STATE OF CALIFORNIA – THE RESOURCES AGENCY
BEFORE THE
CALIFORNIA ENERGY COMMISSION (CEC)

In the matter of,	
	Docket No.12-IEP-1C
Preparation of the 2012 Integrated Energy Policy Report (2012 IEPR)	

IEPR Lead Commissioner Workshop on
Electricity Infrastructure Issues
in California

Caltrans District 7 Building
100 South Main Street
Conference Rooms A,B,C
Los Angeles, California

Friday, June 22, 2012
9:30 A.M.

Reported by:
Troy Ray

COMMISSIONERS

Carla Peterman, IEPR Lead Commissioner
Robert B. Weisenmiller, Chairperson

STAFF

Suzanne Korosec, IEPR Lead
Robert Ogelsby, Executive Director
Michael Jaske, Electricity Analysis Office

Also Present (* Via WebEx)

Presenters

James Goldstene, California Air Resources Board
Steve Berberich, California Independent System Operator
Michel Florio, Commissioner, CPUC
Catherine Sandoval, Commissioner, CPUC
Neil Millar, California Independent System Operator
Mike Tollstrup, Air Resources Board
Mo Beshir, Los Angeles Department of Water and Power
Nathaniel Skinner, CPUC
David Vidaver, California Energy Commission
James Newcomb
Mathias Bell

Panelists

Leslie Starck, Senior Vice President, Southern California Edison
James Avery, Senior Vice President, San Diego Gas & Electric Company
John Geeseman, Legal Counsel, Alliance for Nuclear Responsibility
V. John White, Executive Director, Center for Energy Efficiency and Renewable Technologies,
Fran Inman, Senior Vice President, Majestic Realty Corporation
Angela Johnson Meszaros, Law Offices of Angela Johnson Meszaros
Jan Smutny-Jones, Executive Director,General Counsel, Independent Energy Producers Association

Public Comment

Ben Davis, Jr.
Bill Brand, City Council Member, Redondo Beach
David Freeman
Barbara George, Women's Energy Matters
Gary Headrick, San Clemente Green
Jennifer Didlo, Project Director, AES
Chris Ellison, Pathfinder Zephyr
Jim Stewart, Sierra Club
Rob Longnecker, Clean Coalition
Rochelle Becker, Executive Director, Alliance for Nuclear Responsibility
Donna Gilmore
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Harvey Eder

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P R O C E E D I N G S

JUNE 22, 2012 9:30 A.M.

MS. KOROSEC: All right, good morning everyone, welcome to today's workshop on Electricity Infrastructure Issues in California.

I'm Suzanne Korosec and I oversee development and preparation of the Energy Commission's bi-annual Integrated Energy Policy Report.

Just a few housekeeping items before we get started. Restrooms are located out the door, down the hallway that you entered it. Men's is on the right, women's is on the left.

There's a cafeteria located, if you go out the main doors, past the security and to your left, for snacks and things. And we've also provided a list of restaurants within walking distance of the building for lunch.

Depending on how the day's discussions go this morning we plan to take lunch from around 12:15 to 1:30.

Today's workshop is being broadcast on the web and it's also being transcribed, so parties need to be aware that you are being recorded.

We'll make an audio recording available on our website about a week after the workshop and a written transcript will be posted on our website in about three

weeks.

Folks also need to know that one of our workshop attendees, the Reliance for Nuclear Responsibility, will be videotaping the remarks of their representatives.

We'll have two opportunities for oral public comment today. One just before lunch, for those who are unable to stay until the end of the day, and then one at the end of the day.

For our in-person guests, if you wish to make comments or ask questions, please fill out one of these blue cards, they're on the table where the handouts were, with your name and affiliation. And, also, let us know if you have time constraints and need to speak in the morning session, rather than the afternoon. And you can give the cards to me at any time throughout the day.

To make sure everybody has an opportunity to provide comments we ask that you keep comments to three meets, and just hit the high points and submitted more detailed written comments after the workshop.

We're accepting written comments on today's topics and on a list of questions at the end of the agenda until close of business July 13th.

And the notice for today's workshop, which is available on the table out in the hallway and also on our website, explains the process for submitting

comments to the IEPR docket.

For our participants who are listening on the web, you can use either the “chat” or “raise hand” functions to let our coordinator, Lynette Green, know that you have a question or comment and will open your line at the appropriate time.

For those of you participating by phone only, we’ll open the phone lines at the end of each public comment period.

And with that, I’ll turn it over to our Commissioners and Agency heads for opening comments.

COMMISSIONER PETERMAN: Good morning, Suzanne, thank you for that introduction.

Hello, everyone, I’m Carla Peterman, I am lead Commissioner at the Energy Commission on the 2012 IEPR.

Thank you, first, to Caltrans for allowing us the opportunity to hold this workshop in their building here, in downtown L.A., it is good to meet together in a different part of the State.

Today’s IEPR workshop is on electricity infrastructure issues in California. It is absolutely vital that we have sufficient infrastructure to deliver safe, reliable, and environmentally sustainable power to California.

Numerous factors, such as plant closures,

extended outages, variable generation, and environmental concerns, and local reliable needs can make this challenging, delivering the safe infrastructure.

Today we're here to discuss some of these challenges and solutions, and how we coordinate to move forward.

This importance of this topic to the State and the need to coordinate is evidenced by the dais you have in front of you here today. We have California Energy Commissioners, we have Public Utilities Commissioners, we have representation from the California ISO, the ARB, the City, the Air District.

This is an important issue to all of us and we look forward to hearing from you, the experts, those on the ground about what we need to do better going forward.

With that, let me turn to the Energy Commission Chairman, Chair Weisenmiller, for introductory comments, as well as two others on the dais, we welcome their comments as well.

COMMISSION CHAIRPERSON WEISENMILLER: Again, I'd like to thank everyone for their participation today. I think we appreciate the opportunity to come down and to have conversation among the various technical experts on these issues, but also to -- and certainly to listen to

the public comment.

L.A. is a very vibrant part, a key part of the State infrastructure and at the same time it is one of the more challenging areas as we go forward in the transformation of our energy system.

It's challenging in the sense that you have an aging infrastructure and, at the same time, very challenging in environmental backdrop. Certainly, one cannot find any place else in California that has as much of a challenge dealing with air quality issues.

Certainly, as a State as a whole, working on the climate change issues, which means greenhouse gas issues, but at the same time, of course, there's the once-through cooling issue.

So, there's a very -- you know, an environment where we need to make our energy system more sustainable but, at the same time, we have to be forecasting the future and what our needs are.

And this is probably one of the most troubled, difficult times in the 30 years that I've been doing this to actually forecast what the future looks like. We, obviously, are emerging from what's been a terrible recession, downturn.

At the same time when we look at we're doing very serious pushes on energy efficiency, on renewables

and on electric vehicles.

And so, basically, how all that's going to play out is going to be very important to what's needed on the energy system.

And I think just the backdrop, as we're transforming the electricity system, we also have a vision of transforming the transportation system. And we're going to hear much more about that from the South Coast today.

But, certainly, with that transformation that has implications on the energy system. And where we're working for and the reason why we're trying to pull the State agencies here is to really look at how that transformation of transportation can be complementary to the electric system and the transformations we're doing there.

But, again, I think we have to have a system that is robust enough because surprises happen and, frankly, none of us were really expecting, as we did these long-term plans, that we'd be facing the situation we are this summer with the unit at San Onofre.

So, again, we have a plan to deal with that, certainly the ISO will talk about that but I guess the basic message is that forecasting the future is very difficult. And we plan to have contingency plans to

deal with the unexpected.

So, again, thanks for your participation, we're looking forward to hearing your comments.

CPUC COMMISSIONER FLORIO: Yes, I'm Mike Florio, Commissioner at the Public Utilities Commission, and the lead Commissioner on our long-term procurement planning proceeding that is going to be addressing many of the issues that we're talking about today from the perspective of necessary electricity procurement to keep the lights on in Southern California.

As Bob said, we really have a Gordian knot of issues here that bring in many different agencies. So, I'm very much looking forward to some further education on these issues, which we will be taking up in hearings that are scheduled for, I believe, August of this year, in San Francisco.

So, I'm really looking forward to the dialogue. And we have a challenging set of issues but we can't afford to fail, so one way or another we're going to have to find our way through these challenges and find the way forward for California and, particularly, Southern California.

So, I'm very much looking forward to the day.

We will be joined this afternoon by my colleague, Catherine Sandoval, who has another

engagement this morning. Commissioner Timothy Simon also was hoping to attend and he sent a note that he asked me to read.

"I regret that I will not be attending today's Lead Commissioner Workshop on Electricity Infrastructure Issues in California. I'm unable to attend today's workshop because of certain restrictions in the Bagley-Keene Open Meeting Act that prohibit having more than two sitting PUC Commissioners at attendance at a meeting. I appreciate the invitation and wish you another informative and successful workshop."

So, I'll be reporting back to Commissioner Simon and the other PUC Commissioners on what happens here today.

But it's wonderful to be in Los Angeles and I'm looking forward to an informative day.

MR. BERBERICH: Sure, I'm Steve Berberich and I'm the Chief Executive Officer of the California Independent System Operator. And I'd like to express my gratitude for inviting me here today, Commissioner Peterman and Chairman Weisenmiller.

I think that the discussions we have today are important and they're going to show the paramount need for close cooperation across the agencies, as well as

across the State.

The ISO's been very concerned about many of the infrastructure issues that we're going to talk about here today for some time and it's important that we all kind of bring them all together.

I think that Commissioner Florio correctly called it a Gordian knot because we have restrictions in our once-through cooled units. If we were to retire every one of those once-through cooled units, I can assure you that we would not have electricity in much of Southern California.

We're going to have to figure out how to do that while maintaining our reliable power.

Layer onto that air emission credit restrictions that those same plants use.

And then, finally, we're embarking as a State on a very aggressive, very interesting agenda to bring in 33-percent renewables onto the grid, which are higher than most areas in the world. We have to do that while we have these other issues pending.

And then, finally, this summer, you know, some of the weaknesses we have in the infrastructure are laid bare by San Onofre, 2,250 megawatts of power that's likely to be unavailable, I'm certain will be unavailable this summer, and it's uncertain in the near

future as well.

These are challenging issues. However, I do think they provide us some opportunities and let me talk about those for one moment.

As we go through and look through the once-through cooling plants, and in particular in the south, we know that we don't need all of them. So, we're going to have to work together and figure out which ones we do need.

When we do replace them, I think we can do them in a, well, my phrase, I've coined, is "three for fashion."

Currently, the once-through cooled plants are generally about 40 years old and they're not as efficient and effective as modern plants.

We can change those out for modern, less-fuel-intensive, and less-emitting plants significantly, and there are up to 40 percent reductions in emissions in a newer plant versus an older one, so more efficient and a lower-polluting plant.

Secondly, plants need to be able to be flexible in the future. Now, we have plants that move relatively slower and in the future we're going to have to have them move very quickly.

I can give you an example of this. We see,

generally in the spring, with the amount of wind generation available in the system, we see losses of up to 800 megawatts, up to 1,000 megawatts in a half-hour. That's a lot of energy and we have to replace that very quickly with, generally, gas plants that can ramp quickly. So, flexibility is an important attribute.

And then, finally, these plants are local capacity areas. That means the plant has to be there, there's no other way to bring power in through the transmission grid.

We have options. We can switch them out for things that are far more efficient and less polluting, and we can also build transmission through it. And transmission lines, particularly large transmission lines, are not terribly favored, particularly if they go through your backyard. So, we'll have to work through that.

Now, we look like we're going to be successful in mitigating the issues in San Onofre but we've had to do some extraordinary things to make sure that happened.

And paramount to that is everyone needs to make sure that we maintain a conservative posture this summer and heed conservations alarms because it's going to be very tight in the South L.A. Basin and in San Diego.

So, the contingency plans, I think, we have in

place have been very effective. I particularly would like to thank the Commissioners at the PUC, and the CEC, as well as the Air Resources Board, the South Coast Air Quality District, and even EPA Region 9. All of them came together to be able to bring back the Huntington Beach 3 and 4 units.

It was a very difficult road and the collaboration that we received across all these State agencies, I think, has been unparalleled.

So, as I indicated, even with those contingencies in place, loads are going to be quite tight. These are temporary fixes.

San Onofre is 2,250 megawatts of power and that's a lot of power that will be missing and, from a long-term perspective, we're going to have to mitigate that.

So let me tell you this, if we make it through the summer without any kind of disruption, you know, largely because we didn't have large heat spells, and let's hope that we don't, and we don't have major contingencies on the system, loss of major power plants or transmission lines, because we get through the summer doesn't mean we don't need San Onofre, or options or alternatives to San Onofre.

I hope you'll hear today some of the issues that

are before us. And again, I note that deep collaboration across the agencies will help us really resolve these issues. Thank you.

MR. OGELSBY: Let me introduce myself, I'm Rob Ogelsby, I'm the Executive Director of the California Energy Commission. And I'm batting clean-up after much has been said about the challenges we face.

And so I think the best thing that I'd like to observe at this point is how valuable this forum is and how fortunate we are to have everyone come together, the diversity of views.

I've had the opportunity to work in different fields, other than energy, that overlap the issues that we will deal with today and I'm glad to see that there's a diversity that's reflected both on the agenda and the participants.

And I think when you have the challenges that were just described by all the panelists, it's important to have communication between the agencies and the constituencies. And this proceeding is important to establish the coordination and the foundation for that communication to deal with some of those issues.

So, I wanted to welcome you all here and thank everyone for participating, as well.

MS. KOROSEC: All right, thank you. Before we

get into our presentations I just wanted to provide a little bit of context for today's workshop.

Every two years, on odd-numbered years, the Energy Commission prepares the Integrated Energy Policy Report which summarizes the results of a wide variety of analyses of energy issues, and provides policy recommendations to the Governor.

The even-numbered years we issue an IEPR update that follows up on issues that were raised in previous IEPRs or addresses new issues that may have come up since the latest IEPR was published.

We are in an update year this year. And the 2011 IEPR, which was published in December of 2011, copies of which are available on the table out in the hallway, highlighted the importance of long-term infrastructure planning to make sure that California has sufficient and reliable energy supplies, both to meet future demand and to support California's energy goals.

I won't go into any of the detailed discussions of the IEPR because I think all of our speakers so far have covered that pretty well.

But in today's workshop we're going to hear updates on the various infrastructure planning studies that are being conducted by government agencies, balancing authorities, and other interested

organizations.

And then we'll finish up with a panel of representatives, of various areas, to get their reactions to the day's discussions.

So, with that I'll now introduce Dr. Michael Jaske, from the Energy Commission's Electricity Analysis Office, who's going to provide an overview of the infrastructure issues we'll be discussing throughout the day.

DR. JASKE: Thank you, Suzanne. Welcome everyone.

My role today is to give you some sense of how the presentations that will follow fit together and to identify some places to look forward to particular presentations, if you're interested in more detail.

So, why are we here? I think that's been covered sufficiently by the introductory remarks of our agency leaders on the dais.

But one thing they haven't mentioned is that some of the planning analyses that you're going to hear today have never been implemented at the kind of ten-year time horizon that we are now doing.

For example, Neil Millar will explain how local capacity assessments help to identify what Mr. Berberich said, that only a fraction of the existing capacity

needs to be replaced for that purpose.

We haven't had the benefit of that kind of ten-year time horizon prior to the last round of transmission planning analysis that the ISO conducted.

Certainly, there is a great deal of uncertainty, perhaps more of it, or perhaps we're just better acquainted with the uncertainty that's been there all along.

And one thing that I guess I should try to emphasize, and I will cover this at some more depth later, is that we have many agencies that have pieces of the authority necessary to resolve these decisions and move forward, but no one agency has all of the authority that it needs. So, cooperation, collaboration is essential.

We have ongoing forums, such as the Energy Commission's IEPR, the ISO's transmission planning process, or the PUC's LTBB. And we have more one-off studies or special purpose efforts, such as ARB's Assembly Bill AB 1318.

There are many things that are driving the results that we're going to be looking at today or other analyses like these that will be done in the future.

Certainly, load growth continues, albeit at lesser levels than have been the case in the past,

partly because of reduced expectations of economic activity, but partly as a result of the amount of energy efficiency that has been invested in our customer's end uses over the years.

We have a once-through cooling policy, obviously, that is a critical driver of the retirement of many of the OTC facilities. And we have the fortunate outcome of previous efforts to collaborate among the agencies where the schedule for compliance for each of these facilities is somewhat flexible in that when, and if, infrastructure issues create a challenge for the existing compliance they -- the State Water Resource Control Board will explicitly consider the input from these agencies in adjusting that date. They're cognizant of the potential for their retirement schedule to create reliability problems and they are prepared to make adjustments, if necessary.

We have the 33-percent renewable requirement that's now in law, but we also have the goal, that Governor Brown has been pushing, of a large portion of that being attributed generation. And we're working through the challenges of understanding where that would be located, what kind of technology will it actually be, how will it perform, how does that interact with the balance of our system.

And then we have adjustments to the load side for energy efficiency, maybe to some extent also demand response. A lot of demand response going more to supply resource to be called upon as needed.

We have a bunch of standards and other things guiding our assessments, that we'll need to focus on standards here.

Reliability, in various and sundry manifestations have I called out here, FERC and NERC national standards, WEC standards for Western Region. Traditional ways of looking at things like a 15 percent planning margin, local capacity requirements that Mr. Berberich mentioned earlier, that come about because of the limitations of the existing transmission system and the difficulty of upgrading that system to eliminate those, the need for some kind of, and some amount of local generation facility.

And, of course, flexible resources, not yet really a standard or a requirement, but the ISO clearly moving us in the direction of trying to understand the degree to which we do need to have sufficient amounts of those kinds of resources to integrate renewable.

Then attainment, Southern California, at least in the South Coast air shed, is not yet in attainment for certain criteria pollutants and so we're striving to

get there. And we need to take that into account in both the assessments we conduct, the options that are made available and the decisions that are made.

We also, of course, need to be concerned with public health and safety. Fukushima increased awareness of not only the risk of nuclear power plants, but the risk to nuclear power plants. Tremendous difficulties in Japan from the shutdown of the vast majority of their nuclear plants, you know, as they are concerned about safety.

Federal initiatives are reducing the future availability of coal plants through mercury and toxic standards that have been issued by the US EPA, as well as California's own mandates, like SB 1368, that prohibit long-term contracting with such facilities.

And, finally, a dimension that's critical to the actions that the CPUC takes is the ratepayer protection perspective, the limitation on what ratepayers can afford to pay.

And the issue of the business sector needing to be competitive with other locations throughout our country and the world, where there are different priorities for environmental concerns, especially.

One of the things you're going to hear more about today in the course of the various presentations

is the degree to which the agencies are coordinating. At the level of the technical staff there is a considerable degree of coordination, a few of the specifics called out here on this slide.

The use of Energy Commission forecasts by the PUC and the ISO in their assessments. As I mentioned earlier, the collaboration among the energy agencies, as well as the Water Board, on implementation of OTC and the effort that will be described later this morning on AB 1318.

This is a collaboration at this point that is focused largely on the preparation of studies and communicating the results of these studies. We are just now getting to the stage where the rubber is going to meet the road on making decisions that come out of these analytic efforts, and how that can happen in a coordinated manner is actually one of the challenges that we face.

So, what are these studies? The ISO has conducted, as it does now on an annual basis, extensive analyses at the 10-year time horizon for certain of the policy dimensions that are important, renewable, alternative futures, using load forecasts and other inputs from the PUC and the Energy Commissions.

The studies that the ISO has made this spring,

looking at the consequences of the outage of both San Onofre units, analyses that the ISO and the LADWP have done for ARB to implement AB 1318 study. You'll hear more about all of these by presenters that follow me.

There are others still in the pipeline. Although many of the core pieces of the AB 1318 effort are just winding up, bringing all of those pieces together in an integrated fashion, determining what they all mean, preparing a draft report, getting out there into the public for review is still to come.

The ISO is going to study nuclear replacement more thoroughly than it has. And looking forward, out to further time horizons than just the 2012 year and 2013 year that have been examined to date.

And depending on how those analyses turn out there may need to be just a general update of the OTC replacement issue for all the plants.

The Energy Commission staff will make a presentation, later today, that focuses on some of the consequences of this uncertainty that we're all aware exists, but the way of trying to quantify the range of that on the need for infrastructure.

And since we are in a bi-annual planning process, as Commissioner Peterman mentioned, the next cycle of analysis, which is just now beginning for

the -- and will be revealed in the 2013 IEPR effort, is certainly going to be looking at the impact of demand forecasts of electrification.

And we'll hear from Mr. Wallerstein, of the South Coast District, about some of their ideas of where electrification of vehicles and other processes will take us.

So far I've mentioned a lot about analyses and are we just talking the talk or are we going to walk the walk?

Well, there are some forum for action here, even in the near term, making use of the kind of analyses and results that exist today.

And as Commissioner Florio mentioned, although information may be imperfect and incomplete there is a necessity to make some decisions to take action today. And we'll hear from a representative of the PUC staff about what the 2012 LTP intends to accomplish both this year and the next phase, next year.

The ISO's annual transmission planning process, in particular the cycle that's now underway, the '12-'13 edition of that, will provide a basis for the ISO actually taking action on transmission upgrades for which its approval is sufficient authority to proceed or for anything that's found necessary, that's at the

larger scale, that needs a CPCN from the PUC, then we can get that process started.

And the Energy Commission will, in addition to its analytic efforts, continue to be reviewing applications for certification that come to us by power plant developers.

There are three power plants now under construction in Southern California that have been approved by the Energy Commission in the last few years, and those are all expected to come online in 2013.

And we anticipate that there will be another fossil power plant AFC filed later this month.

So, remaining challenges, obviously this is a few of them, it could go on for a greater length. Complete the AB 1218 effort, work with South Coast and stakeholders to address the issues that will emerge in the draft report.

Get a clear idea of the cost and benefits of various options for replacing nuclear power in California. Irrespective of the near term issues of San Onofre, the Energy Commission's 2011 IEPR asked the ISO to collaborate with the energy agencies in examining nuclear power replacement and to provide a technical basis for understanding what our options are, both for reliability, as well as the energy that those facilities

have generated.

Assure that the procurement process actually makes progress to add resources to the extent there are system, local and flexible needs.

And, clearly, the presentations that we'll hear from today will demonstrate that there are local needs as a result of OTC facility retirement, and flexible ones, probably, as well.

And to the extent that any of these analyses and decisions that come out of them lead to a decision to advise the Water Board of changes in compliance dates, the time to do that is in the annual report to them on March of next year.

So, I think I'm repeating mostly what Suzanne has already said, but let me just point out to you that there are five questions attached to the agenda and those are bigger, or overarching questions that no one presenter is probably going to be speaking to today, and very much appreciate comments using those questions as a framework.

Thank you. Any questions?

MS. KOROSEC: Dr. Jaske, thank you for that presentation. I don't know if we're going to be taking Q&A specifically on your portion of the presentation, but we will have time for questions later.

Before we move to the next presenter, I want to give an opportunity to James Goldstene, with the California Air Resources Board, who's joined us on the dais to present any introductory comments he would like to.

MR. GOLDSTENE: Well, thank you. I'm sorry I arrived late. I don't have too much to say. We recognize the importance of a coordinated approach and we're glad that the ARB -- and Mary Nichols and I are glad that we're able to do this, and to be here, and to listen to the presentations today.

To be here with the ISO, and the CEC, and the PUC is very important as we work together on analyzing and making determinations about what the energy forecasts are going to be.

So, thank you for having me here.

MS. KOROSEC: All right, our next speaker will be Neil Millar. He'll talk about some of the analyses by the California Independent System Operator.

MR. MILLAR: Thank you. And thank you for the opportunity to give this update. There are three areas I was asked to provide an update on today.

First, I'll overview the transmission plans and planning we have in place to address the summer of 2013 situation with the San Onofre nuclear generation not

operating.

I'll then move on to give an overview of the once-through cooling requirement analysis that's been referred to earlier that we -- sorry about that.

Is that also the feedback?

I'll then move on to provide an overview of the once-through cooling analysis that the ISO has been conducting across the entire ISO footprint.

And then I'll also touch on the planning schedule and activities that we have planned to assess the nuclear preparedness in the longer term, moving forward from the work that's already underway.

So, first starting with the operational preparedness for the summer of 2012, our analysis has shown that at present we don't see or don't anticipate a problem on a statewide resource basis for the summer of 2012, with both units not operating at San Onofre.

We do, however, and have identified a number of local area issues that needed very prompt action. As was mentioned earlier, if these units went away with no remediation, we very much would have been in a tough circumstance this summer.

We do think that the plan we have in place gets us to the right side of the probability line, but that depends on the combination -- sorry -- that depends on

the combination of outages and high weather circumstances that we experience through the summer.

Just to reiterate and to provide a bit of an overview of the situation, San Onofre nuclear generation plays a key role both in the Los Angeles local capacity area, as well as into the San Diego area.

Technically, the plant is part of the L.A. area when we're adding loads and resources, and looking at constraints, and congestion into L.A. It also plays a pivotal role in supporting the transfer path for electricity into San Diego, which is why the impacts on San Diego have been either as great or greater than for Los Angeles.

Now, under normal planning conditions we do study and look ahead to prepare for the loss of a single generator as a base condition. Both units has not happened before going into a summer period, as I understand, in 30 years, so it does create a unique set of challenges.

And I should also mention that just because we're starting the summer seasons with several units out of service, from a probabilistic basis we now have to look forward to the summer assuming that any other kind of contingency that could happen could still happen going forward. Just because we've had, I'll say bad

luck, to get to this point doesn't predicate that we're going to have good or bad luck from this point forward.

Now, we have, in cooperation with a significant number of industry participants, we have put in place a number of measures to better position us to get through the summer of 2012.

Most notable were the bringing Huntington Beach 3 and 4 gas-fired generation -- bringing Huntington Beach 3 and 4 gas-fired generation out of retirement and returning to service.

That generating plant is the one plant that's also on that key transfer path into San Diego. And it will play a pivotal role in helping us get through the summer.

As well, Southern California Edison did expedite a reconfiguration on the Barre-Ellis 230-KB transmission system that also helped address an existing concern, and also provided the most capability that that 230-KB system would be capable of providing.

Also, very notably, the Sunrise Transmission Line has been placed into service, as well as related safety net protections that, in the event of extreme contingencies, these safety nets would step in to shed load on a contingency basis to control the amount of load shed that occurs, and to prevent the cascading

outage.

As well, other steps that have been taken have to fully fund the Flex Alert programs so that we have the best capability from demand side management.

We have also been working with the various agencies and utilities to address -- to make the best use of the demand response programs that are available.

And I should mention that demand response programs are normally tailored to addressing broader system resource requirements. They tend to be less operationally useful at addressing the very specific local constraint. But we're also working to make sure that we make the best use of the resources that we have.

We've also reached out to military and public agencies on the demand side management side to see what support can be provided and to make sure that everyone is fully prepared for the situation and knows that we are entering into a higher risk situation.

And, finally, through the operations side the dialogue has taken place to ensure that we're going into the summer with the existing generation fleet as well maintained and prepared as can be to help minimize the possibility of unclaimed generator outages.

Now, looking at this from an operational perspective the focus has been, clearly, on both the Los

Angeles Basin and the San Diego areas. The two are heavily interrelated because one of the major transfer paths into San Diego is through Los Angeles.

So, when we are looking at the local capacity requirements we tend to have to look at it as an aggregated whole, starting with the San Diego requirements, meeting those needs, first, and then layering on the additional requirements for Los Angeles. Because, depending on the amount of the requirement in the San Diego area, that can have an effect on the Los Angeles area.

As I think you've heard before, there are a number of moving parts for making all of this work and they need to be carefully coordinated.

Now, as we move forward this is a case of hoping for the best, but planning for the worst. As we look forward to the summer of '13 we're starting the planning now, to make the best use of the additional year of lead time, to look at what measures can be put in place in the event that we go into another summer with neither San Onofre units operating.

The major changes from 2012 that we need to address right off the top is increased load growth.

Also, Huntington Beach 3 and 4 are expected to return to retirement.

We do have in place, and we'll also have additional operating experience and confidence, both with the Barre-Ellis upgrades, the Sunrise transmission line, and the related facilities, and the protection systems.

And the special protection systems do give us additional capability that we'll be looking at. We also will have further operating experience with those and further comfort.

Now, when we are looking at the options, we do need to consider all of the issues. We need to maintain local reliability, we need to look at what additional mitigations can be implemented within a year.

We also want to look forward on cost effectiveness. If we do move forward with any intermediate mitigations, we do want that mitigation to be aligned with long-term requirements so that any capital that is spent fits into a long-term picture.

And we need to make sure that it really is tightly aligned with the long-term considerations.

So at this point, and over the next month or two, we are doing the planning activities where we're not taking any options off the table for consideration. We want to look at as wide a range of possibilities as we can consider.

Now, what that full range of options looks like is pretty much running the whole range. Transmission dynamic support is one area we want to explore. We've started the dialogue around what additional reactive support could be put in place.

This tends to have to be dynamic, the kind of reactive or voltage support that can step in and respond instantaneously to a condition.

That includes devices both called synchronous condensers, as well as static VAR compensators.

We are looking to see if there are any other transmitted mitigations that could be put in place relatively quickly to help minimize any other burdens or gaps, or entry points that we might have on the system.

Now, a year is not much time.

MR. BERBERICH: Neil, just a quick primer on these things. We need voltage. Voltage is similar to water pressure on a water system, it makes things flow. And it's required that we have this, so not only do you have to have electricity, you have to make it flow and voltage does that.

And these devices that Neil was just talking about provide voltage support.

In Huntington Beach, as an example Huntington Beach 3 and 4, they're important in that they replace

some of the San Onofre power, but more importantly they provide voltage support. And they provide voltage support into the L.A. Basin and they provide voltage support into San Diego, as well.

So, it's almost more important that that's there, as opposed to the energy.

Now, a synchronous condenser, effectively what that does is it spins a turbine and the turbine, with its spinning, is without a power plant behind it, if you will. So, it's disconnecting the power plant and you have a motor that spins a turbine, that provides voltage support.

Static VAR compensator, and Neil can talk about that a little bit more, but that's a transmission element that also provides voltage support, too.

For long-lead items, they're capital items, it may be possible to use these, as an example, if you can't use Huntington Beach 3 and 4 again next year.

So, anyway, sorry, Neil, I just --

MR. MILLAR: No, thank you very much. I did dive straight into some of the technical detail, without maybe touching on some of the higher points first, so thank you.

COMMISSION CHAIRPERSON WEISENMILLER: Neil, could you just give the ten-second version of what a

static VAR compensator is?

MR. MILLAR: So, a static VAR compensator is basically a series of capacitors and reactors. Capacitors are basically, boiled down most simplistically, two plates that build up an electric field, they help you support voltage and increase the voltage on an AC power system.

The reactors on the other side are coils of water that produce magnetic fields and actually pull the voltage back down.

A static bar compensator uses, basically, a beefed up transistor technology to control exactly how much of each you have in service, millisecond by millisecond, to produce exactly the amount of support and to respond instantly.

Unlike the generators, which can also provide the support through their control systems, these devices don’t provide any system inertia, but they can provide the voltage support that Steve was referring to.

Now, they can be quite bulky, they involve a great deal of equipment, and we have started the dialogue to see if there are any existing facilities that were in construction, pipelines that could perhaps be re-diverted.

COMMISSION CHAIRPERSON WEISENMILLER: Thanks.

MR. MILLAR: And, yes, and we have also started some preliminary analysis around the relative effectiveness of the generation to provide that kind of voltage support into the area.

And the voltage support is required for two reasons. The Southern Orange County area does have a number of contingencies that could leave -- get at-risk, where the voltage is a problem.

And the alternative, and when I was referring to these safety nets, these would detect the problem and shut a controlled amount of load to avoid a widespread outage that cascades and keeps circling outward.

The other area where we have the voltage concern is on the transfer path, itself, into San Diego, where a high surge in power in San Diego, caused by a contingency, knocking off another supply or another generator could collapse the voltage on that transfer path. And in that case load shedding, using these safety nets, could be required in San Diego.

So, whether it’s through a controlled device or through manual operation we do see that there is a heightened risk of load shedding as we look at the summer of 2012. But a controlled shedding is --

COMMISSION CHAIRPERSON WEISENMILLER: Thirteen?

MR. MILLAR: Sorry?

COMMISSION CHAIRPERSON WEISENMILLER: 2012 or 2013?

MR. MILLAR: Well, now I'm jumping back even to 2012, with the system in place in 2012 we still have a higher likelihood of shed.

So, I should move back to the 2013 contingency planning. We are looking at what we can do to further hardened the system from the summer of 2012, looking at additional devices. Obviously, those are not able to be installed by the summer of 2012.

On the operations side we will be examining the special protection systems that have been put in place. Protection and control systems tend to be faster to design and implement than major transmission facilities.

So, we will be looking at further special protection schemes, also to make the schemes that have been put in place more reliable and secure.

We're also looking at the generation fleet. We do have additional generation that is moving forward in the 2013 timeframe. We will want to make sure that if generation can be advanced to be in place before the summer, as opposed to after the summer, that those steps are taken.

We will also want to look at the -- what targeted distributed generation options are available.

We've listed emission trades because the other issue is that not all generating plants, even if they're in the same area, are exactly equivalent. Because of the way the electric system is designed some power plants within San Diego and within the L.A. Basin are more effective than others, so we do want to make sure that we're able to operate the most effective generating plants.

Then we'll be taking a look at the emission trades issue as part of that, and that could include reexamining Huntington Beach 3 and 4.

The other things we'll be looking at are what additional energy conservation investments for demand response enhancements can be made over the course of the next year to make sure we go into 2013 addressing the incremental challenges as best we can, and make the best use of the year that we have.

Now, I'm going to switch gears and go into a review of the local capacity needs analysis that was taken, that was undertaken this year as part of our annual transmission planning study program. Mike Jaske referred to that earlier.

To get this overview I'll touch on the background of our transmission planning process, the local capacity study process, itself, which is a subset

of that broader piece of work. We'll talk about the objectives of the studies and then we'll get into a discussion of the results.

I should qualify, these results are also available and documented in our annual transmission plan, which was approved by our board of governors in March of this year, and is available on our website. So, this is a summary of those findings.

Our annual transmission planning process is a comprehensive cycle where we look at all facets of transmission reinforcement requirements for the system in one process.

We spend considerable time going through a consultation process with stakeholders, developing the study assumptions at the front, through the process.

The bulk of the labor then goes into the detailed analysis that reaches up until the March time frame of each year, where we present the comprehensive plan that looks at needs to meet basic reliability requirements on the system, requirements to meet the State's policy objectives, as well as any other additional transmission projects that may be warranted for economic reasons, that they alleviate congestion on the system and are worth pursuing from a cost-effectiveness point of view, for that reason only.

The third stage in our program is actually a procurement of those transmission facilities, which can include either direct assigning of certain projects to the incumbent transmission companies, or having a competitive solicitation process for independent transmission to compete with incumbent transmission owners.

Now, when we're looking at our annual transmission plan it was mentioned that within the annual transmission planning process we did embark on a bit of a new exercise this year where we overlaid the once-through cooling generation on the local capacity areas to look at the areas.

When we refer to a local capacity area, these are areas that the transmission, alone, cannot support all of the load in the area. We are dependent on generation inside those pockets, a combination of generation inside the pocket and transmission coming in from the outside to serve the load.

Now, in doing the analysis of the once-through cooling generation and how that lines up with the local capacity requirements we did do a comprehensive analysis looking at all four of the renewable energy portfolios that we studied in our transmission planning cycle.

These portfolios came to us through the Public

Utilities Commission. We also rely on inputs from the California Energy Commission and, in particular, use the 2009 adopted load forecast.

We also incorporated into this planning cycle the use of our established program and methodology for determining annual local needs. And I'll touch on that a bit more on the next slide.

Our local requirements program normally has two stages, studying the year-ahead requirements that are actually used for procurement and contracting purposes, and doing a five-year look ahead to help set procurement planning directions.

This was the first time that we applied those same methodologies to look out to the outer edge of our planning horizon to ten years, studying the local requirements, and also marrying in the requirements from once-through cooling generation. Which was really looking at the case of if we have a local capacity requirement, can that be met through other generation or does it require us dipping into and counting on once-through cooling generation as well.

Now, when we look out at the ten-year horizon, we assumed that the once-through cooling generation in assessing the amounts, that that capacity would be provided either by those generators or by repowered

generators that are electrically similar.

Our local capacity requirements methodology is quite involved, setting out all of the contingencies we have to look at and the things, the issues we have to take care of. That is available, as well, on our website.

Now, this slide is just an overview, just a list of the -- that we provided for information, of all of the generators, the once-through cooled generators and the current compliance time frames that we were taking into account.

Now, all of our analysis at this point, when we were looking through this, expected or was based on the San Onofre generation being in service.

As well as the generation that's already in service, we also factored in new generation that was permitted and generally under construction. So, we took additional generation into account and I've provided that list here.

Probably most notable for the L.A. Basin area was including the El Segundo plant, the Walnut Creek Energy Center, and the Sentinel Peaking project all have, depending on the timing of that generation can also help with the L.A. load growth situation.

We also build into the analysis the transmission

lines that the ISO have already approved and is moving forward with the transmission owners. I've provided the list here.

At the time we did the analysis, of course the Sunrise Power line, which was only energized earlier this week, over the weekend and this week, was still under construction, so it was still listed as a new project under development.

The bulk of these projects are either driven through the annual transmission planning cycle or have been identified as network upgrades necessary to help generation move forward through the generator interconnection process.

Now, with taking all of those inputs into account we then did the detailed analysis for all of the local capacity areas that we have identified in the ISO footprint. Now, that's ten areas overall.

We identified only three areas that do require some level of reliance on once-through cooling generation, so I'm going to focus this update on those areas.

First, the Los Angeles Basin area, we also looked not only at the greater L.A. Basin area, but also constraints feeding into Western Los Angeles.

I have a slide here, just demonstrating the

overall resources that we look at. We have about, currently about 12,000 megawatts of generation in the larger L.A. Basin area, just over 5,000 megawatts of once-through cooling generation.

This table provides the results of our analysis. The first four rows -- the first four rows identify the local capacity requirements for each of the different renewable energy portfolios that we study. These are different forecasts for how the ISO's footprint would meet the 33-percent RPS goals under different scenarios.

And because these were produced resources that would help on different transfer paths into the area, the local requirements under each of these scenarios can be slightly different.

So, we did study the range of possibilities. We also study a high- and a low-load scenario.

And you'll see that the -- we assumed then that the generation could be -- would be provided first by non-once-through cooled generation, and then looked at the incremental requirement for once-through cooled generation on top of that.

And what's that produced is a range for the L.A. Basin of requiring anywhere from 1,900 megawatts at a low, to 3,900 megawatts at a high, depending on how this other -- the other generation in the system develops and

how some of those other assumptions move forward.

So, that's quite a range, but the good news is that that's considerably down from the 5,100 megawatts of currently installed once-through cooled generation.

Now, I'll move on to the Big Creek Ventura area to the north of Los Angeles. So, really, this area starts basically to the immediate north, with some key transmission interface points located right between the two areas.

The existing generation that we have in the area, a total, is over 5,000 megawatts. The once-through cooled generation is just over 2,000 megawatts in that region.

And this was one area that was totally unaffected by the generation portfolios that we studied. These are much tighter geographic requirements that across all of the scenarios we had the same need, just over 400 megawatts of once-through cooled generation.

Now, I'll move on to the last area, the San Diego/LCR area. With the addition of the Sunrise Power Line, the 500 KB line from Imperial Valley over to the new Suncrest substation, we will also be needing to test, going forward, both the traditional San Diego area, as well as a slightly expanded region that reaches out to include some of the additional generation that we

expect to see connecting along the Sunrise Power Line.

The capacity inside San Diego is relatively low compared to the total load requirement, 3,000 megawatts of total generation inside the area. Our one and ten peak load forecast, the 2009 forecast for the San Diego area was approximately 5,480 megawatts, once-through cooled generation of 950 megawatts.

And the San Diego region is particularly affected by import capability into that region.

So, in looking at the analysis here, we've provided two sets of numbers in the range. Under each column the high end number is our current requirement for once-through cooled generation, with the plants that are in service today.

The low end of each range assumes that the San Diego Gas and Electric proposed generation, that's currently the subject of the power purchase arrangements, are the subject of the proceeding going on at this time.

We've taken those into account and provided the low end of each range based on assuming those projects move forward.

So, at the low end of the range we're looking at either zero to 300 megawatts of additional requirement. And at the high end of the range 300 to just over 700

megawatts for additional once-through cooled requirements.

Now, as part of our analysis we also went on to identify transmission upgrades to take care of maintaining maximum import capabilities into the area.

We also tested and identified the requirements that would be needed to address sub-area issues inside the San Diego area.

And, finally, we also performed a sensitivity to the retirement of the Encina Power Plant.

So, with the upgrades that are in flight, we do see that the sub-area constraints are largely eliminated inside San Diego, so we have to worry about the big picture. But within San Diego, the constraints there are manageable.

We have identified that the tradeoff between the Encina Power Plant and the new proposed generation does trigger, as well, some smaller upgrades. These are not necessarily material, but they are details that would need to be taken care of if the new generation moved forward and the Encina Power Plant retired.

So, in conclusion on this topic, we have been able to provide the range of values based on the different scenarios that we've been asked to look at. That data is now available and we see it being critical

to helping inform decision making going forward.

Now, the third item that I will touch on are the plans that we are putting in place to study a long-term future, both for future preparedness in the event of unplanned outages, as well as what would a reasonable transmission plan look like with neither generating plant, neither San Onofre or Diablo Canyon in service in the long term.

Now, these are very much long-term studies looking out to the maximum end of our planning horizon.

Now, Diablo Canyon is located, obviously, on the coast, but also it’s connected to the transmission grid, the 500 KB transmission grid, right at the seam between the Pacific Gas and Electric system and the Southern California Edison System.

Within the industry, the transfer path north is known as path 15 and the south path 26. And a few of us were there when these paths started getting numbered, way back in the eighties, and we literally started at the north of the system and then went south.

So, there’s nothing deeper to the numbers, other than that was the order at the time.

But this terminology has become very pervasive over the last 30 years. Path 15, to the north, is one of the key transfer paths on our backbone and path 26

the other.

Now, when we're looking at the long-term plan we really need to make sure that the long-term planning and any intermediate steps that we take aligns with reasonable long-term outcomes.

So, this is a case of wanting to start with the end in mind. The first step that we want to look at in our transmission planning is the focus on the long-term issue, first, which is really a scenario of looking out to the end of our planning horizon. What issues would we have to address and what would a reasonable plan look like if we assumed the long-term retirement, permanent retirement of both power plants?

From there, we are then backing up to look at what mid-term contingency planning would be a good idea to put in place that would align with the long-term plan in the event of future unplanned long-term outages.

Now, we also want to line that work up even with steps we take in the very short term, even for next year. But there, we'll have to rely on very preliminary analysis.

Now, in looking at the long-term study requirements, these are really driven by two needs. One, the utilities require this kind of information as part of their re-licensing assessment.

We also see it being extremely helpful in setting the tone for these mid-term plans.

Now, the plants are connected at two different parts of the system. Some of the issues that they bring to the table are in common, the situation of the overall resource implications for the ISO as a system.

Diablo Canyon will be key to the north, Northern California requirements, San Onofre to the south.

The set of transmission issues that they bring to the table are there are some common and, also, some that are very unique.

This kind of analysis, the plan here is to do a thorough analysis looking at the entire range of impacts so that we have a good lock on the long-term requirements.

Our plan is to have this work conducted in parallel with our annual transmission planning cycle, and to have these results available by the end of the year.

Now, stepping back from that work we're also building, into the same planning effort, the specific request from the California Energy Commission that was built into the 2011 IEPR report, which is to look at what additional mitigations could or should be considered to be better prepared for future, long-term,

and unplanned outages.

Now that, to us, is a case of backing up from the long-term plan. We are intending to study a five-year scenario giving -- as being a reasonable amount of time to put in mitigations that would make sense, but also wouldn't bind us to a particular future outcome.

Five years is enough time to put in a medium-sized transmission project but, bluntly, not time to put in a major transmission reinforcement, such as a major 500 KB transmission line over a hundred miles.

Now, in that analysis we will be incorporating the once-through cooling policy implications, as well as testing the local capacity requirements, especially for L.A. and San Diego, assuming this generation is out of service.

Because, as I mentioned earlier, not all of the generating plants are created equal, they don't all provide equivalent support based on their specific location inside the area.

So, the study results we will be driving towards, the long-term reassessment plants, focusing on a long-term plan for future eventual retirement. A mid-term study looking at contingency planning, considering what elements should be advanced over the next, reasonably, two to five years.

We'll be targeting the end of 2012 for both of those sets of work.

And I should have mentioned earlier, when I was talking about the summer of 2013 that in order to make the best use of the year we have to actually implement solutions, we see needing to have that work done and our recommended plan forward by the end of July.

So, that work we'll be starting to communicate through August and September.

Now, that's the end of the slide deck. Would we want to have time for questions?

COMMISSIONER PETERMAN: Well, first of all, Neil, thank you for that overview, that was very comprehensive and I found that very informative.

Any questions, first, from anyone on the dais?

COMMISSION CHAIRPERSON WEISENMILLER: Yeah, I have a couple of questions, Neil, I think.

The first one was people will be hearing a lot today about, you know, looking at load and regional balance and I guess if one is to be useful for people is to understand -- I think as we go through this we'll hear people who have done comparisons between loads and resources and trying to make sure things are in balance.

However, your modeling, as I understand it, looks more at the transmission system and the ability to

flow power from specific generators to the loads, but also dealing with different types of contingencies on the system afterwards, in terms of transient instability, and stuff.

Can you just give people a little bit of perspective on what's in your modeling that may not be in a more conventional load resource balance?

MR. MILLAR: By all means. The different kinds of studies that we do cover all of the range of looking at thermal limitations, can the transmission wires into the area simply carry that amount of megawatts without overheating?

There are very precise limits that we have in place on the transmission lines. Our power flow studies have to take those into account.

We also look at the voltage situation following a contingency, the loss of a major generator or a transmission line. Is there adequate voltage support?

And as Steve put earlier, is there enough water pressure to keep the water flowing? Having the water doesn't do you any good if you can't move it to where it's needed.

And then on the stability issue we do the detailed stability analysis to ensure that this very complicated piece of equipment, that we call the

electricity system, can actually respond on a millisecond-by-millisecond basis to what happens immediately after a major contingency.

Even with adequate load and resource balances, and enough thermal capability, when the power system does experience a major contingency we go through 5, to 10, to 15 seconds where huge levels of power are bouncing around within the system. And the system has to be able to withstand those flows.

So, all of those studies have to be taken into account.

Now, in terms of the contingencies that we've prepared for, we do follow the Federal standards established by the North American Electric Reliability Corporation.

Within the Western Interconnect, WEC also have additional requirements recognizing that our system is nowhere near as densely coupled as much of the Eastern interconnect.

So, we have additional requirements there that are necessary to provide reliable operation.

And within California, the California ISO has a few additional requirements also tailored to meeting our specific needs of providing reliable service.

Now, all of that is in addition to fundamentally

meeting your basic load and resource requirements. So, that's layered on top of the basic load and resource balance that you were referring to.

COMMISSION CHAIRPERSON WEISENMILLER: Yeah, and I guess one other -- well, in terms of that area, obviously in terms of what could go wrong, what were your major takeaways -- you know, so this is -- you're doing the modeling and we also have the real world and, obviously, last September, in the September outage we had sort of a number of things go wrong.

And so the basic takeaway is what message does that tell you in modeling and what are we doing to make sure that's not going to reoccur this summer or next summer?

MR. MILLAR: Well, with the September 8th outage, the initiating event was the kind of event of the first line going out of service, it is the kind of event the system is expected to be able to respond to.

The interaction between different protection systems is obviously very important.

There were different circumstances at play, though, of first we do assume that we'll be operating the system in a safe, what's called a secure end-line sworn situation, where we can experience a contingency.

And that requires both the plants to be put in

place and the system needs to be operated to that level.

Also, the issue of special protection systems being potentially bumping into each other; these are all complicated systems, monitoring different parameters and taking specific actions.

We do need to make sure that in real time the action that occurs is the right action at the right time.

As part of our planning cycle this year, we are doing a review of the special protection systems we have in place. And there are additional activities, focusing on that work, coming out of the initial recommendations and findings from the September 8th outage.

COMMISSIONER PETERMAN: I think it's always --

COMMISSION CHAIRPERSON WEISENMILLER: I see.

COMMISSIONER PETERMAN: Sorry, excuse me.

COMMISSION CHAIRPERSON WEISENMILLER: One quick thing.

COMMISSIONER PETERMAN: Steve?

MR. BERBERICH: Yeah, a couple of other things that have changed. You know, the September 8th outage in the Pacific Southwest was a -- multiple contingencies happened during this thing.

And as Neil said, balancing authorities are required to operate, to absorb those kinds of things and

so, frankly, the outage shouldn't have happened.

And we've been working with the adjacent balancing authorities because, frankly, the outages started to the east of California and then kind of propagated in California.

But there were two things that did happen that exacerbated the outage. One is what's called a special protection scheme dropped some generation, which is not helpful when you have an event like that. And that's been disabled, it's called the S-Line protection, for your reference.

And then, also, there's a separation scheme on the transmission grid roughly at the San Onofre Nuclear Plant. It has nothing to do with the nuclear plant, that's just where it is. It's on the transmission system.

And that separation scheme has been disabled and, as we speak, it's happened.

COMMISSIONER PETERMAN: And I was just going to add, I know you've touched a bit on this Steve and Neil, that in order to facilitate that coordination amongst balancing authorities WEC, at their Reliability Center, has added more staff. Because as you point out, it was not something you had -- were able to anticipate or had control over.

And so having that broader oversight will be valuable, as well.

MR. BERBERICH: And one other thing I would add is that we don't have -- we don't have any jurisdiction over other balancing authorities.

MR. MILLAR: Right.

MR. BERBERICH: We operate our balancing authority to, frankly, Federal regulations and we get fined if we don't.

And what we've done, though, is we've taken some action to have greater visibility into adjacent balancing authorities and, specifically, into the Imperial Irrigation District.

There's two major transformers in there that we now have visibility to, so that's also changed. And, you know, the sharing of information, I think, is heightened.

COMMISSION CHAIRPERSON WEISENMILLER: And, Neil, a couple more questions for you and these are more directionally.

So, you've presented the once-through cooling studies and you've provided ranges. Now, in terms of assuming or looking at a case without San Onofre, either one unit or two unit, what's your expectation of the amount of megawatts that would be needed? How would

that affect your study conclusions?

Well, again, more directionally than precise numbers.

MR. MILLAR: So how, directionally, the total resources are ahead, 8,000 -- or, sorry, eight percent of the ISO's generation that has also been, historically, extremely reliable in a base load generation, from a resource issue there's an impact there that those resources have to be replaced somewhere.

The big question will be where are those resources coming from and especially given that it's a base load resource that we're talking about.

So, we do expect that to have a significant impact on our requirements.

In terms of local requirements, the San Onofre generating unit will obviously have a much bigger impact than Diablo Canyon.

Diablo Canyon's a key system resource and does largely influence flows on the backbone. So, the issues that we'll be looking at there are more on a broad grid backbone strength and security side.

When we look at San Onofre, there we'll be focusing both on the needs inside Los Angeles, as well as the L.A. Basin, as well as the transfer path, as

we've had to for the preparedness plans here.

But losing a base load generating facility obviously is a much bigger impact. Also, they've provided considerable system inertia on the coast to help with the system stability issues.

So, this analysis we'll have to be looking at as we go through and produce our results by the year end.

COMMISSION CHAIRPERSON WEISENMILLER: Okay. And my last question is, obviously, we're looking at a number of policies which can reduce energy sales of peak, energy efficient, demand response.

But in terms of your modeling, you're looking at a number of characteristics, inertia, flexibility.

So how does pushing down, you know, and I assume it's not a megawatt-for-megawatt effect, and I'm looking at if you have any ball park sense on that or Steve, obviously.

MR. MILLAR: Well, in considering demand side management programs in general, if they're in place, predictable, dependable, then we do factor those in on the load forecast side to take into account the loads that we need to consider.

We do and, in fact the planning criteria require us to put a transmission system in place that can survive what's called the stressed period. And because

of that we tend to look at the one in ten period.

And sometimes these numbers, the numbers that you hear on the power system, one in ten doesn't sound very likely, but that means we are expecting to have that happen once every ten years.

So, when that year occurs we are expected to have the resources available so that we can provide reliable service.

So, we do take these programs into account on a system resource basis to the extent that we can see that they can be depended on and included into sound forecasting.

When we look, then, from a system resource side and start to look more locally, these programs not only have to be there and dependable, but they also have to be in the right location. And that's often a much bigger challenge to have -- to know exactly how much is going to respond in a tighter and tighter geographic basis.

So, until they're fully baked through the forecasting process they tend not to be as helpful in addressing the local capacity requirements.

The one other characteristic of the demand side management programs that we have to consider is not only how dependable it is, but how quickly it can respond.

After a major event has occurred on the system and the system, God willing, has survived and settle out, we're allowed under Federal standards, we're allowed 30 minutes to get the system repositioned for the next event.

So, that is where demand response programs, if they can be implemented in that time frame, can be helpful in getting us ready for the next event.

But 30 minutes is actually not very long to have a resource, to have demand response take place that you can guarantee it will be there. And the standards are fairly unforgiving about being ready within 30 minutes, not just initiating action to get ready. The action has to take place.

So, overall these programs can be very helpful, but the broader the area that you're looking at, the more helpful they are. As you get closer and closer into a tighter geographic area and looking at a real time constraint then we have to look at them much -- take a much harder look at whether or not they will be a valid operating tool in real time.

COMMISSION CHAIRPERSON WEISENMILLER: Okay. I would just note that one issue that was pretty clear to us from this year is that the climate change is really affecting our energy system. And one of the things it

is affecting is what the peak load is and the frequency of peaks.

We hope to do a much better job in the future in incorporating that. So, your one in ten could very well happen more frequently than you expect, and be worse than you expect.

MR. BERBERICH: Yeah, Bob, if I might, a couple of comments.

First of all, energy efficiency is excellent. And let's be clear about that, I think the more that we have the better things are.

It has a tendency -- we get two benefits from it. One is just a zero overall load and -- and let me also point out, to buttress your point, Bob, we find that peaks are not coming down. So, the average amount of power is coming down, but peaks aren't coming down, so you have to have the capacity to be able to make those peaks.

And energy efficiency helps temper that, for sure. And, further, in unloads plants. And what I mean by unloading a plant, you don't have to run them at the peak, then you have some unused capacity to be able to operate the system.

And as you add more renewables on the system, the system moves around a lot so the unloaded capacity

becomes valuable.

So, I think the energy efficiency -- yeah, the energy efficiency helps in multiple ways.

Now, demand response is a bit of a different characteristic, sort of in the same ball park, but the value to that is the dispatch-ability of it and the ability to say we want you to reduce your load by 100 megawatts, or something like that, over this period time and at that location. So, that's where demand response comes in.

And I think working closely with the PUC we're certainly, you know, eager to add more demand response onto the system.

CPUC COMMISSIONER FLORIO: Just to follow up on that, I think automated demand response is more valuable than the type of demand response that requires human intervention.

MR. BERBERICH: Commissioner Florio, that's exactly right.

For us, here's what we need, we have to have certainty to be able to operate the system. For instance, if we know we're going to lose 100 megawatts of wind, we know we have to have 100 megawatts to move.

So, we need to know that it's there, and it's dispatchable, and it's responsive, and those are really

the characteristics that we look at.

CPUC COMMISSIONER FLORIO: Yeah, because I'm thinking Edison has an air conditioner cycling program and I believe that's automatically dispatched. Somebody has to push the button, but once they do the load drop is pretty reliable. Is that your experience?

MR. BERBERICH: I believe that's the case. Well, I can tell you the load drop is very reliable. I can't say it is exactly how Edison is handling the automation of it. But, yeah, it's my understanding that it is automated.

And I didn't really get to your point but, yes, automation, I think, is an important element of it.

And also let me say there are technologies that exist, if we can kind of harmonize them all, because we could dim these lights ten percent and, frankly, no one would notice.

CPUC COMMISSIONER FLORIO: Sure.

MR. BERBERICH: And we would have an automated demand response and I think that would be a very positive thing for California.

CPUC COMMISSIONER FLORIO: Great. A couple of other questions just anticipating issues that we're going to confront in the long-term procurement proceeding.

You know, let's say we conclude that 3,000 megawatts are needed in the L.A. Basin because of the OTC retirements, in order to fulfill that. I suspect your first preference would be flexible gas generation because it gives you kind of two things at once. It gives you the capacity where you need it and it gives you added flexibility.

But I'm sure we'll be asked about other types of resources. For example, combined heat and power, if located in the right place, my understanding is that could help for the local capacity requirement, but it may not give you the flexibility that you would get with another -- with another plant that's there to generate electricity and not to support another type of operation.

MR. BERBERICH: I thought you were supposed to answer these questions, Neil.

(Laughter)

CPUC COMMISSIONER FLORIO: I didn't mean to pick on you.

MR. BERBERICH: It's okay, Commissioner Florio.

Certainly, combined heat and power is a useful attribute on the system and would be welcome, and it can provide some benefit.

Part of the issue, though, that we have to

balance an as we speak to the, you know, South Coast Air Quality District people I think that will come to the fore, is generally they have emissions as well. And that has to be factored in to how much do you want to rely on that.

And also, we need to make sure that it's not aspirational. So, playing in the grid is an asymmetric practice, asymmetric risk practice.

We can overshoot and if we overshoot, we get too much capacity, we spend too much money. If we under-shoot, we bet blackouts.

Now, you can kind of which one of those risks would you rather have? And I can tell me my preference is to spend a little too much and have too much capacity.

So, and it takes five to seven years to build a power plant and to repower these once-through cooling units. And there's a bit of urgency at getting to this.

And I want to -- we welcome, and I want to be clear about it, we welcome energy efficiency, and demand response, and combined heat and power, and planning.

But we also -- we can't assume aspirational goals, if that's fair.

COMMISSIONER PETERMAN: One quick question.

MR. BERBERICH: Sure.

COMMISSIONER PETERMAN: Just to further that answer, if you don't mind, Steve, because I know we'll be asked particularly about renewables, and we've been asked about them as a part of our planning process we've been doing at the Commission.

Can you or Neil just speak to, again, why those are not necessarily direct replacements? We've touched on the topic of inertia a few times, it might be good to offer a definition of that.

MR. BERBERICH: Yeah, Neil's an engineer, I'll let him handle it.

MR. MILLAR: Sure. Well, the major issue for some of these programs is how quickly can they respond? How dependable are they?

The operators have very tight time frames to respond, to reposition the system when things are going wrong, when there's already been a major event.

And some of these programs that are excellent on a forecasted basis, on a day-ahead basis to help pull down the peak load, and to the extent we can rely on those, some level of those programs are factored in to the load forecast that we rely upon from the CEC.

But once we go beyond that and try to turn some of these tools, that are more effective on a day-ahead or on a system-wide resource base, when we start looking

at them to help manage a very specific local concern that's where they simply don't have the dependability to be of use on the operating floor.

MR. BERBERICH: Okay, let me answer that a little bit differently.

When you run the electrical system there's this thing called inertia that's very important, and it's the power to get it moving.

MR. MILLAR: Yeah.

MR. BERBERICH: And it provides the power to your homes and your businesses. And things like solar, for instance, doesn't have any inertia. So, and inertia is a really important part of our planning process and, Commissioner Peterman, I think that's what you're trying to get at. Those are elements that we have to plan for, too.

COMMISSION CHAIRPERSON WEISENMILLER: Yeah. I think, Commissioner Peterman, one thing to look at, there is a report that was done by LB&L, Joe Eto, that was done for FERC, that looked at some of these issues and, particularly, frequency response and the role of inertia in dealing with that.

So, basically, if you have a unit trip, a transmission line lost, then you can have these real spikes in what's going on the system and inertia, to the

extent you've got that spinning mass, smooths out those trips.

It was a remarkably understandable report for what's a fairly complicated topic. And they certainly have gone through some issues, like in Florida, where you've had those real swings on the system by not having enough inertia.

COMMISSIONER PETERMAN: So just to bring this point home full circle, in terms of what we know that can provide inertia, we know that generators can.

MR. MILLAR: Yes.

COMMISSIONER PETERMAN: And some of the devices talked about earlier, the static VAR compensator is slightly different. But are there other tools, besides generation, that can provide this?

MR. MILLAR: Well, generators, large rotating machine loads are basically the main two sources.

I mentioned the synchronous condenser earlier. Basically a synchronous condenser is a generator that's had its turbine taken away. It's a generator that's spinning, it's drawing a little bit of current from the system just to keep spinning, but it's providing that inertia. And it's equipped to provide the voltage support, like the generator, but what you're not getting is any actual, real power produced. So, that's another

major source.

And we have seen more -- I'd say 30 years ago we all thought synchronous condensers were a dead technology. But with more renewable technology coming online that doesn't produce enough inertia to provide that flywheel effect to help a system ride through the different bumps, synchronous condensers are making a comeback.

Another technology shift that's occurring is more small gas-fired generators. More gas-fired generators are being built that actually have a clutch technology that if you don't need the power, but you do need the inertia, you can keep the generator spinning without actually using the power supply system from the generator.

COMMISSIONER PETERMAN: Thank you.

MR. BERBERICH: One quick clarification, too, that I forgot. When I was in the hall just a few minutes ago, people were talking about once-through cooled, what is once-through cooled? Which is a question, let me speak to that really quickly.

The coastal units, basically, they bring in seawater, they use it once and put it out to sea. So in that case they are warming the water. In addition, they bring in sea life.

And that's the impact on the environment and that's why they are to be retired.

And so they would be repowered and, essentially, they would use on-site cooling, a cooling tower, something like that to cool the water, because these plants are thermal plants with heat and they need to have some sort of source of cooling.

Anyway, that's what once-through cooled is. So, when you hear us talking about that, that's why these plants are to be retired because they have an environmental impact.

And the way to replace that, then, is you have to replace the plant, fundamentally.

CPUC COMMISSIONER FLORIO: Yeah, a question on the synchronous condensers. Could -- if you took one of these once-through cooled plants that already, you know, has a lot of infrastructure there and you stop actually generating electricity there, would the existing equipment be able to function as a synchronous condenser with fairly limited -- I thought I understood that PG&E's Hunter's Point plant operated that way for a while before it shut down.

MR. MILLAR: That's actually an option we want to explore. Some plants can be converted depending on the original design and construction. Some can, some

can't, it's a case-by-case analysis.

CPUC COMMISSIONER FLORIO: Yeah. One other topic I wanted to broach here and it's probably more a long-term than a short-term issue, is energy storage. you know, what characteristics would storage have to have in order to help with these reliability criteria that you're discussing?

MR. MILLAR: Well, depending on the nature of the storage it can help us with some or more of the situations.

You know, a hydro pump storage provides a great deal of inertia, as well as providing the energy shaping product.

Battery storage provides the energy shaping but, obviously, it doesn't help with the system inertia, with that issue.

So, the different storage projects, themselves, can provide different groups of characteristics and we need to look at those case by case. You know, shaping the peak in the first place is a great start, but we also need to address the system inertia system, as well.

CPUC COMMISSIONER FLORIO: Okay. I mean, so theoretically storage could fill some portion of the need, but probably not all of it?

MR. BERBERICH: I think storage actually handles

a different issue, Commissioner. We are going to be faced, just to bring everybody up to speed, the Pacific Northwest last year, or the year before, I don't remember exactly, they run together, was faced with fairly significant over-generation.

And over-generation is just as bad as under-generation. If we let it occur and it got out of hand, it would fry all the appliances in your home, and your electronics, and that's generally frowned upon.

(Laughter)

MR. BERBERICH: So, we don't want that, either. But when you have over-generation, you have to put this power some place.

And when you have a lot, let's say we're in a situation where it's been a hydro year, you have high wind, you have base load on, and things like that, you'll have over-generation conditions. And we see that every once in a while.

It will be a place to put that power and then we can use it again, later.

In addition to that, Commissioner, I think particularly as it works with the renewables, wind in particular, generating at night when we don't need the power as much, and we can use it during the day, I think that's a very powerful kind of outcome.

So, I think that's more along the lines of where we'd use it. But, you know, Neil is right, it certainly would help us deal with some of these integration issues because they are -- they do work just like power plants. Except, well, pump storage does.

CPUC COMMISSIONER FLORIO: Yeah.

MR. BERBERICH: A lithium ion battery doesn't.

COMMISSION CHAIRPERSON WEISENMILLER: Yeah. I think my point is -- which we had a previous workshop on storage and one of the things that's really important is the ramp rate, and that varies across the technologies.

MR. BERBERICH: Yeah.

COMMISSION CHAIRPERSON WEISENMILLER: Obviously, batteries can respond very quickly, but then they discharge down.

MR. BERBERICH: Yeah.

COMMISSION CHAIRPERSON WEISENMILLER: So, if you're looking at something that's a multi-hour thing, you've got to bring something up if the battery, you know, discharges itself.

COMMISSIONER PETERMAN: I'll just take this moment to say that we have a number of audience questions. One. As in, well, there's a number of audience questions.

(Laughter)

COMMISSIONER PETERMAN: Maybe there will be others. And just hearing this conversation, I'm mindful that we get the opportunity to think about these every day, and they're complicated, and they're pretty techy. So, if you don't have an explicit question, but you just didn't understand something, or you want a definition, you can also ask for that.

I think this whole discussion really revolves around the fact we're trying to get the same outcome, electricity production, but cleaner, and we have to use different inputs, and they're not direct substitutes. And so you need some type of combination of them in order to achieve the same outcomes.

And so we're talking about what those combinations are and that there are different time cycles for how quickly these new inputs can be developed.

So with that, let's see what the one audience question is and then we'll take it from there and, of course, if there are more questions from the dais.

MR. BERBERICH: And, Commissioner Peterman, I would also offer this that we're happy to answer any questions at the break, out in the hallway as well.

COMMISSIONER PETERMAN: Oh, also mention that we have had seven workshops already this year on

renewables. And ones in particular that relate to this topic, there was one on June 11th related to integration that had panels on storage, demand response, some natural gas plants.

And there are transcripts from all of those available online. We can put that information, make that information available during the break. And there's really a more detailed discussion of all of these issues as a part of that forum.

Your question? Come to the podium, please, and identify yourself for the record.

MR. DAVIS: I'm Ben Davis, Jr., thank you very much for --

COMMISSIONER PETERMAN: Please speak a little louder, sir. You're on, but you need to be able to project.

MR. DAVIS: I can project. How's that?

COMMISSIONER PETERMAN: Yes, there you go.

MR. DAVIS: Ben Davis, Jr., thank you for answering my questions.

If I understand correctly, this is the first time I've heard any analysis of the summer of 2013 and the operation without SONGS. It sounded like your analysis considered that SONGS would not be operating in 2013.

If I understand correctly, Walnut Creek will be operating by then, and (inaudible), and will cover more than they've lost in their supply this summer, by Huntington Beach.

And also provide the inertia and the location that you referred to earlier. You said there were two other operating plants that would potentially be operating by then.

But what you said, although you didn't say this, but seemed to infer that we'll be in even better shape to operate without SONGS in 2013, than we are in 2012 with this contingency plan that you are moving ahead.

My first question and I would like you to elaborate on a little bit more, is just whether I'm correct about that. In 2013 you said -- you said we'll be on the right side of the probability from 2012. Will we be on the right side of the probability in 2013?

MR. MILLAR: No, I don't agree with you, fundamentally. Because, first, there's considerable load growth, we are needing to assess the load growth both in the San Diego area, as well as in the Los Angeles Basin area.

And while the percentage of load growth can be relatively small, it's applied to a very large number of significant load in the L.A. Basin area that the load

growth, alone, will create additional challenges in that area.

Walnut Creek, which is where the air emission credits are coming from, from Huntington 3 and 4, is a slightly large plant. But the slight, the incremental change nowhere near addresses the incremental load growth that we need to address.

Also, the Walnut Creek plant, within the L.A. Basin area, is much further north, it's not on that key transfer path. So, in terms of supporting the flows into San Diego, the Walnut Creek plant actually is of no use, it does not support the transfer path through SONGS and into San Diego.

So, for those reasons, alone, I have to disagree with the premise.

We do need to look at what we can do for 2013, we have to make good use of the year that we have to sharpen the pencil on what the summer of 2013 will look like and what additional remediation can be put in place to be positioned for the summer of 2013.

COMMISSIONER PETERMAN: Mr. Davis, before you go on, I've gotten notification that those on the WebEx system cannot hear that microphone. So, you're going to ask your question and I'm going to repeat it, so that will encourage you to have a very succinct question

because I will shorten it either way.

So, please --

(Laughter)

MR. DAVIS: Yes, I trust your judgment in shortening it. First, let me say I was not making a statement. I was trying to ask whether or not you would make that statement.

So, as far as disagreeing with my premise, we're not disagreeing.

MR. MILLAR: Oh, okay.

COMMISSIONER PETERMAN: So, the question was whether in 2013 we would be better positioned to operate without San Onofre and then we heard the response.

MR. DAVIS: Or at least sounded right side of the probability.

Now, are you -- as I'm hearing you, are you saying you will not be on the right side of the probability in terms of 2013?

MR. MILLAR: I'm saying that 2013, today, has new challenges that we don't have to face in 2012. We see a number of issues going against us.

We will be working through the next two months to put the plan in place to understand exactly the situation for the summer of 2013, and to land on what steps we think we need to take to be positioned for the

additional challenges in 2013.

MR. DAVIS: But speaking in sensitivity, could you answer that -- I was hoping for a yes or no answer.

But let me make this clearer. Yes, it is a clear answer, but I'd love a yes or no answer, too.

The LAO, in analyzing the (inaudible) -- was opposed to the nuclear power plants and asked that of voters of California, said that passage of the initiative would like cause rolling blackouts, costing tens of millions of dollars to California in the immediate future, and that includes 2013.

They used the term "likely". Now, given the contingency plans that you said, where you said that nothing was off the table, and I assume you mean that to avoid rolling blackouts that you need to potentially use Huntington Beach in there.

Will you use Huntington Beach if it is necessary to avoid rolling blackouts, or not? And do you see the LAO as correct that if we don't have San Onofre online by 2013, there's a likelihood of rolling blackouts.

COMMISSIONER PETERMAN: So let me --

MR. DAVIS: And I'm looking for a yes or no answer to that one.

COMMISSIONER PETERMAN: So let me repeat that question and we'll let, of course, our speaker answer in

the way he would like to answer.

And the question is what's the likelihood of rolling blackouts from our shutdown of our two nuclear plants in the State?

MR. DAVIS: In the immediate future.

COMMISSIONER PETERMAN: In the immediate future. I think we got the sense of it, but that's just to capture it for the WebEx. Neil?

MR. BERBERICH: Well, Commissioner Peterman, if I can take a stab at this.

COMMISSIONER PETERMAN: Sure.

MR. BERBERICH: Mr. Davis, the likelihood for rolling blackouts is much higher with San Onofre out of service. It's 2,250 megawatts. Let me let that hang out there for a second, 2,250 megawatts.

Huntington Beach is 450 megawatts. A big gap. A big gap.

You have a heavy load and major contingency on the system, and major contingencies are transmission lines that go out or power plants that go out. And I can tell you this, I read our log every day across the State, every night, every day transmission lines trip, power plants go out.

Now, can I put a prediction on that? I can't because I don't know exactly when that will happen.

And, unfortunately, I'm not good enough on weather forecasting, either.

But I can tell you that you can't replace 2,250 megawatts of power with 450 megawatts of other power, so it doesn't work.

And, also, Walnut Creek is, as what Mr. Millar was trying to say, it's not electrically equivalent. It's not -- Walnut Creek is not in a spot that provides voltage support.

But here's the -- but let me get to more of a different premise. We are going to -- we are in the process, we don't have our 2013 planning results done, yet, we're still working on that. So, we're a bit premature in actually saying exactly what the conditions will be. But all of them will be fairly temporary things.

This State can decide not to have nuclear plants. The State can decide that. But across the State, then, at some place between four and five thousand megawatts, the State cannot currently operate without those four and five thousand megawatts without significant threat of rolling blackouts.

To do that, which you can think about doing, we'll have to build additional transmission into these local capacity areas, principally into the L.A. Basin

and San Diego, significant transmission that would have to bring in 2,250 megawatts of power. And you would also have to build generation.

Now, that generation would likely have to be thermal generation and that's going to have air emission impacts. And right now there are no -- Mr. Smitherman will be here later today and he can speak to the availability of air emission credits. It's my understanding there are no more emission credits.

So, that's a bit of a longer answer.

COMMISSIONER PETERMAN: And so we're going to stop here because we have public comment at noon. And I'll ask that for the public comment we'll replace that microphone so that someone can speak freely and I don't have to repeat it.

And to keep us on schedule we're going to move, now, to our next panelist. But you're free to come back in the public comment period, as well.

MR. DAVIS: Well, I won't be leaving. But I realize this is -- I will limit myself to questions. But I appreciate the clarity of your answers. And there is a little more follow up I'll want to do at that time. Thank you very much.

COMMISSIONER PETERMAN: Thank you.

So, now we'll turn to our next -- yes, our next

panel. So, those who are on the panel please come up.

MS. KOROSEC: Actually, no, they're not seated at a panel, we're taking speakers once at a time.

COMMISSIONER PETERMAN: Okay, we'll be taking you one at a time.

MS. KOROSEC: We'll give you a moment to get things pulled up here.

COMMISSIONER PETERMAN: And you can sit wherever you like, but just be ready to come up.

We'll start with Mike Tollstrup. And, Suzanne, will you work on that central microphone, please?

MS. KOROSEC: Yes.

COMMISSIONER PETERMAN: Thank you.

Again, if you'd like to make public comment, there are blue cards available. Lynette, where are the blue cards?

There are blue cards available over here to your right. If you'd like to make a public comment, we'd ask that you keep your comments generally to three minutes, to allow time for everyone to speak. And we'll be taking those at noon. Thank you.

MR. TOLLSTRUP: Okay, good morning, thank you for having us here today.

We're going to give an update on where we are with respect to the electric reliability and offsets

need assessment analysis that we're doing under AB 1318.

We're going to basically tag-team this presentation today. I'm going to provide an overview and an update of where things are, and then the process going forward and what it's going to take to wrap this up, and when we expect to have the final results of this study.

So, I'm going to do that part, then we're going to follow up with the two balancing authorities and we've got Cal-ISO and LADWP. They'll talk in more detail about the scope of the analysis that's being done and where that process is right now.

So, just as a little background, AB 1318 was signed back in February of 2009. It required the Air Resources Board to work in consultation with the California ISO, with the Energy Commission, the Public Utilities Commission, the State Water Quality Control Board and also, it's not up there, but LADWP as well, since they're a separate authority, to develop this report that addresses two things.

The first is the need for capacity in the South Coast Air Basin that provides for long-term grid reliability. Once we get that element or that part of it done, if it identifies additional capacity that's needed, then the second part of it is that we work on

recommendations that would address the need for offsets and help these projects to move forward into the future.

And then, of course, we have to report our findings to the Governor and the Legislature for their consideration.

So, like I mentioned, we have numerous agencies that are involved in this. The Air Board is not an energy agency, so we kind of got stuck in the lead role on this. We're kind of acting as the project manager. So, we're coordinating the effort of the multiple agencies.

We do have one significant part of this and that's dealing with the offset issues, if that becomes necessary when we get the needs part of it done. And we also will serve as the liaison to South Coast since they have primary authority that will deal with that offset side of the question.

Cal-ISO and also LADWP, they're responsible for the bulk part of doing the power flow studies and the modeling that needs to be done for the needs assessment. They're doing the bulk of the work on that.

The Energy Commission and PUC are serving as the technical advisers, they're providing inputs into the models. You know, the data support, basically. They're also, you know, the technical eyes and ears on the

results and working on reviewing the results of those models, and coordinating that as well.

And then, of course, the Water Quality Control Board, their interest lies with the once-through cooling facilities and how our efforts impact that.

So, activities to date; we had our first kickoff meeting back in November 2010. We released a draft outline, a work plan back in January 2011.

We had a second workshop in 2011, we did that jointly with the CEC under the IEPR. And, you know, from that date forward we've been continuing to work on the modeling, and the flow analyses, and results to get that part of the work done.

This is kind of our excuse for why it's been taking so long but, you know, it has really -- it's been a huge coordination effort and it's we're coordinating multiple agencies between energy and environmental. It's taken a lot of work to get there.

We all have common goals, but we have competing priorities and so we've had to coordinate that in order to make this move forward.

We're also working with two different ISOs, we've got Cal-ISO and the LADWP, two different areas, so we have two different studies that are being done. And we've had to coordinate the work on that so there's some

consistency between the assumptions and, ultimately, how the results come out.

And then, of course, you know, there's been a lot happening, major changes in the electric industry with once-through cooling, with the 33-percent renewable program and AB 32.

It's provided a lot of uncertainty and it's certainly made it complicated in doing the long-term planning portion of this report.

One of the other big issues that we face is the methodology for doing the long-term analysis. The tools that are available aren't typically used to go out longer than, you know, four or five years. We've run it out as far as we thought it could go and that's a ten-year span.

So, when the results of the study come out, we're doing an analysis out, basically, to 2021. And we think, you know, based on the tools we have that's the best we can do at this point in time.

And then the last part is that we've had, you know, a lot of the folks that are working on these analyses have been committed to other projects that are equally important, so we're trying to balance the time on those and make sure that we continue progress going forward.

So, the scope of this study, basically, like I mentioned, it's going to go out and look at grid reliability out for ten years, out to 2021, in the South Coast Air Basin.

We're looking at basically a range, so implementing various degrees of demand side management programs. Every scenario that we do includes a 33-percent renewable because that is a mandate.

We're doing local and zonal assessments so that, you know, at the end what we hope we can do is say with some certainty that we need megawatts in a certain area, pin it down as much as we can for working with the offset issues associated with it.

Also, I think, two things that we're doing. The first part was, and it's been talked a little bit about, looking at how much the once-through cooling capacity needs to continue on, how much of that needs to be re-powered or replaced in order to maintain local reliability.

The second part of that is looking if we need additional resources or additional fossil fuel to firm up the increase in renewables, as the increase in renewables goes up over time.

And then the other part of that will be, again, depending on the outcome of that needs assessment

analysis, looking at the need for offsets, you know, closing that gap between demand and supply, working with the local district and other stakeholders to make sure that if we identify additional megawatts, we have a way of making sure that it can move forward and get them online.

So, today we have completed a number of portions of the analyses. A lot of these are still undergoing internal review. So, we've done the local capacity analysis. Regional requirements has also been completed and is under review.

The one piece that we don't have, yet, and we hope to have within the next couple of weeks, is the renewables integration.

And then once we get these all together we'll combine those with -- you know, kind of summarize it in the results and be able to present it, you know, to folks and share what our findings are.

A number of these things are available now, you can get these. And there's not a lot you can do with it unless, you know, you've got a significant background in electricity.

But that's one of the things we will be doing is kind of putting that in a format that folks can understand and that we all agree on.

So there's a couple of things that we've learned so far. One, we know that we will need to repower or replace a number of the OTC plants. So, that will vary depending on what the outcome is, how much demand side management, how much some of the other programs take place. But we will need that capacity. Not all of it, but we will need a considerable amount of it.

You know, demand side management programs will reduce the amount of OTC that's needed, depending on how much is implemented, how much is proven dependable. You know, that can impact ultimately where this goes.

And then the obvious is that the transmission generation system is highly complex, the assumptions that you make going in impact the outcome of the results.

So, we will be presenting a range of outcomes based on assumptions going in. We'll be sure to explain our assumptions. But it does impact what will be needed in the future, what that future looks like in the South Coast Air Basin.

And then, you know, the other part, once we get that, we will need to do the offset assessment. We know there will be some re-powers, replacements of the OTC facilities. There may or may not be a need for new generation. But once we get the results of the study we

will be working closely with the South Coast and other stakeholders to identify recommendations going forward that would end up, ultimately, in the report.

And so this is kind of where we are on the schedule. We expect to have the renewables integration piece in the next few weeks. We're hoping to pull that together and get our summary available, you know, within relatively short order after that.

We do plan on briefing the South Coast before we go out publicly, but once we do that then we plan on having a public workshop sometime in the July/August time frame. We think we're on track for that, it looks pretty good at this point in time, so we're pretty sure we can get the July/August time frame for that next workshop, with the results.

Following soon after that we hope to issue the draft report and once we get that out on the street, and give folks a chance to look at that, then we will do -- once again we'll do a public workshop and invite comment.

And then, hopefully, if all goes well, we'll get the final report out to the Governor's Office sometime in the late fall. That's an optimistic goal, but we think at this point we can probably do it.

So, for those that are interested, we do have a

list serve. We encourage you to sign up so you get noticed of the workshop, and then as we get information available we'll make it available to folks. We will notify you about coming workshops.

And with that, if folks have questions, I'd be more than happy to answer them.

COMMISSIONER PETERMAN: Do we have any quick questions up here from the dais? We've got two other speakers as part of this session.

CPUC COMMISSIONER FLORIO: Just a quick question on the offsets issue. I fear the answer's going to be no. Could we assume that if the capacity that is required to replace the once-through cooling units is less than the capacity that's already there, that we will be okay from an offset perspective, or does it really have more to do with the quantity of generation as opposed to the megawatts of capacity?

MR. TOLLSTRUP: I think it's much more complicated than that, and I think it's an issue that we'll need to work and discuss with the district on repowering, and how that's done under their existing program.

COMMISSION CHAIRPERSON WEISENMILLER: If you -- these cases all look at the case with San Onofre in.

MR. TOLLSTRUP: Yeah.

COMMISSION CHAIRPERSON WEISENMILLER: And so if someone were to decide to go back and do it without San Onofre, aside from getting gray hair out of that, do you have an estimate of time?

MR. TOLLSTRUP: Well, that probably should go to either the ISO staff or even Energy Commission staff on how long it would take to turn that around.

You're right, the analysis that we've done so far does not consider San Onofre going down. We're hoping to at least get this part of it out of it as soon as we can, this part of the analysis done.

And then if the analysis, the additional analysis shows that there may be some issues, then wrapping that in at a later date with an update.

COMMISSION CHAIRPERSON WEISENMILLER: Yeah. Okay, thanks.

MR. TOLLSTRUP: Okay.

MS. KOROSEC: All right, next we have Neil Millar back again to talk more about ISO.

MR. MILLAR: Thank you. So, in this presentation I'll just touch briefly on the kinds of studies that were done. I think the topic's already been very well covered as to where the study program is going and when the results will be getting rolled out.

But the package material does provide the

overview of this material. I'll just touch briefly on it to explain what's in the content, more than trying to explain the content, itself.

So, we have done the long-term local capacity requirement studies, sensitivity studies with additional incremental uncommitted energy, and combined heat and power.

We've also done studies that focus on how much, with the generators that we've identified, is re-powered resources, how much energy would actually have to come from those plants under the study assumptions.

And we've also done the transient stability analysis to ensure that that system would actually function. That it's more than just the loads and resource balance, that it's electrically operable as well.

Now, the good news for us in doing this analysis was that it layered very heavily on the other OTC analysis. It just opened to a bit more detail for the L.A. Basin area.

The requirements, just reiterating what was said earlier, we studied a range of generation scenarios looking at different portfolios of renewable energy. And we also did this additional mid-net load scenario looking at the impacts or implications of incremental

uncommitted energy efficiency, really, as a guidepost to help set the direction for what those other programs could produce.

These results are basically striped out of the earlier report that I was talking about, focusing on capacity requirements.

And then the additional sensitivity, we've provided the numbers here, if anyone cares to go into that level of detail, about the additional incremental resources that were studied.

Now, for people tracking the information on this, we did post an update to our sensitivity assessment. The original analysis was all documented in our -- on the capacity requirements, was documented in our 2011-12 annual transmission plan.

We have posted on our website an addendum that provides an update, adding additional energy efficiency amounts, addressing a few modeling issues that came up as we were going through a bit more detail.

And if anyone is interested in following that work, you should be aware of the sensitivity results that have been posted.

Now, the other part, and I think this tags off of a question that was asked earlier, was how much would we expect these units to run, how much, what were their

energy output be?

To do that we did take what we considered a reasonable scenario for re-powerment. We deliberately chose the conservative side of selecting the most effective locations for repowering.

And then modeled some very generic flexible resources, but a combination of combined cycle generation and simple combustion turbines to come up with that assessment.

And did the production simulation analysis, that’s an analysis that actually looks at dispatching, simulating a dispatch through an entire year and making an assessment of how much energy would have to come from those units.

So, that is an added step that we took to provide the Air Resources Board that information.

And then at the end of it all took those results and did all of the technical analysis to make sure the system would actually work, that we haven’t -- we have sufficient inertia and sufficient capability that the system will work on a 24/7 basis.

That included also studying light generation portfolios, assuming high amounts of distributed generation, to make sure that we had a fair degree of comfort that those assumptions would provide a workable

system.

In terms of the results, themselves, they've now been bundled up and passed along to be included in the review process and as we move forward in developing the final reports.

So, that's a very quick overview, but I think most of the high level material's been covered earlier.

MS. KOROSEC: Next, we have Dr. Mo Beshir, from the Los Angeles Department of Water and Power.

COMMISSIONER PETERMAN: As we're hearing these presentation I was -- I think in the first presentation there was an overview of what AB 1318 is.

But just in case it wasn't clear, in short it was legislation that was passed that said we had to study what the local reliability is, and capacity needs are going to be particularly in the L.A. area. And that's why you have multiple agencies a part of that study process.

And the process is not done, but we're getting updates now about what each agency is doing.

DR. BESHIR: Thank you. Thank you for giving me opportunity to comment and speak with you about the LADWP's participation in these studies.

I guess a good number of some of the assumptions and some of the work which went into the studies was

talked by Neil, so I don't really have to repeat a lot of those things.

But I just want to first talk about LADWP and some of the challenges and some of the things we've been working on for quite some time.

So, this being an infrastructure workshop, I thought maybe I will talk about the LADWP infrastructure. That includes not only the OTC class, but we have other infrastructures as well.

So, just overall our service territory, I guess we are in the LADWP service territory today. So, welcome, I hope we keep the light on for you throughout the conference here.

Our service territory is L.A. City, 465 square miles. And we do have also a small service territory up in the Orange Valley. We do have 25 gigawatt hours of annual sales and it could be that we have a pretty large service territory and customer base.

We do have pretty extensive transmission, as was mentioned earlier about transmission. We do have pretty large in comparison to the size of our load. We have, we do say about 28 percent of California transmission.

We have a pretty large transmission, including DC, not only AC, but DC transmission as I will mention later.

Our distribution is pretty extensive as well, well-built distribution system. We have stations, 20 stations and all types of distribution, underground and overhead distribution system.

We are vertically integrated as well, unlike maybe that's -- which means we own our generation, transmission and distribution.

So, from a planning and resource location point of view, we do manage all three systems together from a perspective.

For the purpose of the discussion here, we have four large steam, thermal generating plants in the Basin. Three of them are coastal plants. And within the three coastal plants we have nine OTC units.

Of course, as you know, most of these coastal plants have been here as long as L.A. has been around and the whole system, L.A. system is built around these generating plants.

So, the generating plants, historically and technically, they provide energy to take it to solar centers in the mid, in the downtown area, as well as in the Rosen Valley area. So that is a structure and the infrastructure is set that way.

Most of our transmission grid, as we call it transmission grid, is interconnected into our -- mostly

our northern part and it is outside what we call our local capacity requirement area. And we'll define that shortly, what the local capacity requirement area for LADWP is.

So, this is an electrical presentation of LADWP service transmission network within the system. And the far right, as you can see that I just used a little circle you can see.

And within the left-hand side, the green circle is what we call the local capacity requirement area. And, essentially, that is we need to bring enough generation resource within that pocket to be able to serve our load for the different conditions we're going to be discussing.

And this is, even though we have been looking at requirement and reliability issues, this concept talking with local capacity requirement to us, a discussion and further adaptation of what Cal-ISO methodology has been in looking into this issue.

So another concept from our resource point of view, I don't have to do all that too much. But as you can see, we have we have really large commercial load and we have also residential, as you can see.

Our capacity, pretty large capacity today is gas-based and pretty much all of that is, as you can

see, it really is in the Basin.

And we do of course have also hydro coming from our pump storage facility, as well as our Hoover generation, as well as we do have coal assets from outside the California.

So, that's been the kind of basic understanding. We do have -- we do have, as a mandates, we are working on in addition to the OTC, and that's also making our system reconfiguration and the many things we are doing within LADWP.

As I mentioned, our once-through cooling and there is an issue with the mandate with re-powering our once-through cooling. And this one is mandates, we have the Southern California Air Quality Management District as part of our -- you know, as part of our work agreement we are re-powering our Haynes 5 and 6 units, and with the timeline shown. And we have started three we are also re-powering in the time of 2015.

We're also working on the 33-percent RPS, eliminating the SB 1368. Essentially, we have a very aggressive program on eliminating our coal, individually, working through our asset coal assets in Utah.

Local solar power, SB 1, SB 32, and AB 32, all of those are mandates which are really helping us

reconfigure and transform our system. And we do feel we would be reconfiguring about 70 percent of our system in the next century, I would say, with all the mandates.

So, meeting those mandates, as you know, is not really done haphazardly, so we do have really extensive planning process through our integrated resource plan, similar to what the CEC is engaged in through the long-term planning process.

And as a planning process, of course, we have to line up our projects, we have to line up our expenditures, and that includes converting our coal, eliminating -- doing renewables, energy efficiency, and many other things we have to do with our OTC plants as a part, as well.

So that is all of the issue. Considering with all these mandates we have to meet, we have pretty extensive expenditures going forward.

As you can see, today we have close to maybe $3 billion expenditures and over the next 20 years you can see that really over-doubling going forward, and to meet all those expenditures, all of those mandates that we have to meet, including the OTC we have to do.

With regard to our OTC plants, this is a part -- this is a timeline and this is an agreed upon timeline. We are working on Haynes 5 and 6, the repowering of them

and reconfiguring them.

And early on you did hear about some of the things which is really cool things that we could do with some of the new technology we have. And we are engaging that in with this reconfiguration of our plants.

With the Haynes, we are replacing that with six combustion turbine peakers, we call them G100s. They have the features which is going to help us integrate our renewables a lot more clearly and smoothly.

And we also heard from Neil, earlier, talking about some of the clutch aspect. It's not feature, clutch aspect is not really a feature. We have -- all our plants will have a clutch arrangement where we can clutch them so that we can convert them to synchronous condensers on the fly, so that we can help us with our voltage support.

So, we are involved in providing all the technology, which is really going to help us with our renewable integration process, as well as meeting our OTC requirement.

But this is a timeline and we do feel we can meet this timeline, and we're working through this timeline by 2015. After we completed our Haynes and started repowering, we feel we will be a 56 percent reduction in the OTC and 100 percent by the completion

of this program which is 2029.

So, we are committed to this concept and to the OTC program.

To go back, I guess come back to the key concepts going forward is the work we've been engaged in, analyzing and doing a study on this AB 1318. We are working hand-in-hand with Cal-ISO, and CEC, and ARB. We have had many, various discussions.

So, one of the things we first need to agree on is that the assumptions and the study methodology.

So, for all practical purpose we are using the study methodology Neil talked about, with regard to how we make assumptions, what kind of system cases we use, and how we go about doing mainly on a reliability analysis basis. We follow all the NERC, and WSCC, and some of our internal reliability requirements.

So, given that, the first aspect of course is for this to make an assessment to really to define what we call the local capacity requirement area.

So as I mentioned earlier, the local capacity requirement area for us is pretty distinctly identified here, which includes the load and generation within that window, always in that circle. It essentially, physically is all the resources, generation and load, south of our valley area, which is what we call Rinaldi

Station.

So, the reason that the local capacity requirement area study, essentially the identification is within that load, as a way we're going to have to meet that way is with the generation within that load, and on import coming to that load center.

So, that is kind of the definitional consideration of the LCR and that is consistent to how we have done it with the work we have done.

And another definitional issue is we have to agree on what the methodology and, not only methodology, but the base cases. What timeline, what year are we going to study?

And as was said earlier, was not good enough to look at next year, year after, but we have set out what we call a planning horizon, which is a ten-year planning horizon. So, we work on the ten-year planning horizon, which is 2021.

Not only is that for our what we call LCR, there are two cases which are really making the difference. Because, as you probably seen earlier, our system, there is an injection coming from the Pacific DC intertie, and another injection coming on the AC lines.

How those two systems share that energy or that power coming to that LCR really matters and that's what

the definition and the distinction we have to analyze.

So that's why you see case of 600-megawatt import, or 3,100 import or coming in on the DC, that's kind of two additional cases.

Ten we have, also, based on the study plan coming from as part of the agreed-upon plan, we have what we call high load case and we call it low capacity or mid-low cases.

So, those are the studies we have done for the 2021 -- I'll just give you a highlighted short results, I think the idea is we're going to have a separate discussion another day, on a workshop, to really go through all the details on these analyses.

But from what we have -- our analysis show today is, as you can see, the capacity, the LCR load was 6,226, the generation was in the bucket or was in that area is 3,386 megawatts. That is a little lower than our total OTC plants in the basin, including on our gas.

Then for that study, for 2021, using the one as a cases -- if you remember, from Neil's analysis, there was a discussion of four different portfolios, with the environmentally constrained, that was the ISO based, and also there was an economically constrained scenario.

We've agreed to use a trajectory because as an environmentally constrained, as you heard it earlier, it

has some aspirational issues which we're not really willing to agree, and take our system through that process.

So, that study is based on the trajectory case and based on that we do see some limitations in our system meeting -- and meeting our load. In fact, to make the system work and stabilized, we have to add some kind of load shedding.

I know Neil talked about load shedding, and the load shedding concept. Load shedding, essentially, is dropping customers' load. So, really, that would -- we really have to resort to those kind of actions, really, in order to stabilize the system to meet those kind of level of load and resources for the studies we have done, based on the assumptions.

MR. BERBERICH: If I might?

DR. BESHIR: Of course.

MR. BERBERICH: There was a question earlier about load shedding. Load shedding is blackouts, lights are out. So, I just wanted to clarify that's what you're talking about.

DR. BESHIR: Good. Very good, thank you.

MR. BERBERICH: And they don't have those in L.A.

(Laughter)

COMMISSIONER PETERMAN: And, Mo, I appreciate the detail you're providing. So that we have time for questions for you, as well as for public comment, I'm going to ask you to speed through quickly the rest of your slides, as we're running past time.

DR. BESHIR: Very good, I will do that.

COMMISSIONER PETERMAN: Thank you. And you can direct us to the website where this information is as well.

DR. BESHIR: Sure, thank you.

COMMISSIONER PETERMAN: Thank you.

DR. BESHIR: Okay. So, in fact, I don't have really too much to go, expect maybe I just go in conclusion.

I just wanted to really address the 2029 OTC program we have. We think it is really very solid program and anything more or less I think we think is really unachievable, and we do see that is the way to go.

We do have issues, we think, with transmission. Transmission, we don't think it's really going to solve our problem in these particular conditions.

As you know, we have transmission big, we do have a lot of transmissions here and we know how transmission work, and we really like to work

transmission to solve our problem.

In these particular cases we don't think that really transmission is going to really help us solve all of our problem.

In addition to this thing, the generation, you have understood there's a voltage issue. We also have extensive voltage studies and voltage analysis we do to take care of our system.

But I just want to leave you with the last bullet there where I think the uncertainties which, really, are always with us, as we can see with the nuclear power issue. And also with the recent study coming out from UCLA, really, the assumptions we're making is really not good, you know, because all the study area is basically one intent.

And what the UCLA study shows is that may not be good enough for our assessment. And as a load, we are assuming high load conditions means we need more generation in our system.

So, with that, thank you very much.

COMMISSIONER PETERMAN: Thank you. As we turn to public comment, first let me say that anyone who will be providing public comment will need to come to this table in front of me to use this microphone.

Because the microphone that's picking up for

those listening online is actually behind me so, therefore, you need to be a bit closer.

But before I start calling the names of people that have submitted cards, let me ask if there are any local, or State officials, or representatives who wish to offer any comment or ask a question? I did not mention this in the beginning and I was remiss in doing that.

Anyone? Yes, sir, please come to these tables in front of me.

And then just so you know you're about to be called, Barbara George, representing Wind as Energy Matters, you'll be the first person providing public comment. Thank you.

MR. BRAND: Hi, my name is Bill Brand, City Council Member for Redondo Beach.

COMMISSIONER PETERMAN: Welcome.

MR. BRAND: First, I want to thank you guys for having this workshop, it's really, really helpful. And for those of us who are trying to get up to speed on all of this, it was great that you came to Los Angeles.

Redondo Beach is the home of the AS Power Plant. They're submitting a license application soon to the Energy Commission, to re-power a portion of their plant.

The public is very much against the idea of a

new power plant here. There's several reasons. I'm most concerned about air pollution.

Their preliminary plan, 500 and change megawatt re-power will increase depending on their operating profile. Their particulate emissions are anywhere from five to 17 times the average of the last five-year emissions for particulates from that plant.

So, the health hazard to what has become a very densely populated area is going to be very significant.

So, we've been watching very closely, obviously, the once-through cooling needs. First and foremost my concern, and everyone else's concern, is that the lights don't go out. You know, really, and from the study -- I've been studying this, and it's really, actually, going back to when I first was advocating for the once-through cooling legislation to improve the marine environment. Switched to examining the load requirements and that the lights will not go out. And coming quickly, not quickly, but over the long term the conclusion that there is capacity, as many of you have said today, to retire a once-through cooling power plant in the L.A. area, western sub-area.

So, I think that should be Redondo Beach. It's surrounded by what we call incompatible uses, including a senior living home, 13,000 residents per square mile.

You know, it goes on and on.

And I could go on and on, but that's kind of the conclusion I've come to over several years of studying this.

And they'll be filing an application soon. Everyone on our council, and the mayor as well, has expressed that this is no place for a new power plant. So, you know, and San Onofre, obviously, is huge.

And like I said, our number one cause or concern is that, you know, the grid reliability is maintained.

So, I guess with that, thank you for your time.

COMMISSIONER PETERMAN: And thank you for being here. And I imagine that this Commission will be participating those proceedings as well, so appreciate your attention to the issue.

MR. BRAND: Would Mr. David Freeman like to speak next?

Are there any other representatives from any local city agencies that wish to speak?

I'll also alert everyone to the fact that we will have a public comment period at the end of the day as well.

MR. FREEMAN: I was here today to listen and learn, but as I heard the gentleman from the ISO speak, I couldn't help but remember that Commissioner Florio

and a number of us put together the ISO, what was it, 12 years ago.

And it was created by the Legislature primarily as a result of past 15, where we had blackouts because we could not move -- we had plenty of power in California, but we couldn't move it from Northern California to Southern California.

And the fundamental idea and the general thought was that the utilities thought of transmission as a step-child, it didn't -- it wasn't exciting like generation and they didn't pay enough attention to it.

And so the idea is that if we ask the utilities to pull the transmission and created the ISO, that we would create a transmission grid in California where we could move electricity from any place in the State to any other place in the State.

And I remember specifically, I was the trustee, and all I had to do is listen to Mr. Florio, and my other advisers, and do what they said and I wouldn't go to jail, so I kind of listened to them.

And we filed a tariff with FERC before the ISO board was formed, even, because we had a deadline. And in that tariff I remember, clearly, that we had provisions that if no -- that we would have an annual review of transmission plans and if the utilities and

others were not building transmission sufficiently to move power from any one place to any other place, that the ISO, itself, had the authority to get the transmission lines built.

That -- how can we be here, in 2012, just because one power plant, San Onofre is down, that people are talking about the possibilities of blackouts. A possibility that I think, because of the initiative of many people here, is going to be avoided because we learned in 2001 that with our 2020 program, and with a real call for efficiency and conservation, both, we ended the blackouts. And we had no blackouts in 2001.

But my concern on the long-term view on transmission in this State is what happened to the grand idea that we created this agency not just to operate the grid, which the utilities had not done a bad job of before the ISO. We hadn't had any blackouts until -- in this State until Ken Lay and these guys took us to the cleaners.

But I'm just -- I just personally feel a sense of embarrassment that we have let a situation go where we put too many eggs in a nuclear basket there, in one part of the State, and not built sufficient transmission so that when it goes out, as it has and as every power plant does from time to time, usually when you needed

them the most, because metal is stressed the most when it's real hot or when it's real cold. But why are we sitting here today without adequate transmission to move power freely in the State of California?

And until you answer that question, looking at the next 10 or 15 years remains a question mark, especially when we're now focusing on building new energy sources in remote places, where there isn't transmission.

And of course we've done some and some is being built. But the idea that we're relying on Adam Smith or his uncle to propose the transmission lines that are needed to reach the 33 percent, and the Governor's excellent idea of going to 40 percent and beyond is not there.

The other comment I'd like to make is why isn't storage at the center of your discussion today? I mean we all know that -- you know, even when the Governor was Attorney General he introduced legislation for five percent storage on a voluntary basis.

But if we don't realize that we've got to build and pay for a very large amount of storage capacity, then the idea that we are going to lead the civilized world toward a clean energy future has got a hole in it.

And so I'm -- those are the two, actually. The

third is that we're not telling the world that renewable energy is a here and now product. We're allowing the oil industry and others to kind of paint it as, you know, here's to solar power, it's going to be our future. It's in the future and it always will be. That's kind of the propaganda that's being laid.

I talk to people in the east, where I live at, they don't believe that solar and wind is real.

Whereas one day, recently, my friend from DWP just told me on one Sunday they were running all their renewable power and they didn't need their coal plant, that the power system was running mostly on renewable energy.

You know, consider Texas. One day in March 23 percent of all electricity was wind power. This is happening, but nobody outside of this room knows about it.

And the world needs to hear that we are succeeding and this is a here and now thing.

And I'm not sure that Mother Nature has cut a deal with us that we could wait until 2020, or 2025, or 2030 to start cutting down on coal production in the State.

We've got all kind of programs in this State that makes it look like things are getting down, but

have we reached 20 percent renewables in the State of California? No.

The DWP reached 20 percent the year I was there, but it reached 19 percent the next year. That's not the right direction. And I think if you do a look of checking up on the investor-owned utilities, I don't think either one of the big ones has reached 20 percent, yet.

So, a good -- the future is determined much more by what we do today than what we plan for tomorrow. And I think there's a need for a much greater sense of urgency about the pace at which we are moving.

I mean, a beautiful cap and trade program that doesn't have any bite to it until six or seven years from now is cutting a deal that I don't think Mother Nature has agreed to.

And I think it's important that we generate a greater sense of urgency about what we get done this year. You know, planning is necessary, but totally insufficient.

Thank you.

COMMISSIONER PETERMAN: Well, I think there are some people who want to applaud that.

(Applause)

COMMISSIONER PETERMAN: Mr. Freeman, first of

all thank you for your extensive service to the State in various capacities, and for your comments.

You have touched on a lot in your comments, enough that we could spend days talking about them.

I'll just say one or two things and see if anyone else wants to say something.

I think all the issues you have raised are all issues that we are thinking about and we are concerned with, as well.

As I mentioned earlier, we just completed seven workshops at the Energy Commission, where we had engagement from every agency represented here, and many of the parties who are in the room, really looking at some of our challenges to develop renewables.

And particularly looking at the issues of integration and thinking about have you -- what the right balance is between storage, demand response, and actual gas plants.

And really getting to the question you've asked, which is how do we get -- how do we achieve the goals we've already set out for ourselves, the 33 percent by 2020, what would it take to move beyond that.

And we're doing as a part of that, now, developing some recommendations, some actionable things that need to happen in the State for the next few years.

And we invite you, as well as every member of the public, to comment on those recommendations. We'll be releasing those towards the end of this summer, beginning of the fall.

And I, personally, will reach out to you to see your thoughts on those.

So, those are my general comments. Anyone else on the dais?

CPUC COMMISSIONER FLORIO: Just I believe at least the IOUs reported that they made 20 percent in 2011. Now, that --

MR. FREEMAN: Under contract, but not necessarily --

CPUC COMMISSIONER FLORIO: Oh, no, I think they said the actual generation of it hasn't been verified, yet.

And we do have contracts that get us very close to 33 percent. Now, that's paper, that's not megawatts. But a lot is getting built and we're going to continue procuring.

And, you know, we're certainly prepared to go beyond 33 percent, if Mr. Berberich lets us.

(Laughter)

COMMISSIONER PETERMAN: I think the issues of -- the issues of project viability, and transmission, and

timing are all things that we're --

MR. FREEMAN: Could I have one more minute? If you would simply outlaw interconnection agreements between people that want to put solar in and the utilities that would revolutionize the pace at which solar was implemented.

The inter -- there is no need for a formal interconnection agreement. That is a the -- I used to run utilities. That's the way a utility delays solar coming on. And someone needs to have the courage to propose a reform to CEQA so that it no longer is a place where nimbys can stop large solar projects.

Why can't you lay out some corridors and say the transmission lines and the plants need to be built in this area, and then fast track them.

I mean, you know, I was there at the creation of these laws. Ed Muskie, and Scoop Jackson, and those people would turn over in their graves if they thought the law the past for a National Environmental Policy Act was holding up a solar power plant. And they are.

And, you know, I'm an environmentalist. There's a lot of projects that you ought to say no to in the first 30 seconds that they're filed. But there are a lot of others that do not need to spend billions of dollars, you know, in bribery money, I think, and be

delayed for years.

You know, the reform ought to be to make NEPA and CEPA tougher, but quicker. And somebody's got -- and if the politicians won't propose that legislation, you guys should.

COMMISSIONER PETERMAN: Thank you very much. We'll take everything you said under consideration, of course, and looking forward to discussing further as we develop this 2012 IEPR. Thank you.

Our next public comment will be from Barbara George, Women's Energy Matters. Ms. George, please.

MS. GEORGE: Thank you. It's a pleasure to be here today with all of you Commissioners, and the President of the ISO.

Women's Energy Matters has been in the energy efficiency proceedings for the last dozen years, so we're -- you know, we think of energy efficiency first, and the State has actually adopted energy efficiency as the number one in the loading order.

So, I'd just like to make a few comments on what we could be doing with energy efficiency that would solve a lot of these problems more quickly, and a lot cheaper, and produce a whole lot of jobs in the process.

So, air conditioning is 30 percent of our peak load, right? There hasn't been much of anything done on

air conditioning efficiency in California for many, many years. And that is there's reasons for that, it has to do with the avoided costs were not set to reflect the peak load, only an average load.

That has been changed, thank goodness, so we may see more air conditioning efficiency going forward, but it hasn't happened yet.

So, one of the things that I'd like to say is you can shave off the peak with air conditioning over the next couple of years. You can cut it down with demand response immediately.

And going back to Mr. Freeman's earlier job at SMUD, they closed down a nuclear power plant suddenly and he was presiding over that utility when they replaced that power primarily with energy efficiency, and demand response, built a lot of solar and wind.

They did not have to raise their rates and they're still 25 percent cheaper than the investor-owned utilities.

SMUD did better on air conditioning, more insulation, white roofs. They planted trees, which actually lowered the temperature of Sacramento seven degrees. So, these are possibilities that we should be looking at with the amount of energy efficiency that we have.

We are -- currently Edison, Southern California Edison has $534 million of their energy efficiency funds for 2010 to 2012 as of May 1st this year. And their entire budget is a billion two dollars for a three-year period.

Now, with $534 million -- I mean, you know, they've got commitments of about a hundred million, so let's say it's $450 million. We have that money that could be spent on air conditioning, and currently is not.

The utilities have the opportunity to shift funds; it's almost an unlimited authority that the Commission has given them to shift funds for programs that are needed.

In the past there have been summer programs. I know in the energy crisis of 2001 there was a summer initiative program. Edison, themselves, had a summer program in 2005.

So, there are certainly things that we could do right now with the air conditioning money. We could have a lot more done next year.

And I'm happy to say that the cities are going to have authority to use a lot of money that the utilities are now sitting on, next year.

So, I urge you to have -- you know, think first

about energy efficiency. I know we're all, you know, energy infrastructure people here, but think of the power plant that's, you know, a better refrigerator and a better air conditioner, those are power plants, too. They're megawatt power plants.

And California talks about using them, let's actually start doing that. And we have a great opportunity with the 2,000-megawatt nuclear power plant shut down to show what energy efficiency can do. And this would reverberate around the world if we went ahead and did this.

This is really the way to keep air emissions down, protect the water quality, give a lot of people jobs, build local businesses, and lower the rates for ratepayers in California. It's a win, win, win, win, win.

COMMISSIONER PETERMAN: Ms. George, I'm going to have to ask you wrap up.

MS. GEORGE: Thank you. Thank you so much.

COMMISSIONER PETERMAN: Thank you.

Our next speaker will be --

(Applause)

COMMISSIONER PETERMAN: -- Gary Headrick.

And I'll also add that we are taking all written comments, as well in this proceeding. And if I move you

along, it's simply because I have a lot of cards here and we have a lot of presenters later in the afternoon, and we have a firm stop to leave this room.

But really appreciate your passion and your comment.

So, Mr. Hedrick, please.

MR. HEDRICK: Yes, thank you very much for allowing me to approach this dignified board and expertise that I wish I had a better grasp of.

My position here is as a representative of just the average citizen. My wife and I started a group called San Clemente Green and we're just a sustainability action group, and got involved in the nuclear power issue because of whistle blowers disclosing very critical information about -- one thing in particular was the steam generators that were being installed at the time, at the end of 2010, when we were approach.

And lo and behold, the questions and concerns they had panned out to be real. It's no longer hypothetical, were they telling the truth? You know, we can see the results of what happened from negligent process.

The public is very concerned and we have a lack of trust factor with the whole process between the

Nuclear Regulatory Commission and Edison.

And the fact that we're being put at risk due to a failed system, which we invested $670 million of our ratepayer money into, which not only put our lives at risk, had it failed worse, but that's a huge cost to us that could have been redirected towards safer, cleaner alternatives.

And we're just -- we're here to say that we started out at a 500-person membership when the nuclear issue became our concern, we've grown to about 1,500 people.

And as we take this message to other city councils and people that live within a 15-mile radius of San Clemente, we keep growing.

And I'm just here to tell you that everything on our agenda is to keep that plant shut down. And I hope you take that into consideration in your planning because we're going to do everything we can to keep that plant right where it's at, just under these conditions with the -- you know, let's start the de-commissioning process and let's move on. Let's don't keep doing these studies that could be -- they could be inappropriate because this power plant is so unreliable.

I think we should just move on and take that into your planning.

And I appreciate your expertise and I know you have the ability to do this, so please do it on behalf of the citizens. Thank you.

COMMISSIONER PETERMAN: Thank you for your comments representing --

(Applause)

COMMISSIONER PETERMAN: I'm now going to turn to Jennifer Didlow, a project director AES. Welcome.

MS. DIDLOW: Thank you. I don't know if you intentionally left this up here?

COMMISSIONER PETERMAN: Oh, thank you.

MS. DIDLOW: Thank you. Appreciate the opportunity to address you and also to have the opportunity, since Councilman Brand provided some information about Redondo Beach, I really wanted to make sure we have a balanced dialogue.

So, this is not about a single community, this about doing what's responsible to keep the lights on in an environmentally sensitive manner for Los Angeles and Orange County residents.

And I just wanted to make sure that we know that Bill, while Bill is an elected official and does represent folks that vote, he's definitely not, as he perhaps said, representing the entire population of Redondo Beach.

So, I wanted to make sure that we keep that in mind. And we also know that while you all have said that there probably is excess OTC generation, I haven't heard anyone say that an entire plant could retire. Perhaps there are some units that could retire. So, excess generation, from an OTC perspective, I think we need to be careful about how we characterize that.

I guess then, really, the last point I'd like to make, I thought Mo's comment there on the Scattergood Olympic Transmission Line that they've been attempting to site for over 15 years, that hasn't even been approved, really proves that a transmission solution in the South Bay is not acceptable.

And so I would encourage you to continue with the diligence and the analysis that you're performing around what is actually needed in the Los Angeles Basin to make sure that Los Angeles and Orange County residents have a stable supply of electricity, while California meets all of its clean energy and clean air objectives.

Thanks.

COMMISSIONER PETERMAN: Thank you for your comment.

Next, we'll hear from Chris Ellison, from Pathfinder Zephyr.

MR. ELLISON: Good morning.

COMMISSIONER PETERMAN: Good morning.

MR. ELLISON: I will try to be brief. Chris Ellison, Ellison, Sneider and Harris, representing Pathfinder Zephyr.

For those who don't know, Pathfinder is a 3,000 megawatt wind project in Wyoming. Zephyr is the proposed transmission line to deliver that energy to Southern California.

The wind resource in Wyoming is extraordinary. There is also very low-cost gas in Wyoming and the combination of those two things, in the view of Pathfinder Zephyr, they believe strongly that they can deliver wind energy, renewable wind energy to California, to Southern California at a very, very competitive price, notwithstanding the distance.

With that background, let me pick up on what Chairman Weisenmiller said at the outset of this discussion about the uncertainty -- well, before I do that let me say this, I want to commend, on behalf of Pathfinder Zephyr, this proceeding and this gathering of important State officials to address these issues.

We feel very strongly that these issues are extremely important and are very pleased to see the attention that you all are paying to these questions.

And with that said, let me return to what Chairman Weisenmiller said about the tremendous uncertainty that we face. And I agree, I've been in this business for about the same period of time and I can't think of a time when there were more important, big, uncertain questions in front of the State regarding the supply of electricity, than I'm aware of today.

And there are lots of different questions that you're trying to resolve about how to deal with it.

But let me suggest that it is in the interest of the State of California, put aside Pathfinder Zephyr, to build into its infrastructure as much flexibility to hedge against the uncertainty of the future as possible. To recognize that we don't know exactly what's going to take place on the generation side.

To recognize that there's a lot of uncertainty in permitting, to recognize that there's a lot of uncertainty with environmental issues, to recognize that there's a lot of uncertainty in technology improvements and cost.

What does that say? What it says to me is that having a robust transmission system that provides flexibility, that enables generation to compete from a lot of different sources, that enables access to a lot of renewable generation in a lot of different locations

is in the interest of the State of California.

And that's the main message that I want to deliver on behalf of Pathfinder Zephyr. All they really want is the opportunity to compete. They believe that if given that opportunity they will be very competitive and provide not only low-cost renewable energy to California, but renewable energy from a different geographic area.

And I want to pick up on what Mr. Berberich said about the reliability issues with wind and the possibility of losing -- and I forget the number of megawatts you mentioned in half an hour, but it was in the hundreds of megawatts.

Having wind from Wyoming can help protect against that because it's a different wind regime. And the likelihood of losing wind in Wyoming and California simultaneously is less.

The main point here though is this, that transmission takes a long time to plan for, it takes a long time to permit. That's a reason to plan for, and try to permit now, a robust transmission system, recognizing that you can downsize the plant, you can decide not to construct something that you planned and permitted far more easily than you can go the other direction.

If you underestimate the amount of transmission that you need, if you guess wrong by betting on a load transmission plan, you can't fix that.

But if you guess wrong in the other direction, you can fix it.

So, the main message from Pathfinder Zephyr is that we would urge you, and I know we've said this before, we would urge the ISO and all the different agencies to plan and permit for a robust, flexible transmission system that includes the option, preserves the option of significant imports from out of state.

Thank you very much.

COMMISSIONER PETERMAN: Thank you, Mr. Ellison.

Next, we'll hear from Mr. Jim Stewart from the Sierra Club.

And we have two more comments after that and then we will break immediately for lunch and then try to get us a bit back more on schedule.

Welcome.

MR. STEWART: Hi, glad to be here. And it looks like we've had laid out before us almost like a perfect storm, right. We've had greenhouse gas crisis, we have an air quality crisis in the South Coast Basin. We have to shut down these OTCs so we don't wipe out the wildlife in our seas.

We have San Onofre down and I hope -- we hope that it's out forever. And we've got this time to, you know, permit and build transmission lines.

And we've got then the ISO saying, well, what about an outage?

There's one solution that solves all those problems, it's called rooftop solar. I mean it seems ridiculous but I don't know, I mean I'd like to actually get the ISO to explain to us when they don't this worst case scenario they had in their -- you know, for the L.A. Basin, 271 megawatts of DG in their base case scenario and 1,500 megawatts of DG in their environmental scenario.

And actually, from the Sierra Club's analysis, we can actually do better by 2021 by only 1,500 megawatts in there.

So, how does DG solve all the crisis, right? Well, there's no greenhouse gas emissions; right? There's no need for building new transmission; right?

There's no greenhouse gas emission, I mean there's no air quality emission issues.

And when do we have the crisis? We have the crisis on the peak hot summer days, there's no clouds, we're roasting here in L.A. and our rooftop solar is putting out its maximum power just when we need it.

So why is this kind of perfect solution not getting the huge priority? Instead we're, you know, trying to figure out which of these big natural gas plants we're going to re-power, and replace, and all that kind of thing when, for approximately the same cost, we can put that rooftop DG on and we don't have to worry about any outages.

Thank you.

COMMISSIONER PETERMAN: Thank you for your comments.

(Applause)

COMMISSIONER PETERMAN: Next, we're going to have Rob Longnecker from Clean Coalition.

And as he comes up, I just have to say about the last presentation, the State does prioritize rooftop solar. So, I will respectfully disagree and say there's no one technology that's going to fix this problem. If there was, we would all invest in it and then spend our time working through a number of other problems in the State.

And so, happy to have this discussion and we do it in our forums, but I'll leave it at that.

Sir.

MR. LONGNECKER: Rob Longnecker, Clean Coalition. Actually, I just wanted to echo some of the

comments that were just made. I was listening to you guys talk about replacing the SONG and replacing the OTC plants, and I had the same kind of thought that I think about what you guys are looking for when you're looking about dealing with local capacity issues, getting your projects online fast, dealing with emissions, all of that is addressed by distributed generation as well. And particularly, if you're talking about peak load issues, solar.

So, I would encourage you to just try to work that into your plans more and take that into consideration.

The other question I had or I guess issue would be the FERQ 1000 where it recently emphasized non-transmission alternatives. And I think that's something that hasn't really been talked about very much and I'd just kind of like to bring that more to the discussion, if possible.

Thank you.

COMMISSIONER PETERMAN: Thanks.

Steve?

MR. BERBERICH: If I might wade into this for just one second, let me just talk about the technical. First, we do plan for distributed generation. We like distributed generation and we're supportive of

distributed generation. Hell, I'd like to have 50,000 megawatts of distributed generation, it would make the system -- you know, it would have less load on the system.

But we do have to plan, though, for people like to have their lights on and we have to figure out how to do that given what we see.

And if we see additional rooftop generation, we'll certainly put that into our planning.

We did talk about some of the other issues here, though, about the needs for inertia and all kinds of -- unfortunately, some nasty things that we also have to consider when we plan the electric system.

Because at the end of the day, let me be clear about this, the ISO is a nonprofit institution. We don't give anything about building generations, we don't give anything about building transmission lines, we don't care.

We care about a reliable system. And if we have less transmission, fantastic, we'll plan for that. If we have less -- need less generation, we'll plan for that, too.

And I hope everybody understands that what we're trying to do is focus on serving the load. The load can be served, as Commissioner Peterman said, many different

ways.

And I think the conversation here today is about how can this State look at serving it different ways. And so I encourage the dialogue because storage plays a big role in it.

Now, I will tell you storage is real expensive right now. And one of the things I know is that people don't like paying more for power. And I got to tell you, power prices are going to go up from all these things that we're trying to do and we have to think about ways to mitigate that.

And part of this dialogue is about finding ways to mitigate that, to build less transmission.

This State right now, to hook up 33 percent renewables is going to embark on a program to spend about $7 billion on transmission, $7 billion. That's a lot of money.

The current transmission base right now is about four and a half billion dollars, so you can see what that -- someone's going to pay for that. Ratepayers in California are going to pay for that.

So, this dialogue that we have here today I think is a very important one because the way -- if we can minimize the amount of transmission we have to do, avoid the $7 billion, we'll certainly do that.

We're supportive of clean air, we're supportive of clean water. We want to handle the once-through cooled issues as well because we understand the impact.

But we also know that people's life and health depends on the flow of power. We've got to balance all of those things here in this State.

CPUC COMMISSIONER FLORIO: Yeah, I'd just like to add a word. I made a comment earlier that I think may have come across wrong when I said we'd like to go beyond 33 percent, if Steve would let us.

I didn't mean to imply that there's like some personal -- I mean you've got complex things to deal with and those are what we have to understand and manage to go beyond 33 percent. And I think we will but it's --

MR. BERBERICH: No offense taken, Commissioner, no offense taken.

CPUC COMMISSIONER FLORIO: Yeah, it was -- these are accomplished not as simple, it's not a water system or a natural gas system where you put it in at one end, add a little pressure and it comes out the other.

There are these very complex engineering factors that have to be taken into account or the system doesn't work, and everybody's unhappy.

So, I mean these are the challenges we're

grabbling with and, you know, they're real and they're difficult. But, you know, everybody up here is committed to make it work.

COMMISSIONER PETERMAN: And I'll just say these challenges are not new, we've been trying to deal with these challenges for many years. But just in the year plus that I've been on the Commission I've seen improvement. Even today I heard about solutions I hadn't heard about before.

And it really ties into having the research being done by our institutions so that the cost of these technologies come down, so that more things become available.

So with that, let me turn to our last public comment, is Rochelle Becker, Executive Director of Alliance for Nuclear Responsibility.

MS. BECKER: The very first thing I would like to do is thank everyone up there. I have waited almost 40 years for every agency to get together and start talking about what nuclear power plants cost and how reliable they are, which is entirely the State's job.

On Monday night I attended the Nuclear Regulatory Commission meeting. About 30 percent of the people there asked what this was going to cost.

Mr. Florio, there's a $782 million cap on this

project. Ratepayers aren't paying a penny more. Investing in something new, investing in new technology, I'll open my pocketbook, but not to fix that nuclear plant, not again, not ever again.

In 2005 the Energy Commission, thank you Energy Commissioners, had a forum and they brought all parties together. They brought the utilities, they brought all the acronym agencies from the Federal government to the State government, and I'm not going to name them all, there's just a lot of them

They brought unions, they brought the utilities, they brought the Alliance for Nuclear Responsibility and for two days we talked about the future of nuclear power. We talked about it in 2005.

And the Energy Commission made some really good recommendations and one of them was that we needed to do a cost, benefit and risk analysis.

And we did a pretty good job on risks and benefits. We did a really crummy job on what this all costs, and cost is what's driving everything and freaking everyone out, we have to make some major investments.

Now, when I see that the plans go to -- a ten-year plan goes to 2021, well, it's -- a ten-year plan from 2012 is 2022, not 2021. And the reason I mention

that date is 2022 is the end date for the license of San Onofre. So, having a plan that ends the year before the end date of this nuclear plant, should it ever get back online again at shareholder dollars I think is a little -- one year shortsighted.

On Wednesday I attended the Water Board meeting, I sit on the Nuclear Oversight Committee for the Water Board. And I had Bechtel say to me, as they're planning what the different scenarios are for once-through cooling, well, with enough engineering and with enough money we can do anything

And I said, yeah, you probably can. Of course, you didn't fix the once-through cooling problem at San Onofre the first time, and we put a lot of money into it, you engineers. But you know what, those dollars are coming out of my pockets and my pockets are getting emptier and emptier, and I'm getting older and older, and so it's going to be my daughter's pockets, and my grandchildren's pockets.

And they've been trained, they're not giving you a penny, not any of them, and nor should anyone else in this room.

So, I thank the Energy Commission with all my heart, I think you've done a tremendous job.

Mr. Florio, I thank you for stepping into a huge

mess. I am so sorry it's you because I really like you, but it's a mess that has to be taken care of.

(Laughter)

MS. BECKER: The ISO, you know, I just think you haven't done your job. I was the president of Turin during the energy fiasco; we should have started our planning there. We should have never assumed that we have one unit at a nuclear power plant, much less two units.

We sit on a seismically active coast. The NIC plans on leaving the waste here 250 years, but the DC Court of Appeals, a couple of weeks ago said, you can't even leave it here 60 years.

We've got earthquakes, we've got waste on our coast. You want to talk about safety, go ahead and compare those two things. I'll be a little hot in the summer.

You know, I sat in San Diego. I have a second home in San Diego and I sat during the interview commission proceedings over and over, and I heard the angst, the terrible stories that people were telling about not having power, and sharing refrigerators at one house, and air conditioning at the other house, inland.

I live on the coast, I'm lucky, I just go down to the beach. But there's a lot of people in San Diego

that are really hot.

And so you had an opportunity then to start planning. I think a governor lost his job because he didn't do that planning and cost us a lot of money.

There's a political reality here, there's a technical reality here, but there's a cost reality here and we need to stop investing in things that you can't say are economic or reliable.

Because as the Nuclear Regulatory Commission said, on Monday, that's your job, not theirs.

Thank you.

COMMISSIONER PETERMAN: Thank you for your comments.

(Applause)

COMMISSIONER PETERMAN: We are going to break --

MR. DAVIS: I just have a follow up.

COMMISSIONER PETERMAN: Well, there's a public comment -- well, you had to, one, submit a card, so if I had known you would do that --

MR. DAVIS: I did. If it's --

COMMISSIONER PETERMAN: I will give you two quick minutes, honestly, sir.

MR. DAVIS: Thank you very much.

COMMISSIONER PETERMAN: And then we have a public comment period at the end. And then we'll be

breaking and we'll be reconvening at two o'clock.

All right, you're on, go for it.

MR. DAVIS: Just as a follow up to my questions and I didn't get a clear answer to the question of whether or not Huntington Beach is on the table if we need it in 2013 to avoid rolling blackouts, and whether or not closing the nuclear power plants would make use of rolling blackouts likely.

Now, you had spoken at first in terms of 2012, saying that we were on the right side of positive, that in one in ten years we would not have rolling blackouts, that we would be okay, 2013, that was left vague.

But what I'm looking for is a question of likelihood. If you left everything on the table, as you've said, including Huntington Beach, would be right side of positive in 2013. And most specifically, is Huntington Beach on the table, as he said, everything else is in 2013.

MR. BERBERICH: Well, I can answer this about Huntington Beach, at the current course of speed the emission credits for Huntington Beach are to be transferred to Walnut Creek this fall, and so they're not going to be available for Huntington Beach. And Huntington Beach, at the current course of speed is not going to run that summer.

Now, I see Mr. Washington is standing back there, I suspect he would concur with my assessment. So, that's not going to be an available option next summer.

MR. DAVIS: So, you would allow rolling blackouts rather than start Huntington Beach in 2013?

MR. BERBERICH: Well, it's not me. I can't -- I can't conjure up emission credits. I can do some things, I operate the grid, I dispense every four seconds, but I can't conjure up credits.

COMMISSIONER PETERMAN: I think you for your question. Okay, we're going to break now.

MR. DAVIS: Thank you very much.

COMMISSIONER PETERMAN: We'll see you at two o'clock. Thanks, everyone

(Off the record for lunch at 12:55 p.m.)

(On the record at 2:00 p.m.)

COMMISSIONER PETERMAN: Good afternoon, welcome back. I hope you are well fed and ready for an exciting afternoon.

Without further ado, we're going to get started with our next presenter.

MS. KOROSEC: Right, our presenter is Daniel Skinner, from the California Public Utilities Commission.

COMMISSIONER PETERMAN: I think you also need to know that at five o'clock we have a firm stop. So, I'll ask everyone, if you have special follow-up questions I think everyone will make their e-mails available, all the presenters and you can follow up with them directly. Although, we will have some time for public time, but how much time will really depend on how quickly we get through the next couple hours. Thanks.

MR. SKINNER: Okay, thank you, everybody. I'm Nathaniel Skinner with the California Public Utilities Commission.

So, my presentation is very narrowly focused on just the once-through cooled aspects of the long-term procurement plans. They do cover a lot more of many of the similar issues that were raised earlier today and will be discussed this afternoon.

The LTPPs have two different elements related to infrastructure and procurement. The 2010 LTPP changed OTC procurement rules and the 2012 LTPP, future analyses of potential need authorizations are being considered.

The 2010 LTPP changed the procurement rules for PG&E, Southern California Edison and San Diego Gas & Electric.

Contracts with OTC generation cannot extend past the then-current Water Resources Control Board

compliance deadline. Any contract ending within one year of the compliance deadline must demonstrate how OTC compliance is facilitated. And any contracts more than two years, and less than five years, must be filed by a tier three advice letter.

The primary change with that last rule is that part of their general procurement plans and authorizations, the utilities can contract up to five years with generation, as long as they meet their procurement rules. This is an additional layer designed to help facilitate OTC compliance.

Through their RFOs and solicitations, requests for offers, OTC technology must be considered as part of that evaluation process.

The change in procurement rules does allow contracts past the compliance date, if the facility becomes compliant by the date, if ratepayers are protected against stranded costs, if ratepayers are protected against future, unspecified cost increases.

So a lot of the discussion earlier today was also around what ratepayers are paying and these are some of the mechanisms put in place designed to help ratepayers not have to pay too much money.

It also requires Commission approval, such a need determination in the LTPP, and this determination

must be consistent with other procurement rules.

I've been reminded that not everybody probably knows what the LTPP is. The LTPP is the long-term procurement planning process. It is the CPUC's mechanism which evaluates both needs for new infrastructure and new resources.

In the past it went out to a ten-year forward look. In the 2012 LTPP it has been forecast to be a 20-year forward look.

The second part of the LTPP are rules for the bundled customers of the three large utilities.

The 2012 LTPP, which is the current cycle we are in. In the May 2012 scoping memo, one function was meeting local capacity needs between 2014 and 2021.

Another issue was whether or not flexibility needs should be incorporated in any authorization of need for resources in local areas.

Applying any decision from the resource adequacy proceeding. The resource adequacy proceeding does a one-year forward look ahead to make sure there are sufficient resources under contract.

So any decision there, such as on definitions of flexible resources, would be considered.

Whether the ISO's local capacity requirements and OTC studies should be adopted by the PUC and then,

also, meeting local capacity needs between 2014 and 2021. A little bit of duplication there, tells you that we're taking it seriously.

The scoping memo also includes whether or not flexibility needs should be incorporated in any authorization of need.

It includes how resources, such as demand side management, which is energy efficiency, demand response, energy storage, distributed generation would be considered in meeting any of these needs. And then, also, cost allocation.

As some background, this LTPP cycle has in-scoped the local capacity needs for the L.A. Basin and Big Creek Ventura.

The local area needs for San Diego are being considered in a separate application. And the ISO study's determined that efforts taken over the last six years have largely met the needs for the Bay Area, which has -- is the other area with OTC generation in it.

One of the key functions is enabling compliance. Several different vehicles to pay for OTC compliance, if any replacement resources are needed and this includes options such as transition to air cooling, or facility re-powering.

Part of this process would be requests for

offers leading to a contract, cost of service contracts, or no contract so a merchant generator becomes compliant on their own, based on their own analysis of economics and other compliance questions.

And this is designed to ensure the lowest cost to consumers, while upholding State's objectives and rules.

Some timing, the ISO served their testimony on track one of the 2012 LTPP on May 23rd.

On June 25th, so Monday, other parties will serve their testimony.

There will be a second pre-hearing conference on July 9th. Reply testimony from all parties on the 23rd of July.

Commissioner Florio talked about this briefly, but evidentiary hearings from the 7th of August until the 17th, and those dates will be refined somewhat as parties come back and indicate how much time they're going to need for hearings.

And then a proposed decision issued in November or December of this year, and some sort of procurement action, e.g. a request for offer, will take place in 2013.

So, there was some discussion earlier about the need to act quickly. This is about as quickly as the

PUC can act given rules and policies to ensure that the public has a chance to weigh in on these matters.

Any questions? Okay, thank you. And if anybody has any questions they can feel free to contact me, Nathanial.skinner@cpuc.ca.gov.

COMMISSIONER PETERMAN: Thank you, Nathanial, you've gotten us off to a very succinct and quality start in the afternoon.

MS. KOROSEC: All right, our next speaker is David Vidaver, from the Energy Commission.

COMMISSIONER PETERMAN: David, I'm sure you will not disappoint, representing the Energy Commission.

(Laughter)

CPUC COMMISSIONER FLORIO: No pressure.

COMMISSIONER PETERMAN: No pressure.

MR. VIDAVER: Thank you. Okay, Commissioner Peterman asked me over lunch to keep this short, so I'm hoping that's what she meant when she said I won't disappoint.

I'm David Vidaver, I work for the Energy Commission's Electricity Analysis Office. I'm going to go through a lot of nerdy stuff really quickly. You see my e-mail address and my phone number, call me, write me, it's my job to keep you informed.

You're going to find this a little different,

I'm not going to talk about Los Angeles, I'm going to talk about Northern and Southern California. I'm going to talk about the system and zonal reliability, a couple of terms which I probably should define at the outset.

California has five balancing authorities, system reliability is just the ability of the balancing authority to keep the lights on in the area under its jurisdiction.

And I'm going to talk about the California ISO because we love to pick on them.

California ISO has two major zones. You've heard about Path 26, and there's north of Path 26 and south of Path 26, so that's that.

A traditional way of assessing reliability is called the load resource balance. Chairman Weisenmiller referred to it in his introductory remarks, I believe Dr. Jaske said the same thing, it's a very, very simple analytical tool.

You look at demand, you look at supply, you look at the ratio of supply to demand, you subtract one, and hopefully you come up with 15 percent or more. Fifteen to 17 percent is generally exceeded, historically, to be the minimum reserve margin you need to keep the lights on all but one day in ten years, which is our criterion for reliable service.

The items in red here are the State's preferred resources. These are the resources that we intend to rely on going forward to reliably service load and simultaneously meet California's goals regarding greenhouse gas emission, and in general reducing the impact of energy production and consumption on the environment.

In relying on these, we're asking for a lot of resources, more of these resources than we have ever before, and we're asking for them really quickly.

We're going to retire 12,000 megawatts of OTC plants and we may be without 2,246 megawatts of nuclear facilities, or even double that.

(Applause)

MR. VIDAVER: This is not an advocacy basis, it's just a bit of observation on my part. So, you can clap whenever you want. Okay.

A caveat, and it's a very important caveat, this is probably the most important slide in this deck. And that is that the zonal and system reliability are necessary, but in no way sufficient for reliably serving load.

Now, you've heard about local capacity requirements this morning, where generation is. You've heard about stability requirements and flexibility

requirements, what it can do. This metric doesn't deal with those.

And another important thing to remember about load resource balance is that the capacity of the generation resources has to be appropriately valued. It's really easy to value the capacity, to quantify, not monetarily value, but to quantify the dependable capacity of a gas plant, of a nuclear plant, of a hydro plant. It's less easy to do with the intermittent resources, solar and wind, that we're going to rely on going forward.

And how that's valued is very important and, going forward, somewhat uncertain for reasons I'll get to really quickly.

You've heard about California's local reliability areas and sub-areas. There are about 12 or 14 reliability areas, probably 50 sub-areas. There are four of greater significance because that's where we have a lot of OTC facilities that we're retiring.

We've talked about Los Angeles, and San Diego, Big Creek in Ventura, and the Bay Area all have substantial amounts of OTC at local areas, that have local capacity requirements that are called into -- become of concern given OTC retirements, as well as what's going on in SONGS.

The easy part of looking at the future, if there is an easy part, is resource additions. In the work that we're doing, we're assuming about 7,500 megawatts of new thermal capacity. It's roughly divided into about 4,000 megawatts of stuff that is already under construction.

In the greater Bay Area, elsewhere in Northern California, and in the Los Angeles Basin, so this really isn't in doubt. There's a plant in the greater Bay Area, Oakley, who's construction has been sort of approved, but not approved, necessarily, so we -- we'll leave it out of this analysis.

The other 3,500 megawatts that we're talking about is the 3,500 megawatts that the ISO tells us is needed somewhere in the L.A. Basin to meet local capacity requirements in 2021. It's actually not entirely in the L.A. Basin. It's 2,400 in the L.A. Basin, 430 in the Big Creek Ventura, and 650 in San Diego. Neil Millar gave 630. I must have seen a different study.

It's also easy to talk about retirements. We're going to retire -- we're going to assume that everything that uses OTC in the ISO control area is going to retire. We're not talking about LADWP now, or this year, whenever that -- Pittsburgh 7 isn't an OTC unit,

but if 5 and 6 retire, 7 can't continue to operate.

We've got a couple of small, non-OTC plants in San Diego that are not OTC, that we assume are going to retire within the next couple of years.

And in big red letters up there is something the ISO would want me to tell you, and that is that additional merchant plants, without contracts to cover costs may be at risk of retirement through the inadequate revenue streams.

So, when we talk about retirements being certain, we're not being completely truthful.

So, now let's go to the elements of the load resource balance, the preferred resources that are far more questionable.

The impact of uncommitted energy efficiency programs is very uncertain. These are yet to be funded, yet to be designed, yet to be deployed programs that we would reasonably expect to be funded by the Legislature, and/or whomever, and put into place, and have an impact on the amount of peak load in the State and the amount of capacity that's necessary.

A 2009 IEPR study, based on a 2008 goals study, funded by the CPUC, came up with some pretty large numbers and you can see them there.

We're spending more money on energy efficiency

than ever before and we're counting on it to provide a lot of capacity.

Questions as to whether or not it can actually do that and do it by 2020 are valid.

Updated estimates for the 2012 IEPR update are being prepared as we speak. I don't know exactly when they're going to be out, but there are going to be new estimates coming forth.

Combined heat and power; Commissioner Florio asked a question about combined heat and power, and it's ability to provide stability and meet local capacity requirements.

This is another preferred resource for which reasonably high targets have been set. The Governor's Office has called for 6,500 megawatts by 2030.

In the AB 32 scoping plan the ARB called for 5,000 megawatts by 2020. They now express that goal in terms of GHG emission reductions. But the targets set in the 2000 long-term procurement proceeding were based on the ARB target.

And what you see at the bottom is 1,505 megawatts were sort of set aside for the utilities to procure and inform the CHP. That's half the goal of ARB, 2,000 megawatts less the share that could be reasonably expected to be procured by publicly-owned

utilities.

So, we start out with 1,505 megawatts. And the 2012 study, funded by the Energy Commission, said a business-as-usual case is going to get you 1,123 in the ISO control area, plus another 375 or so outside it. So, now we're -- the numbers are getting smaller.

And a workshop held under the umbrella of the 2012 IEPR yielded questions regarding whether even the ICF numbers were a reasonable planning assumption going forward.

PG&E and Southern California Edison, in oral and written comments, testified that numbers that they had previously submitted, they thought were reasonable planning goals. So, now you can see we're down to about 700 megawatts going forward.

So, demand response. We have very, very high demand response goals. You can see that in 2020 the 2010 LTPP set aside, it's over 5,000 megawatts. Right now we're sitting at about 2,600.

So there is a question as to, one, can we ramp up to 5,000 megawatts in the next years? And the ISO and others will point out that even if you get the 5,000 megawatts, not all of it may be able to contribute to meeting local reliability and stability needs on the system.

So, renewable resource development, we're looking at two of the four cases developed by the CPUC. For the 2010 LTPP, the cost constraint case or the ISO complaint cases, and then the reliability constraint case, which has more than 9,000 megawatts of Dg.

The implications of 9,000 megawatts of DGA are you have more capacity in Northern California because it's on rooftops. And PG&E, rather than sitting in the Mojave desert, so that is implications for the quantity of resources you have, both in Southern California and in local reliability areas.

The capacity of the resource, which I mentioned earlier, was something that might not be settled. In our numbers, which follow, we assumed solar had a peak capacity value equal to about 55 percent of its nameplate.

So, if you have a 100-megawatt solar plant, it's worth about 55 megawatts in capacity.

Solar thermal slightly higher. Wind varied depending on where it was located.

This assumption can be kind of problematic because solar is an intermittent resource.

And we created this graph out of the ISO's 33-percent renewable integration studies. And you can see the average, but nobody really wants to choose the

average output of solar at four o'clock in the afternoon because that means that half the time you're below average and you're not getting the capacity that you want.

So there is a question as to how to value solar resources in terms of capacity. You see a rather large range there at four o'clock in the afternoon.

This is really a simulation, we don't have data on 8,000 megawatts of solar plants, we have a lot of simulation data and solar radiation data. And we try and model the energy, as you see, try and model solar portfolios depending on whether you have PV, rooftop, whether it's in the Mojave Desert or on the coast.

And that range of numbers is really important and it's really sensitive to a lot of assumptions you make, so that needs to continually be looked at.

We have a similar problem with wind. I thought I'd give you a Georgia O'Keefe painting here. The color variations are the dark blue in the center is 2575 and the whiter one is 595. And how risk adverse you are determines what capacity value you attach to wind.

The lower the capacity value attached to it, the more capacity you need to reliably operate the system.

There's another issue with solar and that is the capacity value of solar is really sensitive to what your

portfolio looks like. The more solar you build, the more you drive the net peak, net of solar generation to later in the afternoon.

And if you build enough solar, the peak demand on the rest of the system is eight o'clock at night and you don't get a whole lot of solar energy. So, the value of solar depends on not only how risk adverse you are, but how much of it you have on the system.

So, we're looking at different portfolios and trying to get our hands on more granular data to look at when the system peaks, when the net peak is, when solar -- four o'clock data, five o'clock data, six o'clock data don't do you a whole lot of good because you're really -- you might be interested in what happens between 5:45 and 6:30.

Imports are uncertain. Using average imports on peak during the summer might not give you a high enough number because on most days you're not importing what you could import reliably, when you really needed it. Most high load days aren't really stressful, you're not close to the annual peak.

If you have really high reserve margins, which was said recently, you don't need as much in the way of imports.

Finally, in the long run, as we contract with

renewable resources out of state, and NP26 utilities contract with SP26 resources you're going to find that net interchange data changes a whole lot.

So, we've got some pretty large numbers out there, which the ISO has sort of agreed to use, although I doubt they're fully convinced that we can rely on these amounts of imports in the long run.

In the long run we need to consider how much California contracts with out-of-state utilities, available energies and capacity surpluses in neighboring states. If the northwest ever outgrows its hydro system, we can't rely on 4,800 megawatts of energy coming down.

Finally, here are the numbers for 2018 and 2021 for NP26. The reserve margins projected, using the assumptions that I've used, are healthy. It's conservative even if there's no uncommitted energy efficiency, there's no combined heat and power. The demand response is at 2012 levels, rather than the 2021 targets.

SB26, we have a slightly less optimistic set of numbers. And then tossing in some of the uncertainties, well, we could get more in the way of uncommitted energy efficiency, we could build Oakley, we could get some combined heat and power. The real capacity value of

renewables is probably -- it might be higher in Northern California because we go to a Northern California rooftop case versus a Southern California central station, a resource case to put it bluntly, we might get more demand response.

Moss Landing 1 and 2 is the one OTC plant we assumed didn't retire because it's a new combined cycle and it might be economically feasible for them to swap out their cooling system and continue to operate. The net interchange numbers are pretty high.

And SB26, again, you have uncommitted energy efficiency numbers. SONGS is the 2,245 megawatt gorilla in the corner, combined heat and power.

Again, so what these say is that given the assumptions that have been made in here there is enough capacity to meet zonal and local reliability.

But again, anticipating what Mr. Berberich is going to say, that doesn't mean that you're going to be able to keep the lights on in Los Angeles.

You need resources in specific locations, you need resources capable of providing certain services, frequency control, voltage support, and this doesn't tell you anything about that.

So, finally, one other thing -- there's nothing in here about power plant outages. How many power

plants can be expected to be out on maintenance at any one point in time? We said 15 to 17 percent is a nice surplus that should keep the lights on.

That assumes that maybe six or eight percent of your power plants are out at any one time on maintenance. If the number gets higher, you have a need for a greater reserve margin.

And these are the average outages on peak in the ISO, from 2006 to 2011. And the way to interpret this is 2011, at four o'clock in the afternoon on a weekday, in July and August, and June, and maybe September an average of 6,000 megawatts of capacity was unavailable because it was either broken or in the process of being fixed.

These numbers are a little strange because there's no reason that the power plants should be getting less reliable. They are getting a little bit older but -- so the assumptions you make about this, which aren't explicit in the load resource balance analysis are important and this is something that needs to be looked at.

But what is a reasonable set of assumptions about the share of your fleet that's out for maintenance on the -- for planning, that you assume for planning purposes.

And I'm out of here. How did I do?

COMMISSIONER PETERMAN: Thank you, you did very well. Thank you.

MR. VIDAVER: Thank you. Okay.

COMMISSIONER PETERMAN: You did not disappoint.

Any questions from the dais? I know that was a lot of information presented there, any comments or questions?

COMMISSION CHAIRPERSON WEISENMILLER: Well, I'll just repeat my comment from the morning because this is a simple load resource balance, it doesn't tell you anything about whether you can keep the system operating.

MR. VIVADER: Correct.

COMMISSION CHAIRPERSON WEISENMILLER: Move power around or have flexibility.

MR. VIVADER: Sure.

COMMISSION CHAIRPERSON WEISENMILLER: It is a starting point, but certainly not a conclusion.

MR. VIVADER: Correct.

COMMISSION CHAIRPERSON WEISENMILLER: But it does illustrate some of these major uncertainties. Thank you.

MS. KOROSEC: Our next speaker --

COMMISSIONER PETERMAN: Right before we take

our -- before we have our next speaker we have a quick question from the audience. Ma'am.

MS. KOROSEC: You have to come up to a microphone. Ma'am, can you come up to a microphone?

MS. GILMORE: Yeah, just a real quick question. You mentioned something about in Northern California it was rooftop and in Southern California it was a -- you know what I'm talking about?

MR. VIDAVER: Yes.

MS. GILMORE: Could you explain that a little?

MR. VIDAVER: Elaborate on those?

MS. GILMORE: Yeah.

MR. VIDAVER: There are two sort of extreme portfolios that are renewable portfolios that are created to do analysis of the system. And one is sort of more central station focused, large plants. And the stereotypical large plant is a big solar facility in the Mojave Desert or a big wind facility in the Tehachapi's.

The other scenario has -- I believe the CPUC scenario has more than 9,000 megawatts of distributed generation. Now, that --

MS. GILMORE: Besides solar rooftops?

MR. VIDAVER: And solar rooftops just --

MS. GILMORE: So, you're saying in Northern California it is mainly solar rooftops is where you're

getting it, but in Southern California it's mainly focused on centralized; is that correct?

MR. VIDAVER: I wouldn't go so far as to say that.

MS. GILMORE: Well, I thought that's what you said.

MR. VIDAVER: Most of the central station resources in the State, a disproportionate share of the central station resources in the State are being built inland in Southern California.

MS. GILMORE: And why is that?

MR. VIDAVER: Because that's where the sun shines and the wind blows.

COMMISSIONER PETERMAN: And more spaces.

MS. GILMORE: Okay, I thought -- I thought maybe it was Edison's incentive program for solar or something.

COMMISSIONER PETERMAN: No, it just has to do where the preferred and primary resources are right now for wind and solar, and happen to be in the desert, in the mountains in the south.

MS. GILMORE: All right. Okay, I didn't understand that. Thank you for clarifying.

MS. KOROSEC: All right, now we're going to hear from Dr. Barry Wallerstein, from the South Coast Air

Quality Management District.

COMMISSION CHAIRPERSON WEISENMILLER: First, we'd like to thank Barry for coming today. Yeah, I think one of my business partners, ex-business partners is head of the high speed rail and the *San Francisco Chronicle* claimed he had the most difficult job in the State. Actually, I think Barry probably does in terms of trying to deal with air quality issues down here.

So, we certainly appreciate your participation today.

DR. WALLERSTEIN: Well, thank you very much for the invitation and I gladly yield the most difficult job in the State to those that are trying to figure out how to keep the lights on.

We're obviously part of that discussion. And what I would like to do very quickly this afternoon is talk about the context of the air quality problem, not only here in the South Coast, but also it's applicable to San Joaquin, and generally applicable to the Sacramento area as well and the source of solutions that will be needed and how that impacts the energy planning process.

And then I also have a few observations to make as someone who had my current job back in 2000-2001, so I lived through that last power crisis in the current

role that I have. And so that, I think, gives me some insight into what needs to be avoided and some of the things that, frankly, start to raise the hair on the back of one's neck that we might be headed in the same direction if we don't get things straight now.

And with that, for those of you that aren't familiar with the South Coast Air Quality Management District, we're the local air district in the Los Angeles Metropolitan area.

We're home to roughly 17 million Californians, about four to five percent of the nation's population. We're the largest of the local air districts anywhere in the nation and have the largest industrial base and, obviously, a very large motor vehicle base.

We're also home to the ports of Long Beach and the ports of L.A. The port complex is the largest port complex in terms of goods movement anywhere in the nation. And, in fact, over 40 percent of the imports coming into the U.S. come through our twin ports. And the net dollar value of the goods coming into the ports is roughly a billion dollars a day.

So, we're talking about a major economic engine, not just for Southern California, but the State and the nation.

I'm going to share with you some data that puts

into perspective the health impacts and this first chart is really the most important.

And if you look at the pie chart on the left, that says nationwide. If we look at ozone exposure, summertime smog exposure for the entire United States what percentage of that exposure actually occurs in South Coast? As you can see, it's 48 percent. San Joaquin has ten and a half percent, and Sacramento had about five and a half percent, and San Diego had five percent.

So, if you look at the State of California as a whole, it's about two-thirds of the national exposure above the standards, even though we're only ten percent of the State's population.

And, of course, if you look at the statistics just for California, you'll see South Coast had about two-thirds of the exposure.

Now, this data is a little bit older and it's going to change considerably over the next few years because we've seen some remarkable improvements in particulate exposure in South Coast.

But if we went back to the 2007-2009 time period we had over 40 percent of the nation's exposure above the particulate standards.

So, I'm pleased to report for this particular

standard we're hoping to actually attain that by 2015. But I also have to report that just last week the Federal government proposed lowering the standard to a more health protective level, and intends to do so by year's end. And so we've still got work to do on this pollutant as well, considerable work.

In terms of the sources of air pollution, the motor vehicles on and off road mobile sources, in essence, are about 80 percent of the pollution problem, with the other 20 percent coming from industrial sources, as well as residences and consumer products.

However, I want to focus in on one key pollutant and that's oxides of nitrogen that comes from fuel combustion. That is one of the main building blocks for ozone or summertime smog. It is also a very significant building block for our particulate problem.

This shows the top emission sources of oxides of nitrogen. And as you can see, trucks are our largest source, then off road equipment, then the ships that come into our harbor.

And then the purple column that shows 26 tons is what we call our reclaimed facilities, the facilities that are in our cap and trade program for oxides of nitrogen.

This represents the 300 largest stationary

sources.

Then, in terms of other source categories going from there it isn't until you get to the other green bar that's residential fuel combustion, at 17 tons, that you have any stationary sources, the rest of them are all mobile sources.

So, the key here is we're going to have to really, in essence, revolutionize how we go about transportation and how we address mobile source emissions.

And that hits home in this next chart, and this looks at the emissions in 2023, with the existing rules and regulations, even including future effective rules and regulations. And what this shows is to meet the 80 PPB Federal ozone standard, for which we've already submitted our ozone plan, we need to reduce NOx emissions by about two-thirds in the year 2023, beyond all the rules and regulations that are on the books.

And there happens to be a tighter Federal standard that was adopted, and that's 75 PPB, and we'll have to jump up that level of control to nearly three-quarters.

The other news is that the Obama Administration announced, after years of study and, frankly, some litigation, a reconsideration of the ozone standard, and

they plan to make a proposal next year, the U.S. EPA will, and the range that's being considered will likely trigger at least a 90 percent control of oxides of nitrogen.

So, we're talking about doing business in a very, very different way and that would have to be done in the time frame of shortly after 2032 or a similar time frame.

So, to me what that means is that it's all of you work on renewable portfolio, and that sort of thing, and you think about the State's goal of 2050.

The Federal government, through health protective standards, is going to mandate the types of activities that you plan for 2050, but 20 years earlier.

And so that means we need to be very wise in how we go about planning our energy in the State, not only electricity, but other fuels. And we need to think about the investments today that in this short period of a couple of decades will give us the adequate infrastructure to supply our needs energy-wise, but at the same time address our air pollution problems.

So, as I was just mentioning, there are currently two Federal standards. As I mentioned, the percent reduction and what this also shows is the carrying capacity.

So, we're going from a projected carrying capacity of 350 tons per day in 2023, with very aggressive CARB and local district rules down to a number that's about 90 tons. And then with this, what we expect will be a further lowering of the ozone standard, even lower than that.

So, when we presented this data to our board about a year and a half ago, the board frankly looked at me and said, well, heck, what we really need is an energy plan. Because they recognized that if we're going to control this key pollutant and it all comes from fuel combustion, you're really talking about energy because that's how the NOx is formed. And the NOx is leading to the public health problems that we have today, which have been documented to still be quite substantial in spite of all of the progress that we've made over the decades.

And in our discussions with our own governing board, the way that we looked at this was we've typically pursued climate change, local air quality, energy and mobility as separate planning areas and we've, in a way, been in silos.

And what we've been saying in recent months is the silos need to come down and we need to be more unified in our approach to how we address these critical

problems that we face at the state, national, and in the case of climate change, international level.

So, we need to go more to comprehensive planning that recognizes the needs in each of these discipline areas so that, again, we also get a better economic outcome by considering the investments and making the investments wisely, and in a synergistic manner.

The term I like to use these days is let's go to the supermarket and let's get a four-for-one sale item, rather than paying for the same thing four times over.

So, that led our board to adopting an energy related policy. And I have to tell you, in my nearly 30 years in this business and 15 years as the executive officer of the agency, I thought this was mom and apple pie feel good, have very little resistance. And I can tell you that this policy adoption, which we did about a year ago, received more opposition and criticism than anything I can remember in recent years which, frankly, was surprising.

We could have probably rolled it out in a slower, more deliberative manner, but we didn't think it was controversial. But we ultimately spent a lot of time in discussions and hand holding, frankly, with stakeholders.

It's quite clear from the air quality numbers

that what we need in transportation, as well as stationary sources, is to get near zero and zero emissions as best we can.

That means when we talk about electrifying transportation, whether it's trucks or cars, or we talk about fuel cells that those are the source of technologies that we really need.

Just as your agencies are fuel neutral, we're fuel neutral, but we're not air pollution neutral. So, if some of the more traditional fuels can see rapid advancements that can help us solve the problem in a timely fashion, we're all in favor of that.

But looking at currently available technologies, we certainly think that electrification and fuel cells are going to be necessary and in very, very large use on a per-vehicle basis.

Clearly, the types of programs that the PUC and CEC have been involved in, in demand side management and similar types of programs are absolutely critical.

Our board has tried to do our fair share in promoting renewable distributed generation. We allocated roughly $14 million in the last year to projects of that nature, to try and help spur that market and confidence in those technologies along.

We also recognize in the policy, as has been

discussed here, that at least in the near term we're going to need some fossil fuel power generation. This is a question and I think you'll hear it from at least one panel member on the next panel. We get asked, well, why do you need any fossil fuel power plants? Why don't you just go renewables? And, obviously, you've been discussing that this morning.

But the policy recognizes we're going to have to have some but those should be the cleanest found anywhere in the world.

And we also recognize in the policy that to the degree we have those plants, and there are mitigation dollars associated with those plants, for example from offsets, things of that nature, that those dollars should go back into the community.

And in fact, under AB 1318, the Sentinel Plant has paid $53 million in mitigation and we're in the process of reviewing proposals, and my board is committed, even though the law didn't require it, has committed to put all of the money back into the Coachella Valley, where the Sentinel Power Plant is located.

And, of course, continuing our efforts on public education is going to be key so that there's an understanding of what are the limitations in terms of

keeping the lights on, and the technology, and what is the role of the public because the public, obviously, has a very important role here.

In addition to policy statements, the board directed us to go forward on a number of actions. We're doing a wide variety of things on zero and near zero emission technologies.

For example, we're working closely with the Port of Los Angeles and Long Beach, the MTA, and a consortium of others, including the State Air Board, to have a zero emission truck demonstration using overhead catenaries for goods movement. And these trucks can go on and off the catenaries at will. And we think it's a promising technology.

We're also involved in fuel cell truck demonstrations, and so on.

The board, my board has a significant interest in plug-in electric vehicles, whether they be hybrids or battery electric.

We know that you all are working aggressively on this topic. We're a member of the Plug-In Electric Vehicle Collaborative.

We have been participating and we're very interested in continuing to see the standardization of charging installations to facilitate that technology.

And although the PEB Collaborative I don't think is going to take it on, we think there are some issues regarding rate structure that the PUC is going to need to consider. And President Peevey has been present in some of those meetings to hear about some of the concerns.

We're also a supporter of biogas and other clean energy sources provided they are low emission technologies. And we have some problems today, but we also see some advances on the horizon that will allow biogas, for example, to be used in a very low emitting fashion.

And of course I'm here today and participating in your other forums because the partnership is absolutely critical for the State to work its way through these issues, and then our boards ask us to periodically report back.

Now, I want to talk for just a second about deregulation and I know I'm going out on thin ice because it's a topic that folks, frankly, I don't think want to talk about so much.

But I think, like with all things, there are learning lessons that you have through experience and that in government there's an obligation, even, that we go back and revisit some of our past decisions and see

what ways we might make improvements.

So, prior to the deregulation, as you all know, we had the investor-owned utilities -- actually, this slide was updated, the right number is, I believe, 48 percent. No, on the next number it's updated.

The investor-owned utilities provided 77 percent of the power before deregulation. And I'm all for competition and I'm all for lower prices for energy, but there are differences, at least in my dealings, when I'm doing the permitting, between a California based company, such as Southern California Edison, and some of the private companies, privately held companies that are producing power for us. So, a very different tone sometimes in the meeting.

And we went from that sort of a situation to a 42 percent now being the private companies.

And the other thing that I think has changed, which I've mentioned in other meetings and got very quick push back, is the CEC used to do a needs analysis. And we get asked, when we get power plants permits, is that plant really needed? Does it really have to be in this location?

And so in terms of the State's planning process I'm not convinced that the current structure doesn't need some significant improvement and that there aren't

things that happened in de-regulation that shouldn't be revisited as we look to the future.

And we're really, as I talked to you about 90 percent NOx control, we're really talking about revolutionizing what we do for energy in this State. And you all are well underway with many of the activities that you've been doing with AB 32, and otherwise.

But we really need to take a long-term view, make sure the right measure's going into place today to set the foundation for where we need to be so that those investments are wise investments.

Now, in terms of offsets, some of you may have seen a chart like this before. This shows on the -- for emission reduction credits, also known as emission offsets, in the red bars what the supply is. All entities outside of the South Coast we have a bank, as you may be aware, but that's all ERCs held by everybody else.

The green shows the price and the price has come down in the last couple of years. But I'll tell you, even if you look at the current so-called lower price, you know, it's considerably, considerably higher than you would see in any other air district, in some cases by an order of magnitude.

Then if you look at the yellow bar on the far right, and when you think of the Sentinel Power Plant, and you think of the NRG facility, and you think of the Walnut Creek plant in our district that's the number of offsets that they needed. Obviously, exceeded supply, which caused 1318, so Sentinel could come to our bank.

It caused Walnut Creek to buy Huntington Beach 3 and 4. So, they go through a PUC bid process. They beat out a competitor and the only way they can build their plant is to turn to a competitor to buy a 40-some-year-old asset.

That at least tells me something's wrong.

And then in the case of NRG, they get left out of the 1318 because they're trying to run their own bill. And what happens to them is they go ahead and are repowering some existing facilities.

On the issue of status of power plants, on this chart, because you've had several charts kind of like this today, and the numbers are a little bit different because we're all setting our boundaries as to what's included in the numbers a little bit different.

But these are facilities that are coming to the South Coast District and for which we hold permits.

And so the main point on this slide is if you look at the total number of additions in terms of

megawatts, then you look at the shutdowns plus the megawatts that are subject to the OTC termination, what you find is we're not adding a whole bunch of megawatts, at least not coming through the AQMD permitting process. It's a wash or a deficit. And that should cause us some significant concern given that we do expect energy needs to grow in spite of conservation and so on.

Now, I just would like to end with a couple of slides. This first one I'm calling observations, concerns. And this is me speaking. I didn't go to my governing board and ask them what their observations or concerns would be, but based on my 30 years, 15 years as the executive officer.

I think we have to think about this outcome of deregulation transferring a great deal of your ability and my ability to help keep the lights on to a small number of companies that are not as tightly controlled as the investor-owned utilities.

Because the PUC doesn't have the authority and the CEC, once your issuing your permits then your authority is much more limited.

And I think what we experienced this summer with Huntington Beach 3 and 4 is a perfect example of that. And the fact that we need to make some enhancements to our energy planning process.

No one expected San Onofre to go off in the manner that it did. But what if there had been an earthquake or some other resources were damaged by earthquake, or transmission lines by wildfires, and so on, would we be ready?

And in the case of Huntington Beach 3 and 4 I can tell you that if they're going to throw the switch at Walnut Creek, and they promised their creditors that they would, Huntington Beach 3 and 4 are gone.

Now, you may -- you know, we heard today, the first time from a State agency, so it was important that I was here to hear it, you may want to be able to spin that turbine for certain reliability purposes, but in terms of emissions they're not going to be burning fuel there.

And the chart that I showed about the offsets shows we don't have that solved. There's a problem there that needs to be addressed. It isn't just a power plant issue, it is potentially a much bigger issue.

But we certainly need, with the long lead time necessary for power plants, to be able to ensure that there are adequate offsets for the power plants that need to be built.

Lastly, just the one key takeaway message, as you've heard from me over the last few minutes, is let's

maximize our co-benefits. Let's address local air pollution problems, whether they're meeting Federal Clean Air standards or reducing exposure to toxic air contaminants, or the State and locals desire to do our fair share and make sure greenhouse gas emissions are properly addressed.

But let's do it in a way that helps you with energy security, energy diversity, create a better certainty about cost, especially for important sectors, such as the goods movement sector that is so critical to the welfare of the entire State.

And with that, I'd be happy to answer any questions you may have.

COMMISSION CHAIRPERSON WEISENMILLER: Well, again, certainly we appreciate you being here today. I think certainly the things that, as you said when we do our planning, you know, we have to be planning for contingencies.

And although I think in the 27 years of operation we've always had at least one unit of San Onofre operating, this summer we don't. You know, and so that was, for whatever you want to call it, the black swan, or whatever the horizon that we had to change our thinking on, would assume that into the Huntington Beach situation.

And I guess today we're at least starting the dialogue to say that, you know, obviously Edison is hoping that San Onofre 2 is back as early as September. We don't know, you know, and we're not sure where San Onofre 3 is. So, we at least have to start asking ourselves what if?

And that's going to be, as you know, we take the reliability responsibilities, you know, very seriously and also understand the phenomenal air challenges here, and the sort of transformation that's necessary.

And as you said, long lead times -- Cal-ISO did a chart in August of last year that indicated that, you know, we need to be making decisions now on power plants if there's a chance of getting them online by, say, 2018.

So, you know, it is one of these things where we're facing a number of real issues going forward and, as you said, it's a very tough environment down here to figure out how to keep the lights on that deal with that transformation but, again, to move forward in a way with all of us working together to pull this off.

And I mean part of the message, which I think also really surprised all of us, is location really, really matters on power plants, and that there are certainly key locations in this area that we're trying

to understand, which are where we need to put the plants.

And, hopefully, that will us to have the minimum number down here going forward.

But we certainly look forward to working with you on dealing with these challenging issues.

DR. WALLERSTEIN: Well, Mr. Chair, I want to assure you, and everyone else up here at the dais, and first let me say that we have an extremely good working relationship with the CEC staff, in particular, and obviously work as closely as we can with Cal-ISO and the PUC.

Because I was involved in that last power crisis and I did personally get a call from the Governor's Office about, and it's a story some in this room have heard me tell, about a negotiation that was going on in the next room and what could we, at the AQMD, provide to help the negotiation, so the lights could stay on.

That's serious business. All us understand very clearly the impact of the lights going out in terms of public safety and health. But no Governor should be put in a position where they're calling an executive officer of an air district, asking for assistance like that.

And in the case of Huntington Beach what we saw, in my view, was we got lucky. We got lucky that when we

all did the analysis that there was a way to restart that plant. We may not be that lucky next time. There are Federal requirements that will be well above and beyond anything that I can do, or any of you, or the Governor could do, potentially, in some circumstances.

So, we need to be getting it right, as I know all of you are working so hard to do.

The last thing that I'd like to say about Huntington Beach, if I can just take one more second, is the theoretical replacement to the broader, less-educated audience, is the Walnut Creek project because it bought 3 and 4 and the new owner, Mission Energy, is shutting it down.

But when we have the technical discussion of whether Walnut Creek is located in a place that if that had happened a year earlier would have solved the problems with San Onofre being down, the answer is no. That as a resident of Orange County, under a series of unlikely, but possible scenarios, my lights would have gone out.

And so we need to think about, a little bit more, and maybe that filters into the PUC process in terms of where Edison is, and the CEC are having Edison procure plants, and whether the locations are the locations we need, especially with all the changes that

are going to occur due to the once-through cooling requirements.

COMMISSION CHAIRPERSON WEISENMILLER: Well, I agree. And the other thing is, obviously, we are starting to look at options, some of the technical things. We don't know whether they're going to work or whether we can buy that equipment in time.

But we certainly have more time than we did last spring to try to evaluate all the options and come up with the best portfolio.

DR. WALLERSTEIN: We're here to --

COMMISSION CHAIRPERSON WEISENMILLER: If we need it.

DR. WALLERSTEIN: We're here to help and I'd like to think that the U.S. Congress would not allow an intolerable situation in California or Southern California. But I just got back from DC, I was there yesterday, and I can tell you from conversations that we had with five members of the House, I'm not so sure.

COMMISSION CHAIRPERSON WEISENMILLER: I hope your flight back was better than mine. Mine was like three hours late so, anyway.

DR. WALLERSTEIN: All right. Thank you again for the opportunity.

COMMISSIONER PETERMAN: Hi, this is Commissioner

Peterman here. I'll also just make the observation that your presentation touched upon the importance of thinking about our energy in a comprehensive manner, both our transportation energy and our electricity supply.

And, you know, one takeaway from your presentation is that in order to meet some of these air pollution goals, if electricity becomes a more prevalent form of transportation energy, then we'll need to think carefully, as well, about the emissions from those power plants. I think both from a carbon stand point, that we need to be better than we are now.

And, also, there are some local air quality issues with power plants and if they're going to be utilized more for transportation we want to be cognizant of that. And that speaks to the need to even think more carefully about the supply.

And we'll continue to have conversations about transportation, I'm sure, and we're enjoying our engagement with you on that.

CPUC COMMISSIONER FLORIO: Just one question about offsets. Is it possible to create offsets in the transportation sector that can be used in the power plant sector?

I know that one example in San Diego where that

happened, but I don't have a good understanding of what the options are.

DR. WALLERSTEIN: That's a great question and I have a very specific answer for you. In the case of the Sentinel Power Plant, they came to us and said we would like to do transportation-based offsets, or generate them by any other means. We're willing to spend $50 million. Can you tell us what we should do that would give adequate offsets to site the Sentinel Plant?

I put my staff to work. They dedicated their staff. We spent probably six weeks and none of it penciled out for the $50 million that they said was the critical financial point for whether their project was a go or not.

So, the problem with the transportation offsets at this point in time is that they're relatively expensive. Now, that doesn't mean when you go through the procurement process for the megawatts that you couldn't account for that, but it means that at least in the case of that particular power plant it just didn't work.

COMMISSIONER PETERMAN: Two things. We're going to have time for one or two audience questions. I already saw one hand over there. Well, okay, you guys have to figure that out.

But in the meantime, first we're going to hear from Commissioner Catherine Sandoval. Welcome, thank you for joining us this afternoon.

CPUC COMMISSIONER SANDOVAL: Thank you very much. I had to go to another meeting this morning on media diversity, and part of what we were talking about was the outreach to the diverse range of Californians who may be affected by the outage of SONGS, particularly those in Orange County and San Diego County.

And I just really would like to thank you, personally, and the Air Quality Management District, for your assistance and cooperation in getting Huntington Beach back online. We would truly be in a world of hurt without that. So, really, thank you very much for that cooperation.

DR. WALLERSTEIN: We were happy to do it and it really, as was said earlier today, it really was a team effort of the PUC, the CEC, and the Cal-ISO, and CARB, and your chairman, as well as Chairman Nichols were both personally involved to a very large degree.

COMMISSIONER PETERMAN: So, there's a gentleman who had his hand raised first a while back. Do you remember who you were, you were right in this area somewhere. Yeah, so if you want to come and ask your question? You have to come to this table and use the

mic.

MR. SAHLER: Yes, yes.

COMMISSIONER PETERMAN: If anyone else is interested in asking a question, stand behind this podium. We'll take as many as we can, but we'll keep it short.

And also, we will not be taking the break in the interest of time, so take a break as needed.

MR. SAHLER: Okay. Dr. Wallerstein, I especially wanted to ask because I wasn't sure if you were going to stay around until the very end.

You were very specifically saying you want to make sure that there are emission credits around for power plants. Did that mean that you were -- were you actually almost implying that you were going to seek regulatory relief from the Clean Air Act, or something like that?

DR. WALLERSTEIN: No. What I was referring to, and let me answer you also very specifically. We have short-term needs that we're going to have difficulty meeting, and I felt it was important for the Commissioners to be aware of that.

In terms of the offset provision of the Clean Air Act, we've had public meetings where we've talked about the need, potentially, to revise the Clean Air

Act, and potentially even replace offset requirements with something else that would be protective of the regional air quality.

But that's not going to be something that's going to be done overnight. It would be a multi-year process and it would be a lengthy public process and, obviously, also requiring an act of Congress.

At some point there just aren't offsets to -- and it's not just power plants, it's everything.

COMMISSIONER PETERMAN: And I'm going to take -- I'm going to take questions, first, from those who have not spoken at all, so I'm going to turn to the third person in line. Oh, did you? Okay, you all did. All right, then. Please.

MS. DIDLO: I would like to mimic Commissioner Sandoval's thanks to all of you, because I also live in Orange County, so I'm happy that my electricity supply, hopefully, will be more reliable this summer.

I would just like to make one comment and just maybe confirmation from you, Dr. Wallerstein, that the OTC plants don't actually need any offsets, other than what's in your bank to rely on the 1304 rule.

DR. WALLERSTEIN: Well, this is actually an issue that we're evaluating. And provision that was relied on by the Walnut Creek plant has been in place

for a long time and something that, just as I'm encouraging them to look at de-regulation, may be something that we may ultimately need to look at.

MS. DIDLO: Thank you.

MR. DAVIS: Thank you. You may have heard my last question to Mr. Berberich.

COMMISSIONER PETERMAN: And we're, I think, in new questions, so if it's a new question, please offer it. Please don't ask the same question you asked before.

MR. DAVIS: I believe this is a new question, but you can certainly be the judge of that, as you can.

Mr. Berberich said that it wasn't up to him whether I asked whether or not if the -- if we needed Huntington Beach again in 2013, we could use it. He said the air credits are up, if I understood correctly, and it wasn't up to him.

It sounds like it's not necessarily up to you, but you referred to the Federal government.

MR. BERBERICH: No, no.

DR. WALLERSTEIN: Steve, if you want, I can answer, give him my answer, but I think you gave him an answer earlier.

My answer is simply this, if the Walnut Creek plant fires up, which they're spending hundreds and

hundreds of millions of dollars to do, so it will, at that moment in time 3 and 4 will be gone unless someone wants to try to bring it back as a new power plant, go completely through the permitting and somehow come up with offsets.

MR. DAVIS: Yeah, but that would have been the same question. My question was if we needed Huntington Beach more than we needed Walnut Creek, could we not start Walnut Creek and start Huntington Beach instead, and would that expedite the process.

MR. BERBERICH: I'll take this.

DR. WALLERSTEIN: Sure, go for it.

MR. BERBERICH: Walnut Creek and Huntington Beach are not electrically equivalent. Walnut Creek is also needed for other purposes. So, we can take away Walnut Creek and keep Huntington Beach, I'm not suggesting we do that, and that will create other issues. So, I want to be clear about that. Huntington Beach is there, Walnut Creek is there for a very good reason as well.

MR. DAVIS: No, but we could do it, I appreciate it. That's it.

DR. WALLERSTEIN: But there's another piece of information here and I know they need to --

COMMISSIONER PETERMAN: Yeah, please to.

DR. WALLERSTEIN: Walnut Creek is owned by Mission Energy. Mission Energy owns Huntington Beach 3 and 4. Walnut Creek is the future and the investment of Mission Energy. They're not desiring to keep 3 and 4 running and keep a $700 million plus power plant sitting there, not doing anything. So, Mission Energy is not going to have motivation to have 3 and 4 running.

COMMISSIONER PETERMAN: Thank you. We'll move on to the next question.

MR. DAVIS: Thanks for your patience.

MS. GILMORE: I was very happy to hear everything you said. I live in Orange County, also, and I attended the NRC -- am I too short or does this move? Okay. I'll get my exercise here.

I attended the Monday NRC hearing, because you were talking about the issue of the San Onofre's down and we need to have a backup plan for that, and what are the odds, and we didn't think it would happen.

Well, at the NRC hearing Monday the -- what's his name -- I didn't write his name down. Mr. Warner, from the NRC Audit Investigation Team, the head guy, he said that the computer simulation for the steam generator was off by 300 to 400 percent.

So, they build this, you know, three-quarters of a billion dollar, four steam generators, and the

engineering technology was such that they're off 300 to 400 percent on the amount of vibration or, you know, what the water would do and all that kind of stuff.

And now, we have these same engineers, or the same people hiring these engineers, trying to figure out if they can fix these things or replace them. I'm concerned that the technology in the nuclear industry right now, based on what we're seeing, that we may even want to make a higher probability that these nuclear plants are going to fail based on, you know, the facts on the ground.

So, I urge you to make it a higher priority to make sure that we have a backup plan, at least so plants don't come down.

In addition, I read in your --

COMMISSIONER PETERMAN: Ma'am, do you have a question? We'll have public comment at the end of the day and happy to --

MS. GILMORE: Yes, I do have a question. In the transmission planning, the ISO transmission plan, it looks like they're prioritizing the once-through cooling gas plants to go offline prior to the nuclear plant, and becoming more dependent on the nuclear, if I'm reading it right. And I would suggest maybe we want to consider reversing that.

And also, I think in terms of solutions for the air quality if we can do more distributed solar, as the Sierra person was suggesting, that there may be a way to expedite that. But we need a lot better rebates for the public, we need long-term financing for the public.

COMMISSIONER PETERMAN: Thank you for your comments, though, because there's --

MS. GILMORE: Well, it just seems you have, you know, some problems with how to solve all this and it seems like there's solutions. And I would love to be able, as a citizen, to be able to participate more in this. I, personally, have tried to get solar and do some other things and I'm finding very -- a lot of roadblocks. Anyway, I just wanted to make those comments.

COMMISSIONER PETERMAN: Well, thank you for your comments on that. As I mentioned earlier, the Energy Commission has been holding workshops for the last while on the --

MS. GILMORE: Okay. I just I'm not sure people are aware of what's going on with the new plant, that it isn't as reliable as people seem to think it is.

COMMISSIONER PETERMAN: Well, thank you for your comment and we have that on the record.

MS. GILMORE: Okay.

COMMISSIONER PETERMAN: So, if there's a final question, we'll take a final question. So, we'll have public comment. This is the last question we'll have, I'm sorry.

You can feel free to follow up and ask Dr. Wallerstein questions afterwards, or staff. But then we're going to move on to the next presentation, which I think you all will be interested in because it's about a high renewables case.

So, sir, final question.

MR. FREEMAN: My question is to the panel and it's prompted by a good friend, Barry Wallerstein's comments.

In looking at the future, if you look squarely at the fundamental question of whether we should repeal de-regulation, it was a failure. It is a failure and it continues to be a failure. And you have no one who is responsible for generation.

You can talk about it, you can cajole, you can at the last minute try to get everybody to do something.

But it seems to me that if you're really looking at the future of power, and let me tell you, if you're consumer oriented, as Mr. Florio I know is, the system we have now deprives the consumers of California of the benefits in years '15 through '30, of these power plants

that will have zero fuel.

The cheapest power in California today was a very expensive power plant when it was built, Hoover Dam. These solar panels will last 30 years. They're being paid out in 10 or 15 years. This system of de-regulation is cheating the people of California out of the benefits of these plants in the last 15 years, unless you do something differently.

And it leaves you without the authority and the ability to really go for the kind of green goals that everybody keeps mouthing, and really will not be implemented without the kind of authority that we had in the good old days when there was a compact between the utilities and the public.

The utilities had the responsibility for adequate power supply and no blackouts, and they were given cost plus.

My last comment, when are you going to start telling the people of California that the price of electricity is the equivalent of a dollar of gasoline. It needs to go up so we can do all the things we need to do, but it will still be a great bargain for them in the future as we use electricity in our transportation sector.

The politicians will never do it. It is up to

you folks to tell the people that the price of electricity has to go up because, otherwise, you'll be talking, yelling, and screaming, and none of these things will happen.

COMMISSIONER PETERMAN: Thank you for your comment. I think you've already just told them, so we appreciate that and we'll keep passing on the word.

Dr. Wallerstein, thank you so much for your participation. We'll move on to our next panel group.

MS. KOROSEC: All right, our next speakers are James Newcomb and Mathias Bell from RMI.

MR. NEWCOMB: Well, thank you very much. It's a pleasure to be here. As you've no doubt heard, we have a few fires underway out in Colorado, including the High Park fire that's burning now on more than 100 square miles. So, it's a welcome change, actually, to escape the smoke and be here in Southern California.

And not coincidentally, our theme is to talk about reinventing fire. That is some follow-on work done, just in the last few months, to the work that Rocky Mountain Institute published in reinventing fire, last year, that looks at possible pathways for the transition away from fossil fuels and nuclear to renewables and efficiency broadly speaking.

The work that I want to speak about today is a

scope down at that analysis to look at Southern California in particular, to look at resource portfolio options, costs and, in particular, at the options that may be available for pushing the envelope to meeting a higher proportion of our future needs from distributed resources, distributed renewables, efficiency, greater electrification of vehicle transport, and the whole portfolio of distributed resources that are transforming the electricity system with, or without, our policy choices behind it, in reality.

So, I want to share some of the analysis that we've done so far. The final publication of this work will probably not come for another three weeks or so, but we were invited to give you a preview of the analysis results that are substantially complete. And look forward to receiving your comments and collaborating with other researchers and analysts in looking at the same issues here, in California.

Obviously, these resource issues are critically important for our infrastructure choices because we're making decisions about infrastructure that have lifetimes of 20 to 50 years. And those infrastructure choices depend on having a vision of where we're going to where we can go, and where markets may take us as distributed resources play a more substantial role as a

part of future supply portfolios.

So, this work focuses on Southern California. By which we mean, for definitional purposes, everything in California south of Southern California Edison's service territory.

So, it includes municipal utility jurisdiction or areas not subject to CPUC jurisdiction. And I'll explain a little bit about how we put the analysis together to look at that region.

We picked Southern California as a scope down for reinventing fire for a variety of reasons. Partly because of the policy leadership here and partly because of the high penetration that's already being achieved for solar PV, electric vehicles, and other distributed resources in this region that put the region on a high probability track toward what we think of as the pathway towards reinventing fire.

We've looked at a 50 percent renewable electricity scenario for 2030. It's a reasonable -- one could argue about what the right interim step might be between California's existing 33 percent goal for 2020, and long-term goals necessary to achieve 80 percent emissions reductions by 2050.

Eighty percent emissions reduction or in the case of specifically what we're looking at here, 80

percent renewable electricity generation by 2050 might have been a pretty heretical idea two, three, five years ago, but it's increasingly less so today.

Partly, as we see increasing experience around the world, in particular jurisdictions, of experience with high renewable scenarios, and as analysis work begins to accumulate as to what those kind of scenarios might look like for the United States.

In 2011, Rocky Mountain Institute published *Reinventing Fire*, in which we looked in considerable detail at two scenarios for 80 percent renewable electricity on a national basis by 2050.

Those two scenarios looked at alternative paths to meet that goal. One in which the majority of that renewable generation comes from large-scale, utility-scale, and in large measure remote renewables.

And another described here, that we labeled the "transform scenario", in which an increasing share of that renewable generation comes at local scale.

In any case, we used the NREL ReEDS Model, which is probably the most sophisticated tool of its kind to look at scenarios of this sort. It breaks the country down into more than 450 geographic regions. It looks in detail at the operational and resource constraints and opportunities for scenarios of this kind.

Just last week, and you're probably familiar with this work, NREL published its Renewable Electricity Future Study, culminating several years of work by NREL and MIT, in conjunction with a number of the other national labs, Oakridge, Pacific Northwest, Lawrence Berkeley, and others to look at 80 percent renewable scenarios, a range of high penetration scenarios.

But depicted here, 80 percent renewables by 2050.

Again, you'll see in this illustration by far the biggest share of that renewable supply in 2050 comes from wind.

So, there's slightly different portraits of different groups to get to the same goal, but they set a framework for us to think about options here, in California, and in particular in Southern California.

To do the analysis that I'll speak about today, we used a tool that's familiar to the California policy analysis community, the CPUC RPS calculator, modified by our analysis partner, which is Environmental, or E3, Energy and Environmental Economics, to extend the analysis time frame to 2030.

We built a set of policy and market assumptions to drive those scenarios, which we'd be happy to talk with any of you about.

And we adapted some of the tools for system level capacity analysis to provide a more precise look at high penetration renewable scenarios going forward.

I want to say a few words in particular about one set of assumptions that go into that, which has to do with electricity supply, costs, and potential. That, in particular, is renewable energy cost assumptions.

Being from RMI, you might expect that we've used some wild-haired, optimistic assumptions about how cheap solar might be in the future. Here's the numbers that we used.

We assumed that by 2030, rooftop solar photovoltaics would cost $2.70 per watt in the commercial sector, $3.18 per watt in the residential sector.

So, here's a benchmark to compare that against. Just reported last week, what were the costs in Germany for installed -- a portfolio of installed rooftop PV; $2.24 a watt. Pretty amazing what scaling can do in these markets.

If you back out the hardware, the German hardware costs, and look at what the implied balance of system soft costs for installing rooftop PV in Germany are what are those today? They're less than 90 cents.

So, think about the leverage that policy has

over soft costs. When you get an economy of distributed PV to scale and streamline, as Germany has in dramatic fashion, the interconnection and permitting requirements, you can get to 90 cents soft costs today.

And that's not 2030, it's not a bigger scale than what Germany has today, it's what's reasonable and in fact actual on the ground today.

So, if anything, I'd suggest our cost assumptions are probably conservative for 2030 PV.

Yeah?

COMMISSIONER PETERMAN: If I may, I'm going to interject with a quick question here, before we get off this slide.

MR. NEWCOMB: Sure.

COMMISSIONER PETERMAN: So, when I was looking at that I was thinking about what are your assumptions around integration costs? At times I have trouble looking at renewable costs around the capital, because I don't think it tells the whole cost scenario, frankly.

MR. NEWCOMB: I'll talk a little bit more about integration costs. And if we want to go into detail, I might allow Mathias Bell to comment a little bit on that.

COMMISSIONER PETERMAN: Can you speak to -- speak to where the model --

MR. NEWCOMB: Yeah.

MR. BELL: I can say it has a $7.50 per megawatt --

MS. KOROSEC: Is your mic on?

MR. BELL: So, it assumes a fixed -- it assumes a fixed $7.50 per megawatt adder. Which I think it is standard for what was used in the past RPS calculator.

MR. NEWCOMB: Yeah, so we're pretty much using the same kind of assumptions. We could have a long technical discussion, I'm sure, about what those integration costs might be.

And also interesting, I think, to look at integration costs, again, in the context of some of the national scope or other studies that adopt different approaches that are actually building up those integration costs from real system costs, storage costs, reserves costs, and other components, rather than just using a fixed adder.

But thanks, it's a great question, it's really important to the analysis.

So, the second dimension of assumptions worth calling attention to has to do with the technical potential for solar PV, how much can we put on the system.

Here, we drew on E3's previous detailed

technical analysis, which looks at that opportunity statewide in California. We scale it down to the Southern California region and looked in particular at assumptions around Rule 21, or interconnection criteria. How much solar can you put on a distribution feeder?

And, obviously, that has tremendous impact for the distributed PV potential, ranging from at about six gigawatts, at today's 15 percent threshold, to around 12 gigawatts. And bear in mind these are Southern California numbers. To around 16 gigawatts if you think about the total capacity, without back-flowing distribution feeders.

Here are the scenarios we looked at. You can think about them at a high level in terms of two key parameters. The first is whether or not the San Onofre is retired in 2022. That's the top two scenarios here. And the bottom two scenarios assume it's retired in 2022.

The other assumption is to explore the balance of large-scale versus distributed renewables. So, on the left side of this matrix are the large-scale renewable scenarios. On the right side largely, or significantly more in terms of the balance of distributed renewables.

We gave each of these scenarios names because

it's not just those two parameters, but actually a bundle of policy assumptions that are embedded in the model to look at those scenarios.

But we can take those apart individually and look at the impact of individual policy measures as they affect the outcomes.

So, here's the one look at overall results. By 2030, the model tells us that there are adequate resources to meet a 50 percent renewables goal.

Obviously, the green part of these broken bars comprises both large scale and distributed renewables. And the ratio of those changes significantly among them.

And correspondingly, because of differences in load factors, there's some differences in how much -- how much capacity is required to meet 2030 requirements.

We think about that in cost terms. The first thing I want to say is be careful about assigning too much weight to these cost assessments.

For one thing, these scenarios include no specific assumptions about what costs might be required to keep San Onofre online. We don't really know what that number might look like today. We didn't try to make a guess at it.

But we could take estimates for that and plug it into this analysis. What we know is that these scenarios

are probably conservative in terms of the cost assumptions about the cost of scenarios that keep San Onofre running.

In any case, the total resource cost in 2030, of these scenarios, ranges from $35 to $39 billion in the year 2030. Not as dramatically different as many might think that those scenarios might be.

And if we think about those implications in terms of the average cost of loads served, we're in the range of about 20 to 22 cents per kilowatt hour across these scenarios. Relatively modest cost difference for some pretty different scenarios in terms of their implications.

It's also worth pointing out that if we think about that in terms of the total costs over the period from 2012 to 2030, the difference among these scenarios is between about a one percent increase in costs in what we call the advanced scenario, relative to a 33-percent reference case, to about a seven percent increase in cost for the transformed scenario, which both assumes the retirement of San Onofre and significantly higher shares of local distributed renewables.

All of these 50-percent scenarios achieve substantial greenhouse gas emission reductions, ranging from 42 to 57 percent across the scenarios and give us

an indication of the kind of progress that would be made toward California's long-term emissions reductions goals.

I want to emphasize that, as is always the case with running models, there's a lot left out, a lot of costs or considerations that should be important to policymakers that are not taken into consideration here.

One of them is that, as I mentioned, we don't know what it might cost to keep San Onofre online. In this case, again we're looking at a long-term scenario, so online beyond 2022.

Secondly, we have not explicitly tried to factor into this analysis fuel price and supply risks. Higher renewable scenarios have lower fuel prices than fuel supply risks, and that's not quantitatively embedded in the cost assumptions here.

Thirdly, we've not tried to take into consideration, and it's difficult to do, differences in reliability or resilience among these scenarios.

Increasingly, analysts are looking at resilience as an important measure of how our electricity systems might perform in the future, and there's growing consideration being given to the value of distributed resources, micro grids, new ways of actually operating and managing the grid that may create substantially

greater resilience and create an electricity system that has a set of characteristics quite different from the operational characteristics of today's grid.

There's no explicit consideration given to local job creation, which is probably significantly greater in the distributed resources scenarios.

And finally, we've not taken an economic look at the costs of over-generation or curtailment in the high renewable scenarios.

So, there's a variety of things that are subject or target for future analysis and we look forward to working with others to kind of round out the analysis to better understand those dimensions.

I want to add a couple of analytical caveats, just to be careful that this work is not misinterpreted or directed toward questions that it's not really well-suited to address.

The first of them is that this is not a grid study. We're not trying to speak to the issues in 2012 of how the grid in Southern California might operate, or the tradeoffs between scenarios with and without San Onofre.

This analytical tool that we've used is not suited to that kind of analysis and we really, just to be clear, are not at all looking at those questions.

We've assumed, as a conservatism, that a full 2,250 megawatts of gas-fired capacity is plugged into this model in lieu of San Onofre in the non-San Onofre scenario.

So, it's a rough cut way to look at grid operations without San Onofre.

And finally, there are a variety of questions around ramping that it's better for us to build analysis around in the long term. As Mathias mentioned, the CPUC's modeling tool has some beginning approaches to those, including an integration adder, rather than detailed modeling of those costs.

So, we're pleased to share that work in its preliminary form. As I mentioned, we're wrapping up a more detailed report.

We look forward to the dialogue, both with policymakers, and utilities, and renewable energy developers, and other stakeholders around these possibilities.

And in particular, it's our view, as I mentioned, in emphasizing the importance of what's happening in Germany that ongoing, local forces that are affecting the cost of distributing renewables mean that the game, or the balance between what happens on the customer side and what happens on the grid and the

utility side is not totally in the province of either utilities or the State policymakers.

Thanks very much.

COMMISSIONER PETERMAN: Thank you very much. Appreciate the work that you're doing and the presentation. And I think, in particular, the analytical caveats that you raised, particularly some of the nuances related to ramping, as well as SONGS retirement, will be important to explore going forward because I see those as major uncertainties.

I have just one clarifying question; what's your assumption around the rest of the State, as well as the rest of the WEC, what fate are they in, in this 50-percent renewable scenario?

MR. NEWCOMB: Yeah, so for analysis purposes we took the CPUC calculator and ran it on the statewide basis, with a 50 percent statewide goal and taking -- we took San Onofre out, taking all the nukes in the State out, at their re-licensing dates.

Then we took a snapshot, because we really wanted to look in detail for some other policy and other purposes at Southern California.

And we do -- Mathias, refresh my memory, there is a slice of renewable electricity imports that's allowed as part of the meeting the 50-percent goal.

COMMISSIONER PETERMAN: Any other questions from the dais? Thank you very much.

I'm going to ask the next panel to assemble because we have a number of exciting speakers and I want to make sure they get their full time and that, really, sufficient time for audience comment and questions at the end.

As you all come up and assemble, first of all thank you for being here, looking forward to the discussion.

We'll ask that -- I know you all have introductory comments to make. Please cover what you need to, if you can keep it less than the allocated ten minutes that will leave more time for the fruitful discussion, which is always the fun part of the day.

All right, Mike, let's get started.

DR. JASKE: I just wanted to get John White to appear, that would be helpful.

COMMISSIONER PETERMAN: We can start with someone else, then.

DR. JASKE: Yes.

COMMISSIONER PETERMAN: He'll jump in.

DR. JASKE: So, my role here today is to essentially try to keep you on track time-wise, and I'm going to call you in the order printed in the agenda,

with the exception that Mr. Avery has asked to go first. So, sir, proceed.

MR. AVERY: Thank you. I have a commitment this evening and I have to get back to San Diego. So, to the extent there are any questions I'll be happy to host those.

And with the, I guess, desire to try to keep this moving quickly, I'll limit my comments to perhaps just addressing some of the things we've heard here today.

From the stand point of what is happening at San Onofre, I will leave that to my colleague to the right, who I think will probably address San Onofre at large.

What I'd like to talk about is what we're doing in San Diego because of what's happening in San Onofre.

First off, I'd like to say and announce, to the extent that people don't already know, that the Sunrise Power Link is in service and has been energized, and is a significant resource for alleviating the congestion in the San Diego Region.

From the stand point of what does Sunrise do, essentially the biggest thing it has done is allowed the ISO to enable the South Bay Power Plant to be retired. And that has removed from the congestion figure well over $50 million per year.

Now, building upon that, San Diego started the plan roughly ten years ago, almost to the day, on what we can do to eliminate for once-through cooling in our region. And we set out with an aggressive plan to create the loading order that has been adopted by the rest of the State, which was to pursue all energy sufficiency, demand response, renewables and then, and only then, looking at fossil-based alternatives as a solution.

We have gone from, in San Diego, roughly less than half of one percent renewable in our portfolio eight or nine years ago, to last year breaking the 20 percent mark. And that was a major achievement within San Diego, but we're not stopping there.

We set a goal for ourselves to target about 40 percent renewables in our system as a way towards mitigating the need for fossil-based resources to serve our loads.

Now, with SONGS not being available this summer, this really raised the interesting question of what do we do both short term and long term, and we have been working very closely with Southern California Edison and with the ISO towards finding solutions to help ensure that we have the ability to meet the requirements of our customers this summer.

And I think we have answered some of those questions, but you've also heard some of the challenges that are going to be there.

The number one challenge that we did see is really going to be weather. For San Diego, for every time we get about one degree over the average temperatures in San Diego, it equates to anywhere from 60 to 100 megawatts of additional load on our system.

And if we have an average summer, we have ample supply. If we have a one in ten summer, we believe we have ample supply assuming we keep all of the older-based power plants online.

If we have extreme hot weather it's going to become, of course, a very tight summer and we're doing everything we can to ensure that all of our units are available. The units that we own only represent about 25 percent of the generation in the San Diego Basin.

And I know that the CPUC and the ISO have been working with all of the generators in the region to ensure they go through their maintenance cycles and are prepared to contribute to these loads of the summer.

In addition, what we've done is put up what I call a "swat team," three of them within our company to deal with, number one, what can we do with respect to additional energy efficiency and demand response

programs both in the short term and the long term. It's part of the things that we can do to incent additional response in these areas for this next summer, and then the summer after, and then longer term as well. I think that's critically important that we put a renewed emphasis in that area.

In addition, we've put together a team to identify what can we do with respect to transmission reinforcements in our area?

One of the biggest problems in San Diego has been congestion. And congestion, at the highest point, exceeds over $200 million a year in added cost to our customers.

And congestion isn't just a function of not having the ability to move energy around from discrete regions, it also has do to with the ability to move energy around within our region.

One of the things that we see today is the need to keep portions of the Encina on during off-peak hours, because it is not a quick start, quick ramp machine from a zero basis.

So, that translates into very high heat rates during the evening hours and the early morning hours when this is essentially not needed.

Now, to combat that we've put forth a plan

towards -- a secondary plan, once we got rid of the South Bay Power Plant, to find a need to eliminate the potential to have the Encina Power Plant on our system. Again, this is one of the older once-through power plants.

And with that we put forth a plan with the CPUC some time ago, and they're working on that right now, with respect to the three or four additional peakers in the region which will be used, primarily, towards our setting needs for the once-through cooling facilities in the longer term basis.

We also heard a lot about the air quality issues. And in San Diego that's a critical issue, as well, it's not just in the L.A. Basin. And it also has to do with what we're doing with respect towards the promotion of additional electric vehicles in our region, and alternate fuel vehicles in our region.

We have, right now, well over 1,500 electric vehicles just that have been added in the last 12 months, or less than 29 -- or 18 months. I'm happy to say I'm one of those with an electric vehicle and I actually placed an order for a second one. I truly believe in this.

But it really raises an interesting challenge. Because of the work we've done with the CPUC in putting

forth some aggressive rate structures, we've been able to incent, so far, 86 percent of that charging to occur during super off-peak periods between midnight and 5:00 a.m., with only five percent of that charging hitting us during the peak hours.

If you were to look at Tennessee, where they have an abundance of electric vehicles, because they manufacture electric cars in Tennessee, they're almost exactly the opposite. The numbers of cars that charge on-peak is almost the amount that we see charging off-peak.

And one of the things that's concerning us is not being able to get in and actually provide charging infrastructure for our customers, is that we are having some of our customers do that, themselves. But they're using it as a marketing ploy.

In other words, come and park at Macy's, plug in your electric car and charge at the time of peak.

Now, to put this into perspective, we have seen several forecasts that say we're going to have between 200,000 and 250,000 vehicles, electric plug-in vehicles in San Diego by 2020.

Now, if you were to get 86 percent of that charging in the super off-peak period, that equates to 100 megawatts of peaker plants we need to satisfy that

load.

Everything else can be served with renewable resources and with the utilization of base load machines that are sitting idle during off-peak periods.

If, however, we get the other direction, 86 percent of that hitting us or 96 percent of that hitting us during on-peak periods, I need the equivalent of 2,000 megawatts of generation in San Diego. And I don't want to be before any of you asking for 2,000 megawatts of additional generation.

So, we have to do everything in our power to incent and to push all of these electric vehicles to charge when there's an abundance of energy available, and I think that's critically important.

We've also heard a lot of discussion here about what is it we need? Do we need rooftop solar, do we need desert-based solar, do we need wind resources?

I'm here to say we need a bucket of all of them. I will tell you, though, that the relative cost of some of these facilities, whether it is wind-based resources, or larger-scaled solar resources, whether they're on a distributed basis or whether they're in the desert is a mere fraction of the cost and does not have the physical implications of the electric grid that rooftop solar has.

Again, I'm not suggesting we not promote and continue to do rooftop solar, but it does not provide the capacity we need to meet our system requirements, especially when we see that our peak load is really trending to be 8:00 p.m. at night.

In fact, on the residential circuits it is already occurring at 8:00 p.m. and solar on rooftops does nothing to satisfy that requirement.

And the next thing we saw, we saw some charts just a moment ago about potential penetration of how much we can handle in the way of rooftops before we get into reverse flow on our grid.

Reverse flow is not the issue. The issue is the instability that can create on the grid. When we get to 15 percent penetration we already see voltage swings on our grid that violate the CPUC regulations and the State regulations for what we must maintain in voltage stability on our distribution grid.

So, we need to be able to apply the same standards to distributed generation that we are able to do through the standards onto the rooftop installation. So that the inverters that connect to our system, whether it's behind the meter or in front of the meter, does not impose negative implications to the distribution grid.

And one of the reasons that is so critically important is if we don't do it, we could be spending billions upon billions of dollars to fix the distribution grid, which is just solely unnecessary.

So, I think we need to continue to look at all of the technologies, but we need to advance the technologies to take advantage of what is out there, as opposed to continuing to build the stuff that is currently in the grid overall.

And with the notion of some of the charts you saw with respect to relative figures of costs, the cost of putting solar in a distributed basis, in other words larger systems on our distributed grid, is a mere -- it is, actually, a pricing which we saw for the projections of the rooftop solar in 2030. We're already seeing bids that are below $3 a watt to put solar out on a distributed basis in our distribution grid.

And I would caution one thing. We set so much at the side about the notion of let's try to keep solar at -- well, let's try to keep distributed generation at 20 megawatts or less. If we can fit 25 megawatts on a distribution circuit because it's adjacent to a substation, we shouldn't be carving that out and say it doesn't qualify as distributed generation, it just doesn't make sense.

We have some projects where we can get 50 megawatts adjacent to a substation, and it provides the same exact benefits of something that is 19.9 megawatts, why shouldn't we be allowed to pursue that.

The last thing I'd like to touch real quickly is the notion of some of the things we heard about who should be in the role of planning for where resources are at?

I would suggest and one of the things we've been trying to work with some of our merchants and independent generation developers is it would probably make sense if the utility took a role in helping to site a cluster of facilities. Not that we have to own it, but that we can offer that site up for the development of the independents to go into a discrete location. It is the best way to ensure that we can get the best resources at the best location on our grid.

And I can tell you that I look at that not just from San Diego's stand point, but I'm also the Chair of the California Transmission and Planning.

And one of the things that we are desperately concerned about is if generation is allowed to go just where generation wants to go, whether it's fossil based or renewable resources, we're going to continue to have to build transmission to gain access to it to bring it

to the grid.

Thank you.

MR. STARCK: Good afternoon. My name's Les Starck, I'm Senior Vice President for Regulatory Affairs for Southern California Edison.

And at the very beginning I'd like to thank you for this forum today. It's great to see some collaboration amongst all the resource agencies in the State. And it's very important to go off and coordinate all our efforts because there are a lot of complicated things going on in the electric utility system today.

We heard a lot of things today that I'd like to comment on and I'm going to reserve those for comments that we'll file, that are due on July 13th.

But there are a few things that I wanted to raise today that I heard about. The first, Mr. Vidaver, from the California Energy Commission, today, he talked about -- there was a slide in there that talked about merchant power plants in the State of California that are at risk. They're at risk because they don't have power purchase agreements and their revenue stream is very uncertain.

And the concern is, of course, that without a secure revenue stream the power plant is just going to go away, it's going to close down, and it may be needed

in the future.

And we agree with that concern that merchant power plants may go away.

And what we really, truly believe is that the CPUC needs to focus on establishing a longer term, durable, forward-procurement mechanism for obtaining generation in the near term and the longer term.

There is no competitive market today that exists for long-term capacity requirements for local or needed new generation.

Instead, the CPUC has relied upon the IOUs to provide the needed financial support to maintain existing generation and to secure new generation, and we do that through power purchase agreements.

And we believe that the Commission needs to establish a durable forward-procurement mechanism going forward. That will ensure that power plants will be there when we need them.

Second, Mr. Millar, from the Cal-ISO, he spoke about the need for 2,400 megawatts in the Los Angeles Basin to replace OTC units. Okay.

Now, at Edison we generally agree with the CAISO's transmission planning and related analysis which identified a need for approximately 2,400 megawatts of generation in the L.A. Basin. We agree with that, which

is necessary to replace once-through cooling generation that is facing the State Water Resources Control Board compliance deadlines.

We believe that their long-term study is a good first step toward identifying cost-effective solutions, but it only considers once-through cooling and generation options at existing sites.

Solutions should be cost-effective and consider all other options that are available, which might include a transmission project and additional types of generation at the other locations.

So, we're encouraging the Cal-ISO to be looking at more options than the ones that were identified in their study.

And we also believe that there needs to be an appropriate cost allocation for all entities that benefit from grid reliability they're provided by the new location re-constrained resources and renewable integration generation.

We think cost allocation to those particular customers that benefit from these costs, they ought to be paying for them.

Third, Mr. Wallerstein, from AQMD, he spoke about air quality concerns and he spoke about how the availability and the cost of emission credits could

impact economic growth in Southern California, he expressed that concern.

Edison, we really agree with that concern. The existence of PM10 emission reduction credits for siting generation in the South Coast Basin is a problem and with major uncertainties.

Okay. And we see it as there are very significant uncertainties about the availability of these ECRs, and it's going to be very important that they be available, or some other mechanism be available so that power plants are going to be constructed.

COMMISSIONER PETERMAN: Hold on a second. Everyone's line muted. We're just pausing one second. We've got some noise in the room from the phone that allows those on WebEx to hear this dialogue. And so let's just take a second and make sure we all don't miss your words.

All right, Mr. Starck.

MR. STARCK: Okay, finally, Dr. Jaske of the CEC, he had a slide there that talked about the limitations that ratepayers have. There's only so far they can go in terms of their rates and I just have to tell you that we wholeheartedly agree.

In California, at least in our service territory, you know, Edison, we're subject to a number

of cost pressures. We've got RPS33, we've got once-through cooling, we're making transmission investments for renewables, we're making investments in distribution infrastructure to go off and reverse the aging that we're seeing in our system.

All of these have cost pressure on our rates. And in California, we are so good at being energy sufficient, our sales growth in the future is fairly flat, so rates are going up. And we are concerned that eventually we may have ourselves a real rate revolt, if we're not careful.

So, as we all consider the solutions today to addressing longer-term needs for keeping the lights on, we want to make sure that we keep our ratepayer impacts in mind.

So, that's all I have for today, thank you.

MR. GEESEMAN: Commissioner Peterman, Chairman Weisenmiller, distinguished guests from the Public Utilities Commission, I'm John Geeseman.

MS. KOROSEC: Your mic's not working.

MR. GEESEMAN: I'm John Geeseman, I'm an attorney representing the Alliance for Nuclear Responsibility. I commend you for holding this meeting, it's a long overdue follow up to your 2008 recommendation that California needs a plan B in case we

experience extended outages at the State's nuclear power plant.

Looking at you this afternoon, I realize none of you were in your current positions in 2008. And I do know from personal experience there's something about the inertia and amnesia that institutionally affects big government that makes those recommendations oftentimes go into the memory hole.

I thank the Energy Commission in its adoption of the 2011 IEPR for repeating the 2008 recommendation because nothing had been done between 2008 and 2011.

I note that one of your vacancies on the Commission has been filled since your adoption hearing, but let me repeat what I said then.

My client looks forward to the day when the Governor and the Senate Rules Committee considers the work of the Energy Commission of sufficient importance that it is never allowed to have a position vacant longer than the 30 days originally envisioned by Assemblyman Warren and Senator Alquist.

I have three major points to address the challenge of planning for the contingency of extended outages at the State's nuclear power plant.

The first is we need to recognize the remarkable similarity of our system of utility governance to that

in Japan. In Japan, they refer to it as the "numakigari" system. Here, in a more vulgar way, we call it a revolving door.

I say that more as an anthropologist than as a muckraker. It's often reported, the President of the Public Utilities Commission is a former President of Southern California Edison.

You don't read it as often, but the General Counsel of the Public Utilities Commission is a former PG&E attorney. The Board Chair of the ISO is a former President of Southern California Edison.

One of the ISO's five board members, Southern California Edison's former pollster.

The President of San Diego Gas & Electric is a former Public Utilities Commissioner.

The Governor's Chief of Staff, former PG&E executive.

One of the Energy Commission's most accomplished chair was a former PG&E executive and she was the chair when you originally made that 2008 recommendation about the need to plan for extended outages at the State's nuclear power plant.

The most prominent example of our "Imahugari" system, the former CEO of Edison International was a former President of the Public Utility Commission.

My second point is that this system of government imposes extraordinary requirements of transparency and an exaggerated requirement to challenge each and every underlying assumption in our planning process. And, frankly, a high level of candor about the uncertainty that that analyses invariably faces.

And to be honest, given human nature, we don't always live up to that. Somehow we have adopted the assumption that SONGS and Diablo will run 24/7 indefinitely and that it is within our institutional discretion to determine whether they do or not.

I don't think, if you look at the experience of the nuclear power plants in this country or around the world, barring Shoreham or Rancho Seco, the failure mode is seldom a discretionary choice.

Our once-through cooling policy assumes both plants operate 24/7. Our AB 1318 analysis assumes both plants operate 24/7. Even our AB 32 scoping plan assumes both plants operate 24/7.

The peril of this kind of intellectual blind spot only becomes apparent when things go wrong. After 15 years of capital investment decisions being made by a so-called independent grid manager, and I'm sorry Mr. Berberich is not here to hear this, but after 15 years of having decisions as to how to expand the grid, where

to expand the grid, how much money do we spend on expanding the grid how could an entire region of our State become dependent upon the operation of a single, 2,250-megawatt power plant? How can that happen?

And my third point, never forget the second rule of Holt. Everybody knows about the first rule, you stop digging when you find yourself in a hole.

But the second rule is you build yourself a ladder. And I emphasize the word “build” and I suspect Mr. Berberich would have appreciated that.

There’s a reason that five, six years ago the Federal government declared the entire seven Southernmost counties in California a transmission corridor of national significance.

The California Energy Commission is the only State agency in the United States to endorse that federalization of transmission siting jurisdiction because our system, inside California, was so dysfunctional.

The NERC/FERC report on last year’s San Diego blackout describes what’s known in the professional trade as a cluster-funk-shit.

Frankly, I think it would be quite a bit wiser if that had addressed some of our hardware problems as well. You need to have automated responses to these

contingencies that do come up.

And I commend my friend Jim Avery, and his company, for their perseverance for seeing through the Sunrise Power Link. But I believe their job is only half done, they have yet to address improving the north/south linkage between the Edison system and their system.

And I think that some of you, such as Commissioner Florio, can remember ten years ago when the ISO recommended, on its own initiative, that that strengthening take place.

San Diego pursued a project known as Valley Rainbow. The PUC failed to approve it, but on a three-to-two vote.

To my surprise, that question has never been revisited. I think the San Diego blackouts should have caused a revisiting.

If you will remember, the administrative law judge in that proceeding framed the issue in a classic California way. He said, “the proponents of the transmission line argue in favor of a ten-year planning horizon because they say that if you restrict your analysis to five years no project will ever be found needed.”

“The opponents of the project insist that you

need to have a five-year planning horizon because if you extend it to ten years, no project would never been found unneeded."

So we in our ignorance, proceeding down a path where we thought, arrogantly enough, we could manage a just-in-time infrastructure policy.

And I remind you, this analysis was done in 2003. It doesn't matter if you used the five-year or the ten-year planning horizon, we're in the soup now.

And I would suggest to you a proper evaluation of our grid requirements would greatly lessen our perception right now of the indispensability of San Onofre to Southern California.

I'm still a believer in the Energy Action Plan and the Loading Order, which has been the cornerstone of the State's energy policy for more than ten years. Uncommitted efficiency, as Mr. Jaske and Mr. Vidaver characterized it on their slides.

Demand response, distributed generation, those have been slogans for the last decade. I would suggest to you, going forward in this IEPR update, it's time to put up or shut up.

There's been too much easy talk, too much sloganeering, too much feel good policy, not enough delivery.

And I mean delivery in terms of measurement of energy and capacity which the ISO feels, in its management of the grid, it can rely upon.

Ted Craver, the CEO of Southern California Edison International, told the *L.A. Times*, a couple of weeks ago, that the decision to reopen San Onofre would probably be the biggest decision he makes as the CEO.

Frankly, there's probably a little bit of Freudian slippage in Ted's remarks. Everyone in the room knows that the decision to reopen will not be Ted's, alone.

What I think he meant to say was the decision whether or not to reopen it. He's likely to have an outside influence on at least the negative side of that question.

But as we go forward this Commission, the Public Utilities Commission, the California ISO needs to come to grips with the fact that these plants may not be available indefinitely and they may be gone for extended periods of time.

The people of California look to you to plan for that contingency. Thank you for allowing me to participate.

COMMISSIONER PETERMAN: Thank you. As a former Energy Commissioner, yourself, I appreciate you keeping

some of our institutional memory alive.

MR. WHITE: Thank you, Madam Chair, Members, I'm John White, with the Center for Energy Efficiency and Renewable Technologies.

I also am grateful for the opportunity to participate; it's been an interesting day.

I especially want to thank Commissioners Florio and Sandoval for joining this workshop.

One of the things that I've been spending a fair amount of time on, on the wildlife issues associated with renewable projects in the desert and one of the lessons of our wildlife community is the need for connectivity between the areas where the species are. And we need the connectivity more than ever between and among our agencies, and between and among the community that's affected.

And so I commend you for showing up and being here with us all. And it shows that the importance of the IEPR as a forum and as an opportunity for a legitimate exchange is really valuable.

And I think that's testimony to, Commissioner Peterman, your leadership, and that of the Chair of the Commission.

A couple of thoughts comes to mind in the short time that I have from today's discussion and from the

comments received earlier.

I think that when we look at all this modeling that goes on about what it will take to keep the lights on in light of the shutdown and if you look below the surface a little bit, one of the things that troubles me about the ISO's analysis is they don't seem to want to count on or rely on energy efficiency, demand response or distributed resources. Mr. Berberich said these are nice, but they aren't dispatchable, I don't control them.

And it's almost like these assumptions are based on the idea that we have to plan for the failure of energy efficiencies to be achieved.

And I don't think that's the right approach. I agree with former Commissioner Geeseman that the loading order needs to be a living trust that we pursue with all deliberate speed and all vigor.

And it's not an afterthought, it's not something nice that we sprinkle on the cereal in the morning, this is the core of what we're doing, not just on the side.

And in the case of demand response we need to rethink it for purposes of the future. It isn't just the hot summer day where we're going to need more flexibility on the grid in terms of the load, we're going to need it in unusual times of the year, in the

spring mornings and others. So, we need to look at what new kind of demand response we need and look at some other places in the country.

I just heard from a friend today, in Colorado they give the $60 rebate check to the customers on Thanksgiving and they offer them the opportunity to donate it to a food bank.

Okay. But the point is they get the community involved. If we tell the people in Southern California that we've got a problem and you all need to help, and the DR becomes not just some mechanical, commercial thing, but a community response I think we could do more with it than we've really found up to now.

Secondly, we have to pay attention to the infrastructure that we say we need, but it is lagging behind.

Path 42, to connect Imperial to the Edison system, represents an unusual cooperation between Edison and IID. Edison's doing its part, but the IID part is lacking, ironically, because the utilities haven't bought any renewables in the IID balancing authority.

I was pleased to hear Mr. Avery worrying about the solar peak, but he didn't buy any geothermal.

Okay. So, you know, if the peak is a problem, then let's buy some of that base load and ship over, as

we talked about when we fit the Imperial Sunrise.

Path 42 is a vital piece of infrastructure that will relieve problems in a number of ways. But if we don't stay on it and pay attention, and connect the dots, then it's not going to get done.

But, similarly, we talked about renewable and gas-distributed generation has some extraordinarily valuable technologies available to us, not just solar.

But if you talk to people that are trying to do the project about their experiences trying to interconnect as small as a megawatt project, it's a nightmare.

We've got one down in Orange County, the Madison system, where the project is $6 million of state of the art advanced technology using landfill, and the interconnection report came back and it's $8 million worth of upgrades. It can't be, it just can't be.

And if it is, we need to think about modernizing the distribution system to take advantage of this. Guess what we need, we have a base load need in Orange County. Some of this -- not that this is the whole answer, but distributed resources, fuel cells, and solar, and other technologies have the potential to help and we shouldn't be treating them as a red-headed step-child. You know, they should be thought of as valuable

assets that are important.

And so, as we plan the system, let's plan for all of the resources that can help. And I know that there's a lot of challenges in doing this, but I think it's important that we work harder at it.

Another area that we need more talk about, and it's good to have DWP to be here, along with the ISO, and Edison, but we need to get those folks working more closely together.

The Edison, and DWP, and ISO cooperation could help us, if we could figure out how to overcome the bureaucratic sovereignty -- I don't want to minimize these because the municipal utilities are very protective, as we know, of their sovereignty. And they don't like to come to San Francisco without a visa, you know, because they might get regulated by the PUC.

(Laughter)

MR. WHITE: They have very valuable assets which could be arrayed in a manner that would help us and save money, and they could make some money, too. But it requires new kind of relationships than in the past.

You know, DWP is never going to join ISO, okay, but they have become a scheduling coordinator recently, and that's progress.

And I think your Commissions together can foster

high level communication and dialogue between and among those institutions to make better use of the system.

The storage was mentioned earlier. There's been some good projects proposed, a Lake Elsinore storage project called LEAPS, but the utilities thought it was too expensive.

It seems to me that Mr. Berberich has -- there's more use for storage than simply providing regulation, particularly in the context of the Southern California system.

But as Mr. Geeseman suggestion, we have it planned as if we were having to be prepared for things that have not happened.

I was sort of astonished when I got briefed by the ISO and I said, well -- and I said why did you close Huntington Beach?

And they said, well, the worse cast scenario was only one unit, now.

Well, we're now beyond the worst case scenario, which suggests that our planning needs to be more robust. Not because we're wanting a certain outcome, but so we're ready for it.

And so, lastly, I think if we look at the needs for the local capacity resource, we need to recognize that it isn't -- the most important thing isn't

dispatch-ability, there's a lot of other ways to achieve dispatch-ability.

The attributes are location and electric characteristics. And non-traditional resources, I hope, can be part of that approach and not only have it be the gas-fired resources that we can turn on.

Because one way we might want to have more dispatch-ability is take a look at the amount of self-scheduling that we have grown accustomed to on the system, and see whether or not it's still wise to have that practice when, in fact, we need more flexibility. Not just because of renewables, but because we need more flexibility for its own sake. And our system is less flexible than it needs to be and that it can be.

I thank you for your attention and I appreciate the opportunity to be here and will be happy to answer any questions that you have.

COMMISSIONER PETERMAN: Thank you, Mr. White. And regarding your initial comment about the importance of collaboration between the agencies, for those of you who weren't here this morning I'll just mention, again, that Public Utilities Commissioner Simon had a strong interest and intending to attend this workshop, but due to consideration, really it's Open Meeting Act, with multiple commissioners from their commission, he is not

here, but he is interested in getting the report back.

Ms. Inman.

MS. INMAN: Thank you. I don't know if I'm on, yet. Is this on? We're good to go.

Fran Inman, Majestic Realty. And, first of all, I was the former chair of the L.A. Chamber. Welcome to all of you to Los Angeles, we're delighted to have you all here today and hope that we can do more of this.

Because as Barry mentioned, in the South Coast District we have 17 million folks, so I think it is important and it's complicated. I know all the work you all do is complicated, but I would suggest that our region might be even a little more complicated.

And then, also, as a member of the California Transportation Commission, I'd like to welcome you to the Caltrans building. So, I thought that was very appropriate that you all were coming here today.

And in that regard I would be the first to announce that energy is not my field of expertise. CHP, in my lingo, means something very difficult.

(Laughter)

MS. INMAN: So, I've tried to take copious notes today, but I will have to go back and make a few calls to Chairman Weisenmiller and say what -- what does that mean, again, help me out here.

But, anyway, delighted that you're all coming together and we're all coming together because I think it really, really is important for us to get it right.

I'm not speaking on behalf of the California Transportation Commission, but I would be remiss if I didn't point out our recent needs assessment, which we looked at a ten-year planning horizon that I think is even a short time frame for infrastructure planning for transportation.

But with that we discovered that we were some $30 billion a year short of being able to take care of what we already have and to meet our needs.

So, on an ongoing basis --

CPUC COMMISSIONER FLORIO: Is that $30 billion?

MS. INMAN: $30 billion, with a "b", yeah.

COMMISSIONER PETERMAN: I can believe it.

MS. INMAN: And, you know, we have been copiously watching what happens in Washington lately, don't hold a lot of hope that we will see a transportation bill that really recognizes the importance in the investment in the transportation infrastructure.

As Barry mentioned earlier, particularly important in this region, to our State and to our region is the goods supply chain and the great issues that we

all try to figure out the solutions.

And the needs assessment, in our SCAGs, Southern California Region, when we did our regional transportation plan, recently, we learned that 76 percent of our funding comes from local sources, which means that our self-help counties, we have 19 of those across the State of California.

And within our SCAG region, only 11 percent of our funding today comes from the Federal government, and 76 percent from our local sources, and the rest from our State.

That said, we're running to the end of our 1B8 dollars on the transportation side. So, I think it's important for all of us that whatever we do collectively is integrated and works sufficiently for all of us.

In terms of goods movement, I'm just fascinated by all of the discussions. We've been desperately working to green our supply chain. We're already, probably, the cleanest ports in the nation, but we're continuing. And as Barry pointed out, with our air issues, we have to continue to improve ourselves.

I think it is going to be very, very important that we get all the stakeholders to the table.

What hasn't been mentioned today at all was litigation, and I think that's a huge issue for all of

us to acknowledge that it has become a way of life for us.

I think the more of these forums we can have to bring stakeholders together and kind of collectively work for the balance in the solution, hopefully, it will allow us to solve some of these complicated issues without having everything being decided in the courts.

Long term, I don't think that will give us all in the 21st Century that we all envisioned.

I think that as we look on the transportation, with the implementation of SB 375 and our companion bill, which is SB 391 on the transportation side, which requires all of us, in our sustainable community planning, to really take a look and, clearly, energy is an integral part of how we all build sustainable communities.

So, I think it is important to us to have these very crucial discussions.

But it's going to be important to get it right. I think the questions about the rates and who pays, I don't see access funds on any horizon, so I think it's going to be very, very important for us to work to not have too many stranded assets.

And I don't think that we need to let perfect be an enemy of the good, too. I think we could all be

looking at ourselves, and we often get criticized for having the same conversations that we all had 10, or 20, or 30 years ago. So, I think it is important to keep going.

The things that I've learned today, the future is difficult to forecast. Chairman Weisenmiller started with that, I think we've heard it over and over again.

The one in ten filing that gets referred to often relates to me as a commercial real estate developer in my day job, thinking of the hundred-year flood planning we would do. We would be doing 30-year flood planning instead.

So, I think there's more and more need for us to try to be as comprehensive as we possibly can. I think there are lots of stakeholders and no one agency in charge is a challenge for all of us.

Because in that regard it's easy to stop things and it's very, very difficult to get things done. And we see that over and over again, it's not just in the energy sector, but it is important for us.

I think that it was interesting to me, the discussions around the short-term challenges that obviously San Onofre has accelerated some of these discussions.

But even so, given the needs that we have, the

planning horizons I feel are quite brief. I realize we have immediate things we need to do, but even on the longer term I think we're going to have to look a little, a little further out There are lots of externalities involved in everything that we all do.

Timing is an issue I think with that. And understanding that not all of the components are equal and I think it's important, and I think the public doesn't understand that, certainly.

Many of you whose life work has been in this field would even have debates on some of these discussions as we're hearing today.

But I think it really, really is important to get that message out that it's not as simple as substituting X for Y, there are unintended consequences from doing that.

So, from a business perspective I would say my colleagues in business would probably be very frightened to be here today to -- if you're looking at economic development, if you had a prospective tenant that was coming to your region, I'd just as soon have them think that we have this all figured out and the sun always shines in California.

So, let's hope that we can all roll up our sleeves and come together. You know, from a business

perspective we need certainty of reliability on the goods movement side. Clearly, we're interested in philosophy and through-put.

So, once again, happy to be here and thank you.

MS. JOHNSON MESZAROS: Good afternoon.

COMMISSIONER PETERMAN: Welcome.

MS. JOHNSON MESZAROS: I'm Angela Johnson Meszaros and I am going to try to keep my comments brief and direct. And I'm hoping that at some point there will be time for an actual, you know, exchange, instead of some people talking and other people listening.

So, I wanted -- I want to reflect a little bit on what we've heard today. And I think that where we are -- let me back up so I can put my comments in a little bit of perspective.

I am one of those people who have been litigating all of these issues, right. I am the person that -- I am the person that people obliquely refer to when they say little things, you know, during the context of this conversation.

And with that context I want to say I think that where -- the message we keep hearing today and what this all turns on is this question of planning and the failure to do so adequately and robustly.

And I think that we've heard in everyone's

comments is another way of saying that exact thing.

And in the context of doing that planning I think that there's some big questions and there's some little questions.

On the big question side I just want to make sure that we think about the fact that there are these higher level issues that we need to figure out how we're going to address.

And the question is where do we have the conversation and where do we make the decisions about how we're going to balance the risks, the harms, and the benefits of our energy infrastructure? How are we going to balance these things?

What I hear today are people who are making decisions about what are going to be the range of options that are going to be considered, what kind of constraints we're going to acknowledge or not acknowledge, how much transparency there's going to be in the assumptions and what those assumptions are.

And that stuff essentially gets cooked into the system such that by the time it comes flying out of somebody's agency we've already started a dynamic that's about pushback, it's about redirection, it's about defense, and it's setting us for conversation that is not conducive to our getting to our collective goal.

We need to have energy. We need to have energy that's efficient. We need to have energy that's accessible. We need to have energy that's affordable. We need to know that when we flip on the light switch, the lights are going to come on.

And it's a complex conversation to have, no doubt. But certainly the notion that by not being explicit and transparent about our assumptions, how they were reached, who reached them and why they were reached is not going to be something that's going to be helpful.

The second thing I want to note is that my grandmother was, in many ways, a very fascinating person. And I could go on about that, but I think it's probably inappropriate here and now.

But I will say that one of the things that she used to say to us is just doing anything is not the same thing as doing something.

And I fear that our energy planning has come to this place where we're constantly reacting to things we never thought would happen, although everybody knew it would kind of happen, instead of having an affirmative plan with a vision and a goal.

And once you've constructed an affirmative plan, with a vision and a goal, and you're going to have to start at the highest levels to get by on because the

devil's always in the details. But having those conversations, having visions, having clear goals, that's when you have the space to start asking various different stakeholders to make tradeoffs.

If we're in a world where all of a sudden your interest is something we're going to have to set aside because there's a short-term and we really have to discuss it right now. I know you've got a big issue, but we can't really do it right now. Then you're setting up a dynamic, again, that's just fraught with peril and it's setting us up for failure.

What we need to be able to have is a vision and a plan so when you come to a community that you're asking to host a facility, you can explain why, why it's there, how it fits into a bigger picture, what it means for the broader horizon, what it means for people's communities more broadly.

And then someone can say, okay, we're going to host a transmission line, but we understand that that's going to set us up for having these renewables here or there.

We can say we need to have fossil fuel as part of our energy infrastructure and we'll do that, but these are the cleanest, they're the best, they're the most high quality. And we took some old, dirty stuff

offline, and we can show you where it is, and we can show it's not emitting, and we can show you how we're addressing it, we can show you how this is all happening.

You can't ask people to make tradeoffs. You can't ask people to agree to decisions that they have not played a role in making and do not apparently meet their needs. It just not is going to work out.

The other thing I want to do is just take a couple of minutes to talk about the issue of offsets because that's really the work that I've been doing in this energy picture.

I want to remind us that offsets are not just a hindrance to where it is we're trying to get to with our energy infrastructure. Offsets are nothing more than an embodiment of the air quality. An offset is the acknowledgement that you've reduced pollution someplace else in order to allow the new pollution you're allowed to permit.

And in the South Coast Air Basin, which Dr. Wallerstein made very clear, we've got very serious air quality challenges and we have to recognize and acknowledge those air quality challenges. They are, it's a euphemism for people who are dying from breathing the air, people who are sick, and people who are unable

to go to work, and children having asthma attacks because of our air quality.

These euphemisms that we're talking about when we talk about offsets are real people's lives. And the notion that we can just talk generally around the issue and not come to grips with the fact that we fundamentally have to change the way that we make and use energy here, in the South Coast Basin, and across the country is something that is going to -- not dealing with that issue directly is something that is always going to be a point of friction.

And there are people who need to be involved in these conversations, and these conversations need to be clear, and we need to be clear about the tradeoffs that we're making.

So, while I applaud the once-through cooling people who were able to get the power plants to go offline in order to save having hot water dumped into the ocean, which I'm sure is important and I don't mean to minimize.

COMMISSIONER PETERMAN: You betcha it is.

MS. JOHNSON MESZAROS: Yeah, the notion that now we're in a playing scenario where we've got to get through all the once-through cooling and we'll just budget on the air quality stuff is something that

ultimately is not going to be very satisfying.

And in the long term it's not -- that can't possibly work for us. We can't have thousands of people dying because they breathe. It's just not something we can do. The public health epidemic that's caused by air pollution is too severe for us to not deal with these issues correctly and directly.

The last thing I'll say is while I know that it's ultimately your responsibility in some sense to make these decisions and to help us to plan for our energy infrastructure and energy future, I would urge you to remember and to consider, and to really think about the fact that we are all part of the same community.

We all, collectively, have the responsibility, the obligation, and the opportunity to think about what our energy infrastructure's going to look like here, in California.

We talk about California setting a path for the rest of the country. Part of the issue is we have to because our air quality's worse than pretty much anyplace else in the country.

But given that goal, given the challenges, and the benefits, and what it means to be in California on lots of different levels I call and ask to think about

how do we build a community of interested, engaged, impacted, smart people to think really in a thoughtful way about how we're going to deal with those issues.

And I hope that as we go forward that you'll remember to call on people like me, and other community members, and representatives to be actively engaged with this issue. Thank you.

COMMISSIONER PETERMAN: Thank you for your comments. And also, I appreciate that you're bringing a perspective and some overarching comments that we had not heard as much today or in some of our forums. Partly because, as you noted, there are so many technical issues to work through, but we still cannot forget about including all the decision makers or all those affected in the decision-making process.

And I'll just speak to the fact, quickly, that we do have many forums in which the public can participate with respect to these issues, but it's not that easy to participate in, and it's a language. And that's something that we're struggling with, that we're dealing with a very complicated topic that requires a certain threshold of knowledge and how do we engage everyone when, frankly, we don't have enough time even to address all the challenges we want to.

But all your points I've taken to heart and we

will continue to try to improve that interaction. And I look forward to speaking with you more about how we go about doing that.

But thank you for participating on the panel and the comments that you provided.

MS. JOHNSON MESZAROS: Thank you.

MR. SMUTNY-JONES: Thank you very much. I'm Jan Smutny-Jones, I'm the Executive Director of the Independent Energy Producers Association and I represent about 26,000 megawatts of generation that serves California, about 85 percent of delivered renewables, as well as pretty much all the OTC plants you've talked about today. The three plants that are being built to meet Southern California's energy needs, as well as four other gas plants in the north.

There's a significant amount of building going on right now, there's probably 10,000 Californian's working right now on both renewable and gas projects in this State to basically meet our energy future.

I also served at one time as the Chair of the California ISO, too, so I was very interested in David Freeman's history.

I think it's important to kind of look at this from a slightly different perspective because I see this as sort of an ongoing success story. The simple fact of

the matter is that the power plants that we're kind of concerned about today were built primarily in the 50's, in agricultural towns, and they burned oil.

It's been a little trip down memory lane for me because when I moved here, when I was ten, we moved to Redondo Beach, so I'm familiar with that power plant, and I've body surfed in front of Huntington Beach my entire high school career, and went to Long Beach State.

So, these power plants have been an important part of my life.

And at that point in time they were burning oil. And about 20 years ago we shifted them to gas, which has had a tremendous impact with respect to, obviously, improving air quality in Southern California.

And we're at a point now, in our history, where we can convert these plants or replace them with other technologies, and I think that's really what this discussion is about.

The fact of the matter is since 2000 the Energy Commission, alone, has sited 16,000 megawatts of new gas-fired generation and another, I don't know, 6,000 megawatts of solar thermal.

So, we've definitely added a lot of energy plants in California and there's a general success story.

I think the importance of this conference, today, is that this is a unique problem. Okay, the South Coast, and I applaud you for actually trying to take ownership of this because it's been a long time coming.

This is a complicated problem. You have 17 million people living in a fish bowl. It is the most polluted place on the planet.

Parenthetically, a very small piece of the air emissions that we're talking about actually come from power plants, okay. The vast majority comes from the transportation sector. And if we're going to fix the problem, we're going to have to electrify the transportation sector.

So, this is all interrelated and so I think it's very important we have this conversation.

One of the key -- a couple just key, preliminary points and one is I don't think people understand sort of the challenges that -- you know, we just use these words sort of generally that we need energy.

We have a minimum load condition of about 15,000 megawatts statewide. What I mean by that is on a nice, April morning when everybody's sound asleep there's about 15,000 megawatts of stuff turning. At peak it's 60,000 megawatts.

Okay, so there's about 45,000 megawatts of stuff that we have to figure out when it's coming online, where it's coming online.

And as we transform our system it creates a significant number of interesting challenges and that's really kind of where we are right now.

The fact of the matter is I think -- my concern is that we're almost out of time in terms of addressing this issue here. And I don't mean this in terms of the sky is falling, but it's very important that this kind of discussion continue, that we have timely, purposeful action that I think engages the public, as I think you just heard.

I think it's very important because, otherwise, we're going to have some significant problems.

The success stories that we're talking about today, which is El Segundo, Walnut and Sentinel, were all the results of a 2006 RFO that Edison determined it needed new power plants. And it did and still does.

It got caught up in a whole bunch of litigation, you know, and we don't need to revisit all that. But the point is that they are just now under construction.

So, you know, that's the history. I think that's reality. That's just not me, you know, being Cassandra on the beach and screaming about something,

this is real, this happened.

I don't know what's going to happen next. We heard a city councilman for Redondo Beach, earlier today, who I assume will take exception if AES decides to repower their power plant, with doing that.

And, you know, the point is if we're going to try to get to that 2020-2021 time frame, we need to get on this right now.

So the key is, I think, identifying locational needs and I think what will come out of that, also, is identifying flexibility requirements.

I want to hit that point because I was taken by the comments of the AQMD because I think there's a misconception about what's going on. People aren't willy-nilly picking the South Coast Air Management District as a cool place to build a power plant.

(Laughter)

MR. SMUTNY-JONES: Okay. This is really not what we would call a user-friendly environment out here. The reality is that there is a process, and it's not the old process, and thank God for it.

Okay, and what the process is, is the ISO does go through a very sophisticated analysis of what local reliability needs are. Okay, and then that's put out there with the utilities, the utilities put those out to

bid. There is a process where the California Public Utilities Commission approves those contracts.

And every case that I'm aware of basically ties it back to the fact that it's needed to serve a local reliability reason.

It then goes to, or maybe concurrently, to the Energy Commission, where the Energy Commission's job is to look at the fact that it basically complies with the CEQA and the various important regulatory issues that we have here, in California.

So to argue that we don't have some sort of needs assessment or we're just doing this willy-nilly is just incorrect.

So, you know, I think we're well on our way. You need to stay focused on this.

I think Mr. -- Les indicated, earlier, that this existing problem, we have about 10,000 to 12,000 megawatts of relatively new power plants, I'm talking within the last ten years, that are under contract.

As they fall off contract it creates a problem because the energy-only market, and I know I'm getting into some details and I don't want to lose everybody, but doesn't pay for any sort of future fixed-costs recovery.

It is an issue that needs to be address, to be

addressed with the PUC but, you know, it's an issue that's there. Because otherwise you start running into problems where you have what are otherwise perfectly good power plants, falling offline because there's no economic way of sustaining them in an energy-only market. So, we'll leave that at that.

So, I also think it's important, we talked a little bit about integration. I think it's very important to start setting pricing out there as if -- you know, if integration's a problem, it ought to have a price associated with it. And I don't mean after the fact, which it seems to be. There's some folks struggling with that right now.

So, if an intermittent resource right now tries to put a bid out there that has, say, storage with it or some sort of other backup, they're priced out of the market, and that's crazy.

So, we ought to be encouraging that, we ought to be encouraging more base load renewables to the extent that that's required and figuring out a way for demand management and storage. Okay.

And I'm not -- you know, my issue with demand management and demand response is as long as it's real, it's verifiable, then it ought to be compensated.

But back in, you know, 12 years ago, so I don't

want to say this is current, but when I chaired the ISO I used to spend a lot of time with the operators, and they only got 50 percent of what they asked for. And if that's the same, then we need to do better on that.

So at any rate, in closing here I wanted to basically say this is not a zero sum game. And I think all too often in our discussions about energy it's just, you know, we're just going to do rooftop solar, or we're just going to do this, or we're just going to do that.

That's not it. If we're not managing this as a portfolio, we're going to fail. And so there's a number of issues here. Obviously, the issue with SONGS has thrown -- yeah, some issues out there with respect that I don't think people saw coming.

But if we're going to meet our long-term needs, which includes the electrification of our transportation sector, we need to focus on that.

So, I basically think that we have made progress over the years. And I think the fundamental issue for you, as regulators, is obviously trying to balance reliability with environmentally responsible generation, and cost. And that's a difficult balance to make and it's a particularly difficult balance to make in a place, like the South Coast, where you have all these things pushing against it.

So, good luck with that. And on behalf of my members, we're more than happy to build all you want.

(Laughter)

COMMISSIONER PETERMAN: Thank you.

We're going to turn one second to everyone on the dais to see if they have questions for the panel. But I need everyone to know what needs to happen in the next 15 minutes.

We have a firm stop at five o'clock. I, personally, went to go talk to security about this, again, but it really is firm.

CPUC COMMISSIONER SANDOVAL: Yeah, we can't afford to keep the building open.

COMMISSIONER PETERMAN: So, we've heard it from the Commissioner here, we can't afford to keep the building open, times are tough. So, that is a security concern.

So that means that we're going to -- after we hear questions from the dais I'm going to start going through the public comment. I'm putting those who have not spoken, first.

I'll ask you to keep your comments succinct and not repetitive.

We will be having an IEPR workshop on which this topic is included. They'll cover all the topics we have

in the IEPR, and that will be later this year. That format will allow for much more comment on the document. And we will specifically build into the schedule more time for public comment, because I do appreciate that's valuable.

So, sorry in advance, there's just too much to cover today. And we thank you for your involvement. And we also would accept, of course, written comments.

So with that, let me turn to Commissioner Florio.

CPUC COMMISSIONER FLORIO: Yes, unfortunately, I've got to go right now to catch a plan, so my heart stops a little earlier.

I truly appreciate everything we've heard today. This last panel was terrific, you were all articulate, and succinct, and quite forceful, and it was all heard and taken to heart.

I kind of view today as the first day of our hearings in the long-term procurement proceeding. As Nathaniel said, those will be coming up in August. We're going to be grappling with all these issues, with help from the ISO and the CEC.

And all I could say is, if you can, come participate, help us out. We've got a big job to do and we can't shrink from it. The challenges are great.

And now I'm going to take a plane back to Northern California, which looks awfully good after all we've heard about today. So, thank you everyone, and appreciate it.

COMMISSIONER PETERMAN: Other questions?

CPUC COMMISSIONER SANDOVAL: Thank you very much for your comments, really appreciate it.

One of the things I think I heard from all of you, Mr. Smutny-Jones talked about the need to manage energy as a portfolio, but also the need to make sure that our assumptions are realistic and not unduly optimistic.

People have often described San Onofre as the "N minus 2" scenario, but what at two. That it carried with it not just generation, but huge impact on transmission and voltage.

And so, you know, as we talk about things like rooftop solar, distributed generation, which we've been supportive of, we also have to be realistic about its limitations.

So, I really hear that from you. And as somebody from Los Angeles, who grew up next to the freeways of Los Angeles, and who has asthma -- you know, Ms. Johnson Meszaros, I really appreciate your work and your emphasis, as well as Ms. Inman. I've worked with

the Business, Transportation and Housing Agency, spent a lot of time working on transportation issues, your work in just helping us to realize how this affects Californians and the need to get it right.

But I think we really need to check our optimism and, you know, be very pragmatic about what happens when the big resources have an issue.

COMMISSION CHAIRPERSON WEISENMILLER: Again, I'd like to thank everyone for their participation today. I think we've had a wide range of comments and certainly a lot to think about.

I think in terms of going forward, again these issues are hard, you know. And I think when we look at it, the future is uncertain and we have to have strategies that are robust that deal with contingencies.

And, unfortunately, in the energy area a lot of things take time. You know, it is probably true that to go from a concept now to completion is -- you know, and even if we had everything lined up right now that we want to do, we're probably lucky if we get it done by 2020.

And at the same time the world is changing in ways -- certainly, air regulations are changing. But I mean when you look back and try to figure out what forecasts have gone wrong in the past, typically it's

been sort of the macro effects. You know, it's been the OPEC price spike, it's been the tax changes, it's been the econ demo, you know, the changes in society, women joining the work force. I mean there's been a whole bunch of things which we never, ever think of.

(Lots of audience comment)

COMMISSION CHAIRPERSON WEISENMILLER: Well, I mean I see -- one of the big studies that was done in the 50s for forecasting, you know, by a national academy, just totally missed that trend. Right? Missed suburbanization of our society and as a part, as a result, they're forecast was just worthless.

So, I mean those broader trends in society have to be factored into our thinking, otherwise we're going to get it wrong.

COMMISSIONER PETERMAN: Yes, thanks, I'll add my wrap-up comments, now, as well. Thank you to everyone on the panel, as well as those on the dais today.

You know, speaking of women joining the workforce, I will note that all of our agencies are hiring right now. And so in terms of being immediately involved in what we're doing in Sacramento, there's a massive turnover in the State due to retirements. You know, as well as with utilities. I mean a significant share, something like 40 percent of the utility workers

can retire in the next five years.

And the Commission, alone, we'll see a 20 percent turnover.

And so in terms of really being a part of that process working in the agencies is a really good way to do that. So, I encourage you to go back to your communities and to tell people to get on the State list and to start to apply for these jobs.

And we look forward, again, to all of your comments.

I'm going to start with the public questions, now, although let me offer the panelists one quick opportunity if anyone has a follow-up comment.

All right. So, we're going to start with Morey Wolfson.

COMMISSIONER PETERMAN: Thank you. And if you'd like, you can sit here or you cannot, it's your prerogative.

And also, by the way, thank you to the staff from the Energy Commission who organized this workshop at a satellite location; tremendous job.

MR. WOLFSON: Thank you. My name is Morey Wolfson and I'm a resident of Pasadena. I do not represent an organization here today.

I just moved to California after serving in the

electric power sector policy arena in Colorado for over 40 years. Worked at the Colorado Public Utilities Commission, the National Renewable Energy Laboratory, and served two governors of the State of Colorado as a senior energy policy analyst.

But what I want to bring forward to you today is an appreciation for the work that you are doing. California is certainly far ahead of a lot of other states.

But there are some areas of urgency which I want to bring forward which are echoing, you know, some of the things that have been said before.

First of all, on the question of nuclear power I, like many of you, have been watching this for many, many years. I think it's time for us to get far more real, and conclusive, and decisive about the question of nuclear power.

And that there are facts about nuclear power that we've all known for a very long time and it never would have happened without the massive intervention of government.

And it is totally uneconomic and I encourage you to do everything within your limited power, which I recognize that limit is there, to not bank on the restart of the San Onofre Nuclear Generating Station.

I also encourage you not to bank on the continued operation of the Diablo Canyon.

You, in California, have a good history here of putting these nuclear reactors offline, Humboldt Bay, Sacramento Municipal Utility District.

And I think that for, you know, planning purposes, yes, I know it's keep everything on the table and have all these different scenarios, but let's really get real about nuclear power.

The last thing, in the interest of time I want to mention, it's been said, you know, tell me something that I don't know. And I think this panel knows a lot.

What I think that you may not be aware of is that when we talk about energy storage, we're not just talking about small things that can happen or a five-megawatt battery somewhere next to a transmission line.

When you have intermittent wind, when it is not delivering power during the time that you really need it, that's screaming for storage and the way you might get to the storage would be to think through the idea of electrolyzing water in city-sized fuel cells. Okay. So, you'd use those wind electrolytes --

COMMISSIONER PETERMAN: Morey, I'm going to have you actually wrap up. We have done a couple of workshops on storage. I'm also happy to talk more about

that with you.

MR. WOLFSON: Okay, thank you.

COMMISSIONER PETERMAN: Thank you. Next, we're going to hear from Donna Gilmore. I've got five cards in five minutes, so we're really going to keep it.

MS. GILMORE: Well, I speak earlier.

COMMISSIONER PETERMAN: Okay, you got a minute and 20, thanks to Donna Gilmore.

Next, we'll hear from Harvey Eder, please. Welcome. Welcome, sir.

MR. EDER: Hi, I'm Harvey Eder, I'm with the Public Solar Power Coalition. I think that there should be a statewide energy agency to convert the solar, and to do it in ten years.

I was with a group in Sacramento, a few weeks ago, that represented 17 environmental groups working on fracking, that are going to look at an initiative in two years.

The State of Alaska has a 25 percent energy tax, surtax, and we don't have anything like that. We should have like a 50 percent surtax and use that to convert to solar.

There's CCAs, Community Choice Aggregation, is one type of solar power that's implemented here, in the State. If the State buys out the transmission and

distribution lines they won't have the guff coming from the investor-owned utilities and the heartbreak of trying to implement something; like PG&E fought like hell a few years.

I have a lot more that I'd like to say but I can come up if there's another minute after somebody else gets to talk.

COMMISSIONER PETERMAN: Thank you, sir, for your comment. And we also, truly, will take written comments and we have another workshop which will be in September, I believe.

And can you put up the slide with how to file comments and everything like that, while we're talking?

Al Sahler?

MR. SAHLER: Already spoke, I'll pass.

COMMISSIONER PETERMAN: Okay, thanks to you, sir.

Rochelle Becker?

MR. BECKER: Let it go.

COMMISSIONER PETERMAN: Okay, Ben Davis?

All right, any -- sir, then come on, you can have 30 more seconds.

MR. EDER: Okay. The CCA law was passed at the same time Enron was gaming the State and that's why it went through.

PG&E went bankrupt, Southern California Edison was days from going bankrupt.

We should look at CHP as much more efficient in terms of solar, it's from maybe 30 to 90 percent efficient, versus photovoltaics are about from 10, to 30, 25 percent efficient.

And you could use air conditioning with absorption chillers.

And let's see here --

COMMISSIONER PETERMAN: All right, sir, I'm going to ask you to --

MR. EDER: Okay. All right, thank you.

COMMISSIONER PETERMAN: We have a women behind you who has not spoken, yet.

MR. EDER: Okay.

MS. GEORGE: Yeah, I did speak this morning, thank you for a chance to say one more thing. I did want to say that I'm in the long-term procurement proceeding. There's no short-term procurement proceeding.

Basically, I have asked every agency for an opportunity to have public input into this process. And in my whole work in the long-term procurement proceeding last year I proposed for, just in case nuclear plants went down, we should have an expedited planning process

so that if summer comes and we are in trouble, we would have input from everybody, including the public.

I have to say that the plan for replacing San Onofre has been crafted in the back room, there has been no public input opportunity that I know of, and I'm pretty good at finding these things.

So, I appreciate you saying that there's a workshop in September, but that's after the summer's heat has already, you know, gone on for a couple, two, three months.

And I think that some of the other panelists said this, too, that there really needs to be a comprehensive look and you're not going to get that unless you have public input.

Stakeholders are fine, they're important, but the public has another voice here that needs to be heard.

COMMISSIONER PETERMAN: Thank you. And your comment is a good tee up for what I want to leave as the final comment here, which is this workshop is a part of the Integrated Energy Policy Report process. We are mandated at the Energy Commission, by the Warren-Alquist Act, to look at the state of energy every year, and there's a big report that's put out every two years.

Last year, on the 2011 IEPR, which was one of

those big report years, we put out a 330-page report on challenges related to renewables.

A lot of the questions that were asked here, today, you can find answers to in that report. I think that report lays out well, really, some of the challenges that we're facing as a State.

What we're doing as a part of this year's IEPR process is providing those detailed recommendations, those action items that we need to address those challenges.

If you're looking to engage, to understand the technical issues that we're talking about, read those reports. We prepare them for you.

And so my request of all of you is to actually consume those reports. Those reports are available to the public, they're meant as direction for other agencies, and for the Legislature.

So, that's what we're hoping this year that the actions and recommendations we suggest will really be followed upon.

And the workshop that I referred to in September, that's the IEPR workshop. And we have had, in any given year, I think one year there were 60 public workshops for the IEPR. My goal this was to keep it shorter and I think we got to ten.

But that's a forum where you can provide your input, we do read it, and we put it into this document. It's meant to be a living document and it's only as good as those who use it.

So, with that, thank you for your comments, and we look forward to you reading the report, you commenting on it and participating in our next workshop. Have a good evening.

(Thereupon, the Workshop was adjourned at 4:58 p.m.)

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