a glass half full person, and for the last few years viewing these kinds of discussions that we've had today, I'd recommend that people not invest in certain areas. And I know that's going to continue as it's shouldn't.

MS. GADANI: I will have one more person respond. It's Kathleen you want to respond, and then I'm going to go ahead and turn it over to Chairman Glick after that. As people know we will be requesting comments after this Conference, so for anyone that did not get a chance to speak I hope you will submit comments.

So Kathleen I'm turning it over to you, and then we'll turn it over to Chairman Glick.

MS. BARRON: Yeah thank you Jignasa. It was actually to a point before that exchange that James and Roy

just had, but I wanted to make Roy happy and say that I agree with him on one thing, and that was in response to Commissioner Clements' question about assuming the MOPR goes away, then what are the other options going forward.

And I guess the way we see it as Roy said, is that opens up a whole host of opportunities, both at the state level and on behalf of the market in general to contract, to add resources and to have those contracts go into the auction as price takers. So the reason I raise that is because the gap that we see is not the state's ability to do that, but it's more the issue of carbon pricing, and that has come up a couple times today.

You already referenced it as something that can only happen in Congress, but there is an open proceeding here at the Commission on carbon pricing, and I guess we would encourage you to focus on that because that is one thing the states cannot do effectively by themselves. They cannot address the leakage issue, and that is something that we would like to see you consider requiring PJM to put in its tariff at the state's option, the ability to use a carbon price and to control leakage and then have the revenues from that reflected in customer bills as a way to mitigate the wholesale price impact of it.

So we'll cover this in post Conference comments, but I just wanted to mention that that is one thing that is

a way for the Commission to help states address their roles that is not available to them, unlike some of the existing tools that they're already using where they could create once MOPR goes away.

MS. GADANI: Thank you very much. Chairman I'm going to turn it over to you, so that you and your colleagues have enough time to ask questions. We have a lot of people interested in continuing this conversation, so I'll hand it over to the Chairman.

CHAIRMAN GLICK: Thank you very much Jignasa, and again thanks to everybody. This has also been a very helpful panel. I want to make sure I leave some time for Commissioner Christie to ask questions as well, so I'm just going to ask one question, and then after Commissioner Christie, we'll come back, and I'll wrap it up.

I'm interested, there's been a lot of discussion lately and I know there's been some studies about possibly in some of these in the eastern RTO regions forming or having some sort of auction for just clean energy resources on a regional basis. And some of that makes a lot of sense. Obviously, you can get the least expensive, most efficient resources chosen if the auctions run appropriately and so on.

But I was curious what the states might think about that if it's a workable option. So I wanted to start

with Commissioner Conway and wanted to know if you had any thoughts on whether that would be a workable approach that you think Ohio might be interested in?

MR. CONWAY: Chairman Glick I honestly have not given that idea a moment's thought really. So the only thing I would have to say about it would be kind of off the cuff, but it certainly is an interesting one. If it could be done in a manner that isn't affecting adversely others external to the location where it's taking place, it sounds like it could have some merit, but frankly I have not given the pros and cons of it, of such an idea any consideration.

CHAIRMAN GLICK: Do others have some thoughts on it?

MR. ROSNER: I'll handle the hands for this. It looks like Abe Silverman has his hand up, and if anyone else is interested please raise your hand.

MR. SILVERMAN: Yeah great, thank you. It's a great question Mr. Chairman. Yes, we have spent a lot of time looking into this, and you know I dearly love Doctor Shanker and agree with him on many things. But I think there's a little bit of a lack of imagination of what a truly competitive market could do. You know I think Commissioner Christie asked a great question earlier. How do we keep the goals of the capacity market and accommodate state policies?

And I think you can do that without losing a lot of the efficiencies that you get with centralized market by incorporating clean energy procurement into the forward capacity market process. If we think about you know efficient markets should answer the great questions that society is trying to ask today, and today we're trying to ask for a market that meets non-negotiable state clean energy targets, that it meets the non-negotiable reliability criteria, and does it at a cost that consumers can afford.

So if we look at you know and in New Jersey we looked at a lot of these options. The one that probably was the most interesting was the integrated clean capacity market that we heard about, and talked a little about this morning by both PJM and New England.

And really all you're doing there is you know there's a lot of complexity and it's all in the docket, and you know we have a 20 page white paper exactly explaining how all that would work. But it's a fundamental concept, we start from the premises that state clean energy goals have to be met, and be procuring enough clean energy through a centralized, highly competitive you know transparent market to meet those goals, and then we allow those revenues to flow through to the capacity market selection as well by co-optimizing the two of them.

You know listen, I think if we look forward to

meeting state emissions and clean energy targets, our markets have to align with that. There has to be this idea that states can set their own clean energy preferences, and then have those preferences met through the state, that's for the centralized auction.

There's a lot of complexities about incorporating individual state mandates into these markets. We've addressed a lot of those. It's hard, but it can be done. And I'm in no way willing to give up on competitive markets to get these clean energy things done when we actually have the kind of, you know, next generation market designs out there for discussion that get us both the least cost solution, and maintain reliability.

MR. ROSNER: Thank you Mr. Silverman. Next we have Miss Bruce and then Doctor Bowring, and Commissioner Conway has his hand up also. So go ahead Miss Bruce.

MS. BRUCE: Thank you. And thank you for the question Chairman. You know I think and perhaps this is a definitional question, but when I heard your question I think from the perspective of a voluntary regional clean energy market, I think that there would be a lot of interest from a large industrial customer perspective.

As I eluded to in my opening comments, certainly industrials are pursuing sustainability with corporate PPAs. And this might be an easier way to do that as

opposed to doing long-term PPAs. So I certainly think that there's value with keeping that in the hopper for consideration.

I would say as a way to reflect on customer preferences, and by customer I mean individual retail customer's preferences. I do think that there are -- it gets to be a trickier issue when you start talking about co-optimization, especially if states have different clean energy goals.

Having one state's initiatives affecting other states and their procurement and their resource mix decisions, so I think that it can get complicated fast, but I think I just want to reflect on from a large customer perspective that the voluntary regional clean energy market has some interest. Thank you.

MR. ROSNER: Thank you Miss Bruce. Next we have Doctor Bowring, and then I see hands also from Commissioner Conway, I think that's a new raise and then Stu Bresler and Doctor Shanker. So go ahead Doctor Bowring.

DR. BOWRING: Yeah thanks. Just very quickly. I mean if the states agree then simply adding a demand for however the states define what they want clean energy, or however they define it to the capacity market could work very straightforwardly.

I don't think we need to go down the path that

Brattle has proposed with "co-optimization." I've never heard of co-optimization actually occurring. It's a fancy word, but I think that the proposal is way more complicated than it needs to. We don't need a next generation market we simply need to add an element to the existing market to allow states to purchase what they want.

And my expectation is that when that happens and the prices are transparent, it will erode the need for subsidies and I know you think I'm being hopeless and naive, but we'll move back towards a more competitive market where renewables are just competing straight up with non-renewables, thank you.

MR. ROSNER: Thank you Doctor. Commissioner Conway is this a new response?

MR. CONWAY: Well I thought about it for another minute while the others were speaking, and actually Doctor Bowring essentially provided what commentary I would have and did it in a better way, so I'll take my hand down. Again, thank you for the opportunity.

MR. ROSNER: All right absolutely. Mr. Bresler?

MR. BRESLER: Yeah thank you David. Thank you Chairman Glick. I just wanted to throw in my support behind the development of regional competitive approach to clean energy procurement in pursuit of clean energy bills. Certainly, we recognize the benefits of regional competitive

markets, and we would support that approach.

I would merely request that the Commission has desires with respect to timing of addressing the MOPR versus these other things that a clear indication from the Commission of that desired timing would be extremely helpful from the standpoint of managing our stakeholder process, and again that robust stakeholder input is extremely important to us to get to an endurable solution. So that would be a request if I am permitted, thank you.

MR. ROSNER: Absolutely. I have Doctor Shanker and I have Miss Price. Go ahead Doctor Shanker.

DR. SHANKER: Sure. This is another example of what I suggested everybody keep in mind about splitting design issues from subsidy or the pricing of the desired attribute or commodity. It's trivial to create what Abe is referring to as co-optimized market, or a regional market.

It's trivial to do what Joe said, let's add a constraint. If we did it without them we have the benefits of already having built in a reliability structure, but the real question is not can you do this. I mean it really is simple. I think I discussed something like this with Andy Ott in 2003 or 2002.

The real question is who picks the numbers? And who pays for them? And is there subsidy involved? Is there out of market payments? What's the right level of the

objectives? How do they differ between the states? That's completely different from market design. Again, it's all exogenous and it's all the stuff that we fight about all the time, and it's clear at least for some us there's not a lot of agreement on that.

But from a design perspective this is very straightforward. It's easy to do Joe or Abe's way.

MR. ROSNER: Thank you Doctor Shanker. I have Miss Price and then I have a response from Mr. Silverman that he promises will be very quick. Go ahead Miss Price. Miss Price we can't hear you if you're speaking. I will have our IT reach out to you again.

MS. PRICE: Hello?

MR. ROSNER: Oh there we go. I can hear you now. All right.

MS. PRICE: I want to apologize to you and to Jignasa. Ironically enough the electricity went out in my office right after I initially spoke, so I apologize very much. I don't know what the problem is. Let's put it this way, Exelon is in trouble. So thank you very much.

MR. ROSNER: Did you have a -- is that all?

MS. PRICE: No. No I didn't. I didn't hear anything.

MR. ROSNER: Okay I'm sorry about that. Alright. Mr. Silverman a quick response from you and then we'll go

back to.

MR. SILVERMAN: I can't top that comment, so just a response to Doctor Bowring. I actually don't think it is complicated -- that we are not really adding a lot of complexity. And again, we've got to come back to this idea that having two separate grids just makes absolutely no sense. So we have to harmonize these things in some way, and I would put in a plea, you know, as a regulator.

The ability to have a transparent price signal is so important because it allows us to evaluate the cost-effectiveness of all of our clean energy programs in the states, and that's something we really lack right now. So don't discount those centralized price incentives.

MR. ROSNER: Got it. Okay well thank you. That is the question queue for now. Mr. Chairman back to you.

CHAIRMAN GLICK: Thank you. And I just wanted to see if Commissioner Christie had any questions before we wrap up.

COMMISSIONER CHRISTIE: Just a couple quickly. It's near the end of the day, but I want to first of all Commissioner Conway from Ohio, I hope you will make sure that you file a written version of your comments about your comments about valuing capacity accurately for reliability purposes were quite relevant and I'll just please make sure you file that in writing afterward if you already haven't.

I want to return to Stu Bresler and Joe Bowring, and I'm just trying to get clarity and I'm asking this because I really want to know. You have both said you know that you're against the idea of bilaterals outside the capacity market, and I think both advocate -- I know Joe you did, I guess this idea of a separate I guess demand curve, or a separate procurement for certain types of resources.

So here's my question to both of you, and I'm just trying to understand this. So let's say that New Jersey has a statutory mandate for offshore wind, specifically offshore wind of X hundred megawatts. And the cost of that is not going to clear the capacity market, it's not going to.

So the LSEs in New Jersey each purchase a chunk of it pursuant to their state law and they purchase it through a bilateral contract. It didn't go through anything other than that. The LSEs in New Jersey are under a statutory mandate to purchase offshore wind. The only offshore wind is off the shore, off the coast of New Jersey.

So the LSE enters into a bilateral contract to purchase that power. How do you run that through the capacity market? This is what I don't understand what both of you are saying? How do you run that through the capacity market?

DR. BOWRING: So this is Joe, so I mean I think

it's just an excellent point. So I would say that would probably not clear in my demand curve for clean. Let's just say it's such a high price it would never clear in any design. So then the LSEs want to buy it anyway because New Jersey wants offshore wind, so they buy it.

That would then simply become in my view of it, simply become part of the supply and be handled correctly locationally, there's injection points on the grid to be handled, it would be in the right LDA, and that would then affect where the overall market clears. It would tend to reduce the price for other capacity, it would tend to reduce the price for energy.

But you're right, it would not be handled through this aggregate demand curve. It would be handled as New Jersey buys it. It changes supply, changes supply of capacity, runs through the correct ELCC and that's the end of it. Did that make sense?

COMMISSIONER CHRISTIE: I'm finally understanding what you're saying, but even so because this goes back to my whole point from the very beginning of this day, and we have to look at the political reality of what's going on here and it's not out of an economics textbook, it's out of a political textbook.

So if a state passes a statute -- Virginia has done it, New Jersey has it, maybe Delaware, I'm not sure,

maybe Maryland, but I know New Jersey and Virginia. It says specifically offshore wind, not even onshore wind. Offshore wind has to be purchased by the state's LSE.

You know a certain percentage. And so the LSEs pursuant to that state's statute in fact, entered into a bilateral contract. This is another way to get it. They have to buy the wind it's off their coast. They can't even buy onshore wind, and so the only way to do that is they have to enter into a bilateral contract.

I'm just asking how do you run that through the capacity market? I don't see how you can. And I guess the next question is I would think you would want to get -- well this is maybe you wouldn't want to, but you'd have to. You have to recognize and give credit to those LSEs for the capacity they've just bought.

I mean because they did it, they bought it, their consumers are paying for it. You know it was their politicians who passed the mandate. And I'm just saying from a political reality standpoint that has to start to be recognized and I think Joe just said it -- you cannot run it through the capacity market.

DR. BOWRING: Well what I'm saying is you couldn't use the aggregate demand curve for -- that I was talking about, but you could run it through the capacity market. You simply offer it in at zero, it clears, and it's

in the right location and then the credits are sent probably to the LSE. Sorry Stu, I didn't mean to cut you off.

MR. BRESLER: Okay. That's okay Joe, I was going to try to address the load side of that equation. So what Joe said is exactly right. The procured supply offered into the market at zero and clears. The load is part of the demand curve right, in its correct location wherever the load is, right?

If a load clears in the sense that it buys through the market, the bilateral just becomes a contract. And so neither the supply nor the demand is exposed to the clearing price through the market because the bilateral absolves both sides. What we're saying I think -- Joe, correct me if I'm wrong, what we're saying is that mechanism of running it through the market that way is better than trying to carve out the supply and demand that's part of that bilateral because if you do that, then you have to decide what reserves do I assign to that load?

How do I get the location correct? All those other issues that go along with it. While the load and supply remain in the market and the bilateral just becomes that contract for differences, all that works its way through the regional approach. That's what we're trying to say.

DR. BOWRING: Yeah I totally agree.

COMMISSIONER CHRISTIE: Okay. Well I think I understand it, but I think you all would agree that that bilateral is not a result of the market working, that's you're just accounting for it. It's a result of the politics to the individual states working. You're just writing it down in the right columns. That's not a result of a market function.

DR. BOWRING: That is correct. But also as Stu said, it maintains the correct locational attributes to make sure that all the complicated capacity markets are going to work while allowing as you said, the politicians to reflect their desires.

MR. ROSNER: Pardon the interruption, I was just informed that our Webex feed has gone down. The webcast has gone down, so if we could just pause the panel for one moment, this happens from time to time. They're going to reboot some equipment and then bring us back, so just hang on on mute for just a moment. Sorry to interrupt.

CHAIRMAN GLICK: Thank you, thank you. So I think we're all back here. I'm sorry that people lost their feed for a couple minutes, but we're just in the process of just starting to conclude. And again I want to start it off by thanking the team that put together the excellent panels as well as the questions and I think really for a very helpful debate today.

But I want to particularly thank you David, for dealing with us the entire day and putting this all together and the rest of the folks as well. This has been extremely worthwhile, and I hope my colleagues -- and I know my colleagues agree with that. And I also want to note that you know, any of our colleagues to have four or five Commissioners sit through an entire day of a technical conference, I don't know if it's unprecedented, but it certainly shows the strong interest in this particular issue.

And we had a great discussion today. And we'll obviously as was mentioned, there will be a series of questions for the panelists, post-technical conference questions for panelists and others. And we'll try to review the record as quickly as possible.

As Stu Bresler indicated just a few minutes ago, we do have you know, we do have a time deadline here. The Commission is going to move forward, and we'll have to see if there's enough support for that, but the Commission is going to move forward to do something different with regard to the PJM MOPR and we want to get that done before the auction which is going to occur in December.

I think we need to act sooner rather than later. So with that I will suggest I hope that people will submit comments and contribute to the record. And we still have a

lot of work ahead of us. With that I'll turn it over to Commissioner Danly for any closing comments he might have.

COMMISSIONER DANLY: I have nothing except to thank everybody and you Mr. Chairman. I appreciate the discussion.

CHAIRMAN GLICK: Thank you. And how about Commissioner Clements?

COMMISSIONER CLEMENTS: Similar thanks, thank you.

CHAIRMAN GLICK: And Commissioner Christie? Did you have any closing comments Commissioner Christie?

COMMISSIONER CHRISTIE: Can you hear me now?

CHAIRMAN GLICK: Yes we can.

COMMISSIONER CHRISTIE: Yeah I just want to thank all the FERC staff that put this together. And also thank the speakers. We had a great set of -- we had a great three panels. I really appreciate all the time you put into it. Very educational and very informative and I am very grateful, thank you.

CHAIRMAN GLICK: Well thank you, I'll turn it back to you David.

MR. ROSNER: All right thank you Mr. Chairman, Commissioners, thanks to all the panelists for your participation. Very much appreciate it and that's all I have. Our time is over. We hope to see everyone in the

docket in writing in the near future, so thank you and with that I'll say good evening.

(Whereupon the Technical Conference concluded at 5:08 p.m.)

CERTIFICATE OF OFFICIAL REPORTER

This is to certify that the attached proceeding before the FEDERAL ENERGY REGULATORY COMMISSION in the Matter of:

Name of Proceeding:

Technical Conference regarding Resource Adequacy in the Evolving Electricity Sector

Docket No.: AD21-10-000

Place: Washington, DC

Date: Tuesday, March 23, 2021

were held as herein appears, and that this is the original transcript thereof for the file of the Federal Energy Regulatory Commission, and is a full correct transcription of the proceedings.

Larry Flowers

Official Reporter