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BEFORE THE

CALIFORNIA ENERGY COMMISSION

In the matter of,	)
	) Docket No. 21-IEPR-04
2021 Integrated Energy Policy	)
Report (IEPR)	)

IEPR JOINT AGENCY WORKSHOP ON

SUMMER 2021 ENERGY RELIABILITY

REMOTE ACCESS ONLY VIA ZOOM

TUESDAY, MAY 4, 2021

10:00 A.M.

Reported By:
Martha Nelson

APPEARANCES

Workshop Leadership

Chair David Hochschild, California Energy Commission (CEC)
Commissioner J. Andrew McAllister, CEC
Commissioner Siva Gunda, CEC
Commissioner Karen Douglas, CEC
Commissioner Patty Monahan, CEC
President Marybel Batjer, California Public Utilities Commission (CPUC)
President and CEO Elliot Mainzer, California Independent System Operator (California ISO)
Deputy Secretary Matthew Baker, California Natural Resources Agency
Deputy Director Ted Craddock, Department of Water Resources

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P R O C E E D I N G S

MAY 4, 2021 10:00 A.M.

MS. RAITT: All right, good morning everybody. Welcome to today's Joint Agency Workshop on Energy Reliability Through Summer 2021.

I'm Heather Raitt, the Program Manager for the Integrated Energy Policy Report, which we refer to as the IEPR.

Today's workshop is being jointly held by the Energy Commission, the California Public Utilities Commission, and the California Independent System Operator.

This workshop is being held remotely consistent with Executive Orders N-25-20 and N-29-20, remote notifications from the California Department of Public Health to encourage physical distancing because of the COVId-19

The workshop schedule and presentations -- well, the schedule is on our website and the presentations are in the process of being posted and so, they will be available on the 2021 IEPR page.

All IEPR workshops are recorded and both the recording and the written transcript will be available on the CEC's website within a few weeks.

Attendees have the opportunity to participate

today in a few different ways. For those joining through the online Zoom platform, the Q&A feature is available for you to submit questions. You may also upload a question submitted by someone else. You can just click the thumbs up icon to upload. Questions with the most votes are moved to the top of the queue.

And so, we will reserve a few minutes at the end of each of the two panels this morning to take questions, but we may not have time to address all the questions submitted.

Alternatively, attendees may make comments during the public comment period at the end of the morning or the afternoon sessions. Please note that we will not be responding to questions during the public comment period.

Written comments are also welcome and instructions for doing so are in the meeting notice. And the written comments are due May 18th.

And with that, I'm please to introduce Commissioner Andrew McAllister, the lead for the 2021 IEPR. Go ahead, Commissioner. Thank you.

CEC COMMISSIONER MCALLISTER: Thank you, Heather. Really happy to be here kicking off -- well, we did one workshop on the IEPR kind of setting the stage for the year in terms of the econ demo. But

really, this is the first truly substantive, I think, panel on one of the topics that's actually in the -- what are the four main topics of the IEPR. So, I'm really happy to be leading this year and happy to be working, really, with all of my colleagues across the Commission dias on various topics. So, it promises to be, really I think, a productive year.

So, I want to acknowledge my -- we're a full house here at the Energy Commission, so we have Chair Hochschild, Commissioners Gunda, Douglas and Monahan. Commissioner Gunda leads the reliability topic and will lead that in this IEPR.

We're also very happy to share the dias with President Batjer from the CPUC, and also President and CEO Mainzer, Elliot Mainzer from the California Dependent System Operator. So, thank you both for being here.

But also, we have Deputy Secretary Matt Baker, Matthew Baker from the Resources Agency. And also, Deputy Director Ted Craddock from the Department of Water Resources.

So, thank you all for being with us. Really looking forward to your interaction, and comments, and questions as we probe this topic of summer reliability.

So, really, today we all know that we have to

focus, we have to really have all hands on deck for summer reliability this coming summer. You know, obviously, we can't have a repeat of last summer. And I think there's been a lot of lifting that we'll hear about today in the morning and the afternoon.

You know, one sort of outlook for this coming summer and then in the afternoon all about how we're working together to confront that challenge and prepare the ground for success. So, really looking forward to hearing all the prep that staff across the agencies have put together.

I want to thank the lead staff that you all will hear from, from our various agencies, who have been working together on this, on today's agenda and content.

And with that, I think I want to just wrap up by saying, you know, everybody on the dais just make sure to mute when you're not talking. And then, know how things flow. And really, again, appreciate everyone being here.

And with that, I'll pass it to the Chair for any comments he might have.

CEC CHAIR HOCHSCHILD: Thank you so much Commissioner McAllister, and thanks for all your terrific work on our building codes, and load management standards, and so much else.

A warm welcome and happy May 4th, everyone. As they say in my family, "may the 4th be with you."

I wanted to just highlight that on Tuesday, the National Oceanic and Atmospheric Administration, NOAA, released their updated set of climate averages which confirms, really, what we all know to be true. Our world is warming and in some startling ways.

And I think, you know, the bottom line is we have to do together two things. You know, we have to continue to move boldly, and collaboratively, and ambitiously to support a reduction in emissions in every way that we're able, and we have to build resilience to support our electric system that's not really not a single agency, and it's not a single solution. It's silver buckshot, not silver bullet.

And the most important things that we collaborative, I just want to highlight, I believe we're now working together more closely, and more energetically, and more collaboratively than I've ever seen in my career. And I especially want to acknowledge Elliot Mainzer who's arrived at CAISO I think five months ago, for just bringing a real fresh energy, and outreach, and collaborative nature. And President Batjer the same thing, just an incredible team that we have. Including Liane Randolph, now, in her new role at

CARB.

So, I would just highlight, you know, I've asked Commissioner Gunda to, you know, be our lead on electric reliability. He's doing a fantastic job of that. However, you know, it is something that actually we all have to own in some way.

Commissioner Douglas has been leading our work on offshore wind, which is a terrific and exciting new resources we're going to, you know, be bringing to California. And that will help long-term to support our decarbonization and reliability.

Commissioner McAllister on the Energy Code. You know, our last residential code cut energy bills for Californian's in half, and that's part of the solution, too, we'll be pushing a really exciting new code this year for new construction, for the 100,000 homes a year we're building in California.

Commissioner Monahan on transportation electrification and making sure we have intelligent charging protocols that support reliability and all the other measures we're taking. As well as demand response, and working with the PUC to support resource adequacy and some of the other things.

So, looking forward to today's discussion and just wanted to thank everyone for joining in and look

forward to hearing from stakeholders and my colleagues. So, I'll pass it back to you.

CEC COMMISSIONER MCALLISTER: Great. So, I'll pass the mic to Commissioner Gunda to kick us off.

CEC COMMISSIONER GUNDA: Thank you Commissioner McAllister, Chair, and good morning to my colleagues on the dais, and all the workshop attendees. Thank you for joining us today and being here for this important discussion.

Last summer's west wide extended heat wave revealed areas to improve in the management of our electric system and I'm glad to have the opportunity to support the reliability track in the 2021 IEPR.

Over the year we'll explore opportunities to improve state electric system reliability in a variety of different forums, and a robust set of teams and topics.

The CEC, CPUC, and CAISO have been working very closely, as Chair noted, since last summer to ensure that this summer we are better prepared under an extreme heat wave as last year. But we recognize that we are not done yet, so we have a long ways to go. We have three, four months here to go in both preparing and going through the summer.

I want to take the opportunity to recognize the

collaborate spirit that was set at the top of the three entities by Chair Hochschild, President Batjer, and President Mainzer. We collectively want to use this year to not only prepare for summer 2021, but also begin discussions to develop the path for long-term reliability topics and issue.

I also want to take a moment to thank the staff across the three entities for their tireless work since last summer in conducting analysis, developing procurement pathways, ensuring that we have collaboration, and contingencies and such. The teams not only include technical, but we have our coms teams, leg. teams, our IEPR team, everybody working very closely. So, I just want to thank everybody for your tireless work.

Each of the organizations on the dais have been working to implement the commitments that we're starting to look at analysis and to respond to requests from the governor on last year. The details of those actions and their impact will be discussed in the second panel today.

We also have not been doing this alone. We've had help last year from several public and private partners. Specifically, the Department of Water Resources, and the Los Angeles Department of Water and

Power, and other partners have continued to work with us over the last six months to plan for summer 2021.

Our panel this afternoon, we highlight some of our reliability partners and their continued efforts to support the state of the whole.

However, in particular preparing for the summaries to understand how we think we stand today, compared to last summer, and both in a situation where we might have a typical summer and also an extreme summer, and how are we preparing for those.

One of the key functions of the CEC is to use the data and modeling capabilities at our disposal to inform reliability planning, along with convening robust analytical and policy discussions. And that's what you'll see the CEC this year, beginning with this workshop today that we're doing jointly.

You will see in the first panel an analysis that our staff performed to evaluated our extended -- expected supply and demand this summer, often called a stack analysis, since it stacks all the available supply and compares it to the anticipated demand.

It is important to note that the focus of CEC's analysis compared to what CAISO typically does for summer assessment, CEC's focus is generally going to be a multi-year and statewide footprint to develop a

situation awareness and support procurement decisions, while CAISO's summer assessment work is one the state relies on operational assessment for any particular summer. So, we're going to be doing this jointly.

We are also seeing through our collective analysis that the issue is net peak. As you all know, the duck curve, you know, as we move towards the evening hours, as the sun sets the overall solar production decreases and the demand not does decrease as quickly and creates this net peak issue. And this net peak issue has been a key part of our planning going into the summer.

I don't want to steal any more thunder from Lana Wong's presentation in the first panel, so let me conclude about talking a bit about what to expect this year in IEPR reliability track.

We have today's workshop that primarily focuses on this summer, but we want to be thinking about more than just this summer as we go along the year. The CEC is in the process of conducting modeling to look at five-year window to support planning. We'll be presenting our analysis in another IEPR workshop in the next month or so, where we take on the challenge of mid-term reliability planning.

In discussions with CPUC, CEC is going to

incorporate demand response into our IEPR process this year in a more substantive way than what we've planned for. The CPUC's rethinking of the states DR program could result in a fundamental transmission DR and expand an economically developed support of the --

CEC COMMISSIONER MCALLISTER: Commissioner Gunda, sorry I want to butt in. It appears -- and this is for Heather, it appears that the attendees cannot hear you, even though I think the panelists can. There's a lot of a chats saying people can't hear. So, I wonder if there's a solution here. There may be a technical muting of the attendees, but not the panelists.

CEC COMMISSIONER GUNDA: Are they able to hear you, Commissioner?

CEC COMMISSIONER MCALLISTER: Why don't people, if you can hear me, can you write in the chat? Okay, they can hear --

MR. REYNOLDS: I did get a response saying they can hear you, Commissioner McAllister.

CEC COMMISSIONER MCALLISTER: Okay, they can hear me, but they cannot hear Commissioner Gunda. So, I'm not sure what's going on there. It seems like Commissioner Gunda maybe needs to moved into panelist mode or something.

MR. FUGATE: Commissioner Gunda, can you switch back to computer audio?

CEC COMMISSIONER GUNDA: I'm doing it right now, so let me see.

MS. RAITT: Some people can hear you, but some people can't apparently.

CEC COMMISSIONER MCALLISTER: If there are any attendees that can hear him, it would be good to let us know, just so we can diagnose the problem quickly.

MS. RAITT: It looks like some of the attendees can hear both.

CEC COMMISSIONER GUNDA: Okay, can people hear me now?

CEC COMMISSIONER MCALLISTER: Great, that looks like it's all good. Perfect. Just confirming people can hear Commissioner Gunda now?

CEC COMMISSIONER GUNDA: Testing, maybe, testing one, two, three.

CEC COMMISSIONER MCALLISTER: Yes, Commissioner Gunda.

MS. RAITT: It looks like -- yeah, it looks like we're good.

CEC COMMISSIONER MCALLISTER: Okay, let's move on. Maybe you can back up and redo some of your comments there, so we can keep the agenda moving.

Thanks for letting me butt in there, Commissioner Gunda.

CEC COMMISSIONER GUNDA: I think I should be okay now. Can you hear me okay, now?

UNIDENTIFIED SPEAKER: You're cutting in and out Commissioner Gunda. Maybe I can help rejoin for you.

CEC COMMISSIONER GUNDA: Yeah, I mean I don't know how far back, Commissioner, do you want me to go. Do you want me to just start at the top or --

CEC COMMISSIONER MCALLISTER: I think maybe start at the top. I don't think people could hear you right from the start.

CEC COMMISSIONER GUNDA: Okay, that was a great training for myself.

(Laughter)

CEC COMMISSIONER MCALLISTER: Okay.

CEC COMMISSIONER GUNDA: Yeah, so okay, I'll just start off. So, thank you, Commissioner McAllister, Chair, and good morning to all my colleagues on the dais and all the workshop attendees. Thank you for joining us today for this important work on reliability.

Last summer's west wide extreme heat wave revealed areas to improve in the management of our electric system and I'm glad to have the opportunity to support the reliability track in 2021 IEPR. Over the year we will explore opportunities to improve the

statewide electric reliability issues.

The CEC, CPUC, and CAISO have been working very closely since last summer to ensure that this summer we are better prepared under an extreme heat wave as last year. But we recognize that we are not done yet. We have plenty of planning to go over the next three months and really tackling the summer operationally.

I want to take the opportunity to recognize the collaborate spirit that was set at the top of the three entities by Chair Hochschild, President Batjer, and President Mainzer. We collectively want to use this year to not only prepare for summer 2021, but to begin discussions to develop the path for long-term reliability.

I also want to take a moment to really thank the staff that have been working tireless since last summer to ensure reliability for this 2021 summer. It included not only technical teams, but we have our coms teams, our leg. teams, our IEPR team and so on to come together and collectively work on a variety of topics to ensure that we're moving forward in a robust and cohesive fashion.

Each of the energy organizations on the dais have been working to implement the commitments we set in the root cause analysis and to respond to the request

from the governor. The details of those actions and their impact will be discussed in the second panel today.

We also have not been doing this alone. We have plenty of help. We've had help last summer from several public and private partners, specifically, the Department of Water Resources, and the Los Angeles Department of Water and Power, and other partners have continued to work with us over the last six months to plan for summer 2021.

Our panel this afternoon will highlight some of our main reliability partners.

However, a critical part of preparing for the summaries to understand how we stack compared to last year. So, we have taken analysis in two different ways and we are looking at how we would fare under a typical summer weather and another under extreme weather that we've experienced in 2020. And we also will discuss some of the contingencies we've planned for under such events.

One of the key functions of the CEC is to use the data and modeling capabilities at our disposal to inform reliability planning, along with convening robust analytical and policy discussions. And that is what you'll see us tackling this year, beginning with this

important kickoff workshop on reliability

You will see in our first panel an analysis that our staff performed to evaluated our expected supply and demand this summer, typically known as the stack analysis, since it stacks all the available supply and compares it to the anticipated demand.

It is important to note that the focus of CEC's analysis compared to CAISO's. CEC's focus is generally going to be a multi-year and statewide footprint to develop a situational awareness and support procurement decisions. But we depend on CAISO's summer assessment to really look at the operational assessment for any particular summer. So, CAISO will be presenting today, along with CEC's stack analysis to really give us an understanding of the operational risks and issues that we might have going into the summer.

And we really thank CAISO for their ongoing work on summer assessments.

We are seeing through our collective analysis that as we (audio loss) -- our renewable future and, you know, the famous the duck curve, you know, we have to continue to look towards thinking through the net peak issue. And as most of you know, this is when the sun sets the solar decreases, and the demand does not decrease as quickly creating the net peak issue. And

this is something that we've taken into our planning this year very keenly and thoroughly.

I don't want to steal any more thunder from my colleague, Lana Wong. She's going to present on the first panel to talk through some of her analysis. But I do want to give some high level indication of what we'll be tackling in our IEPR reliability trend this year.

We have today's workshop that primarily focuses on this summer, but we want to be thinking about more than just the summer. The CEC is in the process of conducting modeling to look at five-year window to support planning. We will be presenting on analysis in another IEPR workshop in the next month or so, where we will take on the challenge of mid-term reliability planning.

In discussions with CPUC, CEC is going to incorporate demand response into our IEPR process this year in a more substantive way than -- substantial way than we've initially planning. The CPUC's rethinking of the state's DR program could result in a fundamental transformation in DR and expand in an economical way to help support reliability.

Assuming their staff proposal is approved, the CEC stands prepared to expand their IEPR workshops and their internal analysis to explore the issues they

identified us to supporting their efforts.

With the help of all the stakeholders attending today, we feel very well prepared to plan for our future and we look forward to your comments and your thoughts on how best to prepare the state.

I also want to thank once again everybody that is in attendance today. And I want to pass on the mic to President Batjer for her opening comments. Thank you.

CPUC PRESIDENT BATJER: Thank you so much Commissioner Gunda, and thank you Chair Hochschild, and thank you Commissioner McAllister, and also thank you, Heather.

First, I want to express my appreciation to the Energy Commission for including this workshop as part of the IEPR proceedings.

One of the lessons from last August's west wide heat storm is it is critical we enhance transparency and better inform the public and stakeholders regarding the potential challenges we see ahead of us this, and in subsequent summers. This is an important venue to do just that.

I also want to share my appreciation for the commitment, and the collaboration, the leadership and staff of our respective organizations have demonstrated

this past year. As the Chair and Commissioner Gunda said, and I also wanted to welcome and say hello to President and CEO Mainzer, but we have worked tirelessly together, very, very collaboratively and very closely.

We wrote to the governor last August that we shared in the responsibility for what many Californians unnecessarily endured and we committed ourselves to improving the state's position to withstand a similar extreme weather event in the future, and to protect the safety of those we serve.

Today we'll hear, as Commissioner Gunda has said, from numerous -- of numerous tasks each of our organizations and partners have completed to better position the state. And though no one can predict weather and resource conditions on a given date with a hundred percent certainty and clarity, we know we are in a stronger position than last year.

For the CPUC's part, we have facilitated the direct procurement of capacity and the establishment of new programs that have meaningfully increased demand and supply side resources for this and next summer.

However, some of the decisions we made are not ones we celebrate. Some of the incremental capacity we will depend on this summer are not clean energy resources. But it is because of health and safety

concerns we have pursued these paths for this summer.

During last August's extreme heat wave, we also contended with COVID-19, dry conditions, and terrible wildfires. And though those risks are different this year, we hope, they remain considerable factors as we contemplate the consequences of lost electricity to a community.

But I want to be clear that our planning and implementation of our clean energy future progresses forward and will only accelerate in the months and years to come. The climate change-induced events of last August only further crystalize the need to build a more reliable grid by way of zero carb resources.

The organizations here have collaborated one way or another in developing the Joint Agency SB 100 Report that assessed various pathways for meeting our 100 percent clean energy goal.

Our organizations are now collaborating on creative planning -- critical -- excuse me, critical planning efforts that will facilitate the associated infrastructure build out.

At the CPUC we specifically are moving forward to ensure procurement at the required pace to meet those goals.

The outages last August were unacceptable. But

a silver lining is it has furthered our resolve in protecting the health and safety of tens of millions of Californians, powering the fifth largest economy in the world, and leading the fight against catastrophic climate change.

Again, I'd like to thank my organization and organizational partners for the work we have done and that which we must continue to do. And I look forward to today's workshop.

Thank you again Commissioner Gunda and Chair Hochschild. I think I pass it back to Commissioner McAllister.

CEC COMMISSIONER MCALLISTER: I think we have very little time left for opening comments, but I certainly want to give Elliot, President Mainzer the opportunity to take the floor and provide some opening comments.

CAISO PRESIDENT AND CEO MAINZER: Well, thank you Commissioner McAllister.

CEC COMMISSIONER MCALLISTER: And we'll give it back to Acting Commissioner Gunda from there. Thank you.

CAISO PRESIDENT AND CEO MAINZER: Thank you. And I will certainly keep it brief. I want to just start again by thanking Chair Hochschild and the

Commission for convening us today. I think this is a really important meeting and I wanted to reciprocate by thanking all of you, my colleagues on the dais, all of you that have attended today. So, a warm welcome.

Since the minute I arrived in California last year, really, really appreciated the spirit of collaboration and, quite frankly, the focus and commitment amongst all the state agencies. It has been a very strong partnership. And I think if there's any one lesson we learned coming out of last year, it's the importance of effective communication and coordination in supporting reliable power system operations.

I think the agenda for today, as we move to the reliability outlook, the joint activities for summer reliability and then later today hearing from some of our other reliability partners I think is going to be very, very informative. I think we'll get a chance to hear a lot of the substantive work. And my hope and expectation is that through the presentations, through the questions, comments and the dialogue that that will further help ensure that we have left no stone unturned in our efforts to preserve reliability for Californians this summer.

So, thank you very much for the opportunity to be here and I'm really looking forward to the

presentations from staff. Back to you, Commissioner McAllister.

CEC COMMISSIONER MCALLISTER: Great. I'll let Commissioner Gunda take it from here. If we have a minute, maybe we should just check with Commissioners Douglas and Monahan to see if they have opening comments.

CEC COMMISSIONER GUNDA: Yeah, Commissioner McAllister, I would like to encourage if we can keep the comments brief, but I definitely want to hear from Commissioners Douglas, Monahan, and Deputy Secretary Baker if you have any quick comments. Thank you.

CEC COMMISSIONER DOUGLAS: I'll just step in very quickly and join in the comments of my colleagues. This is an incredibly important issue and no matter what we focus on at the Energy Commission, or the PUC, certainly the ISO reliability becomes job one and that's why, you know, this requires all of our focus and attention. So, I'm very happy to be part of this, thanks.

CEC COMMISSIONER GUNDA: Thank you, Commissioner.

Commissioner Monahan?

CEC COMMISSIONER MONAHAN: Well, I'll join in the chorus saying that I'm really looking forward to

this conversation. It's a testament to how seriously all the agencies are taking this issue that there are so many commissioners and leaders on board with this conversation.

So, in the interest of time, just looking forward to hearing from the panelists and having this discussion.

CEC COMMISSIONER GUNDA: Okay, thank you Commissioner Monahan.

Deputy Secretary Baker?

CALIFORNIA NATURAL RESOURCES AGENCY DEPUTY SECRETARY BAKER: Yes, in the interest of time I just want to thank the joint agencies' leadership and the staff for doing this. And I think it's extraordinarily important, particularly as we enter summer where electric reliability is going to be -- you know, is something we need to be concerned about in addition to wildfire, and in addition to drought.

So, thank you very much for doing this.

CEC COMMISSIONER GUNDA: Thank you.

And Deputy Director Craddock?

STATE WATER PROJECT DEPUTY DIERCTOR CRADDOCK: Yeah, thank you Commissioner. Likewise, the California Department of Water Resources is really glad to be here today to be partnering with everybody for this workshop.

We operate the State Water Project, which is one of the largest water systems in the state. In partnership with the other water agencies we have the, you know, ability to support the grid with hydropower, but also are a large energy user. And so, we really appreciate the collaboration and close communication with both the Commission and Cal ISO as we move forward to operate our system and the other water systems in the state closely with the grid for reliability.

CEC COMMISSIONER GUNDA: Thank you so much for being here today. Thank you.

CEC COMMISSIONER MCALLISTER: I want to just jump in real quick because we have another audio issue. It seems like this time with Commissioner Monahan.

CEC COMMISSIONER MONAHAN: Yeah, I saw that. Can you hear me? Can folks hear me now? I've just switched to the computer audio. I'm just wondering if there was some problem with the phone audio.

Oh, you can.

CEC COMMISSIONER MCALLISTER: Okay. They can hear you now. Okay, great.

CEC COMMISSIONER MONAHAN: It appears to be an issue with the phone audio.

CEC COMMISSIONER MCALLISTER: Okay, great. Thanks everyone.

CEC COMMISSIONER GUNDA: Thank you, Commissioner. Thank you, Commissioner McAllister.

With that, I'll pass it on, back to Heather Raitt for getting us through the agenda. Thank you.

MS. RAITT: Thank you, Commissioner Gunda. I'm hoping people can hear me because I've got the phone audio going.

But I will go ahead and just introduce our moderator for this first panel on reliability outlook. The moderator is Ed Randolph. He's the Deputy Executive Director for Energy and Climate Policy at the Energy Division of the CPUC. Go ahead, Ed. Thank you.

CEC COMMISSIONER MONAHAN: Heather? Heather, sorry to interrupt you but nobody can hear you. Yeah.

MS. RAITT: Nobody can hear me.

MR. RANDOLPH: Why don't I just go ahead and take it from here since all Heather was doing was introducing me, and then we can figure out Heather's audio.

MS. RAITT: And I will -- yeah, I will reconnect, thank you.

MR. RANDOLPH: Okay. And just kind of check as well on the questions and answers, can folks hear me fine?

MS. RAITT: Yeah, it looks like they can hear

you.

MR. RANDOLPH: Okay, can hear me fine, okay.

MS. RAITT: But anybody's who is on the phone audio switch to the computer audio, please.

MR. RANDOLPH: Well, good morning everybody. Good morning Commissioners and other panelists out there. I'm Edward Randolph. I'm Deputy Executive Director for Energy and Climate Policy at the California Public Utilities Commission.

This first panel today will discuss analysis that the California Energy Commission and the California Independent System Operator have separately prepared to help us assess reliability risk for this coming summer.

But before we start with the panelists, I have been asked to provide some context to the overt outcomes from the analysis.

As Commissioner Gunda had said, these analyses were prepared for slightly different purposes and serve different planning needs. While they're both helpful and extremely informative in us looking at the risk for this summer, the reliability risk for this summer, the fact that they do start with different goals does mean that they come to slightly different results.

That doesn't mean that there's anything incorrect with the panel or we should take the

inconsistencies in any way, it's more a reflection of their starting points and their long term -- their starting points in how they approach the analysis and their long term goals.

Also, when trying to take a look at the planning models and incorporating lessons learned from last summer, the models do take some conservative assumptions on what our risk would be this summer and what our demand would be this summer.

When looking at forecast peak demand from 2020 as the basis for assessing our ability to meet this peak summer, we do need to take into account that those 2020 peak demands were the result of extreme heat wave events. And while it is appropriate to be using that as the basis for assessing this summer, that does result in appropriately conservative assumptions for this summer.

With that caveat, I will hand it over to Lana Wong to present the CEC's analysis.

MS. WONG: Thank you, Ed. I'm Lana Wong, Senior Analyst with the Energy Commission.

The next slide. I'd like to present our summer 2021 outlook. Energy Commission conducted hourly supply stack analysis to produce the outlook. Traditional planning criteria is focused on looking at a single peak hour, but with the increasing amounts of solar on the

system, assessing net peak hours later in the evening has also become important. This analysis considers both the peak and net peak hours.

We prepared two outlooks. One under average weather conditions which is what we use in our traditional planning criteria, and then we also looked at a scenario under a west wide heat wave, similar to what we saw last year.

The next slide. So, as Ed mentioned, we want to take what we learned from 2020 and incorporate it into this year's analysis. And so, on the demand side, in addition to our one-in-two average weather case we are looking at a much higher demand. We're using the highest observed value in 2020 in our extreme case.

For available supply, we start with the ISO's NQC, or net qualifying capacity list of existing resources that are used for resource adequacy. From there we need to project what new resources are expected to come online this summer. We've included the PUC's expedited procurement in our analysis.

For demand response, or DR, we're using a conservative assumption. And in our extreme case we're limiting imports to a five-year average RA, or resource adequacy contracted amount.

Solar, we are modeling solar on an hourly basis.

We are using our Energy Commission PLEXOS model's hourly solar shapes to capture the decline in solar output as the sun goes down.

And then lastly, on the planning side we are using a slightly higher planning reserve margin in our extreme case to account for higher unplanned outages that we've seen in recent years.

So, in our traditional planning criteria we use 15 percent for a planning reserve margin and unplanned outages are 5 percent of that 15 percent. And we increased that to 7 and a half percent in our extreme case.

The next slide. This slide goes over our import assumptions. The last row is what we are modeling. This shows our average resource adequacy contracted amount. And that amount does not include economic imports. Economic imports are resources that are priced less than internal generation. Recognizing that economic imports could be realized, a small amount is assumed in the average case. But we assume those vanish in our extreme heat wave case.

The next slide. The next two slides cover the results of our average case. The X-axis presents the hours between 3:00 and 8:00 p.m. This is our peak and net peak period. The Y-axis presents a stack of the

resources across the hours. And the dark orange line represents the system requirement for our average weather year demand, plus the 15 percent planning reserve margin.

And note that the royal blue bars, that represents our solar output and you can see that decline as we go into the evening hours.

So, the results show that the supply stack bars are above the dark orange line. Resources are sufficient to meet our target system requirement.

The next slide. This slide shows the results for September. And in general, resources are slightly lower in September primarily due to less hydro and solar. So, the supply stack bars are above the dark orange line. The results show that resources are sufficient to meet our target system requirement.

The next slide. In establishing the extreme scenario demand, we looked at demand data from last summer. So, we know that actual demand was lower due to the extraordinary mobilization by the energy agencies, governor's office, ISO and other balancing authority areas, load serving entities, and the public, which resulted in significant demand reductions during August and September.

So, to determine the best counter factual demand

of what could have been the demand, absent the extraordinary mobilization, we looked at the ISO day ahead forecast.

So, the orange band shows the range of the day ahead demand forecast. The green dotted line represents the average weather year demand or planning criteria. The red solid line or curve shows the max day ahead forecast, which exceeded the average by nearly 13 percent, or 5,600 megawatts. The yellow solid line or curve shows the actual demand, which exceeded the average by almost 5 percent or about 2,000 megawatts.

And the difference between these solid lines can be attributed to the significant efforts to reduce demand, the other variable being weather changes.

So, as a side note, of that 15 percent planning reserve margin 4 percent of that is to accommodate a deviation from 1-in- 2, or our average weather demand. And the actual demand and max day ahead were above that level.

The next slide. This slide shows the same data for September. And here we've got actual demand about 4 percent above the average, or about 1,800 megawatts. And the max day ahead was about 10 percent above the average or about 4,500 megawatts.

The next slide. This slide shows our solar

production for last August. And the orange shade represents the range of solar in August. And several key days from August are plotted, the days before, during and after the outages. And the green dotted line shows the RA obligation.

So, the chart shows that actual solar output is above or below that actual RA obligation. And the key area to focus on are the hours between 6:00 and 8:00 p.m., where we could see that we lose almost 3,000 megawatts of solar production in two hours.

The next slide. The next two slides present the results of our extreme heat wave scenario. And a few things to point out. No economic imports are assumed in this case. And we start with the max of the day ahead demand forecast and we add in 6 percent for operating reserves, and that higher 7 and a half percent for forced outages to get our system requirement, which is the dark blue line.

So, the supply stack bars are below the dark blue line in the later evening hours, between 6:00 and 8:00 p.m. So, resources are insufficient to meet our target system requirement, which would trigger the use of contingencies.

The next slide. This slide shows the results for September and this is the worst of the worst

scenario. So, the supply stack bars are below the dark blue line in the later evening hours, between 5:00 and 8:00 p.m. Resources are insufficient to meet our target system requirement, which again would trigger the use of contingencies.

And so, as a reminder in this extreme case we are assuming a higher level of the demand, our max of the day ahead forecast. We are also assuming conservative resource assumptions. No economic imports are assumed. And a more conservative demand response assumption. And also, a higher planning reserve margin.

These results do not account for contingency measures in place. And contingency measures will be the discussion of later panels today.

The next slide. Lastly, I'd like to tee up resource analysis that is underway at the Commission. We are undertaking a midterm resource assessment out through 2026. We are running a stochastic analysis with varying combinations of wind, solar, load and generator outages. This will be the subject of an upcoming workshop, tentatively scheduled for early July. So, watch for that information coming out.

That concludes my presentation. Thank you.

MR. RANDOLPH: Thank you, Lana for that excellent presentation.

Next, we will move on to Bob Emmert, who is the Senior Manager for Interconnection Resources at the California Independent System Operator. Bob, the proverbial floor is yours.

MR. EMMERT: All right, thank you Ed, and good morning everybody. So, I'll be going over the preliminary summer assessment results for the ISO. These are preliminary at this point, although we do not anticipate there will be any changes in these results. But we keep them as preliminary until we actual publish our official summer assessment report, which will be published as part of the May Board meeting board materials.

So, next slide please. The ISO summer assessment is an operational-based assessment where we focus on preparing the ISO, our operators, as well as market participants for the range of operating conditions that we see throughout the summer both in normal type conditions, and as well as the more extreme operating conditions that we would expect to see so that our operators and market participants can really be better prepared for what they may be seeing across the summer.

For 2021, we layered in a deterministic assessment, a stack analysis much like the CEC did, and

those are included as part of our results, along with our stochastic production cost modeling work that we do, which is our standard summer assessment work that we do year over year.

And this table shows the differences of the inputs and assumptions of those two types of analyses. Where for the stack analysis we used the CEC 2020 IEPR 1-in-2 load forecasts for 2021, the resource capacity levels are based on RA net qualifying capacities.

Since we are looking at the most extreme hour of 8 o'clock during the month of September, solar is considered to be at zero output during that time. For hydro and wind, we are using the effective load carrying capability based values. And the amount of demand response under stack analysis was discounted by 50 percent to reflect the actual performance of shown demand response that we saw in 2020.

Moving over to the stochastic analysis, where we run 2,000 different scenarios, we've used ISO-developed range of weather-driven load forecasts to develop those 2,000 scenarios. We used dispatchable. For the dispatchable resources that we model, they're based on the RA net quality capacity. We model all hours of the summer, as compared to just looking at one hour in the stack analysis. And we use generation profiles for

renewables in a combination of dispatchability and profiles for hydro.

And for demand response we rely on a projection of what the demand response amounts would be, rather than using a discounted process.

So, the next slide, please. So, this stack analysis is focusing in on the 8 o'clock hour, 8:00 p.m. of September 2021 and we're looking at three different scenarios here. And the differences between these scenarios, as you move from the left to the right bars, is we start out with the RA import capability which is based off of an average of the last six years of RA import procurements. So, consider that kind of the starting point.

And then, moving to the middle bar we move up to an additional, about 2,600 megawatts of RA procured imports which is equal to roughly 8,400 megawatts, which is the maximum amount that we've seen for RA procured imports for the month of September, and that took place last year.

And then, the right bar adds an additional 1,000 megawatts of economic imports above the RA contracted amounts.

And so, each of these bars we're looking to see how they reach various levels. Where the far left bar,

the total capacity is a bit below the 15 percent planning reserve margin in the 17 and a half planning reserve margins we were expecting for this summer. So, under those conditions for the month of September, at 8 o'clock, we're a bit short on resources.

Now, moving to the middle bar, with the additional resources up to 8,500 megawatts of imports, we are able to meet both the 15 percent and the 17 percent planning reserve margin.

And then, finally, looking at the far right bar we are able to meet the loads that are represented by the top dashed line which is the day ahead forecast for the day of August 18, 2020. And that dashed line represents that load plus 6 percent operating reserves, and includes a discounted based on a 7 and a half first outage rates.

So, what this was really designed to demonstrate was the importance of imports above the amount of capacity that we have available within the ISO, under the RA programs. That as we increase imports, we increase the level of reliability that we have on the system.

The next slide, please. So, moving to the stochastic analysis for 2021, these results are provided based on probabilities of crossing to stage 2 and stage

3 alert operating reserves threshold. Where a stage 2 operating reserve threshold is at 6 percent operating reserves and declining. And the stage 3 threshold is at 3 percent operating reserves and declining. And the stage 3 alert is the point where the ISO would be likely in the mode of shutting firm load to maintain operating reserves at, at least 3 percent.

So, to look at the probability of a stage 2 compared to 2020, the 2021 numbers are lower than -- or the probabilities are lower than in 2020. So, the probabilities are somewhat lower under typical import levels and are significantly lower under conditions of limited imports.

Moving down to the stage 3 condition, the probability is essentially unchanged for typical import levels and the probability has decreased under conditions of limited imports, but is only marginally better than the stage 2 levels. And the conditions that impact these results are the new resources that we have coming online for this coming summer. We are in the second year of low hydro conditions.

The ISO load forecasts are essentially unchanged at the 1 and 2 level. And in incorporating last year's actual weather events into the historical weather databases has brought the extreme weather event into the

range of a 1 in 10 load level for the ISO forecast, which significantly increases how much a 1 in 10 exceeds a 1 in 2 load condition.

And so, that particular point is really the reason why we see that the probability of the stage 3 alert has not improved as much as the stage 2 alert conditions because we're seeing these higher load levels play out in those more extreme scenarios from the assessment that are in the stage 3 operating conditions.

So, the results demonstrate increased reliability under most conditions, but last year's weather events are now considered more probable.

So, moving on to the next slide. This shows the hours of greatest risk in the samples where the reserve margins were deficient, either at 6 percent or less. And the point of this slide is just to show that the hours of greatest risk are really those hours where we have low to no solar generation occurring. And so, these hours where the net peak is post-solar production is really showing those hours we're seeing the greatest risk to the system.

Moving down to the next slide. So, this is a comparison of conditions for 2021 compared to last year, where this year we have approximately 2,200 megawatts of additional available capacity. Hydro conditions are

about 5 percent lower compared to last year, where the snowpack, snow water content for this year peaked at 60 percent of average which is similar to the 2013 hydro year. We do a look back where we look at the last years that we're experiencing now, and look for a similar three-year pattern of hydro in history. And then, we use those hydro, actual hydro generation profiles and monthly energy amounts in our model.

And the 1 in 2 load levels are very little different compared to last year, only 70 megawatts between our 2020 and 2021 peak demand forecasts. And our ISO forecast is trending a bit higher than the CEC IEPR 1 in 2 load forecast, we're about 1 percent higher than their forecast.

So, comparing the forecasts for 2020 to 2021, looking at the various levels, when comparing the forecast to the 1 in 2 forecast levels last year's forecast was 4 percent higher at the 1 in 5 level. And the 1 in 10 forecast level was 6 percent higher than the 1 in 2 forecast.

Looking at the 2021 forecast, the 1 in 5 forecast remains at 4 percent higher than the 1 in 2 forecast. But the 1 in 10 is 11 percent higher than the 1 in 2 forecast this year. And the higher load levels associated with the 1 in 10 are attributable to the

increasing -- are including last year's weather events into the stochastic analysis.

So, to the next slide. Looking at our conclusions, overall capacity conditions are better compared this year than 2020, but the grid remains vulnerable to high loads and available imports during widespread heat events, especially with significantly below normal hydro conditions this year.

The retaining of gas-fired generation and added storage improve expected performance for 2021. Storage is expected to be effective in supporting system capacity needs when added to the system.

I think it's worth noting, though, that this year we will have ten times more battery energy storage on our system compared to last summer. And we are working with operators of these systems as they ramp up on our learning curve on how they actually operate those battery energy storage systems.

And the probabilistic measures based on historic performance now reflect last year's conditions. And as a result, a 1 in 10 condition now reflects higher load patterns than in past years' studies.

So, with that, that ends my presentation and I'd be willing to answer any questions.

MR. RANDOLPH: Thank you, Robert. And before I

hand it over to the panelists for questions, just to do a quick summary of the two panels here, the two analyses here. On a high level, you know, what we see is that going into 2021, due to a number of efforts on the other agencies which we will talk about in more detail on the next panel, we are in better shape this year than we were in 2021 -- or in 2020, sorry.

If we look at, in 2021 an average weather year in both the CAISO analysis and the CEC stack analysis, you know, we should be in good shape. However, if there is a repeat of extreme weather events, especially a west wide event similar to last summer, there still is going to need to be reliance on contingency measures, which actually another panel will discuss some of those contingencies out there.

And I think it's worth noting to work through some of the technical detail in there, a key dependency we will have in a lot of different conditions is our ability to import and rely on energy from other parts of the west out there. So, that is a key issue we're going to have to watch as we move into the summer.

With that, I will hand it over to the panelists for questions. And I think, panelists if you have questions raise your hands or -- I'm not sure if I'm moderating or somebody else is.

CEC COMMISSIONER MCALLISTER: Yeah, maybe we can -- go ahead, Commissioner Gunda.

CEC COMMISSIONER GUNDA: Yeah, I think Mark Kootstra is on point helping moderate some of the questions on this panel.

MS. RAITT: Actually, this is Heather. If anyone on the dais has any questions, this is the opportunity. And if we don't have any questions, then we'll go to Mark Kootstra with the Zoom Q & A.

CEC COMMISSIONER MCALLISTER: I want to -- maybe I'll just jump in real quick. Oh, sorry Elliot, were you going to go ahead.

CAISO PRESIDENT AND CEO MAINZER: No, no, go ahead.

CEC COMMISSIONER MCALLISTER: I guess I just wanted to dig in a little bit to this west wide issue and understand how we have assessed those risks right there at the end that were brought in the conversation, in the presentation, and kind of what the plan is for that going forward to get a better handle on the risks associated with, you know, non-California issues out within the WECC.

MR. EMMERT: So, this is Bob. I can speak to what we've done in our analysis. We run two different probabilistic model runs. One we look at imports at

higher levels, declining as load increase, but based -- you know, we use a nomogram to develop those import levels based on historical imports. So, we looked at it from that stand point.

And then we did a scenario analysis to where we limit the imports on a monthly basis to the average amount of RA imports that were procured over the last six years. So, that is a methodology that the ISO uses to really take a look at the lower end of imports which really is the result of primarily other balancing authorities outside the ISO being in a coincident heat wave with the ISO to where they're needing all the surplus energy they have for their own loads, and have less available to export to the ISO. And we consider that sensitivity run really kind of our bookend of to be able to take a look at what are the most extreme conditions we might expect to see during the summer.

CEC COMMISSIONER MCALLISTER: That's reflected in the 1 in 10 you talked about?

MR. RANDOLPH: Yes.

CEC COMMISSIONER MCALLISTER: Thank you.

CAISO PRESIDENT AND CEO MAINZER: I do have one question. One of the panel -- can you talk about both the base assumptions -- maybe I'll start this with the CEC. Maybe talk about the base assumptions around

demand response that are built into your stack analysis and what other contribution would we expect or need from demand response resources in conservation during the really extreme heat wave scenarios. And just a little bit of talk about that as to how that plays into the ability to maintain reliability under those extreme conditions.

MS. WONG: So, this is Lana. For the demand response assumption we are using a more conservative assumption. We're starting with the utility demand response program levels and discounting that by 40 percent. And so, it is a more conservative assumption that we've incorporated into our analysis.

CAISO PRESIDENT AND CEO MAINZER: Okay. Bob, do you want to add anything to that for us?

MR. EMMERT: Yeah. Yeah, I would add that, you know, one thing our model really doesn't have the capability of doing is rolling into the results what would happen under issues such as the Flex Alert programs that we have available to us that bring a certain amount of additional voluntary load reductions, as well as what occurred last summer where we had some significant load reductions due to what the governor did for state buildings and other areas that are pretty significant.

So, in extreme conditions it's very likely that we could be relying on those and I believe that the practice that we got last summer will actually help us to implement those programs more effectively to limit any issues we might find in very extreme conditions.

MR. EMMERT: Thank you.

MS. WONG: Right. And adding to that, the contingency measures that are in place we have not accounted for them in the analysis. So, the results are more conservative and we anticipate contingency measures being able to help, like the Flex Alert Program.

CAISO PRESIDENT AND CEO MAINZER: Yeah, and I know in the next panel we'll have a chance to talk a little bit more about the sort of systematic approach the state's taking to demand response preparation help under those really extreme circumstances, which I think may be a key part of our operating strategy for the summer. So, thank you.

CEC COMMISSIONER GUNDA: Yeah, President Mainzer, I think I just want to add one comment that I think to your question. So, as we developed the stack analysis, we looked at DR performance through the lens of the RCA. But I think moving forward I think we all collectively agree there's a much better opportunity for DR, and we hope to tackle that in the workshops this

year to better quantify that. Whether it means to adjusting the same day adjustment baseline, or whether that means in another way to account it more accurately. So, I think that's something we'll tackle and including the analysis moving forward. Thank you for raising that.

CAISO PRESIDENT AND CEO MAINZER: Thank you.

MS. RAITT: Thank you. This is Heather Raitt. If it's okay, we can take a few minutes to take questions from Zoom here today.

CEC COMMISSIONER GUNDA: Absolutely. Please do that.

MS. RAITT: Great, thank you.

So, Mark Kootstra from the Energy Commission is going to be moderating that. And Mark is the -- he's the Supervisor for the Planning and Modeling at the CEC. Go ahead, Mark.

MR. KOOTSTRA: So, these questions all came through while, Robert, you were talking.

It appears that the CalISO is using the CEC 1 in 2 noncoincident net peak in its stack analysis and not the forecast in load at 8 PM. Is that correct?

MR. EMMERT: That's correct.

MR. KOOTSTRA: Great. And then, how much is the ISO relying on hydro generation import this year

considering the drought and what are the backup plans if hydro comes less than projected?

MR. EMMERT: Well, the analysis that we do, we don't really pinpoint or try to quantify what type of imports that we are actually bring in. It's a production cost model, so the model finds whatever are economic imports up to the limits of -- the import limits that we have in the model. So, it could come from any of a number of sources.

I will speak to that in the Northwest the hydro conditions that we looked at show that they're about 90 -- I think it was about 91 percent of average. No, excuse me, it was 89 percent of average in the Northwest for their hydro conditions. So, they should have, you know, adequate hydro for us to import, if they're not needed at all for their own loads.

MR. KOOTSTRA: And then, how much of the 10X batteries that we're seeing are for the ancillary services market?

MR. EMMERT: Well, they can be for either. It's however they have bid into the market and how they are actually utilized. So, they can be utilized to actually provide energy for load or they can provide ancillary services. So, it's going to depend on how they're utilized on a day-by-day basis.

MR. KOOTSTRA: And then one more question before we close out. Does the import estimate assume the extreme heat event is west wide?

MR. EMMERT: Yes. We're -- basically, in the sensitivity run that we ran, we assume that we are limited to imports based on what was procured under the RA program and that we are not able to have additional imports that are typically the economic imports that we enjoy at time of peak loads when it's a non-west wide heat event.

MR. KOOTSTRA: Thank you very much.

MS. RAITT: Great, thank you Mark.

So, with that we can move on to our second panel on joint activities for summer 2021 reliability. And I should introduce myself again. Heather Raitt, for those on the phone that can't see.

And David Erne with the Energy Commission is the moderator for this panel. And David is the Manager for the Supply Analysis Office at the Energy Commission. Go ahead, David. Thank you.

MR. ERNE: Thank you, Heather. And good morning to the Commissioners and other panelists on the dais, as well as our attendees.

I'm going to do a quick sound check. So, if I can ask Drew, Ed, and Anna to chime in we'll see if

collectively everyone can hear us before we commence with the panel.

MR. BOHAN: Good morning, David. Drew here. Can you hear me?

MR. ERNE: I can hear you fine. I'll see if others can.

MR. RANDOLPH: Yes, and I can hear Drew as well. And once again this is Edward Randolph.

MS. MCKENNA: And good morning everybody, this is Anna. Can you hear me?

MR. ERNE: I think. Let's see if we can get a response. I can hear everyone fine.

CEC COMMISSIONER MCALLISTER: Drew, I think from the dais we're hearing fine.

MR. ERNE: From the audience, can they type in and say if they can hear all four?

MR. EMMERT: We're getting lots of all goods.

MR. ERNE: All right, it looks like we have this worked out. This is fantastic.

So again, thank you everyone. This is our joint panel for the summer of 2021 reliability. So, this is each of the energy entities are going to give an overview of their activities to support this summer's reliability. And that is work that has been proceeding actually prior to the RCA that's coming into fruition

this year, and activities that have been taken after the root cause analysis. They're either complete or ongoing.

So, we have a pretty robust discussion from each of the panelists. They'll be giving an overview of what each of them are doing. You'll see there's a fair amount of depth and breadth to the activities and this is why it's a rather extended panel discussion to give each an opportunity to talk in detail about the activities.

And I think what you'll also find, as was mentioned this morning by the dais members, I know Commissioner Gunda and President Batjer mentioned the collaboration and coordination among the three entities has been very substantial this year to prepare for this coming summer.

So, with that let me do quick introductions for each of our panelists. So, our first panelist is going to be Drew Bohan, who's the Executive Director of the California Energy Commission.

He'll be followed by Ed Randolph, Deputy Executive Director for Energy and Climate Policy at the Energy Division at the California Public Utilities Commission.

And then following him will be Anna McKenna,

Interim Vice President of Market Policy and Performance at the California Independent System Operator.

So, those are our three panelists today. And I will turn it over to Drew for him to begin his presentation.

MR. BOHAN: Well, thank you David. And thank you, Chair Hochschild and Commissioners, President Batjer, and President Mainzer, Deputy Secretary Baker, and Deputy Craddock for the opportunity to present to you this morning. And I want to also thank Heather for pulling this all together. It's a monumental task.

As David noted, in this panel you're going to hear about how the agencies are responding to Governor Newsom's request that we work together to improve reliability.

This slide is an overview of the three agencies' joint planning roles. The map of California shows the various balancing authorities in California. The light orange, which dominates, represents California ISO's balancing authority territory, which is about 80 percent of the state.

And this roughly, though not precisely, corresponds to the PUC's jurisdiction.

This morning's panel is about each of the agencies roles, starting with the CEC. We have a number

of planning roles. In particular, we're tasked with developing statewide common planning assumptions. This includes the single forecast set which serves as the basis both for the CPUC's procurement and for Cal ISO's transmission planning.

We also develop scenarios based on probabilities. One in 2, 1 in 5, 1 in 10, 1 in 20 for a variety of different purposes.

What we learned last summer is that we have to build upon our past analyses and develop new analytical products like reliability analyses, which we'll focus on next.

The rest of this presentation focuses on CEC's work to support reliability this summer and going forward. And we're working in four areas.

The first is simply an enhancement of our traditional role, forecasting demand.

The second involves new analytical tools. I'm going to focus this morning on reliability assessments and distributed energy resources.

The third is contingency planning. We have broad authority under what is known as Emergency Function 12, or ESF 12. But this morning we'll focus on the contingency planning aspect in the electricity sector.

And fourth is a suite of other activities involving several of our divisions at the Energy Commission.

So, first let's drill a little deeper into our demand forecasts. The CEC's data and analysis role goes back to the 1970s. The '70s was a volatile time. Some of you might remember the long lines at gas stations, as depicted in this photo here. But at the same time, electric load was growing at an unsustainable rate of 7 percent per year. The CEC was established in 1975 by the Warren-Alquist Act that directed the CEC to do a number of things aimed at addressing this challenge.

One of the main ones that we were tasked to do was to develop a detailed, data-drive, long term demand forecast. The goal was to prepare and objective set of planning assumptions for the entire state.

Over the years the CEC has built one of the world's strongest teams of professionals focused on analyzing energy issues.

The basic need for demand analyses hasn't changed. However, the system has gotten a lot more complex and today's forecast is but a distant cousin of its 1975 ancestor. It now includes energy efficiency, a concept that barely existed at the time. Renewables, battery storage, and EVs, also new concepts. Climate

change, barely acknowledged at the time. Weather variance by geographic resolution, and hourly profiles.

Today the forecast is used in a variety of CPUC and Cal ISO proceedings, including resource adequacy, IRPs, distributed resource planning, and transmission planning.

Going forward, the CEC's first reliability task is to enhance our demand forecasts to meet the challenges of an evolving and ever more complicated grid. In the 2020 IEPR we included for the first time a 1 in 30 forecast. Last summer was a stark reminder of how extreme weather events were becoming more common.

The CEC's forecasting team is coordinating with our research team to explore ways in which climate models can better inform our understanding of the likelihood of extreme weather events in the coming years.

They're also going to extend the forecast beyond the usual 10-year horizon out to 2035. This will provide a reference point for longer term goals, most notably Governor Newsom's executive order targeting the end of new internal combustion engine sales by 2035.

And finally, our team is expanding the way in which we do our forecasts.

Before moving on, I would just note that many of

these forecast enhancements were requested by Governor Newsom in his letter last summer to the three agencies.

The next thing the CEC is doing to improve reliability is to launch two new analytical products, reliability assessments and DER assessments. Our reliability assessments will look at the near term, midterm, and long term.

Our near term assessment is focused squarely on this upcoming summer. It's supposed to get over 90 degrees today in Sacramento, it's almost there, so this is timely. In the last panel, Lana presented the results of our 2021 summer reliability analysis.

We're looking at a variety of conditions -- the next slide, please. We're looking at a variety of conditions with the focus on the possibility of unusually hot summer days. And going forward we will produce this near term analysis every February and incorporate lessons we learned throughout the year.

Midterm assessments are going to look five years ahead to support the CPUC's procurement of generation resources. Again, as Lana noted, we are just now beginning to examine the 2021 to 2026 timeframe. This longer period allows us to tweak weather conditions, resource build outs, and retirements, and see how they impact the grid. We are currently developing our

approach and will present it in an upcoming IEPR reliability workshop.

And then, we have long term assessments. These are the most complex and they're going to be tied to our SB 100 planning. One can imagine a nearly infinite combination of renewable energy build outs with different amounts of wind, solar, geothermal and other resources located throughout different parts of the State of California.

We'll examine a number of representative build outs and look at the types of transmission configurations that could support those build outs. So, that's reliability assessments.

The other new analytical product we're developing involves assessments of DERs. We're in the early phase of looking at a number of questions. How do DERs perform? For example, how does solar operate under different conditions, like cloudy or smoke-filled days? How does wind perform over a sustained period of time?

We plan to look back several years with the vast amount of data we're compiling on energy consumption, and look at the performance of DERs and how they impact reliability. We'll work with our Research Division to identify opportunities to develop technologies to better take advantage of DERs.

The third area we're focusing on to address reliability is contingency planning. The root cause analysis called on the CEC to develop a contingency plan in coordination with CPUC and Cal ISO. The purpose of the contingency plan is to institutionalize many of the activities that were performed last summer to reduce load and provide additional generation. The plan will identify all potential contingency measures and which agency will lead each effort. It will identify potential megawatts that each resource might be able to provide. It will lay out a clear communication protocol among the agencies to coordinate activities in real time both before, during, and after an event.

The CEC will continue to work with CAISO, like we did last summer, to engage with entities that don't fall under CPUC jurisdiction but are able to provide support to the CAISO area grid. These entities include Department of Water Resources, the L.A. Department of Water and Power, and other balancing authorities in the state. You'll hear more from a couple of those folks later, in the afternoon session.

Finally, let's take a look at what we're collectively calling other activities that the CEC works on that we're trying to leverage to improve system reliability. Last summer we reviewed all of our

programs and processes to see how we might do this.

Our Siting Division, for example, manages the CEC's Power Plant Program and provides regulatory oversight of jurisdictional power plants beginning with permitting, during construction and operation, and finally a closure. At present, there are 76 operational power plants generating 27,000 megawatts of electricity in California.

Working with operators, we identified up to 122 megawatts of software upgrades and other improvements to increase output. We're currently working on permit amendments through an open public process.

Late last summer, the CEC also began -- we're kind of jumping ahead here, thank you. Late last summer the CEC also began working to support improvements in the demand response programs. This February we convened a Demand Response Roundtable in collaboration with CPUC and CAISO. The roundtable consists of demand response providers in the state and enables more dialogue about the problems with DR that became more evident last year during the heat wave.

The roundtable has improved our understanding of how the current approach may be under-counting DR, particularly during heat waves. The CEC intends to continue to include demand response in future IEPR

workshops to review how the program can be improved to support reliability.

A recent CPUC staff proposal, under the resource adequacy proceeding, asks the CEC to address specific DR topics in this year's IEPR and we plan to work on that this year.

The CEC also initiated a load management rulemaking in 2020. The rulemaking is designed to develop statewide standards that can be used to reimburse customers who reduce their load or shift it to another time to benefit the grid and reduce greenhouse gas emissions. This rulemaking will support the entire state, including IOU and POU territories, with improved access to demand flexibility.

Finally, the next slide, we looked to our EPIC Program to see how research might best contribute to reliability.

You can jump to the next slide, please. EPIC is California's premier public interest research program. The CEC, through this program invests over $130 million annually to fund innovative clean energy technology research. Over the last several years, the CEC has invested $74 million in EPIC funding to support load flexibility.

The next slide, please. Recently, we approved

three new projects to improve demand reduction technologies that will result in direct benefits this summer. The first project, with OhmConnect, will improve their platform to expand customer engagement. The project anticipates enrolling more than 40,000 new customers and achieving more than 25 megawatts of flexible demand capacity by August.

The other two projects will improve irrigation pumping controls to support load shifts. The two recipients are Polaris Energy Services and AgMonitor. Cumulatively, these two agricultural projects are anticipated to result in nearly 18 megawatts of demand reduction during peak hours. And we expect these near term improvements will expand in future years.

So, that's a look at the CEC's contributions to system reliability and we're eager to work with our partners. Thank you very much.

Let me now turn it over to Ed Randolph.

MR. RANDOLPH: Good. Thank you, Drew and Ernie, I didn't meant to cut you -- I'll just go ahead and jump in, if we can bring up my slide deck.

And once again, I'm Ed Randolph, Deputy Executive Director for Energy and Climate Policy at the California Public Utilities Commission.

And the next slide, please. So, today I'm going

to talk through the actions that the CPUC has taken since last summer to help improve reliability going forward, and then also talk about a few actions that were already underway even before last summer.

And as a starting point, I do want to echo the thanks and the gratitude that have been expressed from the dais earlier this morning for the staff at all three of the energy agencies, who have been working on these issues since last summer. Since the August heat wave, it has been a mad and sometimes seemingly endless scramble to respond to those events to make sure that there was enough energy during those heat waves after the initial two days with rotating outages, to develop the root cause analysis, and then to respond to the recommendations of the root cause analysis. So, a lot of thanks and gratitude is due to all the staff in all the agencies who've worked with that.

And also, a thank you to Heather for once again setting up and excellent workshop today.

So, if we could move to the first slide, or the next slide. You know, almost immediately after the two heat storms from last summer, you know, the PUC began working on actions that needed to be taken to help prevent a repeat of those actions. You know, even before the root cause analysis was done, you know and

obviously conclusion is that, you know, first and foremost we need more resources to be available during those peak hours in August and September, and especially during the late afternoon, early evening hours when solar starts to decline and is no longer available.

That showed itself in a November 19, 2020 opening of a rulemaking to look at expedited procurement for resources that can be online. Not just in 2021, but resources also available in 2022. That proceeding has resulted in two different decisions and directives from the Commission. One was issued in February, aimed at the three large investor-owned utilities, Pacific Gas & Electric, Southern California Edison, and San Diego Gas & Electric, directing them to contract for incremental capacity that can be available in 2021 and in 2022.

Through that directive, the PUC has already approved 564 megawatts worth of incremental contracts for new resources. That's coming -- of for resources. That's coming from a combination of natural gas plants, biomass plants, and burn imports.

Then, in March of this year the PUC approved an additional decision that was taking further action largely looking at the demand side of the equation, a number of programs there. I'll walk through each one of these programs.

So, in the interest of time, let's just move to the next slide and we'll talk about each one individually. The first of the programs that was implemented in this decision is called the Emergency Load Reduction Program, or ELRP. This is a new pilot, I think a somewhat innovative pilot that's responding to a lot of feedback we got during and after the heat waves last summer, which a number of different entities out there said they could provide more demand response, more load reduction, or more energy if only there were a clearer mechanism for them to actually get reimbursed for that. And so, the ELRP, the Emergency Load Reduction Program is a pilot that tried to do that.

It also is a pilot to work around or try to resolve some of the challenges that a lot of these potential providers of additional energy or load shifting have had trying to work through the PUC resource adequacy rules, and the CAISO's energy market mechanisms. And some of these products, when trying to work through those things they really feel like a square peg trying to fit themselves in a round hole.

So, this is outside of those rules as a pilot to see what we can really get from these type of resources. The eligible customers to this would be commercial/industrial, sometimes referred to as

nonresidential customers, out there. A lot of these customers already participate in programs like the Base Interruptible Program, which is an emergency demand response program, but would allow them to provide additional savings beyond their commitments there.

It also will allow customers with behind-the-meter resources that can generate and export energy to the grid to participate, virtual power plants to participate, and for DR providers, third-party DR providers to participate in the program as well, beyond their existing DR commitments.

And the way the program works in kind of a basic sense is if there's an event trigger, which would be the CAISO issuing an alert, these customers would then, if they can, produce load savings in response to that, would get paid a dollar a kilowatt hour, or $1,000 a megawatt hour for the voluntary load that they're able to reduce during that emergency load shed event. And then, there would be no penalties for nonperformance there.

This program we estimate and this is, you know, a very -- you know, a very rough estimate is 500 to 720 megawatts of load reduction during a CAISO alert if this is triggered.

The next slide, please. The decision also made

several changes to existing demand response programs to try to improve the participation and the effectiveness of those programs. You know, specifically there were changes to enrollment protocols in what's called the Base Interruptible Program, which would allow more customers to enroll under more flexibility in enrollment in that program, the temporary raises caps, and the reliability programs, and increases incentives to attract new customers in some of the programs.

And again, from this change in programs we're hoping to get 167 to 367 megawatts, that's an awfully specific estimate, of savings from these programs.

The next slide, please. Additionally, we've made some changes in what's called the Critical PeakPricing Program. This is a program that many commercial customers for the investor-owned utilities are enrolled in. And the way it works is when events are called during high demand times, the customers' electric rates during those times will increase significantly to send a price incentive for those customers to reduce load during those times.

You know, looking at past results from the programs we've made several changes to improve the effectiveness. One is to change the event window for these programs to more accurately reflect when our hours

of peak need are. It should be noted that these changes in the peak windows for some of the utilities are not going to happen this year due to complexities in enrolling customers and changing in their billing systems, but will be in place by 2022.

We've increased the maximum number of events that they can be called per year for Edison. It's upgraded per station there. And providing more customer education out there.

And then, something else that we have done is started working with the community choice aggregators to either develop their own community or critical peakpricing programs or other similar demand response type programs. This is in response to the realization that as more and more customers move over to community choice aggregation service, instead of getting their energy service from the IOUs, we also need to focus on tariff programs and other programs on the CCA side that would lead to load shifting during critical times.

The next slide, please. We've also, in that decision, refunded the Flex Alert campaign. I think as most people know, Flex Alert is a campaign that's existed since the 2001 energy crisis. That when a flex alert is triggered, a broad messaging goes out for people to voluntarily conserve electricity.

Last summer that program wasn't funded, it did not have a paid media campaign behind it. It just -- well, it wasn't just, I think it's still a very effective program even that way, but was based on earned media or, you know, outreach to media outlets across the state, and other public outreach to seek voluntary efforts. We're reinstituting using a paid campaign to have more public outreach out there. And are working with our vendor, who's working on it at this time, to try some new and innovative ways on public outreach around these programs as well.

The next slide, please. Additionally, the decision increased what's called the planning reserve margin for the investor-owned utilities. This is, you know, really taking into account the fact that the current planning process didn't fully take into account the most extreme heat events we're likely to do. By increasing this planning reserve margin that increases the number of megawatts each of the large IOUs needs to have, you know, under contract, the amount of capacity each of the IOUs needs to have under contract this summer to serve load.

The next slide, please. And then, beyond the decision, the two decisions I just talked about, you know the Commission is in an effort to track the

progress towards meeting these -- the new build out that is needed to meet the needs of this summer, of next summer, and quite frankly beyond that. You know, and as this chart at the bottom shows here, when we look at the next coming years, for 2021, you know, beyond the interim, or the emergency decisions that we just showed you, we are expecting resources with over 2,300 megawatts of what's called net qualifying capacity to be online this summer.

You know, something that is worth noting here is oftentimes when the energy agencies talk about new resources that are needed or coming online we switch back and forth between two measurements, without explaining that we're doing that. One measurement is the net qualifying capacity, which is actually that resource's ability to meet those peak demands on summer days. And when we're talking about reliability that's the most important number.

But then, the nameplate capacity is another number which is -- would be the maximum output of a particular resource if it were able to produce it's engineering maximum at a particular time. And that's oftentimes referred to as the nameplate capacity.

So, sometimes we talk about nameplate capacity, sometimes we talk about NQC, and we don't explain that

we're switching.

But as this table shows, looking at next summer we've got 2,300 megawatts, a little bit more than that of net qualifying capacity. But because a large percentage of that is going to be new solar coming online, which has a very low net qualifying capacity because of its inability to meet that peak late in the day, the actual nameplate capacity, it's ability to generate energy is much higher.

And then, as we look going forward through 2024, we have almost 4,000 megawatts of net qualifying capacity coming online. It's a little over 8,000 megawatts of new resources coming online.

The next slide, please. Yeah. And as I talked about a little bit there, we are closely tracking the development milestones of -- you know, of these resources. And there's two different tracks that are going on there.

One is all load-serving entities are required to submit aggregate -- or submit to us their progress towards meeting prior procurement directives, which have been submitted, and we will release an aggregate of progress towards that shortly.

And then, you know, we are also, as we look at this summer and next summer, looking at very specific

projects having regular communications with the load-serving entities to make sure their projects are all on track or not hitting environmental regulatory barriers. Or, I think, you know, more important in this day and age with a lot of supply chain challenges, they're not having supply chain problems or interconnection problems.

The next slide. And then looking a little further down the line, there's already a lot of conversation about what happens when the Diablo Canyon Nuclear Power Plant comes offline. And just to set that up here, there is a ruling, a judge's ruling that was released a few months ago, that we've now received comments on that proposed 7,500 megawatts of net qualifying capacity to replace that. And again, that's net qualifying capacity. Nameplate capacity for that could be, depending upon the resource, anywhere from 10,000 megawatts to 15,000 megawatts depending upon, you know, how ultimately that is met.

And we will expect a decision, a proposed decision following up on that order on actual directives here sometime in the coming months.

The next slide. I think that's the last slide. Yeah, and I'm at my time. I'll just go through this real quickly. We are also working with the IOUs and the

CCAs for better data sharing, so all the entities can better improve their load scheduling accuracy. We are looking at long term rule changes in our resource adequacy proceeding.

I think most importantly on that we had workshops in February to look at what the planning reserve margins in the resource adequacy program should be. And we are developing new integrated resource procurement framework to ensure that all load-serving entities are meeting their reliability needs going forward.

The next slide. And that's it. Questions. Thank you.

MR. ERNE: Thank you, Ed. Appreciate your overview.

I'll turn it over to Anna McKenna from Cal ISO.

MS. MCKENNA: Thank you, David. And good morning Chair Hochschild, Commissioners, President Batjer, President Mainzer, fellow panelists and, of course participants. Thank you for bringing us together today to facilitate this very important discussion.

It's my pleasure to be here, to share with you some of the activities we've undertaken at the California ISO to prepare our markets and procedures for this summer's events.

Specifically, I'm going to walk through some of the market rule changes that we recently completed and have now filed with the Federal Energy Regulatory Commission for their approval.

As well as our efforts in better measuring demand response performance which will, as you have heard, will continue to be a very important reliability resource for us this summer.

And before I proceed, I also wanted to express my appreciation for the collaborative efforts among our organizations, and with the PUC. I have to say that our collaboration has been a pleasure to work with all the agencies and learn more about each others' procedures, and efforts. But also, as we all know, is a key to our collective success this summer in dealing with any heat events.

With that, I will turn to the next slide, please. So, what I'd like to touch on this morning are the key market rule changes that we undertook. After the root cause analysis last summer we identified certain areas of potential improvement in our market. We also had identified additional areas that looking at how to best manager the resources for the summer through our own efforts.

We immediately launched an emergency stakeholder

initiative on an expedited basis to address market rule changes that could be implemented specifically for this summer. Our goal was to identify those changes that we could implement for this summer, our stakeholders and our market participants could implement for this summer. And also, were very targeted to addressing the issues we identified in the root cause analysis or any other issues that were specific for reliability this summer.

So, several areas of changes. The first area was around pricing and supply incentives. We made some changes to our market rules as they pertain to imports, hourly imports at our interties. We know that we are dependent on the imports and a bulk of the imports continue to come to us on an hourly basis. We allow for hourly, as well as 15-minute imports. But the western neighbors continue to have mostly hourly supply of imports.

So, what we did is we changed a rule for during very tight -- when we are in very tight conditions to allow and ensure that hourly imports can -- are guaranteed recovery of their bids submitted. This is only for the narrow hours of the day when we are in tight supply conditions. We did not change this rule across the board. We continue to think the better incentive is to incentivize 15-minute imports, which are

more flexible and easier for us to integrate into our operations. But this does send a better signal.

We also made some changes to our pricing for stronger price signals during emergency conditions. We had discussed a series of potential changes to pricing as we label (indiscernible) pricing. We didn't go as deep because of implementation challenges, but also the need to consider those rule changes more carefully. But what we did do is targeted some very specific pricing enhancements that allow us to ensure that our real-time prices reflect the use of our operating reserves during tight conditions.

We also, and then also in an effort to better reflect scarcity pricing and the shortages on the system during these tight conditions, we made some modifications to how we manage emergency demand response in our market processes so that they -- the use of such resources can be better reflected in our pricing and dispatch. And also, ensure that the load forecast takes into consideration during those intervals that these demand response resources have been triggered, which allows us to have also a better market solution overall.

In the area of battery state of charge, this is an area that we identified through our resource adequacy enhancements efforts that we have been engaged in for

some time, but became more important and more urgent as we looked to this summer's integration of approximately 2,000 megawatts of new storage on -- storage resources in our system.

As we know, it will be key and important for us to be able to address those, that peak conditions when the solar has left and demand is still relatively high. And that was particularly acute during the heat events that extend over several days when the heat targets are still relatively high during those critical net peak periods.

We know that we'll be relying a great deal on the storage resources coming on to meet those requirements. What we had been working on through our resource adequacy enhancements is what we label a minimum state of charge that ensures the storage resources are charged during those net peak periods. This is a limited procedure that we'll be -- that we've developed and is a temporary procedure for the next two years, and allows us to ensure that those storage resources that are under resource adequacy contracts that they are available and charge during those peak periods.

We recognize the importance, however, of providing maximum market flexibility on the storage

resources to ensure they can participate efficiently. And because of that, we've proposed this effort to be only in effect for two years while we proceed with a new initiative to actually better model and manage the storage resources throughout the day for subsequent years.

But for this summer we have proposed this interim measure that will allow us to ensure that the storage resources are charged to meet the net peak energy capacity requirements.

In the area of EIM sufficiency, issues arose and questions arose around the ISO's ability to pass the sufficiency tests. What these are, are tests that we run in our energy and balance market which is essentially a component of our real-time market that extends into other partners of the west, and allows us for exchange of transfers of energy throughout the day.

And, of course, during those critical hours it's important to have a good measurement of how ready and sufficient we are to enter into the energy imbalance market, which is a requirement that's imposed on all participants, including the ISO.

There were questions that arose as to whether the ISO was sufficiently resourced entering into those hours. And we looked into some short term changes that

can be made to better reflect the uncertainty that is expected in subsequent intervals. The hours -- the tests are run for the hour, a given hour, and will going forward be incorporating our sufficiency tests of capacity -- sorry, an uncertainty requirement that requires us to meet through our bidding, through our bid range the additional uncertainty that may arise.

We also made some short term changes to the modeling of energy interchanges between the ISO and the energy imbalance market participants. For those, in those cases where energy imbalance, EIM participants also have interchange transactions at the ISO interties. We want to make sure that those are modeling accurately, which improves the energy imbalance market's performance overall for all participants.

The next slide, please. Another area that arose out of our efforts on resource adequacy enhancements was the management of outage substitutions for resource adequacy resources. We have a requirement under our tariff that under certain conditions resource adequacy resources must replace, substitute their outages. We also require that they submit that information in advance so that we can evaluate whether the outages are reliable and can be taken, and approved for those planned outages.

What we did is we proposed some rule changes that require resource adequacy resources to, when they submit those outage requests, to also substitute up front for the capacity. This will better ensure that the resource adequacy resources are replaced for this summer. We accelerated this effort in our expedited stakeholder proceeding so that we could have it in place for this summer, and ensure that over the summer months we are better prepared for the planned outages replacement.

A third area -- sorry, a fifth area of market rule changes in an area where we -- and these issues were -- some of these issues were identified in the root cause analysis, and that is the management of exports and wheeling priorities at our interties.

The ISO operates a market that is essentially cleared, that allows for exports and wheel throughs to occur on the system consistent with open axis principles. However, we also were through the root cause analysis and our own investigations recognized that under certain conditions, certain instances it's not always clear that our resource adequacy capacity is not backing, if you wish, the export resources that might occur.

Common to all control areas and practices is the

allowance for external entities to contract with resources within the balancing authority area. But under our market rules, if a resource has capacity designated for the purposes of serving ISO load, that capacity is not available for export and would only be available if it was not otherwise necessary to serve ISO load.

After last summer's events we made some rule changes that allowed us to better ensure that that capacity -- that we can we identify in the day-ahead process that that capacity is not available for export and, therefore, would not back an export. And we changed some of our priorities to ensure that occurred. That didn't require tariff changes, we were able to do so through procedural changes.

But we also, then, identified some potential other rule changes that strengthen our ability to identify that any exports that occur during constrained conditions are not backed by California resource adequacy and are, instead, backed by resources that have been designated to serve those exports contracted for by the external parties. And through open access principles we apply our rules to ensure that we can recall the exports that were not otherwise backed by contracted for resources.

Those rule changes will better -- will help us better manage and ensure that during constrained conditions that exports are not backed by our resources.

As we were looking into these issues, we also identified that under certain circumstances what we call wheel through transactions, which are basically import/export transactions that are combined, and occur through our system. Again consistent with open access principles, we allow for wheel throughs through the system.

We identified that there's a possibility under certain constrained conditions that these wheel throughs could crowd out, at certain times, import capacity that is otherwise designated for purposes of importing resource adequacy resources from external entities into the ISO.

And what we -- although we didn't see any of this activity going on last summer, there were no wheel throughs actually crowding out any of the RA imports, we know and understand that the constraints over the west wide system, as well as in particular the southwest have changed patterns in such a way that may increase the flow of these wheel throughs.

Therefore, we proposed a procedure and some changes to our market rules that allows us to minimize

the amount of wheel throughs that would be treated to -- that would basically be permitted to go through during constrained conditions to only a smaller group of resources that we would otherwise have to allow for under today's rules. Under today's rules we have no restrictions. All wheel throughs are treated, you know, and under our tariff are -- have no distinction as to how they're treated today. So what we did is we adopted procedures to allow us to narrow that scope.

All of these rules have been since -- all the market rule changes I just went through have since been filed at the Federal Energy Regulatory Commission. They're under their consideration. We have asked for different implementation dates that span from June through the middle of July in order to be ready for the peak hours, the peak periods of most constraints this summer.

With that, I will move on to the DR efforts. I see I only have a few minutes left. So, let me move on and share with you some of the significant efforts that we've undertaken at the ISO to ensure that we can better value the demand response performance.

After the RCA was issued last summer, we received a lot of concerns by DR providers across the board that there was significant under valuation of

demand response reductions during the August 14th through 19th of heat events. And these concerns were largely and are largely around the baseline methodologies that we use, as well as the adjustment caps used within the baseline methodologies.

The baseline methodologies allow us to have a point from which we measure, once a demand response resource is actually participating in our markets and participating in operations, what their performance is.

We took on two tracks to better measure demand response --

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MS. MCKENNA: -- we have started already doing so. We have had significant success already in soliciting the participation of about 12 participants. Some of which are already committed to the program. Some of which that are contributing their data to the program, which will helps us also create better measurements.

The other track that we engaged in, and these tracks are contemporaneous and not intended to -- you know, they're not serial, and parties can participate in both. The other track was to allow for and solicit from demand response providers requests for changes to their adjustment factors on the cap ratio that's used under

the current baseline methodologies. This allows us to adjust the cap ratio for the summer months. It does require us to evaluate the data submitted by the DR, the demand response providers. However, it could come into play as early as May. In fact, we have one participant that is already prepping for May to have the adjustment factor already underway for this month through October.

Participants can still come for the months of June, July, August and we will consider those requests so that they can adjust. What this allows demand response providers to do is it ensures that under -- if, under the current baseline methodology the forecasts considered, or their responsiveness considered does not reflect actual conditions in weather or demand requirements, it will allow us to remove the cap, which then allows us to increase the baseline expectation of their performance and better measure where they actually back off from, which will also be an improvement in measurement.

With that, I see my time is off, so I will stop there for questions.

MR. ERNE: Thank you, Anna. And actually thank you to Drew and Ed as well, appreciate all the input from all the panelists. Very informative, shows the substantial number of activities that all of the energy

institutions are taking for the summer.

And if I can repeat Ed from earlier today, really put the state in a much better position this year than we were last year.

So, thanks for all of those presentations. What we'll do is we'll move to Commissioner Gunda, who will coordinate questions from the dais.

And just as a reminder for anyone who's speaking, if you can identify yourself before you speak for those people who are on the phone and not able to see the WebEx -- or see the Zoom.

Commissioner Gunda.

CEC COMMISSIONER GUNDA: Thank you, David.

I'll just open it up to the dais, any questions from the dais for the presenters today?

CEC COMMISSIONER MCALLISTER: Commissioner Gunda, I just wanted to make a quick comment.

CEC COMMISSIONER GUNDA: Absolutely, please.

CEC COMMISSIONER MCALLISTER: Yeah, I just want to -- I mean their presentations really complement each other nicely and I think really demonstrate how much critical thinking, but also coordination and complementary thinking is happening across the agencies. And really excited to -- in particular, I think I know a little bit more about, obviously, what the Energy

Commission, so appreciated Drew's comments.

But really happy to see what's going on at the other two agencies. And in particular, Anna, your presentation on the scarcity pricing stuff, and looking, really taking a critical eye at the import/expert issues, I think those are really critical. And just the level of care and intentionality and kind of openness that everybody is approaching this issue is really terrific, and I think bodes well for really finding solutions.

I also wanted to thank the DR providers for their kind of volunteerism in helping dig into these issues.

And then, finally, I wanted to just, as you did Commissioner Gunda, call out President Mainzer there for really bringing sort of an openness that is helping to stimulate, really in a very vital way, this conversation. So, really excited to keep the conversation moving forward.

CAISO PRESIDENT AND CEO MAINZER: Thank you, Commissioner, appreciate it.

CEC COMMISSIONER GUNDA: Thank you, Commissioner McAllister.

Any other questions, comments from the dais?

If not, I'm going to hand it to I believe Mark

Kootstra to help with the Q&A.

MR. KOOTSTRA: Absolutely. So, the first question I have for Mr. Randolph: In the modeling, how are you considering or de-rating natural gas generation for high heat days, when those assets may not be able to obtain their nameplate capacity?

MR. RANDOLPH: Yeah, thanks for the question, Mark and from Mike. Yeah, you know, there's different modeling and various modeling does take into account the derates for high heat rates. You know, both in our IRP modeling and, more importantly in the RA modeling. And then, as we look at refining the RA modeling and maybe moving to different mechanisms they do account for that. And some of the different mechanisms we may move forward to would account for that derate on those high heat days already.

MR. KOOTSTRA: Great. And the second question I have is also, maybe, directed at you.

You mentioned that Flex Alerts were not funded this year. Was this the first year they weren't funded since the program began?

MR. RANDOLPH: No. And that's a good question. It's been an off and on issue with Flex Alerts for a long time. And the basis of that is they were originally funded using ratepayer money back during the

energy crisis. As the PUC, in various proceedings, looked to refund Flex Alert there wasn't good evidence, you know, kind of one way or the other of the effectiveness of Flex Alert out there.

And I think most importantly out there, there wasn't a good distinction over how much to pay versus the free campaigns worked.

So, over time, in those years where we had, you know, events that caused us to be particularly concerned about reliability it's been funded as more of an insurance policy. After San Onofre Nuclear Generation Plant went down unexpectedly, we continued funding the paid campaign then. Then, actually after that stopped funding the paid side and handed all media control of the campaign over to the ISO.

Then, after Aliso Canyon went offline and then had reduced capacity, SoCalGas funded a Flex Alert paid campaign in Southern California due to electric reliability campaigns there. So, it's been off and on over the years.

MR. KOOTSTRA: Thank you. The next question I have is: How does the expected proposed decision on midterm procurement in the second quarter comport with the July workshop mentioned earlier this morning?

I think is going to partially go to Commissioner

Gunda, but may also come up with the CPUC for some comment on that as well.

CEC COMMISSIONER GUNDA: Yeah. Thank you, Mark, I just looked at it. Yeah, I think our hope is to complete the '21-'26 analysis by the end of May and hopefully by June we'll have some internal discussions. And that's the timeline we were planning around July to hold the workshop.

But as the analysis becomes available internally, we will definitely make it available for CPUC leadership (indiscernible) -- we'll coordinate on those developments.

MR. KOOTSTRA: Thank you.

CEC COMMISSIONER GUNDA: I don't know, Ed, if you want anything to it?

MR. RANDOLPH: No, I don't have anything to add to that.

MR. KOOTSTRA: Thank you. The next couple of questions --

MR. RANDOLPH: Hey, Mark?

MR. KOOTSTRA: Yes.

MR. RANDOLPH: On these next two, one got promoted over the other, but they're interrelated.

MR. KOOTSTRA: Yeah.

MR. RANDOLPH: So, I suggest we start with the

second one first.

MR. KOOTSTRA: Yeah, that's exactly what I was going to do. I was actually going to point to you, Ed. Sort of breaking it down a little bit into --

MR. RANDOLPH: And then, Mark, why don't I -- if you don't mind, I'll just take it and paraphrase it down --

MR. KOOTSTRA: Go for it.

MR. RANDOLPH: -- because it's a pretty long question. And to be blunt, I think there's some statements in here that are making assumptions that are not in evidence here.

But the summary of the question is, you know, when will the PUC direct or what is the PUC doing to provide real-time smart meter access for the CCAs, so that they can better develop load management programs?

And as I mentioned, we are already working, we have staff working with the IOUs to work through kind of a number of issues and, you know, providing the data. I think it's anybody that's worked on these data access issues over the years know there's a number of challenges. There's California privacy rules. There's actually, you know, it's some technical issues out there as well in providing the data in real-time.

We do think it's very important that the CCAs

and a number of, you know, other folks who want to provide load shifting or other load management tools to customers have better access to the customers' data so that -- you know, it's not perfect where we are now and it's a continuing focus to improve that data access.

CEC COMMISSIONER GUNDA: Mark?

MR. KOOTSTRA: Yes.

CEC COMMISSIONER GUNDA: I would like to see if Commissioner McAllister want to add anything on the load management side, specifically.

CEC COMMISSIONER MCALLISTER: Yeah, thanks Commissioner Gunda.

You know, I wanted to step in and just make a couple of points. So, wanted to first of all just point out that the Load Management Standards Staff Report is already out on the street in draft form, so people can have a look at that.

And essentially, what Load Management Standards is, is a platform for putting rate information and potentially other signals, like congestion, like carbon content, those sorts of things on a web-based machine readable platform that can really facilitate the kinds of transactions we're talking about.

And so, you know, without sort of talking too much about all the -- you know, leading out the answer

to the data access issue kind of where he ended, I think any -- you know, obviously the customer behavior is going to be remediated by whatever rate they're on and whatever service provider, whether it's the utility or a third party providing them with in terms of services that can take advantage of that Load Management Standard platform.

But really what it is, is an assistance to the marketplace to function much more cheaply and systemically to enable load flexibility. So that's, I think, the power of Load Management Standards that you're going to see I think play in a number of different arenas that we're talking about today to just optimize how load flexibility works.

MR. KOOTSTRA: Great. Thank you very much.

The next question I have I believe is for you, Anna McKenna, based off the timing for it.

Do you consider aggregated distributed sources, such as residential, as a source for emergency power supply or spinning reserves?

MS. MCKENNA: So, under our program if the distributed energy resource is registered as a DR being part of our distributed energy fleet, and participates in our market, then they can -- you know, we can exceptionally dispatch those resources and they also can

provide spinning reserves under our rules.

However, if they're not under the DR program, then they are behind-the-meter for us. We don't have the kind of dispatchability, if you wish, with those resources. Those would require additional measures.

But we have, under certain circumstances, had to dispatch, exceptionally dispatch demand response from our scheduling coordinators who we do business with. We don't do business specifically with the resource behind the meter unless they're registered on our program. But they can, if registered, provide those kind of services.

MR. KOOTSTRA: Thank you.

The next couple of questions, Mr. Randolph we're probably going to head towards you a little bit. They have to do with the ELRP.

One question, being the first: Is there a cap or an annual cap on the payment?

And the second question jumps into how -- how to design for an out-of-market program? And at least for the BPPs, as expressed without a pass through payment they're not going to be able to participate economically and with distributed resources.

MR. RANDOLPH: Yeah, thanks for putting those kind of as a collective question. It's a little easier to address it.

You know, on the very specific question on is there a cap on the ELRP program, I have to admit I don't know for certain, but I think the answer is no. And I think what they're asking is if one provider is able to greatly reduce. I think the answer is no. You know, of course the cap would be on any one customer. You can't reduce your load below a certain level.

There is an overall budget, though, and so it would have to be kind of allocated through the budget there, out there.

Kind of to the broader thing, to the, you know, question that Rachel McMahon with Sunrun is asking, you know, I'd suggest that we're jumping back and forth between, you know, longer term solutions, longer term innovations and a conversation on what we can do for 2020 and 2021. And it's important to consider those things out there.

When you look at virtual power plants, you know, other innovative approaches that are out there on behind-the-meter either load reduction or, you know, some of what some of the storage companies want to do is be able to net export. You know, looking at those sorts of things. You know, if trying to fit those into the capacity market, and do that because it creates a value stream for it, that's a challenge to do in a couple

months or in a short term where we know it would create more reliability for 2021, you know, and 2022 due to the fact that the capacity market really isn't designed for that type of product, and it's a lot more thinking.

If you're looking much longer term at some of these products they're offering, I think there's a lot of great different ways to look at it.

I'll note that both Clean -- or East Bay Clean Energy and MCE are looking at two very different approaches for something similar to this that's outside of the capacity market, that creates different value streams for it.

I'll also note that they're being somewhat conservative in the number of megawatts they're initially chasing because these are still at the level of pilot projects, and learning what we can actually get for them, and learning what the reliability is. So, in the long term I think there's great potential there.

For this summer, you know, we have to chase the megawatts we can get first and foremost.

MR. KOOTSTRA: Great, thank you.

And the last question I have is: In one of the earlier presentations it was stated that performance of the system can be improved by retaining gas-fired generation. What percentage of overall capacity does

this account for?

And I'm not sure if anybody on the current panel can answer that or take a ballpark.

CEC COMMISSIONER GUNDA: I believe the statement came from Bob. Bob was kind of mentioning in the analysis that CAISO provided. I'm not sure he's still online. If not, that's something we could try and make a statement in the afternoon, when we reconvene.

MR. KOOTSTRA: Okay. Those are all the questions I have at this time. Thank you.

CEC COMMISSIONER GUNDA: Thank you, Mark.

I think I just want to make one comment before we hand it off to Heather. I really appreciated Anna specifically talking about the work that CAISO has been doing on the DR side.

So, I just want to recognize one more time how collaborative the work has been, as everybody has seen. There's a lot of different threads of work that's being working on, you know, from a procurement side, planning side, analysis and market operations.

And as we coordinated with the DR providers specifically to address some of their concerns, I believe I was just impressed by Anna and her team Jill Powers, to really kind of jump in and take that as a challenge to address the DR baselining issues. So,

thank you, Anna, for specifically raising that today.

MS. MCKENNA: Thank you, Commissioner Gunda and as well with your team and your leadership in this area. It's been very educational for me and very fruitful for my team to come up with some solutions for this summer. I appreciate it. And I will take that back to my team and appreciate it greatly.

CEC COMMISSIONER GUNDA: Thank you.

Heather, back to you.

MS. RAITT: Great, thank you. And I'll just add on the thanks to all the presenters for your presentations today, and to our moderators, Mark and David, greatly appreciate all that you did today.

So, now we will move on to public comment period. And Rosemary Avalos from the Energy Commission's Public Advisor's Office is available to moderate the public comment period.

Go ahead, Rosemary. Thank you.

MS. AVALOS: Thank you, Heather. Good afternoon.

Today, we'll be taking one person for organization who may comment, and comments are limited to three minutes per speaker.

Is there are several parties interested in commenting, we'll reduce the time to one and a half

minutes per speaker.

If you are using the online Zoom platform, please raise your hand on the raise hand feature to let us know you'd like to comment, and we'll call on you to open your line to make comments.

And for those on the phone, use dial *9 to raise your hand and *6 to mute when on your phone line.

Okay, we'll begin with Farnach Sarbaz (phonetic). And would you please state your name, first and last name, and your affiliation? Your line is open.

MS. RAITT: Mr. Sarbaz, you may need to unmute on your end because we can't hear you.

MS. AVALOS: Farnach Sarbaz, you will need to unmute on your end, please. Okay, we may be having some technical difficulty.

I'll move on now to those that are on the phone. If you wish to make a comment, please dial *9 to raise your hand and *6 to unmute. I'll wait a few seconds here.

All right, Heather seeing that there are no raised hands on the phone and Farnach may be having difficulty commenting but -- okay, I see. Go ahead and unmute Farnach.

There is another opportunity to submit written comments and you can do so online. And the written

comments are due on May 18th. The instructions to submit written comment, you can find those on the Integrated Energy Policy Report from the Energy Commission home page.

And I'll hand it back to Commissioner Gunda.

CEC COMMISSIONER GUNDA: I think we have -- Rosemary, I think we actually have Samuel Golding, I believe has raised their hand on the phone. Would you be able to just check before we --

MS. AVALOS: I am looking and I don't see any raised hands.

CEC COMMISSIONER GUNDA: Okay. So, yeah, thank you, Rosemary. You know, everyone will have an opportunity again to comment after the afternoon session.

So, thank you again so much for this morning's session, Heather.

And I just want to quickly open it up to the dais if there's anything anybody wants to say, comment, and then I'll hand it back to Heather.

CAISO PRESIDENT AND CEO MAINZER: I'd just like to compliment all the staff for all their hard work. And just really appreciate this session this morning, very informative, very helpful. Thank you all very much.

CEC COMMISSIONER GUNDA: Thank you President Mainzer.

President Batjer, please go ahead.

CPUC PRESIDENT BATJER: Thank you, Commissioner Gunda. These presentations I think so well illustrate how, frankly, very, very hard our staffs have been working since office. It's quite a body of work. And we've been inventive, thoughtful, and investigative to really come up with some good policy changes and ways to make sure that, frankly, the power stays on this summer, and the next, and the next.

So, thank you all. It really -- as I said, it's a huge body of work and a lot of hours are represented, and a lot of big brain power. So, thank you so much to the staff at Cal ISO, and at the CEC and, of course, the CPUC. So, thank you. And for your leadership Commissioners and Chair, and for your leadership as well, President and CEC Mainzer.

CEC COMMISSIONER GUNDA: Thank you, President Batjer. I would like to really reiterate, I think, you know, after last summer it really required the leadership to come together and can help develop that collaborative spirit, and kind of challenge each other to ensure that we're digging into things that might not necessarily be comfortable. And I really appreciate

President Batjer, your and President Mainzer, and Chair Hochschild for your approach towards collaborating and problem solving for this summer. So, thank you all very much.

And really recognize the hundred plus staff that are continuously working behind the scenes to make these things happen. So, thanks to the team.

With that, Heather, back to you.

MS. RAITT: Great, thank you. So, just briefly, this is Heather Raitt, I wanted to let everyone know that the presentations from this morning are now available on the Energy Commission's website. Just look under the 2021 IEPR page, and for this workshop. And the afternoon presentation is there as well.

And so with that, I do hope everyone will come back at 2:00 for our afternoon part of the Workshop on Summer Reliability Partners. And please note that there is a new link for that one. So, hopefully, just we'll see everybody at 2:00. And that's all I have, thank you.

CEC COMMISSIONER GUNDA: Thank you, Heather.

(Thereupon, the Workshop was adjourned at 12:19 p.m.)

CERTIFICATE OF REPORTER

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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MARTHA L. NELSON,
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