FEDERAL ENERGY REGULATORY COMMISSION

In the Matter of

Technical Conference on MISO

Planning Resource Auction

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P R O C E E D I N G S

DR. HYDE: Good morning and welcome to today's Tech Conference on MISO's Planning Resource Auction.

I am Laurel Hyde and I am a senior economist in the Office of Energy Market Regulation.

I want to thank all the participants for being here today for what I am sure will be an informative day of discussion.

I would like to welcome Commissioner LaFleur and thank her for joining us today.

The purpose of this conference is to obtain information some being fairly technical about the MISO planning resource auction.

For the rest of the day we will just use the words auction or capacity auction.

In the morning we will focus on the mitigation of the capacity supply offers including the reference levels used for offer mitigation and other possible mitigation approaches.

After lunch we will focus on issues associated with local capacity requirements. The calculation of zonal import and export limits and zonal boundaries.

Finally, we will discuss possible tariff

changes and which of these can be instituted by the 2016-2017 auction.

This Technical Conference will not address any assertions that market manipulation occurred in the 2015-2016 auction.

That topic is being addressed in the Commission's non-public formal investigation in Docket Number IN 1510.

Discussion at this conference may include matters relating to ER 11-4081.

Panelists should refrain from discussing the specifics of any other cases pending before the Commission to avoid ex parte concerns.

Our primary focus today will be to understand technical aspects of how MISO's capacity auctions are structured and how they are or could be implemented.

We are here to collect information. We are aware of the arguments of the parties that filed pleadings in these cases and are not looking to see a recitation of those arguments.

Please note that just because we are not addressing some of the topics raised in the pleadings does not mean that the Commission or the Staff is ignoring those topics.

Given the time constraints of this one-day

technical conference, it will focus on topics that Staff needs more information on.

To allow time to examine the technical details we want to discuss, we will not have panelists opening statements.

We will conduct the panels in a question-and-answer format. We will not necessarily be addressing all questions to all of the panelists in a given session, but rather we may direct our questions to certain panelists in order to discover specific information that will help the Commission's Staff to better understand the issues already presented to us.

This is an on-the-record conference that will be transcribed. Any materials received from speakers will be included in the record of the complaint proceedings.

We have four sessions today. The first session is scheduled to run until 12:15 and will include a 15-minute break around 10:45.

This session addresses mitigation structure in the auction primarily with respect to reference levels and opportunity cost.

The first half primarily addresses the current implementation of those provisions and explores the extent to which other opportunities are available

to sellers in the MISO capacity market.

The second half addresses alternatives to the current mitigation procedures and reference levels. The second session is scheduled for 1:15 to 2:15, and will discuss the calculation of local clearing requirements and capacity import and capacity export limits.

The third session, scheduled from 2:15 to 3:00 will discuss zonal boundaries used in the planning resource auction.

It will be followed by a 15-minute break.

The fourth session, scheduled from 3:15 to 4:00, will examine the panelists' views on changes to the tariff that may be necessary to ensure just and reasonable capacity auction outcomes going forward.

We have a lot of ground to cover in a short amount of time today. With that in mind, if a discussion goes astray that is outside the scope of the panel or is outside of the scope of the question, we may interject to bring the discussion back to topic.

Let me close with a few housekeeping matters. Please do not bring food or drinks other than bottled water into the Commission meeting room.

Please turn off your cell phones if you have

not already done so.

There are bathrooms and water fountains behind the elevator banks on each end of the building.

For the panelists, if you would like to be recognized to speak, please place your tent cards up and please be sure to turn on your microphone and speak directly into it.

When you are not speaking, please turn your microphone off so as to avoid background noise.

I realize that this is difficult but please do your best to avoid using acronyms or abbreviations and we will try to do the same.

I would like to turn to Commissioner LaFleur to see if she has any opening comments for us.

COMM. LAFLEUR: Good morning, Laurel, and thank you all for being here.

I know some folks have traveled for a ways for a not very long notice, we really appreciate your being here for this for what I'm sure will be an interesting discussion.

I especially want to thank Commission Staff many of whom, but not all who work on this you see arrayed before you, for pulling this together and organizing the day.

I am here at the "Little Kids Table" and I

will be here for at least a couple of the sessions to listen and really try to ensure that I fully understand the way all of these elements fit together because I know that these tariffs of all things are places where details count.

I'm sure it's going to be an interesting day. Thank you.

SESSION 1: Market Power Mitigation

DR. HYDE: Thank you, Commissioner LaFleur and how we are going to start the first panel. Dr. Leopold Soto from the Office of Energy Market Regulation will be leading that first panel.

DR. SOTO: Thank you, Laurel. Welcome everybody to the first panel of the day. I thank the panelists for being here and yes this should be an interesting discussion.

The members of the panel are:

Mr. Jeff Bladen from MISO.

Dr. Renuka Chatterjee for MISO.

Dr. David Patton from Potomac Economics.

Mr. Stu Bresler from PJM.

Mr. James Dauphinais from Brubaker Associates speaking on behalf of Illinois Industrial Energy Consumers.

Mr. Robert McCullough from McCullough

Research speaking on behalf of the Illinois Attorney General's Office.

The purpose of this panel is to gather information about the current implementation of the mitigation procedures and reference level calculations.

We will talk about the different alternatives to the auction PRA.

Sellers have to sell their capacity and there are different ways to estimate the opportunity costs for those selling in the auction and facility specific reference level and if time permits we will include a conversation of conduct threshold.

Many of the questions related to these topics would be about facts and so we will direct those questions to individual panelists, and the other questions that are broader in scope so I will direct them to the panel in general.

The first set of questions is about the different alternatives auction sellers have to sell their capacity.

I would ask about different facts that are related to the feasability of these alternatives, historical outcomes, and barriers to those sales.

All of these questions will be in relation to the competition, opportunity costs and initial

reference levels.

For the benefit of the audience, I want to point out that reference levels are a measure of resources marginal costs including legitimate risk and opportunity cost and that opportunity cost is the value of the best alternative sellers give up when selling their capacity into the auction.

Initial reference levels include opportunity costs and are applied to all facilities unless they have requested to document a different facility specific reference level.

Initial reference levels are important because it is used to mitigate market power, so it is important that we have a good estimate of the components used to estimate these reference levels.

We will spend a good portion of our time talking about opportunity costs, our main ingredient in the recipe for initial reference level.

So, as one potential way to measure opportunity costs, let's start with some questions for our PJM panelists about the feasibility of selling MISO based capacity in the PJM capacity market.

Mr. Bresler, what transmission product must the MISO resource buyer have in order to sell the capacity into PJM right now?

MR. BRESLER: Good morning, Dr. Soto, and FERC Staff, it is a pleasure to be here this morning.

Your question was: What transmission service products a MISO resource acquires in order to sell capacity into PJM. Primarily they would utilize what we term our network external designated transmission service product.

This is a product that a participant typically will request through our interconnection queue because it is typically reserved on a longer-term basis.

However, it is also possible to reserve network external designated on a monthly basis on a more short-term type of a request.

Hypothetically, a market participant could also use firm point-to-point into PJM in order to deliver capacity.

However given the fact that that carries with it the firm point-to-point transmission rate, like I said earlier, typically, participants will use the network external designated transmission service which does not carry a transmission service reservation charge.

DR. SOTO: Would the MISO finalist like to add anything to that?

DR. CHATTERJEE: The requirements are similar. They need to have phone service and either it is point-to-point or a designated network service which requires phone service to get out of MISO.

DR. SOTO: Thank you. Mr. Bresler, let me go back to you again. How would this change with adoption by PJM of the pseudo-tie requirements for capacity imports into PJM?

MR. BRESLER: The transmission service requirements do not change. The pseudo-tie requirement is merely the mechanism by which the energy is dispatched and essentially transferred from the resource to PJM, so it's more of an energy dispatch requirement as far as the pseudo tie is concerned, the transmission reservation requirements are the same.

DR. SOTO: Thank you. Are there other MISO panelists who would like to add anything?

DR. CHATTERJEE: We do not have a pseudo-tie requirement today for capacity coming into MISO. For going out we don't have any requirements, either. They will have to comply with whatever they are trying to export.

DR. SOTO: Thank you. Dr. Patton?

DR. PATTON: I do not think I have much to add other than I am a staunch opponent of the

pseudo-tie requirement.

DR. SOTO: Thanks. I will put that in my notes. Back to you, Mr. Bresler. How much total transmission capability existed between MISO and PJM on the date of the third PJM incremental auction for the 2015-2016 delivery year and how much of that capacity was already subscribed and no longer available at the time of the auction?

MR. BRESLER: Yes, I provided some slides as handouts because this is not a short question to answer.

Let me walk through it.

If you look at Slides 4, 5, and 6 of the handout, and let me just concentrate on Slide 4 just as an example, if I could.

The specific question is how much total transfer capability existed and how much of that transfer capability was subscribed from MISO into PJM from, and I am speaking from PJM's perspective, as of the date of the third incremental auction for 2014-2015 of this particular slide, as 15-16 is on Slide 5.

What we did in order to answer that question was we went back in our historical database and we looked at, as of March 8, 2014, which was the date the window closed, the offer window closed for the third incremental option for 2014-2015, the TTC which is

Total Transition Capability, the ETC, which is Existing Transmission Commitments, and the ATC, these are all firm values, firm available transmission capability for each of the MISO paths for which we post a value into PJM for the 2014-2015 delivery year on a monthly basis.

That is what Slide 14 has. Again, Slide 15 that has the same information for the date, the third incremental auction for 2015-2016 closed on a monthly basis in each of those values.

If a market participant wanted to come into PJM and reserve network external designated transmission service for any period of the 2014-2015 delivery year, as of the third incremental auction date in PJM, so it's that near-term, it is only a couple months ahead of the start of the delivery year, these are the values they would have seen on a monthly basis.

I do not think you want me to go through every single number as part of my answer.

DR. SOTO: Can you do an estimate of the total between PJM and MISO?

MR. BRESLER: The difficult part here is that these numbers are not stand alone values, so a reservation on one path will result in a decrement of another path.

You cannot sum these values and say that the

total of these values was the total that was available.

That question then is extremely difficult to answer without knowing the specific path under which somebody actually made a transmission service request. I have more to add, but I want to make sure that what is here is clear before I go on.

This is like I said, a snapshot of what a market participant would have seen and basically what would have been available to them as of that closing date of the third incremental auction.

It is not the whole story though with what a participant could have reserved as far as network external designated service into PJM from a MISO resource for this delivery year.

As I said earlier, typically, when a market participant looks to reserve network external designated service they typically tend to do so on a longer-term basis and will actually come in further ahead of time in the interconnection queue and be studied on a unit specific basis as to the feasibility of that service.

There very well could have been more than what is shown here that could have been reserved should a market participant have done that further ahead in the process in time to get through the queue and

through all of the necessary studies that take place which usually takes at least months if not a year or more to get through that process.

I wanted to make clear for everyone that this is what was specifically requested as far as the data in the notice.

It doesn't quite tell the whole story as to what could have been reserved as far as network designated service for these delivery years.

DR. SOTO: Thank you for the clarification. MISO panelists, do you have anything to add? Dr. Patton?

DR. PATTON: You are asking just on the PJM side or both sides?

DR. SOTO: Both sides.

DR. PATTON: Do you want to talk about the MISO side and then I will supplement.

DR. CHATTERJEE: Assuming the question is for transfer capability out of MISO to PJM.

From a total transfer capability study, the only point I would make is we did a fact finding study a couple years ago which showed that there was about 7000 MW of transfer capability from MISO to PJM, so that's probably a relevant number for folks.

DR. PATTON: What we see is that there is

periodically ATC available, and I think that one thing that's important to recognize is that people selling capacity from MISO to PJM don't have to rely on ATC that's available at the time they choose to make the sale.

There is also firm rights that are held by many different participants that are not already being used to support capacity sales that can be resold or can be used to the extent that they are held by folks who hold a whole generation.

To give you an idea of that.

For the 2015-2016 planning year, there is 7,648 firm rights held by MISO participants from MISO to PJM. Of those, 3,500 is related to capacity exports to PJM which means that there is 4,123 MW that are held by participants and available to be used to make incremental capacity sales which is one of the most valuable things they can do with the firm rights.

More than 4000 MW of firm rights won't show up as ATC because they've already been procured by the MISO participants.

DR. SOTO: To clarify. What you are saying is, these are they available...

DR. PATTON: Yes, so the total universe of what is available would be the ATC plus -- of which

there are some, depending on the month, plus the 4100 MW of firm export capability.

It is hard to tell exactly how much ATC was available at a given time because the process in MISO is you put in a request and it goes through a scenario analyzer that tells you only after you've made the request based on the powerful modeling whether there is available capability. It is not like the data is readily available.

DR. SOTO: That talks to the complexity that Mr. Bresler was talking about. Mr. McCullough, you had your tent up.

MR. MCCULLOUGH: I had a question for MISO. I was interested when you said that you had done a study several years ago and I am looking at your capacity deliverability study of June 2012, is that the study you were referring to?

DR. CHATTERJEE: Yes.

MR. MCCULLOUGH: Then I have a short comment on this. As always in capacity, there are many different features, but there is an interesting table in this.

Table 2, MISO to PJM non-simultaneous transfer limits and that gives us a Zone 4 unconstrained RTO of only 39.2 MW.

Am I reading that correctly?

DR. CHATTERJEE: I don't have that specific table in front of me, but I'm happy to look at it.

You are talking about something and I don't have that table in front of me.

DR. SOTO: Let me mention to the panel right now, and if you do not have the information right now you can always add that to your comments later on and the same thing with questions.

MR. MCCULLOUGH: I was just clarifying what we understood. Remember, we're talking here today about primarily Zone 4 and not all of MISO and PJM.

The two interrelate in a variety of complex fashions, but the concerns we have today with these particular factors are much more limited geographically, and James, I am taking some of your time, so I will finish up.

Thank you.

MR. DAUPHINAIS: Good morning. I just want to comment on a couple things.

One is what Renuka mentioned both designated network resources and point-to-point service.

Being a designated network resources does not confer any transmission rights to export from the MISO footprint to PJM.

Under the current tariff you would have to have firm point-to-point service in order to transfer the capacity to the PJM market, so I want to clarify that.

I do not think you intended to be misunderstood, but I did want to clarify that.

Dr. Patton talked about the use of existing really long-term firm point-to-point transmission service reservations.

Yes, they can potentially be used, but the key point with them to remember is that they have to be redirected to be utilized unless you happen to have a right that goes from your particular generator to PJM market already.

That redirection is in the form of a transmission service request under MISO Oasis and specifically as a short-term firm and a long-term firm point-to-point transmission service request.

All redirections still have to go through the queue and potentially study process at MISO depending on the term of reservation. It is not given that it will be approved.

While there may be up to 7000 MW where it is a long-term firm point reservations held by various folks on the MISO system, they would have to

successively be redirected through the normal transmission service request process and approval process.

DR. SOTO: Thank you.

DR. CHATTERJEE: If I could just clarify the comment on the designated natural resource. MISO has a process called pre-certified PSR that is in our tariff.

To the extent that a resource wants to get out of MISO and they have quick service to one of our loads, we allow them to procure service up to the MISO border for an expedited process called the precertified PSR, so that is what I was referring to.

MR. DAUPHINAIS: In the pre-certified process, essentially, what it provides is a series of forecasted out for five years, non-simultaneous firm available transmission capability numbers.

They are non-simultaneous.

While it helps to expedite the process, you still have to go through the normal transmission service request process.

It may still require a system impact study. It may still not be approved even though it shows on a pre-certified list that the capacity is there.

DR. SOTO: Thank you for the clarification. Going back to our PJM panelists, let's now get some

facts about the PJM market placement capacity.

Mr. Bresler, how is replacement capacity defined in the context of PJM market? How does this definition include incremental auctions?

MR. BRESLER: Replacement capacity is capacity that a market participant utilizes in order to do exactly what the name says, in order to substitute for a resource that has a prior commitment to provide capacity in PJM.

Those replacement capacity resources are submitted to PJM what we call a replacement transaction, submitted through our web-based transaction systems.

Replacement capacity can be acquired in one of two ways. Replacement capacity can be purchased in an incremental auction so we execute three incremental auctions for each delivery year and market participants can bid to buy replacement capacity at a particular location in those incremental auctions.

Then replacement capacity purchased through an incremental auction can be a replacement resource that is then specified on a replacement transaction, again, to substitute for a prior commitment.

Resources can also be purchased bilaterally in order to provide replacement capacity as long as the

resources being purchased does not have an existing capacity commitment on it and a resource that is purchased bilaterally can then be transacted into the buyer's account and then utilized again as a source on a replacement transaction.

DR. SOTO: Any comments from the rest of the panelists.

MR. MCCULLOUGH: We have another source of data on this. We have the FERC EQR database and when we received your imitation, thank you, the first thing we did was to walk through and take a look at the actual record of transactions.

As you probably know, the EQR database is not always perfect. Some respondents apparently do not add all that well, so there is always an issue of checking and rechecking before you use it.

We have contacted your colleagues in the EQR area and we are in the midst of checking and rechecking now, so these are preliminary numbers.

It's pretty important to know that we just don't have many transactions of this sort showing up. In fact,when we actually track a specific player, and I am picking on Illinois Power Marketing, not for any implication that they are in a sense a regular, but simply because they are easily identifiable and we have

a good understanding of their system.

We discovered that almost all of their capacity sales are within Illinois.

The ones marked PJM, in fact, are almost minuscule, a small fraction of the total, less than 1%.

What it means simply is that it's a lot easier to transact capacity within a specific ISO than to cross that seam.

We have checked two full calendar years and that appears to be the same constant across all of them, and I will repeat the honest statement that until you have checked and have rechecked EQR data, it cannot be regarded as final, but we will finish that checking and submit the final numbers.

The bottom line is, this particular form of transaction is not showing up as a major export from Illinois to PJM.

DR. SOTO: Thank you and that brings me back to Dr. Patton.

DR. PATTON: PJM's data shows that the average quantity of replacement capacity transactions for the 2014-2015 delivery year, which is the most relevant because it is over, so all the placement capacity transactions that could take place have taken place, was 5,821 MW. So clearly, the demand for

replacement capacity in PJM is large.

I think whether or not -- and transmission is available for MISO suppliers to make those sales, whether they have or they have not, is not particularly relevant from the perspective of whether the opportunity exists.

They may very well sell bilaterally in MISO. I suspect the buyers in MISO, to the extent they have to buy short-term capacity, are having to bid it away from PJM.

So where you calculate the opportunity costs based on what they have to pay, I would suspect that it would be non-trivial.

MR. MCCULLOUGH: I respectfully disagree with that. The fact of the matter is we have a conjecture that there's a major market, but we have FERC's own data which very clearly is indicating that this may be the wrong market to be testing.

One other piece of information, again, from the EQR database, is that prices are very low, surprisingly low.

First and third incremental auction for 2014-2015 were very low prices. I don't have them in front of me so I am going to guess $5 and $25 per day and the quantity was very low.

If we are going for opportunity cost we

really need to go to the place where the market is and not conjecture a market that has yet to develop.

DR. SOTO: Mr. Dauphinais.

MR. DAUPHINAIS: In looking at the transmission capacity and what's there, and what's happening, it is important to look at what's happening on OASIS with the actual transmission service request.

In 2014-2015, if you are going from Hammermill Market where a lot of our attention is within MISO, there were only 45 total short-term firm point-to-point transmission service requests made in the 2014-2015 planning year.

And that includes requests for firm point-to-point redirects.

Only six of those were granted and confirmed and all six were for just daily service on isolated days and the largest of those was 200 MW.

In 2015-2016, there have been 28 requests to date and only one of these requests had been granted and confirmed for 30 MW for delivery in February 2016.

There are just simply not transactions occurring with the possible exception of the utilization of existing long-term firm point-to-point rights that actually exist between generation in Hammermill, Illinois and PJM today, that is, they come

from that very specific generator that might sell replacement capacity. That is a limited amount of capacity.

DR. SOTO: Let me give the opportunity to Mr. Bresler as we were talking about your data.

What's your take on the size of the market and how much is it in the incremental auctions and how much of it is in the bilateral sales?

MR. BRESLER: I do not have specific data on that that I can provide for you today.

Slides 2 and 3 have the numbers that were specifically requested in the technical conference notice.

Dr. Patton referred to the 5,821 MW of replacement capacity transactions on average per day through 2014-2015.

To put some clarity around that. Replacement transactions do not need to be submitted for an entire delivery year. Replacement transactions can be submitted with start and stop dates that fall within a delivery year.

That is why I provided the average value for all days in the 2014-2015 delivery year.

The chart that is there that's below the little table is the specific answer to the request in

the notice about replacement capacity transactions from MISO resources submitted after the third incremental auction for 2014-2015, so you can see that there are a couple different durations there that those replacing capacity transactions lasted and then the megawatts quantities.

Then in the 2015-2016 delivery year data is on Slide 3 and it was shown similarly. The total quantity on average per day so far in 2015-2016 is 3,867 MW and then you see the durations in the actual quantities of replacements, again, submitted to PJM after the third incremental auction which could, by the way, have been submitted to PJM during the delivery year itself.

It is not just in that short time frame in between.

I would agree with Dr. Patton. There is a lot of replacement that does occur in PJM. The numbers here as far as MISO resources is that sort of relatively small snapshot that is just MISO resources and just after the third incremental auction.

DR. SOTO: Mr. McCullough.

MR. MCCULLOUGH: Two quick observations. The first is, I chose the example of Illinois Power Marketing because apparently it does have dedicated

transmission. It had the best of all possible situations.

The second is regardless of duration, every one of those transactions is to be filed in the EQR.

When we don't find a lot, we are not finding a lot of neither daily, monthly or yearly.

DR. SOTO: Thank you. Back to you, Mr. Bresler. For each of the last three delivery years, how much replacement capacity was bought prior to the start of the delivery year from all external resources, and, if you have information from MISO in particular?

MR. BRESLER: I do apologize, Dr. Soto. I did not bring those numbers with me, but certainly we can follow up with comments after the Technical Conference, so if there is additional data it would be helpful from PJM's perspective.

I don't have those specific numbers in front of me. Just so you know though replacement transactions do not need to be submitted to us at the time the actual replacement capacity is procured.

We see a certain amount of replacement capacity that is purchased in incremental auction and we would have that data for each incremental auction and then we would have the amount of replacement capacity that is exactly submitted to PJM through

replacement transactions prior to or during the delivery year.

The time it is submitted to PJM is not necessarily the time it is purchased, right, and that's true also for bilateral transactions as well.

I do not have a specific view into, or PJM does not have a view into when an actual contract was struck, when an actual purchase was made, if it was done bilaterally, or the price at which it was made.

There might be data available through other sources.

All we see is the megawatts and the replacement value, the replacement quantity that is being utilized on the specific resources being replaced when those replacement transactions come to PJM.

Certainly, we could follow up with whatever data that would be helpful as far as that is concerned.

DR. SOTO: Thank you. Do you know what is the percentage of the total is the actual auction and how much in the bilateral trade?

MR. BRESLER: I don't, but again, we would be happy to follow up with that data if that is helpful.

DR. SOTO: Yes, thank you for your follow up. You may not have the data for this one either, but just to get it on the record, Mr. Bresler.

For each delivery year, how much replacement capacity was bought after the last PJM incremental auction and before the beginning of the PJM delivery year from all sources external to PJM and resources in MISO.

MR. BRESLER: The timing of the actual purchase is difficult for PJM to determine.

All we know is when the replacement transaction itself is submitted into PJM's system, we could provide certainly that data and say how many megawatts of replacement transactions were submitted to PJM after the third incremental auction.

What you have on Slides 2 and 3 are again the MISO specific sources replacement transaction submitted to PJM after the third IA for those two delivery years.

Again, we could provide the data in the aggregate if that would be helpful.

DR. SOTO: Thank you. Mr. McCullough?

MR. MCCULLOUGH: We can help on that. The EQR database does have a field for the date of the transaction.

DR. SOTO: Mr. Bresler, do you have any estimate of the bilateral prices?

MR. BRESLER: I am sorry, I do not. We do not have visibility into the actual prices paid for the

capacity.

Like I said, it might be available through the EQR source, but we don't have that.

DR. SOTO: Do any of the panelists have information on that?

MR. MCCULLOUGH: We do and they are low and if I was going to characterize an average, the average would be in the $10-$20 range. That is historical data obviously, so it is not up to date, and number two, it's not checked and rechecked.

But the scale of the dollar amounts surprised us as being so low.

DR. SOTO: Back to Mr. Bresler. Do you know how often PJM has tested a daily deficiency charge to a load serving entity?

MR. BRESLER: I don't have the specific numbers off the top of my head, but I can tell you that I think it is a very infrequent occurrence where deficiency charges are applied.

It has happened in the past, but not very often, not for very many dollars.

DR. SOTO: This was just to get an idea what the price range is. Are there any of the comments from the panelists?

Now we have some sense of the size and the

prices really to PJM capacity auction. We can turn to Dr. Patton to see the relationship between replacement capacity market and the opportunity cost MISO resources selling to the MISO auction.

First, Dr. Patton: What role does the size of PJM replacement capacity play in your decision for use in PJM's daily deficiency rate as a measure of opportunity costs?

DR. PATTON: We view the size of the opportunity as being a threshold question where there has to be a material opportunity and once that opportunity exists, then that opportunity cost is the marginal cost for all the suppliers who potentially might choose to export, and obviously, in 98% of the resources that are being evaluated under the initial reference level are already committed to satisfy their own requirements in MISO or are making sales in MISO.

It certainly does not have to be the case that the opportunity is available to every resource even though the reference levels is applied to every resource.

There has to be some degree of confidence that that opportunity can be taken advantage of by a substantial share of the uncommitted capacity.

DR. SOTO: What is that threshold to make it

a substantial share, where it is: "You know it when you see it."

DR. PATTON: Yes, I do not have a number. The problem is -- what you want to guard against in terms of market power in mitigation is compelling suppliers to sell below the competitive level that they would otherwise choose to sell at.

With regard to the application of the reference level, let's say, the opportunity is 1,000 megawatts or 2,000 MW which is small relative to the total base of supply in MISO, but there is not a way to allocate the reference level to only 1000 MW or only 2000 MW because ultimately at the end of the day you do not know which megawatts you are going to choose to take the opportunity to export to PJM versus selling bilaterally in MISO or doing something else with their capacity exporting it to STP or whatever.

I am sorry, I cannot give you a definitive number.

DR. SOTO: That's okay. Having the rationale is helpful.

DR. PATTON: Yes.

DR. SOTO: That is also good. Are there any other panelists who have any thoughts about that?

MR. DAUPHINAIS: Yes, I definitely have

thoughts as is probably well aware from my affidavits, but there are 3,425 MW offered very near or above the reference level just from the Emeryville, Illinois zone, local Resource Zone 4.

What the analysis is showing is that this PJM capacity deficiency rate bilateral market replacement capacity is much smaller or, at least what you can access, is much smaller than 3,425 MW.

The critical question on lost opportunity is: Is there a home? A paying home, for all of this excess capacity.

If there is not a paying home, we're in an oversupply situation. If we are in an oversupply situation, if we have perfect transparency, would drive the price down.

We are very careful by putting in opportunity costs based on very small opportunities that cannot swallow this oversupply as it really overstates the supply and demand situation, that is, it overstates how much demand there is for the supply that is present.

DR. SOTO: Mr. McCullough and then Dr. Patton.

MR. MCCULLOUGH: No, we are surplus in Zone 4 and that surplus is, I believe, not in debate. The surplus is significantly larger than the transactions

we would measure for this transfer to PJM, so much larger that it would not normally drive anything.

The players that we see who are active and have dedicated transmission, that's not open to everyone and in fact it is probably highly restricted. So we are, in a sense, identifying the price which it exists, at best, is for a very small component of the Zone 4 capacity surplus and as such would not normally drive the price in a regular market.

DR. PATTON: Yes, I think I want to, sort of, tell you how important it is to guard against being too myopic in looking only at PJM.

The reality is that suppliers with uncommitted capacity may be selling it all over the place, right?

The fact that we are using an opportunity cost from PJM doesn't mean that all of the uncommitted capacity has to go to PJM. To the extent that PJM, the value of capacity in PJM, is driving the value of capacity in areas neighboring PJM, Southern Company, or TVA or anyplace surrounding PJM means that MISO suppliers of uncommitted capacity could be making bilateral sales elsewhere, could be driving it.

In addition, there are other directions they can go in and sell their capacity, so the question is

where you have to establish a reasonable opportunity cost that applies to all the resources recognizing that there are many other opportunities that are going to be within or below that that reference level that you do not want to foreclose by mitigating MISO capacity to sub-competitive levels.

DR. SOTO: Thank you, and Mr. Dauphinais, you had your tent up?

MR. DAUPHINAIS: There are theoretically other replacement capacity sales opportunities to -- within MISO itself and to other markets.

However, the problem is where is the evidence of a significant volume of that and where's the evidence that the price for those sales are anywhere near the level of the replacement capacity deficiency charge in PJM.

That is the problem. We need legitimate and verifiable opportunity costs and we don't have the evidence showing that there are legitimate and verifiable other replacement capacity opportunities of significant size besides the PJM replacement market at which bilateral market and as we have seen that is a small market in itself because of transmission limitations.

MR. MCCULLOUGH: We do not have to accept the

hypothetical, but they may be out there.

We can actually go check the transactions on a transaction by transaction basis.

Pulling up the most recent data, this is the second quarter of 2015 delivery points are Illinois, Illinois, Illinois, Illinois, Illinois, Missouri Illinois, Illinois and Illinois.

This is not a huge export to the Southern Company. I am not going to pretend that the data is perfect, but I will tell you the predominance of evidence from the data that has been there now for several years is that this is a very localized market.

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DR. SOTO: Dr. Patton, have you considered moving away from basing initial reference level on replacement capacity sales into PJM, that is, given delivery constraints and limited demand for replacement capacity in PJM?

DR. PATTON: We have talked about this some is -- I think a better measure of opportunity costs would be the forward capacity prices which we have been pursuing, but there is not a good source of data for that.

That data tells you what buyers are actually willing to pay and what the transactions are clearing in in PJM and MISO.

We continue to believe that that would be a better approach. We thought we had of a source of that data last year and we are hoping we can secure it this year.

DR. SOTO: Thank you. Mr. Dauphinais.

MR. DAUPHINASIS: The problem using forward trading data is that those are not really foregone opportunities in the planningresource auction.

The planning resource auction occurs a few months before the planning year. The forward transactions are created well before that.

No market participant is giving up the opportunity to make sales in the planning resource auction if they believe the opportunity is better to make a forward transaction. In fact, most capacity transactions in MISO are forward bilateral transactions.

But those are not lost opportunities because they are made well in advance of the planning resource auctions with a difference in timing is one issue.

The other issue is you are really not foregoing the opportunity to do the planning resource auction because you are taking a better opportunity by doing the bilateral transactions.

I do not view, and as I have explained in the

affidavit, I do not view the forward transactions as being lost opportunity cost for the planning resource auction.

DR. SOTO: Thank you. Dr. Patton.

DR. PATTON: Yes, the forward markets continue to trade over time. There are both planning year transactions and balance of the planning year transactions even after you are into the planning year that are quoted.

The opportunity to sell bilaterally doesn't go away at the time the planning resource auction takes place.

The potential problem is that we have to establish the reference level a certain amount of time ahead of the planning resource auction posted, get comments per the MISO tariff, so we can't wait until the date of the planning resource auction to get that data and set the reference level.

MR. DAUPHINAIS: What Dr. Patton is referring to, yes, the forward transactions that you are doing for the balance of the planning year, so I would call those -- what I was referring to as replacement capacity transactions within MISO.

Those do conceptually exist. I am sure they do occur in some level, but again, what we get back to

is we have no evidence of there being much depth in those or what the prices of those.

We are back to the question of legitimate and verifiable opportunity costs and we just do not have any evidence that supports at this time that those transactions are significant in volume or that they carry the same price as was seen in the capacity deficiency rate at PJM.

DR. SOTO: Thank you. Mr. McCullough.

MR. MCCULLOUGH: Now we have the chicken and the egg, the problem is that most of these capacity forward transactions are now well reported.

It's not a very deep market. It's not something we can look up every morning in Platts Energy Trader, and Megawatt Daily, I guess it has been renamed which actually drives our capacity price.

If I report to Megawatt Daily that I had such a transaction and if they had an ongoing index, then Dr. Patton would identify that as appropriate reference price.

MISO has basically a number of centralized utilities vertically integrated.

HHI's across the entire MISO footprint are high. Zone 4 is interesting because it is the exception.

We have a merchant who is not totally vertically integrated, so what would occur is a large player could make that transaction show up in Dr. Patton's database that developed the reference price and then that dominant player would actually bid to it.

I am not assuming anyone would do this, but obviously we have a history of people bowing to temptation, so I would like something that was a little deeper and a little better document.

DR. SOTO: Thank you. Dr. Patton?

DR. PATTON: He is right that forward quotes in MISO in areas where the entity that you potentially are mitigating can affect the quote would be problematic so we were actually exploring the forward quotes for exported capacity and not for capacity in Zone 4.

DR. SOTO: Dr. Patton, do you have an historical estimate of what percentage of megawatts offered in the auction have been at an initial reference level of higher?

DR. PATTON: That question was not in your notice! I don't. Sorry.

DR. SOTO: We want to keep things moving along.

DR. PATTON: I could have lively.

DR. SOTO: You can add that detail to the comments if you want to. Thank you.

MR. DAUPHINAIS: I would indicate for the 2014-2015 and 2015-2016 planning resource auctions. I think that is derivable actually from the publicly posted file from MISO on the details of the planning resource auction.

We will do our best also to get those numbers which I am sure we are very close to Dr. Patton's.

DR. SOTO: Thank you, yes, that is great to get all of that in the record.

If the vast majority of offers, and this is for Dr. Patton, are well below the initial reference level, how is the initial reference level reflection of the actual opportunity costs available to suppliers in MISO?

DR. PATTON: Yes, so there is a variety of things there. For one, suppliers have different incentives in MISO, and they, in part, due to the way that they are regulated, and recognizing that there is competition among uncommitted supply, to the extent that you want to get your capacity sold and outcompete other suppliers, you may have an incentive so to lower your offer.

To the extent that you keep very little, if any, of the profit from the off-system sales year, we

routinely see MISO participants act far less aggressively in maximizing their profits than we would expect. Those are just things just off the top of my head.

DR. SOTO: Just because they are different regulatory systems?

DR. PATTON: That is one factor.

DR. SOTO: Mr. McCullough.

MR. MCCULLOUGH: So 2015 - 2016, we had high-priced bids from exactly two individuals, they are both Dynergy subs, but the only other high priced bid was DT Energy Trading.

What we have is a market that is primarily being bid at very low prices.

Union Electric, bid at 50 for example, and many of the rest are one cent or $1.00, so what we have is a situation where that price curve is being set effectively by very few players.

DR. SOTO: Anything else that the rest of the panelists for us? Mr. Bladen?

MR. BLADEN: It's important to think a little bit about how load servers are actually going through the process of procuring their capacity because while we are talking about an auction that occurs just a few months ahead of the delivery year, as was noted by one

of the other panelists earlier, the vast majority of capacity is procured in advance and on a bilateral basis.

The degree to which capacity is procured in advance, it would be at prices that are bilaterally negotiated and reflect the participants themselves view of the value and the degree to which capacity is or is not procured bilaterally in advance and offered for self scheduled into the auction, that that will also make a material difference in how the auction itself is priced.

As anyone who has tried to buy milk at 2 o'clock in the morning from a convenience store knows that buying it there is going to be more expensive than buying at the supermarket when it's on sale.

It's important to think about the dynamics at play and the recognition that the opportunities to buy can be limited at times, the opportunities to sell can be limited at times, but the opportunity itself existing is what will often drive the price up or down.

DR. SOTO: Dr. Patton?

DR. PATTON: Yes, that is an extremely important point. There is nothing that requires that the capacity be scheduled in advance of the PRA, so to the extent that arrangements have been made for capacity,

the suppliers are free to self schedule that capacity. Effectively what it would look like is a purchase, a simultaneous purchase and sale of capacity in the PRA in which case I would expect them to offer very close to zero.

DR. SOTO: Thank you. Our next set of questions is on the alternative ways to measure the opportunity of costs.

The IMM has stated that it will look to bilateral sales as a measure of opportunity cost for initial reference levels, but has been unable to secure the data.

Dr. Patton, would it be appropriate to use bilateral sales to regions outside of MISO rather than using PJM's stated deficient fee charge?

DR. PATTON: It is actually preferred because some of the potential issues that we have talked about previously that you're -- you don't want the participants that you are mitigating to have an influence over, the metric that you're using for their reference level.

We do think on a short and long-term basis that the capability exists to export past the PJM and that is the most valuable opportunity.

Looking at the forward capacity the values in PJM is a good approach.

DR. SOTO: Do any of the other panelists have anything to add?

MR. DAUPHINAIS: As I indicated earlier, there are problems using forward capacity trades that occur before the planning resource auction because those are not really lost opportunities to participate in the planning resource auction.

The opportunity can be chosen if the market Participant wants to choose it and take advantage of it. It is not really a lost opportunity cost for participation in the planning resource auction.

I would also caution that one of the fall outs of results of the 2015-2016 planning resource auction is that it has driven up bilateral prices for capacity in MISO and has done that because the expectation is, unless the market rules change we could have a rerun of 2015-2016 and 2016-2017 which is something that I -- at least I'm very concerned that it may happen and I believe the market believes will happen.

We want to be careful we're not using data that is really just a fallout of 2015-2016 planning resource auction results which have serious questions associated with them.

MR. MCCULLOUGH: At the risk of being snarky, and I apologize Dr. Patton, quoting you, because there

are significant barriers from MISO area generation to participate in the PJM RPM including access to long-term firm transmission service into PJM.

That is one of the reasons he put for using the current method.

I realize this is a debate about whether they seem to be working or not, but I think the general market perception is they are not.

I think the data we see indicates they aren't.

In this case it is simply conjectural to use PJM for MISO.

MISO is a different area. It is a different resource mix. It is certainly a different growth rate.

If any of you have been to Southern Illinois recently, you will notice that very quickly. So what we are ding there is simply gluing another region's data to a data that is entirely different generation mix, growth rates, et cetera.

The right answer is, unless we want to have a nationwide capacity market, not necessarily a bad idea, is to recognize that we have differences in regions and we would like to incentivize industry to move from PJM to Illinois because quite bluntly, Illinois is surplus, and would love to see it.

I hope my client is listening to that. Good.

DR. NICHOLSON: Mr. McCullough, could you clarify at document you were reading from when quoting Dr. Patton?

MR. MCCULLOUGH: Sorry, this is the initial reference level for zonal reserve offers 2015 - 2016 delivery year and that is from Dr. Patton's firm.

DR. NICHOLSON: Thank you.

DR. SOTO: Mr. Daughinais?

MR. DAUPHINAIS: That was actually submitted as one of the attachments to my initial affidavit. My original affidavit.

DR. SOTO: Thank you. Mr. Bladen.

MR. BLADEN: I will not be snarky, so I will do my best to stick to the facts as we know them.

I also want to make sure that we think about fundamentals when we think about how prices fall out of these auctions.

I mentioned a minute ago bilaterals are the primary way that loads are buying and paying for and supplying capacity to meet their reliability requirements, but when you look at the auctions, and you look at the rules, and how the rules reference levels or other rules affect price outcomes, it is noteworthy to look just at the most recent two auctions. And where you had prices that were materially different,

it is important to think about what were the fundamental changes and why did we have prices that are fundamentally different?

When you look at that, you realize that the reference levels were pretty similar. The transfer capacity was pretty similar. Auction offers were pretty similar with some key exceptions.

The amount of demand that attempted to buy capacity in the most recent auction was dramatically higher than had occurred in prior auctions particularly the most recent year before that.

When you have a dramatic increase in demand, and we have not talked about that at all, but nearly three times more demand attempted to buy capacity in the most recent auction than the prior auction, inevitably, it ought to be impacting price in any market that you would think is competitive.

DR. SOTO: Thank you and thank you for your self-restraint on the snarkiness!

Right, and here I am just one unscripted remark away from being back in the private sector! So I appreciate that!

MR. DAUPHINAIS: If I can respond to Jeff a little bit. I do not want his remarks to be left as an impression that load decided the float in the market

this time around in 2015-2016 and that's what drove this.

I think it is important to realize that to do four bilateral transactions requires not just that the buyer be willing to do it, but the seller be willing to do it.

We have had a major change in ownership just before the 2014-2015 auction. There would have been leftover long-term bilateral transactions probably prior to that acquisition generation in Illinois and those long-term transactions, some of those may have rolled off just before the 2015-2016 auction.

That alone can contribute to a situation with a lot more of the planning resource margin requirement in Local Resource Zone 4 having to be drawn from planning resource auctions.

It is not necessarily a decision by load alone that that happens and we also did have significant changes in the way price of capacity was offered within Local Resources Zone 4 in 2015-2016 versus 2014-2015.

DR. SOTO: Thank you. Before we were talking about bilaterals with other regions outside MISO.

What about bilaterals within MISO regions or were you thinking about that in your previous answer

too?

DR. PATTON: There are some problems of using bilaterals in MISO, one of which is the problem that we have talked about a couple of times which is if you have a reference level methodology that is based on a small number of bilateral transactions in various areas in MISO, then the participants that you are mitigating, subject to the reference level, are going to be able to influence the reference level.

Additionally, you will hear more about this later.

There are clear flaws in the MISO capacity market that you probably read me with about that influence the prices in MISO. To the extent that an uncommitted supplier can get away from the market design that has been, to plot on them, I think that's clearly the better measure of their opportunity than MISO.

In that regard, that is one thing we have to really be careful of that we don't use market power mitigation to not mitigate market power but instead drive capacity prices to the unreasonably low levels that our market design seems to dictate.

DR. SOTO: Thank you. Mr. Dauphinais?

MR. DAUPHINAIS: One thing is we need to remember the scope of what was raised in the complaints

of the proceedings so getting into major changes in market design along the lines of Dr. Patton is bringing up -- really kind of go beyond of what the scope of the complaints were.

What I would know at least in the relief that was requested in the L-1582, that relief still allows specific reference levels to be requested for generators based on the going forward cost as with a deduction for energy and ancillary service market revenues.

So that there is a method, an approach, to get a reference level based on a specific generator's marginal cost without opportunity cost in it.

Making this change, removing opportunity cost at least for the 2016-2017 auction from the reference level, would not necessarily lead to price suppression because market participants can request a specific reference level.

I will note that we have taken a look at it and there are only 26 market participants of the 2015-2016 auction that offer an offer price in excess of 10% of the cost to new entry which would be the entities where if they want the communal offer at such levels would have to seek a specific reference level.

DR. PATTON: I was just going to make a point that basing reference levels on going forward costs basically makes the determination that opportunity costs are not relevant and removes those from the reference level which is hard to justify under any reasonable economic theory.

If you cannot do that, then you have to keep opportunity costs in there and one of the risks of understating the reference levels, you push participants to making exports before the PRA and simply not being available in the PRA.

Certainly, we see a lot of that, the quantity of capacity that is flinged at PJM is large, but you do not want your market power mitigation measures to motivate more of that and take that supply preemptively out of the PRA.

DR. SOTO: Thank you. We should keep this to an opportunity cost right now, so do you have comments about that?

MR. MCCULLOUGH: I was going to focus on analyzing the go ahead costs, is that appropriate?

DR. HYDE: We are going to talk more on that in the next panel.

MR. DAUPHINAIS: Let me get my thoughts together again. With respect to -- sorry, I have lost

it unfortunately.

DR. SOTO: You will have plenty of opportunity to talk more about this. Back to you, Dr. Patton.

Data about bilateral contracts publicly available, and if not, what step could MISO, the IMM of the Commission take, to improve the availability of this data in order to allow this to be used for opportunity costs?

DR. PATTON: I'm not sure what I would say to that. The value of capacity varies quite a bit as you have seen in all of these capacity markets.

I have always favored using the prices the capacity is trading at, you know, quoted now for delivery in the in the future planning year, I think, unfortunately most of the actions I can think of that FERC could take would improve the availability of historic trade data which may tell you what capacity was worth a year ago, but I'm not sure what's a good measure of what it's worth in the upcoming planning year.

There might be a way for you to get your hands on it through CFTC or somebody on trade data that is related to delivering in the upcoming planning year, but I'm not sure about that.

If you did it through them, then I am pretty

sure you can't share it with us.

MR. BLADEN: If it is not obvious, we certainly at MISO staff work closely with the IMM to think about these questions and depend on the expertise we have in our market honors, and Staff as well.

As you deal with the bilateral market there is an extraordinary number of variables that you probably would have difficulty unwinding in the nature of bilaterals to try and think about how you might use them to reflect opportunity costs.

For instance, if you had a 20-year bilateral for capacity that was at some fixed level over the course of the 20 years.

Does that reflect the single-year opportunity costs that someone might face in a year that maybe had some scarcity as it was approaching, but maybe somebody in the 20-year bilateral as a way to avoid the scarcity.

When you think about these questions you are also dealing with were the transaction sufficiently arms length such that they were competitive in nature.

Not to suggest that there are not ways you might look at this, but it would be very difficult to unwind these external factors from the nature of short-term opportunity to actually transact for a

particular part of MISO for a particular year.

DR. SOTO: Thank you and before I continue, moderator, how are we doing with time? Do we need to move it quicker?

DR. HYDE: You are a little short. You may have to dump the last couple questions or one question at least.

DR. SOTO: Yes, given that we are short on time let's go very quickly to Dr. Patton. Are there any other reasonable alternatives to measure opportunity costs?

DR. PATTON: Yes, the various forms of bilateral data would be the only thing that comes to mind.

The PJM market is the most valuable opportunity and it's also the most transparent in terms of data availability.

You can imagine other sales that folks could make, but it would be tenuous. You could imagine people wheeling through PJM and selling in New York or around through Ontario, but it is hard to imagine that that would be superior.

DR. SOTO: Thank you. Now that we have the measurement of opportunity costs out of the way and we know some facts about that, let's talk about whether

the clear market decent has created the right incentives for investment.

This is a broad question that I ask of all the panelists which is the current mitigation paradigm in market design creating the right incentives for new capacity to come in for retaining all capacity into the market.

Just raise your hand if you want to start.

DR. PATTON: That is a fantastic question!

DR. SOTO: I do want to point out that we are short on time.

DR. PATTON: Interestingly, I posed the question to the board in MISO and to MISO participants.

Is it the objective of the MISO capacity market, in combination with the energy and ancillary service markets, to facilitate efficient investment and retirement decisions?

Half the room looked at me and said, no, and the other half said, "I am not sure," and so I said, "Surely, FERC had said that this is the design objective of this market because you have to have some objective if you're going to judge whether something is just and reasonable, right?

I found that FERC was very clear in New England and in New York that that was the design

Objective, probably PJM.

FERC has never said that, that that is the design objective in MISO which is devastating to this region, I mean, we have a wholesale market.

We have a shrinking supply because of retirements prompted by environmental regulations.

We have a wholesale market that could facilitate satisfying the requirements, but it can't and it cannot because of the vertical supply curve.

The representation of demand, MISO is the buyer, and we them buying in ways that are irrational when you look at what the reliability value of capacity is.

It would be a fabulous thing for FERC to say, "This is the design objective and we are not sure of the current market is satisfying it, so do come up with something."

You do not even have to even mandate, a slope demand curve like you did in New England, but we need something better.

MR. DAUPHINAIS: The subject is introduced. A couple of things. First, it is important and that is an important question whether the MISO market is facilitating.

You have to take into consideration with the nature of the MISO market in the amount of regulated states, that is nearly all states except Illinois

are regulated, so it is a little different, very different than a lot of the RTO's and that has to be considered.

Those questions, while they exist and should be pursued through the stakeholder process, MISO and through other forms, it is important that they not overshadow the pressing need that was sought for relief in the complaints, and in particular, in EL-1582, Illinois Industrial Energy Consumers, which is we need relief for 2016-2017 to address a problem that is happening with regard to setting reference levels and the ability of potentially market participants to take advantage of that to get higher prices than they otherwise get.

That needs to be addressed.

These other questions will need to be debated, but with the best place to do that is in the stakeholder process or through other forums, so that's what are encouraged.

I will add to that, if you look at the history of the MISO market, it has worked for capacity principally on a bilateral basis and also self supply basis, but it generally has worked.

I can tell you not only industrial energy consumers, they are members of that group are in retail

access state.

They have to constantly face the possibilities of high market prices if they could take a pass and you are planning a new resource auction, they have the ability to contract with capacity three to five years in advanced and many of them do.

They do recognize and weigh their options. Because there are incentives of the risk of high prices like we saw in 2015-2016, there is an incentive for them to bilaterally contract and it is bilateral contracting that is going to provide the foundation for financing for new generation.

DR. SOTO: Thank you. Now, Mr. Bladen?

MR. BLADEN: It is a difficult question to answer and ultimately FERC has to judge, "Is that the right design objective?" as Dr. Patton recently pointed out.

What I want to note is that the design objective today to deliver reliability outcomes through ensuring sufficient resource adequacy year in and year out which it has, and the degree to which it is depended upon to send investment signals, efficient investments signals, is intertwined with the regulatory frameworks in each of the individual states, and MISO is committed to working with our stakeholders and with the states to ensure that we are getting both the

reliability outcome and the efficient investment that is needed for the region based on particulars of the states regulatory construct.

I will point out that we actually are engaged with the State of Illinois. There is a policy forum.

The Illinois Commerce Commission is convening in a few weeks that we will be actively participating in to work with them on thinking through some of these questions as to what's needed in Illinois in that instance as a nexus with how we pursue this question of efficient investment and capacity markets.

DR. SOTO: Thank you. Dr. Patton?

DR. PATTON: Just a quick comment in context on the prices that we actually saw in MISO.

First, what is important to recognize is having an efficient wholesale capacity price does nothing to interfere with the state's ability to ask their utilities to build it.

In fact, it reduces risk for their customers because the building is lumpy and they routinely overshoot because they want to make sure they have enough capacity and it would provide a market for them to sell it back to you so it doesn't all just in retail rates.

In the long run it would definitely be

beneficial even to the regulated entities and to the extent that it facilitated efficient decisions to build and retire by IPPs, that is a source of supply that can only lower costs for MISO's customers.

With regard to the prices because you were asking about whether it facilitates sufficient prices, I think the comment I would make is, if you asked me what prices are reasonable and unreasonable, I would say that Zone 4 is the only one that was reasonable coming out of this auction.

Clearly, our market design doesn't dictate a $150 price, but if we got to the point of purchasing capacity rationally, $150, $155 of a megawatt day is something like two thirds of the cost of building a unit in a climate where we are approaching capacity eficiencies because of retirements.

If you were to look at what would happen in New York or New England or PJM if capacity levels dropped to the level that they are at at MISO, in all of those markets we would get prices in that range.

What you need to ask yourself is, are all the other prices that are prices that are close to zero reasonable?

DR. SOTO: Is there any comment from the other panelists? Mr. McCullough?

MR. MCCULLOUGH: Here we have a philosophic difference, and then I am going to be alone on the panel. I still live in the largest energy market in the world known as "the West," where we have none of these.

We are a vibrant capacity market and we always have. When I was a child I can remember selling capacity to California from Portland, Oregon.

The fact of the matter is we're going to win or lose on the bilateral market.

The Eastern capacity markets have been volatile and often inexplicable and it is important for a load serving entity to be able to look ahead.

He is going to want as many options as possible. He is certainly not going to want a one-year option which is good for clearing surpluses and deficits, but not very good for planning.

He certainly is going to be making his own estimates. Now if we had a vibrant bilateral market we would then find it on Nymex and then we would have the best of all possible estimates.

Attempting to jumpstart these things by Dr. Patton's assumption of the outcome, and by the way, it is probably pretty good, but that simply puts him in charge of the Midwest and it puts us in charge of the

Midwest if we agree with him.

The fact of the matter is we are usually not very good forecasters.

The right answer is to actually look to that bilateral market for being most of the outcome and then just have this capacity market in effect balancing the surpluses and deficits.

I know I'm in a minority here except if we go by square miles from megawatts, I've got some advantage.

But the philosophic belief that regulators or even market related regulators turn out to be better than markets doesn't have much of a track record.

Please don't let us let Dr. Patton set the price for the entire Midwest in spite of the fact that I thought you analysis was just fine. Thank you.

DR. SOTO: Thank you. Mr. Daughinais. Did you raise your tent?

MR. DAUPHINAIS: I will pass.

DR. SOTO: Thank you. Then that brings us to the end of the panel. This was very productive and was an enlightening conversation.

I thank our panelists for being here today especially Mr. Bresler who endured a lot of questions in the beginning. You all provided a great deal of information and insights.

Thank you again and I will now pass the mic to Dr. Hyde our moderator.

DR. HYDE: Thank you everybody. That was a great panel. How about if we take a ten-minute break and come back for Panel 2 and hopefully we can keep this going and if you didn't like some of the questions you got already, you will like some of the other ones. There is something for everybody here.

(After a recess on resuming.)

SESSION 2:

Alternatives to the Current Mitigation Procedures and Reference Level Calculation.

DR. HYDE: Thank you all for coming back promptly from your break. We will now begin the second of our panels relating to mitigation topics.

Let me introduce our panelists now.

We have Jeff Bladen from Market Design from ISO again.

Dr. Renuka Chatterjee for Resource Adequacy from ISO.

Dr. David Patton for the Independent Market Monitor.

Mr. Ali Al-Jabir speaking on behalf of Illinois Industrial Energy Consumers.

Mr. Robert McCullough speaking on behalf of

Illinois Attorney General's Office.

Dr. Roy Shanker speaking on behalf of EPSA.

Thank you all for joining us today. In this session we are focusing on various alternatives in the application of mitigation in the MISO auction.

We will be discussing a wide range of alternatives including some that could be accomplished under the current tariff and others that would take more time to implement.

Some of the alternatives are mutually exclusive. Virtually all of my questions will go to all the panelists.

First, we will focus on measurement of opportunity cost and the calculation of the initial reference level and the facility's specific reference level.

The initial reference level is the default reference level for capacity offers and is used in mitigation unless the market participant has an approved facility specific reference level.

We will discuss what the appropriate opportunity cost is when there are transmission limitations or limitations on the demand for that capacity in the neighboring region.

We will be focusing on when MISO sellers, as

a whole in a zone, cannot feasibly transport or sell all of their uncommitted capacity within those zones to the neighboring region. In that case, should potential transmission or sales from the zone to the neighboring region be used to determine the opportunity cost for all the capacity in that MISO zone.

In the alternative, should the sale to the neighboring market be used as the opportunity cost net of transmission charges only for the megawatts that the sellers as a group can feasibly transport and sell to the neighboring region with a lower opportunity costs associated with different alternatives applied for the market's remaining capacity.

Let me give you an example.

Assume the PJM capacity deficiency rate less the transmission charges is the opportunity cost under consideration.

Suppose capacity sellers would like to sell 3,000 megawatts of capacity, but only have 500 megawatts that can be sold in the PJM because of limited need for replacement capacity there and or transmission limits to getting the capacity there.

Under these assumptions to what extent without changes to other market rules, could the opportunity cost associated with sales to the alternate

market be seen as the opportunity cost for all resources in the initial reference level calculations.

Dr. Patton, can you lead us off?

DR. PATTON: I mentioned this earlier. I do not view A quantity as something that works its way into the reference level, that if the opportunity is material and exists, then you have to allow all of the suppliers to have the ability to pursue the opportunity because in reality until you run the auction, you don't know which suppliers have a range to sell their capacity to somebody else already and which ones are interested in pursuing that opportunity and the mechanism by which you apply the reference levels you apply it at the time of the auction and the mitigation occurs at the time of the auction.

In your example, the 500 and the 3000, all the 3,000 MW would get the initial reference level and then you would expect some of that 3,000 to sell into PJM and some perhaps to export other places or sell to others.

DR. HYDE: Does anyone else want to react to that? How about Dr. Shanker. We have not heard from you yet.

DR. SHANKER: I could say what David said, but it is even more integrated than that.

One of your premises was to assume no changes in the market rules and I think the market rules themselves are very pertinent here.

You have very strong vertically integrated market. You have a 01 vertical demand curve that makes things an inelastic demand and you have a close to an inelastic supply the way things are working.

One of the good things about the reference price is it tends to give a little shape to the supply curve to make up for some of the deficiencies in the market and collectively those things complement each other and they also complement what David said which is that you're seeing the market opportunity cost out there displayed for everyone and it is a transparent price signal.

It goes with, I guess it was David, it would be really nice to see an explicit attract new entry, retain existing entry that is economic as an explicit objective function.

What we were talking about in this kind of a reference price or initial reference price does exactly that, it is adjacent to a viable market where the Commission itself has already recognized endogenously opportunity costs as being the right measure.

All of these things sort of fit together, and in

this case, it does go with the rest of the design, although I would like to see the rest of the design a little bit different.

DR. HYDE: Thank you. Mr. Ali-Jabir?

MR. ALI-JABIR: Thank you for the opportunity to speak.

From our perspective, it is important to recognize that if you are dealing with a market that has an oversupply situation, that it exists in Illinois is Zone 4, we do not want the reference level to be used in a way that masks that oversupply situation.

If you have a reference level that is effectively providing safe harbor for folks to elevate their prices to unreasonable levels that are inconsistent with the fundamental supply and demand balance that is in that zone, then that is not a proper implementation of that reference level. So you really need to have a situation where the reference level is based on a lost opportunity costs that is legitimate and verifiable, but also that is able to effectively absorb the excess supply both in terms of the depth of the market and also the ability to export power out of MISO into PJM to absorb that level of excess supply.

What you should see, according to the normal laws of supply and demand, is that prices in that zone

should be fairly low and not anywhere near the levels that we saw in the last auction.

MR. MCCULLOUGH: I would like to operationalize my answer and give you computational process.

The first issue is MISO already determines import and export limits zone by zone. The data is available.

The explicit export to the PJM number is part of that hidden somewhere deep in the vastness of the calculations and needs to be pulled out and made explicit.

If it really thousands and thousands of megawatts we need to change the Zone 4 -- well, all the zone calculations because they will all be wrong.

The point of the matter is we are not going to decide that today. That is a determinable number and that should be the start of the process.

Second, what really is the market in PJM? It is nice to have hypotheticals, but the reality is we have numbers and the number we should use would be for the corresponding transactions for the similar time period.

To some degree, we can use the EQR data and I would actually like to use better data than that even.

The fact is we don't have to assume the answer. We can actually look it up. Let us say that we have the number and let's say that in 2015-2016 it is $25 and our export limit is 400 MW.

Then that really is the limit of the entire issue and we know that the surplus in Zone 4, in fact, the surplus throughout MISO dwarfs this.

We simply would have exhausted that opportunity and the market would have moved on.

The fact of the matter is it is nice to have six wise men opine on a hypothetical. But the reality is we actually have numbers and we should use them.

DR. SHANKER: Maybe David can add an empirical flavor to this.

The binding constraint based on my understanding, though, there are two LCRs in play.

Is it local capacity requirement, is PJM's New York, or whatever, it is the equivalent in MISO was the constraining feature in this auction and the supply while surplus everything above the default value was mitigated through the market monitor.

You had a mitigated supply curve, some portion of which was set indeed at the opportunity cost, some in excess and yet an endogenous constraint on net requirements for import and export leading to a

local capacity requirement, LCR, in the zone that bound.

I heard what Robert said, but it's a non sequitur in terms of the clearing dynamics that set the price.

The Market Monitor in his affidavit explained That. And I think MISO did actually in quite a bit of detail, and I am not seeing where the surplus sounds good, but in terms of the requirement for what was needed within the zone given the constraints was the binding constraint and the supply curve crossed the $150. And all of those prices were subject to mitigation either through the default offer cap or the review of the market monitor.

MR. MCCULLOUGH: May I add a two-cent comment?

DR. HYDE: Yes.

MR. MCCULLOUGH: Roy, the problem we have is, is that the bid appeared to have followed the levels set by Dr. Patton and there is a presumption that if Dr. Patton had set a higher a higher level the bid would have followed it up or a lower level and the bid would have follow it down.

That is appropriate for another proceeding. I don't want to get into the debate, but it is the lack of certainty and the data behind that reference level

that caused the concern. So if we are going to have something like with that much power, then we have to know exactly where every dittle and dot came from and we are not there yet.

DR. HYDE: Two long sentences. I don't think actually I got anybody picking up on what I was trying to go for here, so perhaps I should ask in a different way.

To the extent there are limited amounts of potential transmission and or sales to the best opportunity, would it be possible to employ a curve rather than a single value for opportunity costs for different availability of various alternatives?

Is this advisable? If Dr. Patton could chime in first addressing the feasibility of this, then everybody else I am sure will tell me about the advisability.

DR. PATTON: One quick comment because it is related to this and this is in response to Dr. McCullough saying, "Just look at transactions, small amount," so I think what we established on the last panel is the size of the market is something like five to six gigawatts, the amount of firm transmission that is held by participants who can use it to export is something like 4 gigawatts that aren't for the next

planning year.

The fact that a lot of that replacement capacity has come from other sources in the past doesn't mean next year that more of it won't come from MISO.

As far as your question on a curve, what I am trying to say is we do not know which units are the ones who, if they are all seeing the opportunity, they are all competing with each other to go there, then it is necessarily discriminatory to try to pick which ones get a higher reference 1 or 1 which ones get a lower reference level, I do not know that could possibly not be discriminatory.

DR. HYDE: But feasible.

DR. PATTON: I do not know how we would do it. Two IPP's. They both want to export, and I tell one of them they can have a reference level of $150 and another one of $120, so I do not know on what basis I could possibly do that.

They both are seeing the same opportunities, seeing the same profit motive. If only one of them can export that's fine, I do not know which one it is going to be until after the fact until I look back in history, and say, "That guy, he is the one who found the partner in PJM to the contract with and it was not the

other one."

DR. HYDE: To follow up and play a bit of devil's advocate with you or whatever, the devil's foot, usually when we consider marginal costs and we are looking at a supply curve you are looking at the marginal cost of the next cheapest unit.

In terms of opportunity costs, you would be thinking about the next cheapest opportunity sale. In fact, under your representation you're looking at the marginal cost pretty far up the curve.

Can you address that?

DR. PATTON: If you take -- lot's just say capacity the PJM's worth $165 a megawatt day, that is what the third incremental auction cleared out which is -- when you deduct the cost of transmission is almost exactly a reference level, I don't want to say, but we prognosticated it, but we were within 30 cents or something which is unbelievable.

But say that that's the value of capacity in PJM. The PM buyers in PJM that are buying for $165 a megawatt day, and I have two units, whichever one sells it is going to make $165 a megawatt day.

One of the unique things about the capacity market is that for most units unless they are really old, so therefore have high maintenance costs, most of

their going forward costs will be covered by net energy and ancillary service market revenues. Which means that when I look at two units, they are nearly indistinguishable, their marginal costs of selling capacity are almost entirely based on what they can make by exporting the capacity which is why in a lot of markets you just expect if they do not have an opportunity, you are going to see a lot of people offering at zero and why the subdemand curve was so important in the Northeast because it is the only way to set a price that is not zero.

When I look at these units they all look like they have the marginal cost of what the value of capacity is in PJM.

It's not as if when one sells, the value -- the PJM capacity market is relatively deep.

It is not when the first unit contracts in PJM, I am expecting the capacity price will go from $165 to $160 and now the next person who contracts his opportunity is only $160 and then it keeps going down.

The reality is the MISO sales are at the fringe and I don't think they have a big influence on the opportunity.

MR. MCCULLOUGH: Dr. Hyde, I was not very clear so I do apologize for that. We have, if we

believe the EQRs, 400 MW capability of exporting capacity to PJM because that is the number that appears to come out of it and we will accept the $165, so if the surplus in Zone 4 is less than 400, the reference price will be $165.

If the surplus in Illinois in Zone 4 is more than 400 which it vastly is then you would fall to a much lower reference level.

When I was trying to operationalize, I was trying to make it that simple that we know the 400, there is someone at the MISO end of the table who knows that number and can correct me on it, and we know exactly what that number is in PJM, at the point of which Dr. Patton makes his commitment, he knows the bilateral transactions that have been made recently at those levels potential from the EQR, hopefully from a better source so he can actually put those two numbers in his calculation to determine if it's that first step.

And it is in the first step, then he has to go to an alternative bank... Is that clear enough?

DR. HYDE: Thank you. Mr. Ali-Jabir.

MR. ALI-JABIR: One point to bring out in response to some of what Dr. Patton had to say was, and I do not want to leave the impression that if we were

to adopt the recommendation that we put forward which is basically for at least for the next auction to bring the initial reference level down to zero.

DR. HYDE: We will be talking about that later as well.

MR. ALI-JABIR: I do not want to leave folks with the impression that basically you would be collapsing down to marginal costs of zero.

That would be essentially the basis for it, so that folks would have to bid or they'd be subject to mitigation because in MISO you do have a conduct threshold that is 10% of the costs in new entry and in addition to that you have going forward costs. Going foward costs that could potentially include, if there is capital investments that they are thinking about making on the margin to address emissions control issues.

Those are the factors that would play into that. But also to address your issue more specifically about trying to set up a curve for the reference levels, I think there will be some difficulties with that because, again, one of the concerns that we have is you have to make sure that the opportunities you are identifying are legitimate and verifiable, that can absorb all of that, the excess supply.

If we are talking about trying to identify

discrete opportunities at different points along a curve that would get pretty complicated to do.

You are looking at a potential alternative. One thing to key on is the fact that the existence of a pivotal supplier is what is really driving a lot of the problem in Illinois Zone 4, so if you are looking to try to narrow in specific mitigation measures that might be different then I think you can focus on the fact that if you have a pivotal supplier the market cannot settle without that supplier's capacity that you could look at that -- a different initial offer will settle for that particular supplier.

DR. HYDE: Your comments kind of tracked through most of the rest of my questions. Dr. Shanker?

DR. SHANKER: I am still in the position where David is which is that if you are going into this situation blind, I don't know how you differentiate among the participants.

If you want to create, and Robert suggested this earlier, a single capacity market with a completely different design and not a vertical demand curve and a lot of other features be it like New England and PJM, just put in, or something like New York, those kinds of observations may subsume away some of what your concerns are.

But you sort of have, "Who goes first?" problem here and in the presence of that information, the determination that the market monitors made is exactly right.

MR. MCCULLOUGH: We are two different perceptions of my model. Let me just clarify.

Dr. Patton looks at the first block, the first step of the reference price which would be the export.

If he finds that the surplus is larger than the potential export market, then he drops down to the second block which we have yet to debate which probably would be considerably lower.

I am not talking about a different number for every supplier. I am talking about a specific 400 MW block, and I admit, I made that number up, at $165.

If he knew that our surplus is 2000, he would drop down to the next block of reference price.

DR. HYDE: Mr. Bladen.

MR. BLADEN: There is a lot of me too in my comment, but I'll try and stick to the new stuff.

The interesting challenge with having some kind of curve of a fashion that I thought I understood you to describe is that it seems as if it is by design reducing competition, not enhancing it.

Essentially, it would lead to the outcome where the only place to capture the true opportunity cost was through export and because the true opportunity cost is in a neighboring system, anybody that wanted to capture that using the curve, I think would require them to export.

I think David was saying that, but I wanted to try to be as clear about it as possible.

DR. PATTON: I want to say it in a different way. What I was trying to say about why you cannot have a curve is -- let's say you have 20 units, the reference level, whether it is for energy or ancillary services or capacity, you are always answering the same question.

What if a competitive supplier owned this unit? What is there incentive? What would they choose to do?

They are in a market that is designed to produce prices close to zero. There is a market next door let's say that will pay them $165 a megawatt day. There is plenty of transmission, it's a 300 MW unit, or 200 MW unit, the answer to my question would be clearly they should pursue the opportunity to export the capacity for $165 as opposed to being willing to sell close to zero.

If that's the answer for the first unit, it is also the answer for the second unit, the third unit, all 20 units, which is why you -- the marginal costs are the same.

You cannot differentiate and give them different marginal costs.

DR. HYDE: Mr. Ali-Jabir.

MR. ALI-JABIR: At the risk of belaboring the point. Just to follow up on one thing that Dr. Patton said was he -- is the key on the idea that he said what would a competitive supplier do.

It is just important to emphasize that that is the key concern here is the initial reference level is supposed to set some sort of a benchmark or proxy for what a competitive market outcome would produce. And in this situation we have a pivotal supplier that their capacity needs to be offered in order to clear that particular zone than that initial reference level is not going to be reflective of competitive market outcome if they could use their position as a pivotal supplier to influence what their bid would be up to that reference level.

DR. HYDE: Thank you. Dr. Chatterjee?

DR. CHATTERJEE: Back to your example. It really boils down to: Do you think all 3,000 MW can

compete for that 500 MW of transmission that's available?

You don't pick out of with those 3000 which one can go. If 500 is available, all 3000 can compete for that 500 MW of transmission.

DR. HYDE: Dr. Shanker.

DR. SHANKER: Two things. I will honor your guidance not to engage with pivotal or not because that is an open factual question in front of you and I do not agree.

The other notion and this follows up on what Jeff was talking about is that there are a couple different time steps involved here because of the way the markets are designed in terms of both PJM and MISO.

You are seeing an overlap of behavior. You can't divorce the determination that the MMU is making in trying to balance off seeking a competitive offer from the design of the adjacent market and MISO.

One of the things you might think about in looking at that is the progress of the exports in the PJM over time from MISO and the numbers go like 200, 2000, and 4000.

I switched them in the UCAP, not ICAP from the West I and West II which are the two adjacent areas.

You're seeing a dynamic of everybody is marginal internally despite the logic that you discussed, but also everybody is acting to capitalize, putting in -- Mr. Bresler talked earlier going through the process to get the network designated service, going through the process, the studies that are necessary, going through the process to put in the communications for the pseudo-tie and essentially moving out into that opportunity cost of making it real.

It is in the sort fuzzy time zone between the steps between what's going on, it's marginal and I think that at least half of us conceptually are comfortable with that.

But the physical reality is that it's more than marginal. It's also being driven that way because of the nature of the markets and that's a consistent indicator that the number that's being is picked is pretty reasonable.

DR. HYDE: I am going to go fast forward through a few of my questions because everybody does want to talk about everything as you expected.

But when you're talking a facility specific reference level, should the opportunity of facing a particular facility be limited to the

transmission capacity that it has in hand.

MR. MCCULLOUGH: You mean as opposed to additional capital investment that the EPA may require?

DR. HYDE: No, I mean in terms of getting capacity out of MISO and into PJM, holding that capacity, where say it wants to move, it has 300, and it would be happy to sell, but it in fact only handles firm contracts to get 50 out.

Should there be a differences in the opportunity cost it faces, depending on how many can move out?

MR. BLADEN: I think the challenge is that transmission is a fungible commodity much like capacity. The degree to which someone does not hold transmission today doesn't preclude them from procuring it tomorrow.

The degree to which you instituted some kind of rule that said that you sold transmission in order to qualify for a higher facility reference level might well drive the price of transmission up in ways that would correspond to the depression of capacity prices on the other side.

I am not certain. Actually, I am pretty certain that economics would rule and you would end up with an equilibrium because of the valuation of the

combination of the assets.

DR. HYDE: Thank you. Anybody else? Mr. McCullough.

MR. MCCULLOUGH: Let's again deal with data. Southern Illinois there is the Joppa Plant. It was built back in the 1950s to supply the nuclear enrichment facility in Paducah. It is gone now, 300 MW, PBA's largest load is gone.

Some of Joppa is available for export into PJM and we have some evidence of what that is because we followed the transactions through.

That's a finite amount and what we see on the people who were actually exporting to PJM is we see names like Illinois Power Marketing and the Wabash Valley Power System who have existing transmission capabilities and they are selling at whatever market price there is they can get.

Traditionally, it is not that high and maybe this year it will be higher. But that does not occupy all of Joppa.

The rest of Joppa is still going to be in Illinois and the rest of that is going to be in a state that is surplus and so pretending that Joppa is suddenly deficit in PJM is inappropriate because apparently Joppa can't get to PJM and we have

substantial evidence on that for many years.

DR. HYDE: Thank you. Mr. Bladen.

MR. BLADEN: It is important not to lose sight of the fact the capacity has value in MISO. What I hear the discussion gravitating towards is suggesting is simply because someone is not exporting means it doesn't have the value of its neighboring system.

But in fact MISO capacity resources are utilized on a long-term basis to serve loads that are obligated to serve for many, many years.

To suggest that one might exercise a short-term opportunity for value ignores the fact that they may have many long-term commitments or informal commitments to serve load, and just because they are not taking advantage of an opportunity in a neighboring system doesn't mean that opportunity doesn't exist for them and for their neighbors.

DR. HYDE: Let me respond that you may be hearing that from the other panelists, please don't take that as a Commission position where there will be other questions that would call those of other viewpoints, I'm sure.

MR. BLADEN: I was not suggesting to reflect on the position of the Commission or it's Staff, but only to recognize that simply because someone is not

taking an opportunity to sell off of the MISO system doesn't mean the opportunity doesn't exist.

But they may have their own other separate value that they place in the capacity that they're choosing to hold onto it in MISO.

As has been noted earlier, much of MISO, most of MISO's load servers are vertically integrated with long-term load obligations and the assets they own and control are being used to serve those loads at values that they have internalized.

DR. HYDE: Thank you. Mr. Ali-Jabir.

MR. ALI-JABIR: Yes, and thank you. I just have to feel compelled to respond to that a little bit in the sense that if we are focusing again on the replacement capacity market, it is not so much a question of is that opportunity out there.

The market is there, but we can, the suppliers of MISO, and again, we are looking in particular, the problem is with the Illinois Zone 4, can they physically access that market?

That is another issue that is very important because if the constraints are such that they cannot access that --- can't absorb that excess capacity that's available in the zone then that's not a legitimate opportunity because there are physical barriers to

them reaching that.

I think we just saw a presentation from PJM, the data that is supplied would show that if you're coming out of Amerville, Illinois zone after that third incremental auction in almost all the months of the year, the ATC was effectively zero.

That says a lot about what the opportunity is.

Going back to your initial question. You had asked the question about essentially how would the facility specific reference level be set and should that somehow factor in a particular export opportunity or opportunity cost for a particular supplier, I think our position is that at least for the complaint that we filed, We think the focus should be on making some incremental changes at the margin of the MISO tariff in the rules as they stand. And so what we've said is basically if you are going to look at a facility's specific reference level and you collapse back to what that facility's particular marginal costs are as opposed to trying to factor in some sort of a sales opportunity into that.

Thank you.

DR. HYDE: We plan to go further on that soon. Yes, Dr. Shanker?

DR. SHANKER: To emphasize. Mr. Bresler also differentiated and I think David did as well between that ATC that's tied up with capacity versus ATC or TTC that is used and available for energy transactions, and from your outline, we are going to get into later recommendations about how things specifically might change because some of these things that we are talking about change as the market paradigms change.

You cannot lose sight that for 90% of MISO virtually all the revenues are non-transparent for capacity.

If you want to make all those transparent and put all those at risk in a market context, you would see a different set of behavior.

You also have differences that are coming about in PJM in terms of, at least for the next four years, how PJM is going to be conducting a two paradigm market, and then after that, a single paradigm market that are different from today so all of those will go together as well.

DR. HYDE: Dr. Patton?

DR. PATTON: I want to clarify. I don't think we have seen data that says people cannot export from Zone 4. I think we have seen data that suggests that there is capability to export from Zone 4 from both

PJM and MISO and both have noted that the data they are showing is influenced by the firm transmission that already exists held by other participants that can be procured by somebody wanting to export -- so I didn't want that comment to go by and somehow we have concluded that we can't --

DR. HYDE: I think we need to let a few comments go by so we can move to our next question.

Next we will turn next to the discussion of other ways not tied to opportunity costs but initial reference levels could be calculated.

Please note that these discussions are exploratory only and there is no particular ranking of preference for any of the alternatives.

First, we will look at the potential use of non-opportunity cost-based going-forward cost.

MISO tariff allows for use of documented going-forward costs for facility specific reference levels where the going-forward costs are the costs of keeping a generation resource operating.

In particular, the MISO tariff allows for these going forward costs to reflect either the net opportunity costs of foregone sales outside of MISO, as we have been discussing, or what we will be discussing here, the annual costs that could be avoided if the

supplier suspended operations or retired the resource, the capacity resource.

However, the new facility specific initial reference level only looks at opportunity costs and not avoidable annual costs.

In place of the current approach for initial reference level, could and should MISO or the IMM develop estimated going-forward costs by resource type to calculate an avoidable cost initial reference level.

For example, should different default initial reference levels based on going-forward costs be developed for combined cycle units, combustion turbines, nuclear units and coal units with these levels serving as the initial reference level for that resource type?

DR. PATTON: The answer is no, you should not do that. Effectively what you're asking is to sort of suspend economic theory in determining the reference level and the reference level is predicated on economic theory.

It's like saying that somebody has a classic car. You open the paper. It's worth $70,000, and it cost them $2,000 a year to maintain it and maybe he takes it to car shows and they pay them a fee and it

covers the $2000, so his going forward costs of owning this car is zero.

Should I compel him to sell it at zero? No, of course, you should not because he's got the opportunity anytime he wants to go sell to someone for $70,000. I don't know how that could be a legitimate approach.

DR. HYDE: You only answered half the question.

DR. PATTON: What is the other half? I am sorry.

DR. HYDE: Could you do it?

DR. PATTON: Could you do it?

DR. HYDE: You only answered should.

DR. PATTON: Could we do it? What am I going to say, "No, we can't do it?" Of course we can do it.

We have been looking at going-forward cost collecting data on elements of going-forward costs, not only in MISO, but in markets all over the country from all types of units.

There's no question that we could do something like that.

DR. HYDE: Mr. McCullough.

MR. MCCULLOUGH: On "Should you do it?" I liked your antique car example. Apply it to the

antique coal units recently sold by Ameren to Dynegy.

DR. HYDE: Can we speak in generalities here, please?

MR. MCCULLOUGH: I am sorry. Sold by an unknown Missouri firm to an unknown Illinois firm. The sale was at zero and the sale was at zero exactly because of EPA rules and that is well covered in the press and in the financials of these unknown units.

DR. HYDE: That sounds pretty specific.

MR. MCCULLOUGH: Somewhere in the galaxy there are two firms that sold obsolete coal units at a low price.

The question is: When does it become a going forward cost? I followed the Kiwani Decision very carefully. It was a nuclear plant, not an issue I believe in any proceeding in front of FERC and so that was very much a going-forward price decision.

They could not find a market equal to the going-forward price.

That is something that an entrepreneur has to address and it is something that we can possibly measure. So on the should we do it, it does happen in the real world and apparently it is not something where we have to reinvent the wheel.

Could Dr. Patton do it? Obviously, he could. He is quite competent.

The key is if he did, it would have to be very transparent. No one in the industry has not heard how incredibly expensive the EPA rules are and how the collapse of modern society is upon us at any moment.

Obviously, a few of those claims are exaggerated. If we ended up with an extensive use of those going-forward costs, it would require a difference in methodology so that all of the players would be able to look over their shoulder.

DR. HYDE: Dr. Shanker?

DR. SHANKER: First, should -- unambiguously, no. It is a suspension of reality, and David, the terminology is exactly right.

Could you do it? Yes. It's done with great frequency in the other RTOs. Dr. Patton did it himself, four units that chose to bid about the default level.

Dr. McCullogh's comments on difficulty and transparency are an important issue. I have engaged in a number of negotiations on this for a number of clients and transparency is often difficult.

Going back to the "should", I think without getting into a specific unit, I was in the midst of negotiation on a sale from a unit from one RTO to another, a large bilateral sale. And it was understood

by the market monitor that even though there was a must offer obligation, it was reasonable to suspend it in the midst of the negotiation process and that to me really drove home exactly what David was talking about, about everything is marginal.

At that point in time, you hit a deadline where you have to have a number in there. And the reality was that the dynamics of negotiation of a real business transaction that was verified did ultimately come to fruition, but didn't have to, was an important demonstration of opportunity cost and price formation that helped the market in the long run and actually excused the must offer obligation in one of the RTOs. And that is about as detailed an example of why we should be doing it the way that it is being presented in MISO now as I can come up with.

Can you tweak the little things? Yes. Can we argue about little things? Yes. But conceptually, no, you shouldn't move away from that.

DR. HYDE: Thank you. Mr. Ali-Jabir?

MR. ALI-JABIR: At the outset, I just feel compelled to respond to the comment that not relying on the opportunity costs, at least for the next auction, from the replacement capacity market as a suspension of reality, I would say it is rather a recognition of

reality because the reality is that the market is not deep enough, it's not accessible due to the transmission constraints that we have already talked about.

Setting that aside, to get to the specific question about how you would look at the resource specific reference levels.

I think it's important to point out that you have either the conduct threshold that would still be in place even under our proposed changes from MISO tariff, so with that conduct threshold being at 10% of the cost of entry, we are still talking about a supplier being able to bid up to about $25 per megawatt day. And in most cases or at least in many cases, that is going to cover their marginal capacity costs already, so they are going to be able to bid in without having to rely on any resource specific reference level calculations. and to the extent that that can be done, I think it can be done at a facility specific level for any resources that they believe they have a marginal -- a capacity cost above that level and I don't think would be unduly burdensome to do that.

DR. HYDE: Actually, you are doing very well at your roadmapping of questions. What we would like to know, although I don't know if we have enough advocates

in this camp, but currently the conduct threshold for mitigation is 10% of the cost of new entry.

If we went with such an avoided cost initial reference level, as has been pointed out does exists in other RTOs, what conduct thresholds would be appropriate with that?

DR. PATTON: I just want to clarify. I do not think that that exists in any other RTO going-forward cost only reference level.

For example, in New York there is an initial reference level that's based on supply and demand and then going-forward cost, if it exceeds -- so it is sort of similar to MISO.

It's just that the initial is different. I don't know that any of them just say you only get going-forward costs as your reference level.

DR. HYDE: I thought PJM was closer to that.

DR. PATTON: I am not as familiar with PJM.

DR. HYDE: And I may be wrong.

MR. BLADEN: PJM right now, like New England, is implementing an opportunity cost base special. Previously they could have. There is unit defaults and there were cost plus 10% negotiated and also opportunity cost that demonstrate it.

Again, you cannot pick these off one at a

time. You have got to look at the whole market design.

There is a reason why that fan of opportunities were there and the most interesting thing is that the Commission just endogenized the opportunity costs in both ISO New England then PJM as being the result.

I know people should twist it. I will not say safe harbor, but the resulting default opportunity cost for anyone that chose to do it in those two markets, and it is exactly, for the generalized economic considerations of where you reach a point of indifference about selling into the market versus pursuing another alternative.

You see a little of both out there.

MR. ALI-JABIR: To answer your question, specifically, our position is that, again, the 10% cost of the entry, conduct threshold we feel would capture a sufficient number of suppliers -- reflect the marginal capacity costs of sufficient number of suppliers that are bidding into the market, that would be a reasonable level to set it at. Any supplier that felt like they had a resource specific marginal capacity costs that exceeded that could again petition for a resource specific reference level.

MR. BLADEN: It is important to repeat what I

said earlier which is the degree to which resource specific reference levels fall below a real opportunity in a neighboring system such a structure would inevitably lead to a requirement that you export in order to capture the true opportunity and that would inevitably also lead to a reduction in the amount of competitive offers in the MISO marketplace.

DR. PATTON: I realize that I did not actually answer your question. Would you need to change the conduct threshold, I do think you would need to increase the conduct threshold because the conduct threshold captures a lot of things.

One thing it captures is just the basic notion that the definition of the exercise of market power requires that a supplier with market power increase the price by a material amount so you have to have a material amount and 10% of costs of new entry is reasonable in that regard.

It also captures other things both -- yes, the conduct thresholds we are using the energy market and in the capacity market captures measurement uncertainty on marginal costs.

There are an awful lot of things with going-forward costs in particular where there is substantial differences on a variety of inputs to that calculation

on the cost of financing, the structure of financing, the aversion to taking on long term risk.

If I have a participant who is risk-averse and I'm doing a risk neutral calculation, then I'm going to get a lower going-forward cost than that participant gets.

One of the ways we account for, and on the energy side, uncertainty around fuel costs, and so forth, the way we get around that is by having a having a conduct threshold that picks up that there can be differences in preferences and assumptions made by participants and made by us.

If you go to the sort of unit specific, any unit specific framework where there is going to be significant differences between their inputs and their preferences and ours as the Market Monitor, you would need a bigger conduct threshold to accommodate that.

DR. HYDE: Thank you. Having stopped with actually the answer that I asked for, let's move on to another possibility.

We want to discuss the potential use of a calculated net cost of new entry or net CONE, and as a reference level in MISO.

Con values are currently calculated on a zonal basis in MISO and represented a dollar per

megawatt year format.

Net CONE is at the Con value less revenues earned in the energy and ancillary services market and would will yield an estimate of missing money that could be used in the basis for the reference level.

Please discuss the reasonableness of using a Net CONE based initial reference level in the MISO planning resource auction. Dr. Patton is smiling at me. Let's start there.

DR. PATTON: That is probably not any more reasonable than the last Proposal. The problem is that you need the reference level or a theory dictates that reference level reflects people's marginal costs.

Con may be the marginal cost in some circumstances when your supply and demand are close to one another and their marginal opportunity is to sell to somebody who otherwise is going to have to build a unit to satisfy their requirement.

In that case, Con would be an opportunity, but the problem is, it's not really a legitimate opportunity. And in other cases, where you have surplus capacity and the value of capacity is significantly less than Net CONE.

DR. HYDE: Dr. Shanker.

DR. SHANKER: I get a nickel every time you

use the term "missing money."

Second, if you're talking about it as a construct for individual specific units, is that how you are presenting this?

So each unit is Net CONE? Are you doing it against the reference unit?

DR. HYDE: This is the initial reference unit.

DR. SHANKER: Against the reference unit. It doesn't work for the reasons that Dr. Patton stated but also the paradigm in terms of trying to capture missing money, it really goes back to what is your objective which is to attract new entry and retain economic existing.

Net CONE is a valuable concept in that when it is coupled with two other attributes. One is a downward sloping demand curve and two, a feedback mechanism that tends to get the price to oscillate around that reference unit Net CONE.

And MISO has neither of those.

In the context of what's out there now, this kind of a reference level would be pretty useless.

MR. ALI-JABIR: Reemphasize our position and I think this does address your question is with regard to threshold, we believe that 10% of cost of new entry, the

existing threshold, at least for the next auction, is a reasonable fallback position for the reasons I previously stated because it does, we believe, cover the marginal capacity costs of a lot of the suppliers and going-forward costs out there, so we think at least for the next auction that that's a reasonable solution until again there is a legitimate and verifiable lost opportunity costs that can be identified that is going to absorb all of that excess capacity that is in Zone 4.

DR. HYDE: That leads me right to where we're going next, yet another possibility which may have more advocates than the previous possibilities had is requiring a zero dollar per megawatt day initial reference level to serve as the default reference level.

This would allow market participants to offer under the conduct threshold without being mitigated.

Please discuss the pros and cons requiring all capacity offers above the conduct threshold which is currently, we think it is about $25, to be supported by facility specific reference levels.

Mr. Ali-Jabir.

MR. ALI-JABIR: Clearly, I think if I have not made that clear already in the comments I made before, I think we

would support that approach. We think it's reasonable because, again, until you have a legitimate, verifiable opportunity costs that is out there, and we don't think the PJM replacement capacity market fits that bill for the reasons we've identified in our complaint, and in our affidavits, that it's very reasonable to establish the MISO ab initio reference level to zero and again having that conduct threshold in place is reasonable because it is going to cover the going-forward marginal capacity costs of a lot of the suppliers in the market. And having that option which already exists in the tariff to establish resource specific reference levels on top of that would allow all suppliers to bid in at levels that reflect their marginal capacity costs without being mitigated.

DR. HYDE: Anyone else? Dr. Patton?

DR. PATTON: I suspect you know what I am going to say. I will say it anyway. I think clearly that's not a great idea.

It is very similar to the first idea which is to set people's references based on going forward costs because if I give people zero initial reference level everyone is going to come in for going-forward base is reference levels.

To the extent those going-forward costs for a

lot of units are very low but they have the opportunity to sell elsewhere if we mitigate them, we are not mitigating market power anymore.

We are artificially constraining prices in MISO and preventing competitive behavior, so you are just interfering with a well-functioning market at that point.

DR. HYDE: Mr. Ali-Jabir.

MR. ALI-JABIR: I just have to say that I think a clearing price of $150 per megawatt day in that zone is not reflective of competitive behavior in a competitive market outcome.

That's pretty obvious when you look at the supply and demand balance in that zone, so I feel compelled to make that remark. Thank you.

DR. HYDE: Anyone else on that?

DR. SHANKER: This is more of a question that I don't have the answer to.

Does the Commission or have any of the people presented the average embedded cost that customers are paying in other zones of MISO?

DR. HYDE: What is the question?

DR. SHANKER: Has the Commission presented or other participants presented the average embedded cost that is effectively the de facto market rate that other

capacity is paying and other consumers are paying for capacity in MISO?

MS. RAUCH: In some of the answers filed in these proceedings, I believe Dynegy made an estimate.

MR. SHANKER: And the ones that I am aware of are de facto competitive in the sense that you are forced to pay them, if you want to look at them that way or they are non-competitive because you are forced to pay them, and the ones that I've been aware of are $300 to $400, so when I see a number that is estimated, and I think one of the filings in the public part of the filing, estimated a Net CONE of somewhere amount $180 or $190.

I fall under the category of Dr. Patton's earlier comment which is, "You ought to be a lot more concerned about why prices are $3.00 and $4.00 or $15.00 than about 80% of the average cost of new entry which would be deemed subcompetitive in terms of steady state results.

MR. MCCULLOUGH: I have a very quick comment. Dr. Nicholson, you referred to a company that operates in a different galaxy.

Thank you.

DR. HYDE: What are the concerns, if any, if a resource specific reference level needs to be

calculated and/or verified for each capacity seller that offers above the conduct threshold if such a zero initial reference level approach is adopted?

DR. PATTON: Do I get to include opportunity costs or no? How to make it a lot easier!

What is the challenge?

I have to say if you were to talk to the internal market monitoring unit in New England or talk to Potomac Economics in the context of New York where we have to calculate going-forward costs from the perspective of evaluating withholding from units that are retiring and that sort of thing, these things are complicated to get right.

If you want to get to the point where the participant is not going to litigate, then it takes a lot of effort. If you are willing to use simplifying assumptions then just tell the participants that you are throwing their data out in certain areas rather than working through the specifics of the technical needs of that particular unit, then you can do it.

But if you want to actually be accurate and employ engineers to inspect things and verify things with regard to the specific unit in question, and the reason that going-forward cost varies is because these units are, when you're looking a 45-year-old

unit, it is a unique entity based on its history.

So to do it accurately would be a tremendous amount of work.

DR. HYDE: Are you saying that creating those reference levels would be more difficult than say the reference levels you create for energy markets?

DR. PATTON: Oh, definitely, yes.

DR. HYDE: Mr. Ali-Jabir?

MR. ALI-JABIR: Let me point out a couple of things. One is, just to reiterate the point I made earlier. The only units that are going to have a reason to want to try to establish resource specific reference levels are the one's whose marginal capacity costs are not already captured by the 10% of cost of entry standards, so you will have a limited number of suppliers that are going to apply for that.

It is not going to be every supplier that is bidding into the market.

That is point one.

Then point two, I would like to emphasize that while the burden of performing the calculations is a reasonable consideration, it shouldn't be the determining factor because we are looking at what it takes to establish just and reasonable rates that the burden of running these calculations for a limited number of

suppliers is not something that should form a barrier to going forward with that approach. Thank you.

DR. HYDE: Thank you. Dr. Shanker?

DR. SHANKER: Two things. First, people do it. It's a feasible task. It is an onerous task.

PJM probably has the most generators in the process and the great majority take default rates.

The difficulty is that the more pressure you put on this by eliminating some of the rational alternatives like opportunity costs, the more contentious it will become.

Probably the best example, although there are components that are different but the overall process is the same is the minimum offer price rule in both PJM and in MISO.

You may wish they are all public documents for at least Dr. Patton's review after the fact of a determination and I think it would be worth your while to take a look at that.

Then the second exercise that is again almost exactly the same, where it becomes a big stakes game for everybody, so there is a lot of concern, would be every three years MISO goes through a reset of the demand curve.

We think that 24 months out of the three

years is the process. Is that a good estimate?

It is a 24-month process to get one reference. So the more important you make that one number the more contentious and litigated it becomes and the less useful it becomes conceptually in the context of reference prices.

It serves a much more important process in price formation in those other markets.

DR. HYDE: Thank you. Mr. Bladen.

MR. BLADEN: I'm compelled to say at this point as it was said earlier. I don't think we want Dr. Patton setting the price in the market.

The effect of asking anybody to define the reference levels in the manner that was described certainly would have the effect of muting the market forces, the degree to which we rely on our neighbors' competitive market to help us understand what the opportunity is in a competitive sense the less we are depending on any individual, or even smart team of individuals, to figure out what the price should be.

We have said markets are the best source of delivering reliability and the more we can depend on them the better.

DR. HYDE: Mr. McCullough.

MR. MCCULLOUGH: It is wise to keep track of

the numbers in Zone 4. There would be three firms that were subject to the limit as proposed by my colleague here.

Though it is not a small job, it is certainly much smaller than the entire market.

DR. HYDE: Basically, the fact that there is vertically integrated sellers out there who may be bidding at zero anyway makes them -- you not need to develop those reference levels for them, is that your point?

MR. MCCULLOUGH: In the case we are not discussing, obviously, there is a single pivotal supplier and so as it turns out, they would be the people who would be mainly eligible for this review.

DR. HYDE: Moving right along. As we consider alternative approaches to mitigation, we would like to turn to mitigation related to pivotal suppliers.

Should pivotal suppliers be subject to tighter mitigation than non-pivotal suppliers in the MISO auction?

Mr. McCullough.

MR. MCCULLOUGH: The answer is clearly yes. The reality is the following: We have in the Midwest a series of vertically integrated utilities.

We have had one zone that has had a major change into having a significant merchant. There is nothing unusual about it. It happens in every possible market we've ever seen.

In fact, it is part of U.S. history that having a pivotal supplier requires a regulatory response. We are glad in fact that we have the option of having a pivotal supplier but once we have that, once we recognize it, then we do have to respond.

The only way to solve it otherwise is to redefine the zones which I believe is for later in the day, so I won't address it.

But for us to suddenly assume after 100 years of regulatory policy that that isn't an issue, would put Teddy Roosevelt springing out of his grave and explaining that we had forgotten his legacy.

I don't want to see that happen as that would be the subject of a bad daytime TV show.

So yes. Of course, whenever we have a situation where someone has half the market, we need to give a much closer review of their actions.

DR. HYDE: Dr. Patton?

DR. PATTON: I do not think anyone wants to see that. We do this in a lot of context, but there is certainly nothing wrong with applying market power

mitigation only to entities that we believe have market power.

The reality is it may be hard to tell in advance who has market power and you certainly don't have to be pivotal to have market power. That is particularly the case where you have a downward sloping demand curve and you can raise the price even though your units are not in their entirety needed to meet the minimum requirement.

That is not the case in MISO because we do not have the downward sloping demand curve. But that's just a point to say that there is not an equivalence between double supplier status and market power which is one of the advantages of having a broader based application of the market power mitigation measures.

If you structure them in ways where you are confident that you are not going to be mitigating competitive behavior, then you don't have to be so concerned with the fact that it is applied to entities that clearly do not have market power.

Alternatively, if you structure it in ways where you think there's a substantial risk of applying it to competitive behavior and artificially sort of distorting the market outcome then it is useful to try

to curtail it as much as possible.

I don't view that as being much of a risk in MISO. The market power mitigation structure we have is sound.

One last thing I would say though was, if you do apply a different standard to pivotal suppliers, it is not the reference level that would change for the pivotal supplier.

The reference level should always address or reflect the short run marginal costs that a competitive supplier, would see who owns that unit, that doesn't change because I'm pivotal or I'm not pivotal.

What generally changes when you apply a different approach to pivotal suppliers is a tighter conduct threshold, so you give them less latitude.

DR. HYDE: Let me ask. When I heard you talk about pivotal suppler you seem to be presuming that that meant all of their capacity was needed rather than some portion of their capacity being needed?

DR. PATTON: Yes, some portion. You cannot do without all of it.

DR. HYDE: Right. What you said about what that different treatment might look at, we will get to in just a minute. That would be the next question.

Mr. Ali-Jabir.

MR. ALI-JABIR: I just have to disagree with the notion that if you have a pivotal supplier in a market that they do not have the ability and the means to exercise market power, I'm not sure if that was the implications in Dr. Patton's statement, and if it was, I would have to disagree with that.

But I think it is clear that, at least in this particular instance, that you have got a supplier whose supply was needed to clear the market and they basically knew what the reference level was and they bid up to that reference level so, essentially, it was a reference level that was setting the price of the markets.

I would very much agree with the notion that you have to mitigate pivotal suppliers.

In fact, the proposal that we put forward actually deals with the issue in a way that you don't have to focus on mitigation just on pivotal suppliers.

But I think at a minimum, if you are going to look at an alternative way of doing it, then you need to focus on pivotal suppliers as part of that equation.

DR. HYDE: Dr. Shanker.

DR. SHANKER: Yes. Clearly, you have to engage in a mitigation process for pivotal suppliers.

DR. HYDE: A different one than for --

DR. SHANKER: That is the first step. The difference would be if you are suggesting the reference price is calculated differently, I'm confused.

DR. HYDE: No, and in fact, the question was: Should they be subject to tighter mitigation? If you want to extend that the next part of the question is what could that different treatment look like, differences in the reference level or the conduct and impact thresholds they faced?

DR. SHANKER: The first half is the reference level is the reference level unless you are doing something wrong.

If we all sit here and say we have implied you can argue about cost of capital, you can argue about labor, and environmental impacts and going-forward costs on, let's assume, that we do that and that's a non-trivial assumption, then I think you default back to the type of a narrower conduct discussion or threshold.

I think again, it is in the energy market where Potomac and MISO have an adjusting process for conduct thresholds and some of the tighter load pockets where there are more likely to be the potential for the exercise of a market power party being pivotal. If that kind of tighter conduct review is what you have in mind

that seems perfectly reasonable, in the zone of reasonableness of your inquiry.

DR. HYDE: Mr. McCullough.

MR. MCCULLOUGH: I think we have lost sight of the fact that the pivotal supplier does not simply become pivotal in the auction. A pivotal supplier is pivotal in the market.

In fact, in some remote situation you could imagine the pivotal supplier's power was so great that they could exercise their power even outside the auction and the auction might even become irrelevant.

In that case we, are back to should the Commission have the power to specifically investigate pivotal suppliers and the answer is, yes, but I want to make it clear that it should also be more widely interpreted.

It is not simply a question of Dr. Patton's auction, not your auction, but the auction under your control, but it is the wider sense of what happens in a limited geographic area where we have one player who is now half the market.

It is a situation, as I said, hardly unique in U.S. history and it is one that's colored the economic development of areas for long periods.

I would recommend that the Commission use its

full powers to actually make sure it had every fact at its command, not simply a reference level in the auction which might only be part of the market that was affected by the market power.

DR. HYDE: Thank you. Dr. Shanker.

DR. SHANKER: Here Robert and I probably agree, but with different outputs which is that mitigation doesn't stand alone.

You have to look at the overall market design with a much different and from my perspective a much better market design, a lot of these things would change including the mitigation process.

When you freeze the rest of the MISO design which I think is very bad and I have testified before the Commission on that, then starting to pick off one item, well, I will make this mitigation a little tougher is from my perspective a foolish exercise in terms of equities and also analytically very, very difficult because you are ignoring all the different trade-offs that got you here.

If you go through the Commission's initial order many are arguments, many considerations, that were put forward as sources of concern were dismissed because of the 90 percent vertical integration in the market, and things like vertical demand curves were,

"Oh, do not worry about that, we are vertical." Well, suddenly you now have a megawatt shift in supplier demand pushing prices by predictably large amounts, be they to one mitigated level or another mitigated level, and it was just what you were told was coming. And if you're going to go back and look at the slice that this says, "I want to worry about mitigation," I don't think that's reasonable.

You have got to put everything on the table and start over again if you are going to do that.

DR. HYDE: Fair enough, but this panel is on mitigation.

DR. SHANKER: I do understand. I am just saying that the box is very small.

DR. HYDE: Yes, Mr. McCullough.

MR. MCCULLOUGH: And I am trying not use the "D" word. In the transfer of generation that led to this debate, there was a finding by the Commission itself that there was no relevant subregion. I think we all now agree that that was probably in error.

Can FERC Commissioners make errors?

I doubt it.

Here is where we really do have that requirement for a broader intervention. The question is: Was there a relevant subregion has to be

addressed and that will not be addressed with the reference level.

Under the reference level is a tool but what we have here is a question of geographic definition and I will stop there to not preempt the afternoon.

DR. HYDE: Let me ask, even though everyone seems to want to focus more broadly on this, if we do tighter mitigation for pivotal suppliers, should that be limited to those who are net long within the zone, recognizing that some sellers are also buyers that cancel out their positions.

DR. PATTON: Yes, if you don't do that then everyone is going to be pivotal. Yes, you need to look at their net positions.

DR. SHANKER: And not short on the other side of the market. Again, if you are going to be looking at mitigation, it should be symmetric with respect to buyers as well.

MR. MCCULLOUGH: In Zone 4, of course, we have numerous buyers and a few sellers but in theory this is correct. In the case we are not mentioning --

DR. HYDE: Right, let's not mention that one.

DR. SHANKER: Baltimore or something.

MR. MCCULLOUGH: The dreaded Baltimore case.

DR. HYDE: Switching gears just a little bit.

Should the initial reference level be made public prior to the auction, why or why not?

DR. PATTON: There is some benefit to not making it public, but I suspect that nobody would stand for that.

You have set up a process in the tariff for us to use the best available data and publish something far enough ahead of time that they can comment to us, we can consider what they have to say about possible other sources of data or other assumptions and then they can also complain to you before the auction runs. If it were not public, that whole process would disappear.

DR. HYDE: But what would be the benefits of making it non-public?

DR. PATTON: The benefits of making it non-public? It is always valuable when you are mitigating someone with market power for them not to know exactly where the lines are and the thresholds.

DR. HYDE: Others? Mr. McCullough?

MR. MCCULLOUGH: Generally, we do not ask muggers what the patrol route of the patrol car is.

They would have comments and analytical advice and how you would determine the aforementioned patrol route.

In the case we have here, a number of us have cited what we refer to as the chicken and the egg problem.

When you have a pivotal supplier, that is going to be a central issue. Of course, the counterargument to that is it's so easy to identify a pivotal supplier especially when it is one pivotal supplier that you know that you are going to have that chicken and the egg process.

In general, in society, we keep enforcement action secret from the people we are enforcing against.

The IRS does not ask for my comments before they audit me.

If we are talking about pivotal suppliers, this is all moot. We know who they are. We know that if there's a dramatic shift in price we are going to have to look into it which is basically why we are here today.

DR. HYDE: Dr. Shanker.

DR. SHANKER: Could you clarify one thing in your question. Was this to apply to pivotal suppliers or are you just simply saying should the reference price be public or not?

DR. HYDE: This was simply not related to pivotal suppliers just should the reference level be made

public prior to the auction.

DR. SHANKER: The answer to that then, the next question, in switching roles is, if the concept of opportunity cost is introduced, while there may be some dispute around that, I'm not sure what you accomplish by doing that.

DR. HYDE: By not providing?

DR. SHANKER: By not providing it. If conceptually there is a group of us here that seemed to believe that the opportunity cost concept is relevant, I suppose there is some variance in the ways about the process by which that might be determined.

Those are later questions as to which auction do you use, or do you weight them or vary them and things like that? But if that concept is in play, I am not sure that keeping it a secret accomplishes much.

DR. HYDE: Thank you.

DR. PATTON: I want to clarify the relative considerations that I articulated. I think the benefits you would give by not making it public probably are quite a bit smaller than the costs.

For one thing, you take into account that this regime and most all prospective mitigation regimes aren't designed to be punitive.

So if somebody offers above the reference level

gets mitigated to the reference level that's not a terrible thing from their perspective.

So it's not -- you know there would be -- uncertainty about where the lines of thresholds are more beneficial in cases where you have a deterrent-based approach where tripping the screen is a really bad thing for them economically.

But on the other side when I mentioned the stakeholder process, we do actually learn things through that process and I think it's healthy to have to respond to comments.

I think Mr. McCullough and his clients would bear some costs, not having any idea whether we have come out with a reasonable reference or a reference level that they would consider unreasonable where they would want to protest and perhaps come to FERC so that the bad market outcome as they perceive it could be prevented.

DR. HYDE: Mr. Bladen.

MR. BLADEN: I think I am picking up a little bit on where David was just leaving off in that

there is potential in a transparent process to gather information that wouldn't necessarily be immediately available and if the Market Monitor has access to information they would not otherwise have access to you hopefully will end up with a much better

reflection of what the true opportunity cost is or a more effective representation of what the reference levels ought to be set to.

So you would lose that potentially if you had an opaque process as the willingness to share information might go down in that kind of process.

DR. HYDE: Thank you. All right. In the notice associated with this conference we indicated that we would ask this panel to discuss alternatives to PJM replacement capacity sales and major opportunity cost used to establish mitigation reference levels.

We pursued this topic to some degree in the previous panel, exploring the use of bilaterals and or other alternatives.

However everyone was not on the first panel, so what I would like to ask: Is there anything anyone would like to add here to that discussion of alternatives to use of the PJM replacement capacity sales for opportunity cost?

DR. SHANKER: One caution, I think you -- I had alluded to this earlier. You need to remember that '15-'16 '16-'17 are years in which PJM has two different paradigms running and '17 -- maybe I am off by a year. 1920 is the last one in which there are two different paradigms and that I think some work was probably done

that needed to address that.

My initial consideration is while those two paradigms are in place, one could argue what would be the greater of, although I think that is going to be a little difficult given the way particularly for the next two years, I don't know how that -- I think it is impossible, there will only be incremental auctions for the annual products.

But in the -- I am counting with my fingers, but it is the last two years it will be different and you will simultaneously have two things going on, and I think that a task that -- be it MISO or be it Potomac or the Commission, you are going to need to think through the change in those paradigms and what they entail and they should be a part.

You should not jump off to one of these without really thinking through what's happening in your reference.

I still think structurally at the very highest level this comparison is the right paradigm for opportunity cost. I think the details are going to get a little tougher.

MR. ALI-JABIR: Actually, can I add a little bit to that question. And it relates exactly to what you were saying.

What about not thinking of other paradigms

for opportunity costs by using the information you already have different.

Right now you are basically using just price and not quantity. What about using a combination of those things?

DR. PATTON: In what way?

MR. ALI-JABIR: For example, if you know that there is transmission constraints, the value, the price that you are using may have to be lower than what you actually see in the other market.

DR. PATTON: Well, yeah, I think that goes back to the question, if you have 3000 megawatts and there's 500 megawatts of transmission capability how do you account for the quantity.

And I think I'm still saying that at the margin the opportunity is the price in the neighboring market.

I cannot think of a reasonable way to incorporate that quantity into the reference level without artificially compelling suppliers to sell at less than they could have sold in the neighboring market, but I did want to note one thing that Roy said.

We have these capacity performance regimes sprouting up which are -- effectively create energy payments outside the energy market, and let's set aside whether this is advisable or not, maybe not.

What is embedded in the capacity product is now forward energy sale of this shortage energy thing that has been created.

The shortage energy thing is valued at a very very high shortage price or value of lost load.

So going forward as you think about the reference level and opportunity costs, now when a MISO capacity seller sells, they are selling something that is significantly different in PJM because it has got this embedded energy forward in it that they don't sell, if they sell their capacity to MISO. So that's going to need to be somehow accounted for once we get through the transition, but Roy is right, while we are in the midst of the transition and both capacity products are being sold, the old one without the energy sale and the new one with the energy sale, it's a bit of a mess.

DR. HYDE: I have three more and after that you are holding people away from their lunches.

Dr. McCullough -- Mr. McCullough, sorry.

MR. MCCULLOUGH: Thank you. Very quickly, the basis of all of our decisions has to be data. We need to reduce speculation as much as possible.

We have the trade date, the actual trade date of many of these capacity transactions in PJM and we

should use it. We are setting a reference date for a specific date in MISO.

We should look at all the transactions with the comparable products that immediately precede it and that will guide our decision.

It Is not up to us to wish for the universe that should be. It is for us to use the actual data from the universe we are living in.

DR. HYDE: Mr. Bladen.

MR. BLADEN: I was mostly going to make the points that David Patton just made about the changing nature of the alternatives, the best alternatives that resources in MISO face.

I also feel like we should not lose sight of the fact that the need for reference levels based on opportunity costs in the neighboring system are in some sense a reflection of the degree to which price formation is effective in the neighboring system versus MISO system.

The reference level setting and opportunity costs of the best alternative in the neighboring system is probably second best, that you'd much rather have your opportunity costs based on good price formation within the current region.

Taking a look at that is probably not

something we should ignore.

DR. HYDE: Mr. Ali-Jabir.

MR. ALI-JABIR: Just one final parting thought I'd like to leave you with is that the remedy that we propose is tailored very specifically and narrowly.

We are proposing some incremental modifications to the MISO tariff that would address the problem for the next auction.

We have a very real reason, very real concern to believe that if something is not done in the short term to address the need for the next auction by setting that initial reference level to zero and we are getting to see a repeat of the results we just had, I do not discourage the broader discussions that we have had and all these are great questions and I think they should be explored through the stakeholder process and an addressed more broadly at FERC, but my concern is that if we venture exclusively into those areas, that those are more complicated solutions that are not going to address the immediate concern for the next auction. Thank you.

DR. HYDE: Yes, and our fourth panel has that as a question.

I want to thank this panel very much

and all of the morning panelists. You have been extremely helpful to us in the exploration of these topics.

We are going to break for lunch and return at 1:15. For anyone who doesn't know the Sunrise Caf? is out the doors to the right as you exit the Commission meeting room.

There is also a good number of food trucks out there that I have heard on good authority that some of them are great.

Anyway, thank you all very much.

(Whereupon, the luncheon recess and on resuming at 1:15 p.m.)

SESSION 2: LOCAL REQUIREMENTS

DR. HYDE: If I could have everybody's attention. We are ready to get the conference underway.

Welcome back. We hope you had a good lunch and are ready to get back into the issues.

I do have one announcement kind of left over from the morning which is for anyone commenting on the mitigation alternatives such as an initial reference level of zero dollars per megawatt day, please describe how -- this is not here, but in your comments if you choose to provide any.

How, if at all, facility-specific reference level should incorporate rate of return depreciation in the future capital expenses that's left over from the morning.

I did want to address one thing this morning. We heard that there were "Six Wise Men," on the panel.

In fact, Emma and I talked about that over lunch and we decided that we could not let that go.

I would like to point out that we are planning to have this next panel "Two Wise Women" and hopefully "Three Wise Men."

The morning session was very lively and productive, I thought, so we will strive to have the same be true after lunch to help keep everyone awake.

Right now we are running on schedule so everything is going well that way.

Next, we are going to have Angelo Mastrogiacomo from the Office of Energy Market Regulation leading a session that will focus on calculation of local clearing requirements and zonal capacity import and export limits.

Angelo.

MR. MASTROGIACOMO: Thank you, Laurel. As Laurel mentioned Session 2 will discuss capacity import limits and local clearing requirements.

I would like to start off by welcoming our panelists.

We have from MISO, Mr. Kevin Vannoy, Miss Laura Rauch, and Dr. Renuka Chatterjee.

We also have Dr. David Patton from Potomac Economics and Mr. James Daughinais from Brubaker & Associates.

Mr. Dauphinais will be speaking on behalf of Illinois Industrial Energy Consumers.

Let's begin. Staff is interested in clarifying and further understanding a number of the statements made in these dockets about whether and to what extent capacity exports from MISO to neighboring regions such as PJM are reflected in MISO's calculation of the capacity import limits and local community requirements.

Before I get to the questions, I will provide my understanding of the general positions of MISO and Mr. Dauphinais to add some context to our discussion.

MISO's position is that the counterflows resulting from capacity exports from MISO to neighboring regions are reflected in capacity import limits and therefore any further adjustment to the local clearing requirements would effectively double-count these exports.

Mr. Dauphinais's position is that capacity import limits do not reflect counterflows resulting from capacity exports from MISO to neighboring regions and therefore an adjustment to the local clearing requirement is necessary.

The first question is going to be for MISO's staff. Please clarify exactly how the counterflows resulting from capacity exports from MISO to neighboring regions are ultimately reflected in capacity import limits.

MS. RAUCH: Thank you for the opportunity to speak to this today. When you look at our capacity import limit, it is calculated through the combination of two variables.

The first is the base interchange of the model. This is actually the same interchange whether you are talking about imports or export limits.

The second is how much can you incrementally import or export, but for capacity import limits and import into the model on top of that.

Exports are included in that base model and they would directly impact the base interchange of the model itself.

When you look at the incremental imports that are allowed due to the exports there is some impact due

to the exports included in the model, however it is not a one-to-one.

The interchange itself is a summation of all the imports and exports net schedule interchange going into a zone.

The total transfer, the incremental transfers that are allowed are basically a transfer over and above, so it is trying to find out what you can import and tell specific portions of the system hard-to-find.

The impact of that export would be relative to where that specific binding occurs on the system, so it would be some distribution factor multipled by the export amount, not a direct one-to-one.

MR. MASTROGIACOMO: Thank you.

Mr. Dauphinais, could you expand on your position that the counterflows resulting from capacity import or capacity exports from MISO neighboring regions are not reflected in the capacity import limits?

MR. DAUPHINAIS: Yes. Laura is correct in regard to the base interchange being in the model that is used to calculate the first contingency incremental transfer capability, but the problem is that that first contingency the incremental transfer capability is not the number used to set the capacity import limit directly.

What has happened is the first contingency incremental transfer capability number is adjusted by the base interchange to produce the first contingency total transfer capabilities.

What happens is we first have it in the base interchange, but we didn't take it out. We go from the first contingency incremental transfer capability number to a first contingency total transfer capability number.

The solution that really has been put forward, and really was something originally identified by Dr. Patton, is really to use the first contingency incremental transfer capability rather than the first contingency total transfer capability because that would then reflect the base interchanges with one caveat.

The base interchanges are based on long-term firm transmission reservations that already exist. That is not necessarily the same thing as the capacity transactions that are being exported for sample out to PJM.

There can be a mismatch there and that is an issue that may need to be resolved.

What we do know is, and maybe Dr. Patton will Be able to expand on this, is that he has some insight in

regard to how much, what the size of those capacity exports are, and so those numbers can be used more directly.

The distribution factors are not one-for-one, but neither are they inside MISO for when resources in one local resource owner used to apply to a different local resource owner.

We already have that mismatch.

MR. MASTROGIACOMO: We will get to that later and we will also get to Dr. Patton's recommendation a little bit later. Is there anything else to add?

MR. DAUPHINAIS: No, thank you.

MR. MASTROGIACOMO: MISO staff should have the opportunity to respond to that, if you would like.

MS. RAUCH: The concern with using an incremental value rather than a total value is the system does function and the limits should reflect all of those on the system.

Incremental assumes that you have the static starting point, and certainly when you look at the total value that's a better representation of what the system can hold.

So I think there would be some concerns that we would need to work out with an incremental. We believe that representing the base interchange as a start and

recognizing that zones may substantially import or export just as per normal system conditions is something that should be accurately reflected.

MR. MASTROGIACOMO: Thank you.

Dr. Patton, would you like to give your opinion?

DR. PATTON: Sure. In part because this has been a recommendation, I felt like there is a little bit of confusion about the extent to which counterflows are included or not included.

I distributed a PowerPoint that has got some illustrations that I understand is going to be in the record.

The depiction on slides 4 and 5 sort of capture what MISO is currently doing. Let me say what MISO is currently doing is clearly consistent with their tariff.

There's not some problem that we need to solve with regard to how the auction was run in this most recent auction, so my recommendation pertains purely to the future tariff changes.

On slide 4 what this is essentially showing you is in a world where there is no base transfers, the capacity import limit would simply be the total transfer capability that you get when you hypothetically model power coming in from all

directions, and let us say that is 2000 megawatts, then the capacity import limit is 2000 megawatts.

But when you go to slide 5, now you have a base transfer of 1000 megawatts that I show you here. You stick that in and now you are going to find when you run your power flow that you can bring more power in incrementally.

But because the capacity import limit is the total transfer capability those are going to net out, and in this case, I am imagining that they net out one-for-one so you are just back to 2000.

If you were to look at this picture you would say, "There's no difference between the first picture and the second picture," so we are ignoring the fact that there is an export and MISO is saying they are not ignoring the fact that there is an export, so how do you reconcile those two.

You reconcile those two because the base power transfer might affect constraints differently and the power coming in from all directions.

MISO may find when they run this analysis that instead of getting back to 2000 they get back to 1800 or 2200. There is really no way of telling whether the modeling the export is going to slightly increase or slightly decrease what you get when you do this

exercise.

It is just a matter of whether that base transfer hits the same constraints as the imports you are modeling or not.

They are not modeling counterflow in the sense that power is going out so we're going to allow more capacity sales to come in.

They are modeling it in the sense of getting a TTC value that is -- that sort of assumes this power transfer is happening, but that is not the same as modeling a capacity counterflow transaction, which is my recommendation, and that is depicted in slide 7, the very last one, which would be moving towards having the capacity import limit reflect -- where you would not be deducting the export, you would be treating the export as if it's going to facilitate the ability to import more, so in that case you have a bigger capacity import limit because the capacity export is scheduled.

It is important to note that the recommendation only pertains to capacity exports, not to all firm service that is reserved going out.

So the base transfers I think include all firm reservations, so this morning we talked about the fact that there is something like 7000 megawatts reserved to PJM, but there is only -- in an outcoming capacity there is only

about 3000-some capacity exports.

You certainly would not want to do this recommendation with the 7000 in firm reservations. It's only the capacity exports that are relevant.

MR. MASTROGIACOMO: Thank you.

Dr. Chatterjee.

DR. CHATTERJEE: Thank you, David. Dr. Patton has made this recommendation to address specifically exports that are capacity exports not from reservations that produce counterflows.

These are capacity exports specifically in the context of PJM and that's why I think this issue got linked with the complaints that we have in front of us.

As we look at it --- you know, just to kind of go back to, we do model the following fund reservations that allows the modeling of counterflows in the base floor itself like Laura mentioned.

It is actually documented in our tariff as well as our business practices.

This new way of treating capacity exports differently than how we treat -- technically capacity exports to require firm reservation so you could say that they are one and the same.

What we are talking about here are

specifically people have, just because somebody bought a fund reservation does not mean they have a firm capacity export.

We are talking about specifically if they have firm commitments, firm capacity commitments to PJM that they be modeled differently and we are looking at that recommendation to evaluate.

We do not think we will be able to get that in the next auction, but I think we can certainly locate it for the '17-'18.

In fact, I want to try and maybe bring to the attention to the broader research adequacy efforts that MISO is engaged in right now.

We have three different initiatives. We were looking to get the seasonal, locational and the cuneiform under the location.

This ties together. I promise.

Under locational, one of the things that we are looking at is treatment of external resources, so certainly, we are looking at when a resource wants to import into MISO and a resource outside of MISO wants to sell capacity into MISO, we are looking at how we treat that resource.

At the same time we are looking at the same recommendation from Dr. Patton where there is the

resource inside MISO that wants to export capacity out.

We are working with stakeholders on those questions and will bring forward changes as we see fit to the current tariff.

MR. MASTROGIACOMO: Thank you.

Mr. Dauphinais?

MR. DAUPHINAIS: One of the concerns we have had with this issue is that it was raised in Dr. Patton's 2014 State of Market Report.

This has not been to date part of the stakeholder discussion resource adequacy. We have raised it, Illinois Industrial Energy Consumers in preliminary comments, in that stakeholder process, but we have also emphasized that this is not a '17-'18 issue.

This needs to be resolved much sooner than '17-'18. It is really showing a real unreasonableness in the way we determine capacity import limits.

We should not be leaving on the table anything that is understating either capacity import limits or capacity export limits.

It is important that it be resolved. Where this has shown up has been in the follow-up presentations that MISO has given to Dr. Patton's State

of the Market Report, and that is not really why it is being reported in the stakeholder process and has not really been worked on in the stakeholder process.

Ultimately, though, this is a question of Reasonableness, and questions of reasonableness that average a need are really not something that belongs in the stakeholder process that need to be resolved more immediately and that's why it's the subject of EL1582 when it was filed.

MR. MASTROGIACOMO: Thank you.

Dr. Chatterjee?

DR. CHATTERJEE: Part of the reason for the timeline is driven by existing requirements in the tariff.

For the upcoming planning auction we have to finalize the import/export limits and the auction parameters, including the reserve margin, by November 1.

A part of the issue is that this recommendation was made in June. We have spent some time trying to understand this recommendation with Dr. Patton on how to proceed.

We still are working through some of those questions as we speak.

Our tariff has a specific requirement by November 1 to finalize, so that is what is driving what

can be done for '15-'16 auction.

Plus there is a lot of value and discussion in the stakeholder process where when we have capacity import limits and export limits there is extensive discussion on why and what changed along the way.

We start in February to finish in November. That's how long it takes to finalize those numbers just given the volume of input and calculations involved in that process.

MR. MASTROGIACOMO: Theoretically, if that November 1 deadline did not exist?

DR. CHATTERJEE: We are still cutting it Close, right. So the auction is run in April. We are cutting it pretty close. Even if we did not have November 1 for us to take a recommendation and implement it, unless it was a simple parameter change we are talking about network analysis and things like that.

We would also have to have a way of verifying with PJM that these resources do have firm capacity exports, so we have to have something in place so we don't take just the market participant's word.

We will have to have some additional mechanisms in place to validate that these are true exports that are going and then to make sure we are not causing any other auxiliary impacts to our current calculation of

capacity export and import limits.

MR. MASTROGIACOMO: Thank you.

Mr. Dauphinais?

MR. DAUPHINAIS: This seems to be exercising in potentially making the perfect enemy of the good.

I think it's -- I will get back to the comparability issue. We are not doing all of this counterflow inside MISO, which we know a local resource owns. We are using a fairly simplistic model.

It is basically capturing inherently to counterflow when the auction solves, so there's no rerunning of LR calculations or capacity import limits or capacity export limits for the internal zones when we do this.

It just shows up in the auction solution because we have resources clear in one zone versus another based on the offer prices and the constraints.

Similarly here, what we are just doing is trying to reflect an affect that is going to come from the fact that we know capacity has already cleared in this case in the PJM auctions.

We know what it is and all we are doing is trying to capture a comparable treatment.

It is important to realize in rate design, and in market structure design, we do not always get it

perfect. We try to do as good, as close as we can practically get it to, and then to work with that, trying to do it in a way that does not create market distortions.

Thank you.

MR. MASTROGIACOMO: Okay. Let's move on. So as we mentioned earlier, there has been disagreement on the impact capacity exports from MISO to neighboring regions should ultimately have on the local clearing requirements.

Again, I'll briefly summarize my understanding of the positions to add some context to our discussion.

MISO's position as stated earlier is that there is not a one-to-one relationship between exports from a local resource zone to a neighboring region in the amount of capacity that can be imported into that local resource zone.

Mr. Dauphinais's position is that the same one-to-one relationship that MISO already applies to capacity exports from one local resource zone to another, whether through the auction or a fixed resource adequacy plan, should apply to exports to a neighboring region.

We will start with Mr. Dauphinais this time. Can you please explain why capacity exports from MISO to neighboring regions should have the same one-on-one

impact on the local clearing requirement as capacity exports from one local resource zone to another?

MR. DAUPHINAIS: It is really settled on a comparability basis. The distribution factors for exporting capacity from one local resource zone in MISO to another are not one-to-one.

They are not one-to-one and neither are the exports out of MISO. Neither one are. It is an approximation that is currently utilized under the zonal model that were using in MISO.

All, again, we're trying to do is comparability. What were doing inside MISO should be comparable to what we are doing outside of MISO.

If our capacity is being exported to PJM we are going to have the similar effect. It won't be exactly one-to-one, but it's not exactly one-to-one for the interim transactions either.

Thank you.

MR. MASTROGIACOMO: Thank you.

MS. RAUCH: Thank you. So I think the differentiation between the two is our study of transfer limits related to the resource adequacy process has two stages.

The first is the establishment of capacity import and export limits.

The second is what we call a simultaneous

feasibility test, or SFT, which actually occurs after the auction is run.

In that we change from looking at it on a single zone to looking at the entire footprint in making sure that the transfers in the system that cleared out auction are comparable.

I don't believe that we have anything, or I am not aware of anything, similar that would have the MISO capacity auction results and the PJM capacity auction results and have that same level of technical writer.

MR. MASTROGIACOMO: Thank you.

Dr. Patton?

DR. PATTON: Yes. I am a big fan of not letting the perfect be the enemy of the good.

When you look at this issue, if you imagine that most of the firm capability is subscribed to PJM, so that is going to remodeled and you're going to come up with a capacity important limit and a local clearing requirement, let's say this unit has not been exported yet, you have a 500-megawatt unit there, you're going to credit it with satisfying 500 megawatts of your local requirement.

Then if they happen to hold firm transmission or they acquire it from somebody else and they export the 500 megawatts, what has changed from the perspective of

serving the needs of that locals zone?

Well, not a lot has changed.

You still have an operable 500-megawatt unit. It has obligations to be operable and to report outages. In most cases, it is still going to be committed and dispatched by MISO.

So that means, I think, adjusting the local clearing requirement one-for-one with the export. All that does is treat the units similarly before the export versus after the export.

I treat it as a 500-megawatt unit before it was exported. If I reduce my local clearing requirement by 500 megawatts then I get exactly the same outcome afterwards that I am --- you know, I'm recognizing there is a 500-megawatt unit sitting in the middle of this load pocket that gets dispatched by MISO, I am going to help relieve congestion into the pocket, and so forth.

What does not make sense to me is treating it like a hole in the ground, like all of a sudden this capacity has just disappeared.

I know in capacity discussions it is routine for people to sort of pretend that if capacity has been sold someplace else that if somehow no longer exists.

Well, I will not get into other topics, but in any case that's my simple way of thinking about it. Thank you.

MR. MASTROGIACOMO: Mr. Dauphinais.

MR. DAUPHINAIS: I agree with what Dr. Patton just said, but I will add as well, that the simultaneous feasibility step could be added for these exports pretty readily as well.

It could be addressed in that way if that is a significant issue and we certainly will look at that issue and reflect that in our November 4th comments.

MR. MASTROGIACOMO: Thank you.

Let's move onto another specific example, actually, this is from MISO's staff.

It would be helpful to understand the actual impact that capacity exports from MISO to neighboring regions have had on capacity import limits.

Let's look at Local Resource Zone 4, for example. The record indicates that approximately 1200 megawatts from Local Resource Zone 4 was exported to PJM for the 2015-'16 planning year.

Can you quantify the actual impact that these exports had on the capacity import limit for Local Resource Zone 4?

DR. CHATTERJEE: No. As we discussed, this is modeled as a base flow and we start calculating from there on.

For example when you talk about Zone 4, and

if there were 1200 that went to PJM, and let us say there was 300 coming back from SPP, so you would see a net interchange for that local zone for all the exports and imports that go in and out of that.

When we model base flow it is the LB, or the local balancing area, that we are modeling.

You would see that net model for all of the external exports and imports, that's what gets modeled.

I cannot directly quantify what the impact of single export from Zone 4 to PJM would be.

MR. MASTROGIACOMO: So there are --- okay. It would be helpful maybe in the comments post technical conference to include some more information on the net base flow.

Okay. Let's move to the next topic.

Prior to the 2014-'15 planning year, MISO changed the methodology it uses to calculate capacity import and export limits by expanding the set of constraints it examines to include all constraints that are managed by MISO when it previously only examined constraints at 200 Kv and above.

This change in methodology appears to have had significant impact on capacity import limits.

For example, the capacity import limit for Local Resource Zone 4 was 6,614 megawatts for the 2013-'14

planning year and dropped to 3,025 megawatts for the 2014-'15 planning year.

Can MISO staff explain why this change was Necessary, and did ignoring constraints below 200 Kv present reliability issues, and if so, do you have any examples to cite?

MS. RAUCH: When we set up our process for the 2013-2014 auction, one of the things we spent quite a bit of time was discussing what constraints should be included in determining capacity import limit, and we had considered both 200 Kv and above in all facilities under MISO functional control.

After we had a little bit more experience, after we had heard some more from stakeholders, we realized that we were not representing constraints that would appear in real time by not including sub-200 Kv facilities under MISO's functional control, which can include facilities that are typically 100 Kv and above, but sometimes less.

It was through that stakeholder process that we raised the issue again, discussed it, and then implemented in the '14-'15 year to correspond with what we do in other planning studies, how we typically maintain system reliability and also what is monitored in real time.

MR. MASTROGIACOMO: Were there any examples that presented specific reliability issues? If so, you can add it in the post conference brief if you file one.

MS. RAUCH: One quick example is even if you look at Local Resource Zone 4, in the 2013 auction, the 200 Kv and above constrain was a 345 Kv line.

If you look at the constraints that showed up in '14-'15 and '15-'16 they were at 345 to 138 Kv transformers, so still a substantial s ystem element that set the limit.

We don't have a one-to-one tie on realtime, but it would be situations like that where this is a key facility that would have impacts on how much input capability you have.

MR. MASTROGIACOMO: Thank you.

Dr. Patton.

DR. PATTON: Yes. Quick -- from my perspective, I am always a fan of modeling everything because when you don't model you don't get the right outcomes from the market.

I think the only --- the only real rationale for not modeling a facility would be that you have some operating procedure for managing it that doesn't

require the presence of a generator, so if you have a low cost way of opening a breaker for a very low voltage facility then maybe you would say to yourself, "Well, maybe we don't want our market to procure capacity when we're not going to manage it that way."

I think that's a very small portion of MISO's facilities that they added when they made this change.

I think generally, this is a very good thing that they improve the accuracy of their model to reflect more of the constraints.

I think when you ask for reliability, problems of not modeling it, it puts the burden of proof on modeling versus not modeling.

I think the burden of proof should be on the other direction, not only because of what I just said, but also because when you are emerging from a surplus capacity regime where you have pretty much all the capacity you need in all zones, you are not going to be able to point to reliability problems.

You will get a reliability problem when you get to the point where you're effectively short somewhere because you didn't model a constraint that would have caused somebody to build something in a local area, but that will not manifest itself for a

number of years.

MR. MASTROGIACOMO: Thank you.

Mr. Dauphinais.

MR. DAUPHINAIS: Yeah. I would draw the Commission's attention to the affidavit of Melissa Whitehead and I think it is in the EL1571-72 dockets.

She had an extensive discussion on this issue of the change to the lower voltage facilities and maybe that may have prompted the questions today.

One of the interesting things is that MISO actually stated in a presentation on 2013-2014, really not the presentation, but the actual LOLE Report in November of 2013 that it was unreasonable to reach down below 200 Kv facilities and then we had a change in the very next year and so we're doing that.

There is a reconciliation issue that needs to be carefully resolved. There is another little challenge in all of this.

This gets to the transparency and how much discretion is being used in developing these capacity import limits and capacity export limit values.

MISO on October 15 of this year made a presentation to the LOLE Working Group of MISO and have proposed the new capacity import limits and capacity export limits that will be in the November 1, 2015 LOLE

Report.

We've got a significant increase in the capacity import limit as well as capacity export limits for Zone 4.

Among the explanations given are relaxation of generation redispatch rules that better align with operations and external modeling differences and PJM was cited as well as a few other things, as well as generation retirements.

There seems -- it appears that it is moving around and it is moving around significantly from year-to-year. We really need to resolve why that is moving around and get more transparency on the calculation to these numbers and less discretion in them so they don't move around from year-to-year simply because we are changing the way we look at it this year versus last year without having a well-reasoned process where we are confident that this change will not be reversed that we did in the previous year.

Some of this is coming up in the Resource Advocacy Stakeholders discussions and hopefully will be vetted more thoroughly there.

MS. RAUCH: Thank you for the kickoff there. I was just going to refer to the locational discussions that we are working through.

Certainly, we recognize that when you're trying to plan for resources, volatility is something that we should try to understand and not eliminate if it's explainable but eliminate anything that might be due to changes in models and can't be tracked back to the real world.

One of the initiatives in the locational resource adequacy process we are going to with stakeholders is, how do we understand volatility around capacity imports and export limits? And what should we do to try to mitigate that to the extent that it is not explainable and do more to the mathematics of models than due to real-world events.

MR. MASTROGIACOMO: Thank you. We are going to discuss Potomac Economics recommendation in the 2014 MISO State of the Market Report.

You have already talked a little about that.

Would you like to add to the discussion or should we move on?

DR. PATTON: No, I think I have covered it unless you have other questions.

MR. MASTROGIACOMO: I don't think so.

The next recommendation was in the publicly available resource advocacy straw proposal on local considerations.

MISO staff proposed to change the calculation

of local clearing requirement by introducing a new term, import adjustment.

Can anyone from MISO's staff please describe this proposal and explain why it's necessary?

MS. RAUCH: The caveat I will start out with is that we are still in the middle of our stakeholder process here.

We get a lot of great feedback from our stakeholders and don't want to discount that by saying it's a solid proposal now.

The premise behind looking at capacity import limits and this import adjustment is trying to reconcile firm transmission service of some sort.

We have not solidified exactly what that meant and might adjust based on today's discussion and saying that if we have a firm transmission service that that might be something that's worth adjusting the capacity import limit.

You would have the capacity import limit that would be studied and then we would compare it to your firm transmission service levels and see whether those firm transmission service show that you can reliably import more.

The rationale for this difference is when you look at capacity import level it's all directions from

within MISO into a particular zone, so there might be some optimization that you can do with a particular transmission service request to have more come in from the East when the constraint is binding from the West.

MR. MASTROGIACOMO: Mr. Dauphinais?

MR. DAUPHINAIS: We think it's worthwhile with what MISO is exploring in the stakeholder process, but what we don't want lost is an immediate need to address the specific recommendation we made in our EL 1582 filing with regard to reflecting exports at leased to PJM into the calculation of the local clearing requirement zones.

However, we think there is merit to looking at the more detailed issues and resolving those longer term issues through that stakeholder process that MISO has initiated on resource adequacy.

MR. MASTROGIACOMO: Could this recommendation be implemented for the upcoming planning year?

MS. RAUCH: I think there would be some logistical issues around, first, refining what the proposal is.

The second thing is, and in addition to what Renuka mentioned earlier is, we've had some stakeholders who said they really start planning their response to the auction this timeframe, so changing

limits after this point would put them at a disadvantage because they'd have to expedite their planning process and really wouldn't lose some time on that front.

I think there are some logistical issues from MISO, but I think there would also be some concerns from some stakeholders.

MR. MASTROGIACOMO: Thank you. Would anyone else like to add anything before we end this session?

Mr. Dauphinais?

MR. DAUPHINAIS: Yes, upsetting the plans of our individual market participants it has to be weighed against whether something is reasonable, that something is clearly unreasonable, then it needs to be addressed even if it upsets the plans of certain market participants.

MR. MASTROGIACOMO: Thank you. If there's is nothing else, this discussion has definitely provided me with a better understanding of the way MISO calculates capacity import limits and local clearing requirements.

I'd just like to thank everyone else on the panel and move back to Laurel.

DR. HYDE: We are just going to take five minutes that will be long enough to switch out a few

tents and get started on our next panel.

Thank you.

(After a short break on resuming.)

SESSION 3: ZONAL BOUNDARIES

DR. HYDE: This next panel, Dr. Emma Nicholson of the Office of Energy Policy & Innovation will lead this session.

It addresses current zonal boundaries for the planning resource auction and the criteria used to establish zonal configurations.

Emma.

DR. NICHOLSON: Thank you, Laurel, and thank you all for participating today, so let me go down the line to introduce our panelists.

From MISO, we have Kevin Vannoy.

Also from MISO is Laura Rauch.

Dr. Renuka Chatterjee from MISO.

Dr. David Patton from Potomac Economics who is MISO's external independent market monitor.

We have Marcus Hawkins who is from the Wisconsin PSC, but also is going to be speaking on behalf of the OMS, the Organization of MISO States.

John Chiles from GDF Associates who is speaking on behalf of Southwestern Electric Cooperative and Tia Elliott from NRG Energy.

Thank you again for discussing this topic with us. As Laurel mentioned, we are going to be talking about zonal boundaries in MISO's capacity auction.

According to Sections 68(a)(3) of Module E1 of MISO's current tariff, the geographic boundaries of each zone are based on an analysis that considers the following six criteria.

I am reading from the tariff here.

The electrical boundaries of local balancing Authorities, state boundaries, the relative strength of transmission interconnections between local balancing authorities the results of loss of load expectations studies, the relative size of zones and the natural geographic boundaries such as lakes and rivers.

It is readily apparent upon looking at a map of the MISO zones that local balancing authorities and state boundaries have influenced the current zonal configuration.

Commission Staff is aware that MISO is currently in the middle of reviewing certain aspects of the planning resource auction, including the current zonal configuration.

And according to the straw proposal that we touched on briefly in the last panel, page two of that

proposal it says, "the current locational model defines zones based on several factors in addition to transmission constraints."

This results in the current locational model limiting the use of resources outside of zonal boundaries because of perceived transmission constraints that do not actually exist.

Furthermore, its zones are too large. Specific constraints may be masked and key signals are needed to resolve locational constraints may become muted.

Its zones are too small. They may mistakenly indicate a resource shortage.

My first question to MISO, if you could first brief -- talk us through this straw proposal at a top level and also explain to us and to elaborate on the statements that you made on that, that I've just quoted here as to what particular elements of locational model of boundaries and cells might create perceived transmission constraints that do not exist.

MS. RAUCH: When you look at the straw Proposal, we're essentially trying to keep with the same principles that we have right now regarding local resource zones, but to recognize there's many just and reasonable ways to make sure that we have the

right solution.

It is opening up the zonal boundaries for that discussion.

There are several things and we do consider them and you listed the six in our tariff. It comes down to, do you have the right transmission constraints reflected in the system and also are you respecting other things such as transparency?

For example, some of the zonal boundaries that you look at and some of the drivers you will see things like the boundaries of states and that does reflect the importance of states and resource adequacy in the MISO footprint. So certainly, the goal of our revisions is not to dilute those or to change the drivers but to see if there is a better way to recognize the transmission limitations and also the key roles such as those states and resource adequacy in the MISO footprint.

What we are trying to do is somewhat of a Goldilocks problem.

We are trying to make sure that the zones are just right and by doing that, trying to see what signal should we be sending in an auction.

What signal should we be sending from a transparency point of view especially when we get into

the out years and have some dialogue with load serving entities and states on that. And so the proposal we have right now has a few different layers in it and this is said with the caveat that it's still a work in progress.

But it is trying to look at what should that balance be? Is there a difference from what's used in the auction and what might be used for a transparency point of view?

So that is what we are working with stakeholders to determine.

DR. NICHOLSON: Thank you. I'd also like to ask everyone else on the panel an opportunity to reflect on the current proposal and, I guess, in particular, the potential for transmission constraints that actually exist to be borne due to the definition of zonal boundaries and also some of the political considerations involved in developing zonal boundaries.

Just put your tent card up if you would like to make a statement.

David Patton?

DR. PATTON: Yes. I am a big fan of having local requirements to the extent you need local requirements.

Actually, I think MISO is ahead in a lot of areas for any of you who watch the wars in New York over the

lower Hudson Valley Zone.

Having zones is a good starting point for having the willingness to have a number of zones is a good starting point.

I generally think you have a bigger problem when zones are too big than when they are too small and when they are too small if you are modeling things appropriately the prices should converge and if I had three small zones with no constraints between them I should get the same price on all three of them.

I do not have to artificially merge them into one zone to get the right outcome.

But I think with regard to departing from the electrical topology of the system and defining zones based on some other factor that's not related to the network, you can run into a problem because say all of our zones match state boundaries and I am modeling Indiana and the constraint and a modeling power coming in from all different direction and the constraint that happens to bind is in the middle of Illinois or something.

At that point, I will say, okay, I have a capacity import limit and it may bind and cause prices in Indiana to be higher than prices outside of Indiana, but that's not really the right answer because the constraint is not between Indiana and its neighbor.

The constraint may be 200 miles to the west, so what you would like is for the resources that help relieve that constraint they should be the ones that are priced higher than the ones that aggravate the constraint and on the other side of it should be priced lower, so the boundaries should match the electrical interfaces rather than other factors that are not electrical in nature.

DR. SOTO: That's a problem of not following topology and is not a problem of imposing state boundaries on something. So having two zones will be okay then, the two zones reflect the topology even though they also follow states that we find.

DR. PATTON: Yes, in that case, if you've modeled both of them and you had a boundary of a zone where the constraint is and then a boundary of state boundary as long as you could potentially model things in a way that recognize that the capacity import limit across the state boundaries is really, really big, and the capacity import limit across the interface that happens to be binding is small so that you don't get the problem, I just described, but you would have to think about how to do that explicitly so that you don't end up with constraints that are not near the state borders causing prices to separate on a zone that's defined by

the state.

DR. NICHOLSON: Mr. Chiles.

MR. CHILES: I think one thing in this area and in particular when talking Zone 4, is when you look at what is combining inside a work group it is not very clearly defined.

This is a multi-interface path. We did it within a very discrete Element 345 transformer. We start setting up a boundary within, I think it creates some problems because there is just not a very clean way to do that.

We will look and say that that is a constraint which can be dispatched around potentially and that can be mitigated internally.

Personally looking at the two areas, the Zone 4, the Zone 5 situation, we think that that is certainly one way to mitigate some of the issues we are seeing within the combination of those two areas makes sense because electrically we can dispatch around those constraints potentially and not create very small areas.

Also, we would say that having that area MISO has already identified in previous studies that there is an injection issue between those two areas.

MISO has already identified that even under loss

of single contingency there is not an issue with those areas.

Between those two areas based upon MISO's own work, breaking into a smaller area seems inconsistent with what MISO has done in previous reports.

DR. NICHOLSON: Thank you.

Mr. Hawkins?

MR. HAWKINS: Yeah. I just wanted to point out there is also the issue discussed in the previous session about the variance in the capacity import and export limits changing year-over-year, so just to keep on everyone's minds.

DR. NICHOLSON: Thank you.

Ms. Elliott?

MS. ELLIOTT: Thank you. With regards to MISO's straw proposal, they are on the right track, but I don't think it is a quick and easy fix.

The first is that we cannot just look at one issue because addressing one issue will ultimately lead to potential smaller or even bigger issues.

That may not have been anticipated or that we know currently exist it can even make it even greater.

What I would like to also follow up on is with regards to Mr. Chiles's comments.

While MISO has said that historically that there hasn't been constraints between Zones 4 and 5, but we've also

heard MISO say when they considered combining the zones was that there was virtually no export capability from Zone 5 to Zone 4.

I believe that had to do with the river. MISO would probably have to confirm and verify that.

The other point to that is what we also get back to is the regulatory framework of the states in MISO.

When you talk about combining Zones 4 and 5, we're talking about a retail choice state with an estate that has vertically integrated utilities.

The structures are very different when it comes to, for example, the vertically integrated state, the cost of the new generation is being borne by your ratepayers or customers or consumers through approved fixed rates.

What ultimately could happen is we could end up in a situation where there is a cross subsidization within one large zone if you combine two states that have different frameworks.

Thank you.

DR. NICHOLSON: I'd like to ask Mr. Hawkins about the political considerations and maybe you could wear your OMS hat too because we understand there is some underlying tension because there are a lot of factors to consider.

There is the political boundaries and the physical boundaries of the grid. We would like to hear some of your thoughts and what OMS's thoughts about your comfort with perhaps this particular stakeholder effort and your thoughts on state influencing the zonal boundaries.

MR. HAWKINS: Yes. I guess to caveat that, what I say is not for all of OMS or any particular member of OMS but there are OMS members that see the aligning of their zone as being critical to their jurisdiction over resource adequacy and just from a transparency point of view to seeing numbers supported for their state and having a firm understanding of how their state is operating within MISO is very important to them.

My home state of Wisconsin is in multiple zones with Minnesota and Michigan sharing our zones as well, so it isn't absolutely the only thing in the zones.

I just want to point out don't fall strictly to the state lines, but then you mentioned the stakeholder process that is going on for resource adequacy and kind of tagging on to what Tia had said about getting this right.

OMS has very major concerns over the pace at which these processes are moving forward.

Renuka mentioned there's three things being considered and they are being considered all at the same time.

There is a lot of stakeholder discussions going on as I am sure you can imagine on all of these things and they all have sub issues that are being looked at.

The timeline is currently for December tariff language and this proposal that we are talking about is weeks old with initial feedback from the stakeholders due this Thursday and that leaves about a month of time when Dr. Patton earlier said, "I love modeling," and I almost threw my hands up and said, yes, because OMS has been kind of calling for analysis and some modeling to be done on some of these proposals so that we know what we are working with and Commissioners can get an understanding of what these changes can mean. That's all I got on that.

DR. NICHOLSON: Dr. Chatterjee?

DR. CHATTERJEE: Thank you. I would like to point out, as a result of some of the timing concerns we are looking to provide stakeholders additional time.

We actually announced last month that we are looking at a 60 to 90 day additional time before we submit tariff filing to allow for additional

stakeholder discussions.

We are still targeting the 2017-2018 implementation timeline at this time for both the seasonal and locational issues.

The rush for time to get the filings is to provide certainty to everyone on the 2017-2018 auction of the changes that are going to come and also the time it takes for us to kind of get everything right in between, once we get the filing in front of you and any changes that we may have to look at.

The Q filing is still on target for December, so I want to add that clarification.

Thank you.

DR. NICHOLSON: Now I would like to direct a question to Tia Elliott directly.

Can you talk about the zonal configuration from the perspective of IPP and how certain choices about zonal boundaries could affect investment retirement decisions if, at all?

MS. ELLIOTT: Thank you. Yes, that is also going to be up to the portfolio of the IPP and the type, for example, NRG within MISO.

We're largely concentrated with our assets in Louisiana and that is a vertically integrated state.

The way that it is important to this

discussion today and when we consider retirements this will take us back to an earlier discussion that we had with regards to recovery of opportunity costs, and along with that, the comment that I just made about if you combine two states that are regulatory framework is different and you get cross-subsidizing going on.

What can happen is your merchant generators, your IPPs, the independent power producers could make the decisions if they're not able to recover these costs to either go out of business or available to export.

That does not necessarily mean it's to our neighboring RTO to the East, PJM, as has been pointed out bilaterals can be done in a number of ways in areas.

It is important to consider these opportunity costs need to able to remain first, recoverable, and, second, if that's not allowed and the decisions are made by merchants to go out of business or model their assets differently then what happens to that large zone?

If you have a large zone and you don't have the market signals to incite new generation to be build, we already know in a vertically integrated state those regulators are going to ensure resource adequacy.

Those vertically integrated utilities are going to ensure that they have the generation that they need so they are going to build, but then what's happening is those ratepayers that are paying for this new generation and that generation may be used to serve retail load and its state where it's retail choice because the power producers have decided to retire a lot of business, export their capacity or whatever the case may be.

DR. NICHOLSON: Thank you. I'd now like to ask a more general question about the factors to consider when defining zonal boundaries and of course this has to be kind of viewed holistically is when you are defining the market, it not only matters what the boundaries are but also modeled loads within zones and in and out of zones.

I would like for everyone who is interested in talking about some of the trade-offs involved because we've heard, where theoretically if you have a zone that is too large you can mask interzone constraints and you might have a false sense of reliability because you will actually mask deliverability issues within the zone.

Dr. Patton, I believe you have a recommendation about that in the 2014 State of the

Market for MISO.

Of course, on the other hand, you don't want them to be too large. On the other hand, if you have a zone that is too small you can inadvertently or mistakenly indicate a resource shortage that does not exist.

I would like to hear from the panelists some of the trade^^offs that you think are important to consider when developing zones.

Ms. Rauch.

MS. RAUCH: I will start out and kind of speak to the criteria that led us to the tariff. I think there are multiple things that should be considered.

One is how we already spoke about the state's responsibilities and roles and our footprint. You have considerations in our tariff such as the boundaries of local balancing authorities just because on the recognition that those represent companies that have planned their system, made plans for 40 years or more and so drawing a line through the middle of one of those might cause certainly constraints that, one, they have the incentive to solve, and two, that they are actively managing through other forms such as the NERC transmission planning standards or things of that nature.

I think it is very crucial to look at this from a

holistic point of view from the resource adequacy point of view, but also from how our members plan the system as well.

Think those are the considerations and really it does follow the boundaries and our tariff for making sure that we look at the signals we send in the auction, the way that we plan the system and get the right messages to the right people, near and long term are the key things and zonal boundaries help us to do that effectively.

David Patton.

DR. PATTON: I don't think I would be too concerned that the zones that are too small create the illusion that a resource is needed because if by too small you mean you define a zone where there's not is not really a set of transmission constraints that separate that area, then I think if your capacity import limits are similarly large and reflect the fact that you do not have congestion into that area, then you should not get price separation that you wouldn't want.

I think the bigger problem is with small zones and this again can be modeled by a more sophisticated auction mechanism is that if you are dominant constraint is a constraint into an area and you take that area and you divide it into two, what you would

really like to represent is that there is a single limit into both areas, but now you have divided that area into two and you have a separate import limited into each of them and it's really hard to get the right outcome in that scenario.

But, of course, you can improve the sophistication on your model and have a constraint that only so much can come in from a certain -- two zones jointly, but that would require some additional modeling.

Something else to think about is worth thinking about is that if you don't have a congestion need into an area defining a small area could create or put more stress on your market power mitigation, if it isolates, it creates a pivotal supplier question. That doesn't need to be pivotal given the electrical characteristics of the network.

DR. NICHOLSON: Mr. Chiles.

MR. CHILES: I do appreciate Dr. Patton speaking to the pivotal supplier question. That is one of the things in looking at boundaries that's not being considered in the six criteria has been where we have look at physical boundaries.

We have looked at state boundaries and all of these things here, but at the end of the day, I think we have to keep in mind the market power issue and the

dominant supplier issue that needs to be part of that discussion in defining those boundaries.

We need to be very careful because if there's a way to mitigate that through an expansion of a boundary, then I think that's something we need to consider because that is a solution that they can be put in place that doesn't require a multiyear discussion to get to that point.

DR. NICHOLSON: You would think that the appropriate home for that discussion would be in the boundaries and the imports as opposed to market power mitigation.

MR. CHILES: I think boundaries is one method to address that and is one where we can consider, and we can let the folks from ISO speak to that, but in terms of the ability to implement that, I think that would one where that lets us deal with an issue that we know is in place now and not waiting until 2017-2018 or further down the line to mitigate that problem.

DR. NICHOLSON: Thank you.

Ms. Elliott?

MS. ELLIOTT: Thank you. With regard to the suggestion for consideration of pivotal supplier as part of the criteria, a consideration that would need to be made, that would have to be careful about, if that

were part of the criteria is the fact that ownership of the supply can change.

With that you don't want to create volatility based on changing the resource zones to frequently due to, for example, a change in ownership of assets.

DR. NICHOLSON: Thank you.

Dr. Patton.

DR. PATTON: Yeah. I need to clarify because I certainly was not proposing that that competitive factors be considered be part of the criteria which I think goes the interpretation.

What I was trying to say is the electrical characteristics should be the dominant criteria and the cost of departing from electrical characteristics and defining a smaller zone for some other reason where you really don't have congestion into that area as you could create competitive problems, but I know a lot of people over time in various markets have argued for not creating zones that need to be created because of market power concerns but having artificially enlarged zones as a means to mitigate market power is not a great idea that should be addressed directly by the market power mitigation measures.

DR. NICHOLSON: Does anyone have any further comments on that?

Mr. Hawkins?

MR. HAWKINS: Just one thing to add on that. Defining zones based on electrical characteristics. Those also change which could lead to volatility going forward as well, so if the zones are defined based on constraints, for example, and those constraints are changed then the zones would change and it could be an unstable situation going forward.

DR. NICHOLSON: Dr. Chatterjee.

DR. CHATTERJEE: I think this point has been made, but maybe it needs to be reiterated.

As I think about criteria for zonal definitions, we also need to probably balance what we are trying to achieve and one of the things that we all would like is some certainty so people can build in and plan and build a system out because these limits matter. So I think with the need for having less volatility but at the same time have volatility whether it is needed, so the 345 transformer that we were talking about, let's say that gets upgraded and it gets eliminated then you don't want to have that.

Having that volatility it is a needed volatility and when the constraint goes away there is a new constraint underneath.

So that there is needed volatility and then

there is probably other volatility that may be less important to have, and not needed, so I think it is important to balance that as well as I think about these drivers they drive the volatility and the requirements.

DR. NICHOLSON: Thank you. I think some of your comments earlier touched on my next question which are what are some of the downsides of changing zonal boundary?

Mr. Hawkins?

MR. HAWKINS: Just generally kind of going along the same thing is that people have been planning for decades into the future given the existing structure, so any change could have the potential to cause some harm.

But that's just a general observation. Without more analysis it is really hard to know what other downsides are out there.

DR. NICHOLSON: Anymore comments? Mr. Chiles?

MR. CHILES: I think that with respect to changing the boundaries we need to look at our previous market results that clearly show that the boundary definition as defined in that region produced a market result that was not expected the year before or the year

before that.

We need to be very careful that we are sending a right signal. I can guarantee you that for the 22,000 customers of Southwestern Electric Cooperative, the signal they received this latest market for them was not a signal that they could have addressed through any generation or transmission solution.

They are kind of beholding to without adding a load exposed in this market so they would want the solution that would address the issue that they see which is the pivotal supplier issue and that change in the boundary, if it mitigates that, that is a good thing for it because they are not an independent power producer, they are not making that decision.

Their load at the end of the last is customers and why you are paying that $150 some a megawatt day.

They need to have way to address that and that price signal is great for building generation and I understand that, but someone is paying that bill for 22,000 customers, they are the ones who are paying the price for that.

DR. NICHOLSON: Thank you. Dr. Patton, followed by Tia Elliott and then Kevin Vannoy.

DR. PATTON: I think, generally, if you are Making lots of changes to the zonal boundaries that it Creates uncertainty and risk that undermines the ability of the market to facilitate good decisions, investment and retirement decisions.

That is not the only thing in MISO that undermines good decision-making on what is best retirement but we will talk about that on the next panel.

But I think uncertainty is something that is not helpful. It is one of the reasons why I think market frameworks that define more zones rather than less at the outset to encompass either chronic patterns of congestion or areas where patterns of congestion are emerging that it is better to define those ahead of time so that participants can factor that into their long-term decision-making rather than having uncertainty in whether a zone is going to be defined when it's needed and we have some areas in MISO that are chronically constrained, they are defined as narrow constrained areas and yet they are not capacity zones, and they're literally--and two of them are in the South, that the NRG is familiar with.

They're literally the most congested areas in MISO, but they are not capacity zones.

Having a fuller set of zonal definitions that match electrical characteristics is beneficial because people can project forward how patterns of congestion may change.

I would rather the price difference between two zones go away, and effectively from a pricing standpoint it becomes one zone, than to have active changing of the RTOs zones every few years that it is much harder to predict.

DR. NICHOLSON: Thank you.

Ms. Elliott.

MS. ELLIOTT: Dr. Patton stole some of my thunder but he did it so much better than I could have just done.

Because one of the comments that I was going to make was that, with regards to combining the resource zone, what you can run into is you can end up diluting the market in terms of signals and transparency and what may be real versus artificial.

You also do not want that to then affect reliability because ultimately, I think, that is the top concern is reliability.

The next comment I wanted to make--and I'm not going to back into my cross-subsidization again, but I will answer any questions if you had any on that.

But just to go back to in MISO, we have seen these low prices, one, because we had oversupply which were seen at capacity decrease, but then to a majority of MISO, because we do have vertically integrated utilities, they are using fixed resource adequacy plans. So that means they are opting out of participating in the planning auction, or they are self-scheduling in, which means offering in at zero, so you are basically a price taker, you are willing to accept whatever the clearing price may be.

With those low prices, while it has been a benefit to MISO, it has also been a benefit to Zone 4. Then we look at what has recently happened in the most recent auction, but as Dr. Patton discussed earlier today, the clearing price that we saw for the 2015-2016 resource auction, that is two thirds of the cost for a new generation.

I say it is still a heck of a deal versus building new generation.

But my point really is, the reason we have These low costs is because this is just excess capacity that has been offered in by vertically integrated utilities and so it is so low in Illinois in Zone 4, and others and MISO have benefited from that, and now we have got capacity and the margin is tightening up. So we are

going to see an impact.

DR. HYDE: Thank you.

Mr. Vannoy?

MR. VANNOY: One of the things that MISO is addressing through our proposals is the locational issue, and as far as uncertainty goes between zonal boundaries right now we don't have hedges available for price differences between the zones for existing resources and transmission service.

We hope to address that, but to the extent that those boundaries change and participants are unhedged to price differences between those zones, that would create uncertainty in making their decisions.

DR. NICHOLSON: Thank you.

Mr. Hawkins.

MR. HAWKINS: I just wanted to jump in, kind of tag on along with what Tia said there, and just in general the word price signal has been used a little bit too much for liking here today given the vertically integrated nature of the vast majority of the MISO footprint. And even MISO is aware of that and they think of it now more as a megawatt signal being sent in the market, at first the price signal, so I just wanted to have that put out there.

DR. NICHOLSON: Unless we have any more

comments I think we can close up this session on zonal boundaries.

Would any one of our panelists would like to Make any concluding remarks?

Thank you very much for your time. And now I hand it back to Laurel Hyde.

DR. HYDE: I think we all deserve a seventh-inning stretch here, so we are going to break for goodness I've been told that clock is not very right, but let's assume that says 35 minutes after and come back at 15 minutes till. Does that work?

Okay. Thank you very much.

(After a 15 minute recess, on resuming.)

SESSION 4: WRAP UP

DR. HYDE: This is the last panel of the day. We are doing pretty well on our schedule, but trying keep to it. We should get going, and I would like to introduce the members of our panel.

We have Mr. Bladen from MISO.

Dr. Chatterjee from MISO.

Dr. Patton from the IMM.

Mr. Henry Jones of Dynegy.

Mr. Robert Weishaar on behalf of Illinois Industrial Energy Consumers.

And Mr. Tyson Slocum of Public Citizen.

I would like to remind everyone as we start this panel-- which everybody is probably thinking, now I get to say what I want to say more.

As a reminder we are not going to be addressing manipulation with respect to the past auction, that is in the investigative docket, so we will not be discussing that here.

Anyway, to get started on our questioning. During the course of the day we have addressed mitigation, local requirements for local resource zones and zonal boundaries.

The purpose of this discussion was to help staff understand better how the auction is being conducted to consider whether changes are necessary to ensure that outcomes are just and reasonable, and appreciate how different possible changes would play out.

Our questions and the discussion have been pretty wide-ranging.

In this panel we want to reflect on what we have talked about today and upon what may also not have been discussed, but that is relevant for any changes to the auction.

First, we would like to ask the independent monitor and MISO which of the changes that were

discussed today could be accomplished and implemented prior to the next planning resource auction for planning year 2016-2017 which is scheduled for April 2016.

At this time I want to remind you that we are not asking you which ones you want. We are trying to talk about when things could get done.

And that--we are trying to discern what may be doable if needed before the next auction. And then after we hear on that, other panelists may react to the extent that they foresee different timelines.

First, to make sure that we kind of hit all of our bases, we will do this one by one.

How quickly could different opportunities in the measurement of opportunity cost, for example use of bilateral sales or longer-term price signals, be accomplished?

DR. PATTON: I assume that is a question for me. I think--that is a difficult one to answer because we I think if we can find a good source of data that is an accurate indicator of what capacities were going into the next planning year, then I don't see any timing problem with using it, and I think the tariff allows that data to be used, and in fact the tariff calls for the most accurate unit data to be used that we can find.

So we wouldn't need a tariff change as far as I can tell.

If I remember right our posting requirement is simply 30 days prior to the auction so we have a fair amount of time, although we typically will post well in advance of that to allow for stakeholder feedback.

I don't think timing is an issue with that one. It is more the availability of data, it's sort of can we do it at all.

DR. HYDE: Does anyone else want to address timing on that one?

How about some of the revised measures of opportunity costs where opportunities are somehow limited by available transmission or demand for such alternatives?

Again doable--or timetable to do so. Not whether you would like to.

DR. PATTON: You must be assuming I wouldn't like to do that.

DR. HYDE: I've heard.

DR. PATTON: Then you have been listening. Yes, I think, certainly that is just a calculation issue as far as I can tell, so timing-wise calculations are fast and we have smart people that do them.

DR. HYDE: How about alternative calculations of initial reference levels such as using avoidable

costs or net CONE? The same qualification applies.

DR. PATTON: When do I get to say things I want to say? Net CONE is certainly something we produce every year as an input to the capacity market already so anything involving net CONE is already something that we produce.

I think we produced that first in January, so no timing issue of the use of that information.

Going-forward costs, I think--no one is going to vary a lot on how many units we are talking about, so under the current--one of the values of the current structure is that we establish an initial reference level that we think is reasonable and then people can come in over if they have going-forward costs that exceed that, and because that reference level is not close to zero we get a small number of units coming in, so it is a manageable amount of work.

We touched this morning about a number of alternatives that would either eliminate opportunity costs altogether or start with a zero reference, and based most of the reference levels on going-forward costs which would involve potentially hundreds of units giving us cost data. I think to do a reasonable job validating all of that that would probably not be possible if we are talking about more than 40 units, and

MISO has got, I don't know, 1,200 units or something?

DR. HYDE: The actual change to a zero reference level, that seems pretty easy, but it's all of those facility specific ones that would--

DR. PATTON: Yes, so the feasibility of getting it done prior to the auction is dependent on two things. The number of units, then how willing FERC is to let us just make simplifying assumptions that disregard people's real physical issues because we want to have time to look into them.

DR. HYDE: What about developing different mitigation, tighter mitigation for pivotal suppliers or perhaps zones with pivotal suppliers?

DR. PATTON: This is an area again where I'm just clarifying the question.

In a technical conference there is the notion of using a different reference level for pivotal suppliers, if that is not what you're talking about, I do know how to do that, so I will answer the question the way we normally make the mitigation tighter is to tighten the conduct and impact thresholds that would apply to either chronically constrained areas or pivotal suppliers in those areas, that would be very fast.

DR. HYDE: This question of getting a filing

through the stakeholders and then the Commission.

DR. PATTON: I sort of overlooked that process. Yes, it would require you to do your legal ante of whatever, five months of processing.

DR. HYDE: We have already talked a bit about changes to local clearing requirements timetable in the last panel and local zone boundaries as well, but if you have further thoughts on that.

No. Now given this background what would you, the panelists, recommend as possible changes to the auction?

You can include in your recommendation any of the ideas we have discussed today or other approaches and that approach can be doing nothing if that is what you're recommending.

As you reply, please remember that we do wish to hear from all the panelists, so I ask you to keep your comments short. So if somebody gets the mic and doesn't give it up, we have got a remote switch. No.

Let's start from someone we haven't heard today. How about Mr. Weishaar?

MR. WEISHAAR: Thank you and thank you for the opportunity. Illinois Industrial Energy Consumers as part of its complaint in EL15-82 made specific tariff change recommendations.

Those were at IIEC Exhibit Numbers 1 and 3 that showed a redline version of the current tariff to focus on two issues.

One was the calculation of lost opportunity cost and try to bring the MISO tariff provisions in line with what the Commission has adopted as a standard applicable to opportunity cost, which is they must be legitimate and verifiable.

In our near-term solution--and again, we would really like to see a change in advance of the 2016 PRA, but our recommendation is that lost opportunity costs should be set to zero for purposes of that auction, but certainly without prejudice to MISO coming in and making very specific recommendations about how to apply the lost opportunity cost provisions going forward.

We also made changes relative to the reflection of counter-flows as part of the calculation of the local clearing requirement.

Those are in a different provision of the tariff, but those were the two issues on which we focused in the complaint, and we coupled the complaint with specific tariff change recommendations.

Stepping back, I think what we have learned today is that there is a high level of imprecision in

the existing tariff provisions and that some change needs to be made on both of those issues.

On the lost opportunity cost issue I think the Commission has really two options.

One is to zero it out so that the problems that surfaced before do not recur, and again without prejudice to fixing the issue over a longer-term period.

The other option is for the Commission to get very prescriptive about how the lost opportunity cost provisions of the tariff should be applied, so to take into account such things as whether there is excess capacity within the zone, what is the available transfer capacity, what are realistic options for selling into neighboring regions, take into account a lot of the specific factors and actual facts that we discuss today.

That is another option, and again, you can do that through a compliance filing type process in time for the 2016 PRA, but our view is that both of those issues need to be addressed in the next six to eight months.

DR. HYDE: Thank you.

Mr. Slocum?

MR. SLOCUM: Thank you very much.

So we had a lot of information brought by a very diverse array of witnesses, and it is clear that we still have a number of significant disputed facts that need resolution. And I understand that this technical conference is one attempt by FERC to respond in part to a collection of a Section 206 complaints alleging a number of different problems with the auction, with conduct of particular parties, and with the operation of MISO itself, and that the technical conference structure does not appear to be resolving these disputes effectively.

This morning on the first panel, I had a number of folks from MISO and Dr. Patton say I didn't have that table in front of me. I don't have that data. I didn't bring those numbers. I don't have the specific numbers. I don't have a number in response to repeated questions from FERC staff on subjects that were given to us ahead of time.

An offer was made to send these in as part of the record after this proceeding, but what this shows is that this is not an adequate structure to resolve these disputed claims.

The only adequate structure is an evidentiary hearing which multiple parties called for, and that has to be part of the resolution in order for us to

determine what--the most effective steps going forward to address the problems with the MISO capacity auction.

DR. HYDE: Do you have any specifics on what you would like to see beyond the evidentiary hearing?

MR. SLOCUM: Absolutely. I think Robert McCullough made a number of important points about the role of data in establishing things like the reference price and other key factors that I think that the MISO capacity auction structures relied too much, as Robert McCullough said, on speculation and theory and not enough on what the actual data is telling us.

So FERC Staff needs to focus on beefing up the data to ensure that the MISO capacity auction structure going forward is based upon what is actually going on in the market and not a theoretical guess as to how actors are going to respond in these situations.

DR. HYDE: Mr. Jones, would you like to address the question?

MR. JONES: Sure, and thanks again for giving us the opportunity to participate. We appreciate it.

I would recommend that we use caution in any kind of a piecemeal approach because there is often unintended consequences and things that we need to carefully consider.

I think there are three primary issues around

the auction--construction of the market design that are really important to attempt to discuss and resolve.

One is the vertical demand curve. The other is a proposed minimum offer price rule, and the third is a longer-term planning horizon.

If I could expand on that for just a moment. The vertical demand curve construct suggests that any megawatts over the planning reserve margin receives zero capacity dollars. And in a non-regulated state, the way we recover our cost is through energy revenues and capacity revenues.

We are surrounded--outside of Zone 4 all the other states are regulated utilities that are able to recover their capacity costs for 100% of their volume through a different mechanism.

By being effectively a price taker in the auction, there is potential for some distortion of the results. So if you accept for a moment that all the other zones are dominated by regulated utilities and that they are price takers in the form of FRAP or self-scheduling, with the vertical demand curve, any capacity that is not going to clear is going to be an IPP in Zone 4.

That's not a sustainable model in terms of a capital investment in existing assets or attracting

investment for a new build.

The regulated states have the latitude through their processes to press for new build and the concern we have is that over a very short period of time as assets will retire or become less reliable in Southern Illinois and they will be replaced in the surrounding states and regulated rate base.

The southern part of Illinois will wake up with less capacity and an aging coal and nuclear fleet that is being replaced in other states where jobs and a tax base are being shifted out.

The minimum offer price rule, I think, is part and parcel to self-scheduling comments and the planning horizon. It is truly nonsensical to imagine that people can plan with an auction that occurs eight weeks before the planning year.

We need more lead time if we are going to be thoughtful about this and provide incentive for capital expenditure and/or a new build that needs to be a longer runway for that.

Thank you.

DR. HYDE: Let's keep going with everybody's first shot person and then we can circle back down on others.

I wanted to hear first thoughts from everyone

first.

Dr. Patton?

DR. PATTON: It probably will not surprise you that the number one issue that should be resolved is representing demand in this market in a manner that has some connection to reliability.

So in the same way that we have operating reserve demand curves that reflect the value of reserves to the system when MISO as the central buyer for operating reserves procures on the basis of that, it is the central buyer for capacity in the PRA.

The PRA only exists to procure capacity that we need to maintain reliability.

If you divorce the representation of demand from reliability you can't get a market outcome that is going to produce just and reasonable prices.

The reason I say it's divorced from reliability. If you ask yourself the last megawatt I need to satisfy the minimum requirement, what's that worth?

What it is worth to MISO is the cost of building a new unit, so it is worth a ton.

You go one megawatt further and now you are 1 MW or 2 MW and now you are 1 MW surplus, what's that megawatt worth?

Meg what work is worth nothing, but if you did any sort of loss of load expectation any conventional reliability analysis it would tell you those 2 MW are delivering almost the same reliability value and yet a representation of demands says one is really valuable and one is not valuable at all that sets up a market regime where the market is priced at zero virtually all the time.

That would be the number one thing we would have to fix.

What makes these discussions surreal and I have them a lot with people as people get excited about the zone definitions or whatever it is, so many of these things boil down to, if we fix this thing we will improve the price, but if the underlying framework of the market prevents us from producing reasonable prices from the outset then how excited can we get about capacity counter-flow from the capacity import limit, for example.

The only reason to do that is to get a more reasonable price insight. It makes the discussions really strange, so I would say that that's definitely number one.

Number one, and it is a relatively urgent need because what you are seeing if we step back a little

bit is sort of a perfect storm, we have capacity going away because of environmental regulations, then we have a market that cannot produce reasonable prices in MISO and by the way I don't think a reasonable price is anything to do with whether people are regulated or not regulated which seems to be the primary argument.

We can't produce a reasonable price but we have a neighbor who does produce a reasonable price and so we have created an incentive for everyone to flow west at the same time that other folks are retiring.

Thirdly, the third aspect of the perfect storm is our neighbor to the left instead of deciding that it's okay for us to simply provide energy to them on a firm basis, they've decided that we need pseudo-retiree resources that are flowing west creating effectively a Swiss cheese affect where they are taking dispatch control over units that are critical to control constraints that they don't see in their model.

And that demonstrably harms reliability, so number two, beyond the slope demand curve is to rationalize how capacity is delivered in realtime, do away with the silliness of the pseudo-tie requirement and simply have a set of provisions where MISO guarantees delivery of the energy that they have bought so they have what they need without having to

effectively reconfigure the RTOs in ways that are really hard to undo from an efficiency standpoint.

And then thirdly, on the smaller level, I would say that we definitely could implement the capacity import limit adjustment relatively quickly because it's a parameter setting aside the November 1st deadline which you would have to grant a waiver for, but it's a discreet parameter that once we know what's being exported and we know what the capacity import limit is then it is simple arithmetic to adjust it prior to running the auction.

DR. HYDE: You addressed how quickly MISO could implement the capacity import limit change vertical demand curve and pseudo-tied -- well, not so much.

DR. PATTON: Was that part of it? I thought it was just what changes are needed.

DR. HYDE: I like hearing you addressing that so it seems like you should.

DR. PATTON: I went fast because maybe the question was what we would change in the MISO tariff and pseudo-tie requirement is a change that would be required to the PJM tariff.

But let's do it anyway.

As far as the timing, I think the time of

changing the pseudo-tie requirement would largely be based on MISO and PJM putting a set of operating procedures down that would be acceptable to both parties as far as what the delivery obligation is, and I think it would greatly benefit PJM because if MISO is delivering energy on a firm basis they'll dispatch around constraints, whereas a pseudo-tied resource, if that is a constraint, it may have to be curtailed so they get more reliable energy, but ultimately it's going to can take time.

But my experiences is a guide to get PJM and MISO to agree on something takes a long time.

That will take a fair amount of time.

The slope demand curve from the perspective of technical implementation that is probably not the constraining factor, that would take some work, but my experience elsewhere is a guide near your experience the parameters of a slope demand curve are heavily litigated, so you would have to resolve disagreements about exactly what slope should be and so forth, but the fact that we've done it now in New York, PJM and New England, we done so many places, there is a whole lot of precedent that would help make that go faster than maybe it did a few years ago.

DR. HYDE: Dr. Chatterjee?

DR. CHATTERJEE: Thank you. With regards to the specific changes that MISO is planning for the upcoming 2016-2017 auction, there's a couple of where one is associated with how we treat retirements and suspensions that we are walking through our stakeholder process and we to bring forward before the Commission in time for next year's auction.

A second one is associated with how we allocate zonal reliability benefits but I won't get into the detail of that. But those are the two that we are working on.

On a broader perspective in terms of changes to the auction, the current set of auction rules have identified funds that are implemented arrived though a robust stakeholder process that MISO had in the past.

In that same tone, I would ask that we continue to work with our stakeholders to bring changes and improvements to our auction in front of the Commission in the future, too.

We have currently have a schedule as we discussed earlier in terms of changes that we are thinking about and things that we want to bring forward.

Specifically with regard to Illinois, we also talked about it, we are on our 19th conference that we

will be attending to discuss the specific issues within that state and how we will help to resolve those issues.

We have a plan that we are working through and if there are additional outcomes, that the Commission would like to see so we are open to looking at the guidance on what outcomes are we trying to achieve.

We can have improvement of other things. We can implement many things but what problem are we trying to solve is an important question to ask ourselves.

DR. HYDE: Thank you, Mr. Bladen? You can go beyond to the response you wanted to provide her earlier.

MR. BLADEN: I appreciate that and thank you very much, and again, thank you for having us here today.

I won't repeat what we've already heard as there has been quite a number of good things said.

I will answer your question though that you posed at the outset of this colloquy in the inverse and the things that we would hope you wouldn't do which is to order changes that effectively require anybody to capture an opportunity in PJM only by export or the equivalent value of the opportunity in PJM, only through exporting to PJM if that's the result.

I should say I want to disagree on the facts that someone suggested that that's not happening already of thousands of megawatts of a resource that was in MISO footprint are selling their capacity to PJM today.

Thousands of megawatts are offered into a base residual auction. Many megawatts are offered into incremental auctions.

As we heard today from Mr. Bresler thousands of megawatts are sold as replacement capacity, so it is happening and to suggest it is not is ignoring the facts.

To the extent that we end up with a process whereby the only way to capture that equivalent opportunity value is by actually exporting MISO will end up with a less competitive environment, not a more competitive one.

DR. HYDE: I see some cards up.

Mr. Jones.

MR. JONES: Thank you. David mentioned that the demand curve is a heavy lift and I believe it is a heavy lift.

The regulated states are probably not particularly excited about that, but I think it's a fight worth having then it is a lift worthy trying to

do because without it generation in Southern Illinois in Zone 4 is unsustainable.

Many of the units cannot cover their costs because those are the units that are on the margin and to the extent there is any surplus over the planning reserve margin they receive no money whatsoever.

The last auction brought approximately 50% of our capacity that did not clear and we were unable to sell it.

It is a heavy lift, but to me it is very important because with no capacity revenue a generation will leave the system in the form of retirement or decrease in CapEx at the very time that the reserve margins are tightening in the system and that's the last thing we should want for a generation capacity to be retired because there is no effective market design.

Thank you.

DR. HYDE: Mr. Slocum.

MR. SLOCUM: Yes. We are talking about a lot of reforms that MISO is going to develop as they just described in a robust stakeholder process.

So it is very important that we understand whether or not this stakeholder process is, in fact, robust because FERC relies very heavily on the fact that these private organizations have a robust stakeholder process that is assisting in this.

This is highly relevant to the question --

DR. HYDE: Yes, but Mr. Slocum, I know you submitted comments talking about manipulation of the stakeholder process?

MR. SLOCUM: I am not going --

DR. HYDE: Do not go there.

MR. SLOCUM: I will not be discussing the manipulation of the stakeholder process.

Please let me finish. Thank you.

What I am talking about is the need for FERC to better evaluate the existing stakeholder process to, in fact, determine whether or not it is robust because our experience with it is that it is heavily dominated by a few interests and that the meetings are not reflective of broader stakeholders and so if you're asking MISO to reevaluate aspects of the auction process under its existing stakeholder process, and I understand that they have just hired an outside consultant to reform aspects of that, but we have not seen those reforms translate into more effective representation for all stakeholders affected by these policies.

One great example is that I have been attending these meetings by phone and I don't know if any FERC staff here attends stakeholder meetings by

phone. It is an inadequate method to participate in the meetings, to get information about who is speaking, there is no transcript made available of these meetings at any time, and so as a result, there is very little public record about the details of what is driving decisions within this process.

It is essential that as part of any capacity market reform that you look at stakeholder process reform because you are entrusting a private organization to represent all stakeholders that are affected by policy and that private organization is not doing an effective job at representing all stakeholders particularly my members who are going to be paying significantly more in their utility bills as a result of the actions of this private organization.

Thank you.

DR. HYDE: Thank you.

Mr. Weishaar.

MR. WEISHAAR: Yes, and to quote the late Yogi Berra, "It is like deja vu all over again."

I recall back during 2010, 2011, 2012, we went through a pretty lengthy stakeholder process at MISO. I went through fairly extensive litigation here before the Commission regarding the very issues that Mr. Jones and Mr. Patton are discussing now.

The Commission called those balls and strikes in ER 11-4081. Obviously, there are requests for a rehearing pending what the Commission will do with those requests and what it chooses to do.

We filed a complaint in EL 15-82 that focused on two very discrete and specific issues.

I think we have demonstrated not only in the affidavits moved as part of those complaints and answer, but also today that those two specific provisions of the MISO tariff are no longer just and reasonable and that some correction needs to be made.

Just kind of putting aside the bigger picture issues we can have those debates and we can continue in that litigation. We can do what we need to do with respect to the bigger picture issues, but there are two discrete issues that need to be fixed and they need to be fixed prior to the 2016 PRA.

We've made very specific proposals for how to do that. We are open to suggestions and further discussion on alternatives, but we urge the Commission to keep the focus on the right areas.

DR. HYDE: Thank you.

Dr. Patton.

DR. PATTON: I agree. It is like deja vu all over again. We were sitting in New England seven years

ago or ten years ago fighting about LikeCap which shows a slope demand curve based capacity market that nobody wanted or that some people wanted.

We implemented a vertical demand curve with a price floor that limped along for a number of years and then at some point FERC said on point pretty recently, "You guys need a slope demand curve and order it to be so, and so I think the fact that we have had this discussion before does not mean that learning can't occur and we can't recognize when something is not working.

One thing that is important to recognize is, as posted in New England where there are large equity considerations of going to a slope demand curve because you have large buyers and large sellers so changing the wholesale price has a big impact from a cost perspective.

In a regulated state the opposite is true. Most of the requirements are self-supplied so setting an efficient wholesale price really doesn't have a deleterious effect on consumers the way it does in the areas where we have actually implemented.

One last thing. Just a comment on the stakeholder process and the fact that MISO is working through the stakeholder process.

I think it is important to recognize that there two discussions that happen in stakeholder processes.

One is a discussion of should we do something or should we not, and for any change that involves big, large economic value the stakeholder process can bog down in and go nowhere and that is definitely the case with the sloped demand curve.

I do not want you to get the impression that the stakeholders were working through sort of a slope demand curve proposal.

There is a second set of discussions that I think are very effective in the stakeholder processes and that is once we have decided to do something how should we do it and then there is a lot of debates and it gets filed and the Commissions is able to articulate or to arbitrate disputes.

The way--in a lot of cases where you are stuck to get from one place to the other is for FERC to issue a mandate and say, "You need to come back with something that is reasonable," and that reorients the stakeholder discussion, and the folks who were obstructionists become part of the process of discussing how to implement something that would be efficient and produce reasonable outcomes.

I think it is important to recognize that

while there is a stakeholder process, a plan that is being worked through stakeholders, the most important issues are not part of those discussions.

DR. HYDE: Any replies to any of that or are we worn out for the day?

Do we have any questions from any of my colleagues here, anything else that you would like to cover if we have not perhaps touched on?

In that case, this concludes our Technical Conference. I want to thank everyone here and online for attending.

I would especially like to thank all of the panelists and my colleagues for making this such an informative conference that will help the Commission in its decision-making.

Transcripts will be available for a fee from Ace-Federal Reporters. If you want to provide comments regarding the matters discussed today at the technical conference, please do so in these dockets on or before November 4 and do recognize that we have already read what you have submitted to us.

So new thoughts are appreciated as opposed to these same thoughts again.

Anyway, thank you all so much for coming and we are adjourned.