DOCKETED	
Docket Number:	21-IEPR-02
Project Title:	Electricity Resource Plans
TN #:	243969
Document Title:	Transcript - 042722 IEPR Commissioner Workshop on the California Planning Library
Description:	Transcript - 04.27.22 IEPR Commissioner Workshop on the California Planning Library
Filer:	Raquel Kravitz
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	7/8/2022 12:13:35 PM
Docketed Date:	7/8/2022

STATE OF CALIFORNIA

CALIFORNIA ENERGY COMMISSION

In the matter of:

2022 Integrated Energy Policy Report Update (2022 IEPR Update)	)	Docket No. 22-IEPR-02
	)	RE: California Planning Library

IEPR COMISSIONER WORKSHOP

CALIFORNIA PLANNING LIBRARY

IN-PERSON AND REMOTE VIA ZOOM

WARREN-ALQUIST STATE ENERGY BUILDING

ROSENFELD HEARING ROOM

1516 NINTH STREET

SACRAMENTO, CA 95814

WEDNESDAY, APRIL 27, 2022

1:00 P.M.

Reported by:

Martha Nelson

APPEARANCES

COMMISSIONER

Siva Gunda, Lead Commissioner

CEC STAFF

Heather Raitt, Assistant Executive Director, Policy Development

Hilary Poore, Energy Assessments Division

Kristen Widdifield, Energy Assessments Division

Erica Brand, Siting, Transmission and Environmental Protection Division

Erik Lyon, Small Offices, Commissioner's Office

Heidi Javanbakht, Energy Assessments Division, Demand Analysis Office

Amanda Poletti, Energy Assessments Division, Data Integration and Policy Office

PANELISTS

Delphine Hou, California Independent Service Operator

Patrick Young, California Public Utilities Commission

Eileen Hlavka, California Public Utilities Commission

Eduardo Martinez, Southern California Edison

Andrew Mills, California Community Choice Association

Kate Kelly, Defenders of Wildlife

PUBLIC ADVISOR'S OFFICE

RoseMary Avalos

APPEARANCES

PUBLIC COMMENT

Steve Uhler

INDEX

P R O C E E D I N G S

1:00 P.M.

THURSDAY, APRIL 27, 2022

MS. RAITT: Good afternoon, everybody. Welcome to today's 2022 IEPR Update Workshop on the California Planning Library. I am Heather Raitt, the Assistant Executive Director for Policy Development.

So today is a hybrid workshop. We're going to be using Zoom for remote participants. And, also, we have -- some of us are meeting in person at the Energy Commission -- or former Energy Commission building, excuse me. So we'll be using Zoom for the video. And then for those who are in the room, we'll be using microphones for sound.

All IEPR workshops are recorded. And a recording will be linked to the Energy Commission's website shortly following the workshop. And then we'll have a written transcript available in about a month.

So follow along today, the schedule and slide decks are docketed and posted on the CEC's website. And if you're in the room, the QR code can take you right to those webpages.

Hardcopies of the meeting schedule are available for in-person attendees. And for your review, we have binders of all the materials available at the entrance to the hearing room. And if you want your own copy, you can just see me or Denise Costa and she can get you a copy.

So today the Energy Commission staff will be making a presentation. And then we're going to have a panel discussion about the California Planning Library. And attendees may participate in a few different ways. There are opportunities to ask questions of presenters. We'll reserve a few minutes at the end of the panels to take some questions. And we may not have time to submit -- to respond to all questions but we will do what we can.

And for those in the room that have a question for a presenter, if you want to, we're doing old-fashioned, we're going to ask you to write your question on an index paper and then we can take those.

And then for those who are participating remotely via Zoom, you can just press that Q&A feature to submit a question if you have one.

And then, alternatively, attendees can

make comments during the public comment period at the end of the day. And so we'll be limiting comments to three minutes or less per person.

And if you're in the room and you wanted to make a comment, if you could just Rosemary Avalos from the Public Advisor's Office? She'll be here and she can help you with that. And when it comes time for public comment, you can just go to the microphone to speak.

And for those on Zoom, you can just use the raise-hand function to let us know that you want to comment.

And we also welcome written comments and those are due on May 18th.

So with that, I am happy to turn it over to Vice Chair Gunda. Thank you.

VICE CHAIR GUNDA: Thank you so much, Heather. So I'm just going to start the meeting today.

First of all, I want to thank the IEPR Team, Heather, and your entire team, and our Public Advisor's Office, Rosemary, thank you for being here, as well as their IT teams who are all essential to pulling off these workshops, so thank you for all the work you do.

I also want to thank our fellow Commissioners. I think we're going to have Commissioner Vaccaro, who's going to join shortly, but also for the Commissioners' input in developing this idea around the Planning Library, so just thanks to all of them for their work behind the scenes.

So I want to thank the Energy Assessments Division Team, particularly Heidi Javanbakht, who I think is on Zoom, but Kristen, who is here in person, as well as Hilary, thank you so much for all your work.

And Amanda Poletti, who is the manager for the data side, so, Amanda, thank you so much for the fresh info that you go into looking at data and all the work you're doing.

And, also, the Management Team, David Erne and Alicia Gutierrez for all the support and guidance.

Thanks, also, to my Advisor who is on the call. Erik who is going to be helping with the panel but, also, has been an important thought leader in helping craft the data policy for the state, especially for the CEC.

So looking forward to the presentations

today and kind of getting a sense of, you know, what our team is thinking and getting input from the broader public and moving this incredible effort forward. We've been thinking about this for almost three years and just super appreciative that it's actually at a place where we can daylight it today with everybody and get your input and start moving forward.

As we start the conversation, just at a (Indiscernible) set at a high level, I think this importance is we are in this incredible transitional moment in energy.

So as one of my former colleagues put it in terms, so we're building -- we're rebuilding an electricity system and energy system in approximately ten years that we took, you know, like 100 years to build before. So that's like we're in this incredible moment of transition and it is very important that we are all on the same page on basic background information, whether it be assumptions that we use, whether it's some of the analysis that drives our policymaking.

So the vision for this work is really to help CEC play its role around organizing data and the work we do into a place that is easily

accessible and to formulate some common planning assumptions, and then helps us move forward in our discussions.

So another important part of the IEPR this year is equity. And just, you know, anything that we do this year, but now, always, at CEC, we continue to think about how do we incorporate the elements of equity and all the work we do so that the planning level is also serving the goal of how do we make this data accessible and, you know, broadly integrable those different points of view?

So with that, I will pass it to my colleagues at CEC, Hilary and Kristen, to take on the first presentation here.

Thanks.

MS. POORE: Thank you and good afternoon, Vice Chair Gunda, and everyone joining in person and remotely. Kristen and I are very pleased to be presenting the concept for the California Planning Library.

After we present the concept and get feedback from our Commissioners, we will dive into a panel discussion featuring a handful of CEC data power users.

Next slide, please.

To start, I will provide background information and context for the California Planning Library.

The California Energy Commission serves as the state's energy data repository and is home to a variety of technical and subject matter experts, including scientists, engineers, researchers, and individuals who play a pivotal role in collecting and analyzing data. The data and analytical products coming from the CEC are of great importance in informing state operations and energy policies. And beyond the CEC, sister agencies, like the CPUC, NGOs, utilities, and myriad other stakeholders utilize our data and data products.

Through data requests, we have demonstrable evidence that a broader need and demand for energy data and information from the CEC exists. We estimate that the Energy Assessments Division alone receives approximately 250 data requests annually.

Next slide, please.

Data transparency and public accessibility are essential to the CEC. And data

and data access are key to an equitable energy transition and to bringing clean, reliable, and affordable energy to all Californians.

There is an ongoing effort to make our data and analytical products accessible and understandable and present them in modern ways. Energy insights and equity indicators are examples of a few new products developed as a part of this effort.

If you are interested in these products, we encourage you to visit Energy Insights on the CEC webpage and participate in the 2022 IEPR workshops where we will be seeking stakeholder engagement and feedback as we refresh the equity indicators tool.

Next slide, please.

In addition to collecting, cleaning, and storing data, CEC's role as the state's energy data repository includes four additional buckets of work, these are access, organization, exploration, and analysis.

Access speaks to the CEC's commitment to making datasets available so that users can access and download for energy and policy analysis.

Data access is the CEC's most fundamental data-related role, allowing policymakers and other stakeholders to analyze data to meet their needs.

Building on the data access role, the CEC's next step in data integration is the development of interactive data dashboards and maps. These approachable interactive tools allow users to explore, visualize, filter, and ultimately better understand energy data.

Under the organization element, data products will be grouped by topic in a way that is intuitive to users, making data and data products more easily discovered. The California Planning Library, which we will speak more on a few slides, is an excellent example of the CEC's effort to reorganize and structure data and data products to enhance the user's experience.

And finally, analysis. Under this bucket of work the CEC will continue publishing expert analysis on a range of energy policy trends and topics for the public, policymakers, and industry stakeholders in new, innovative ways that include timely updates on emerging trends and other important topics. Excuse me.

Next slide, please.

CEC analytical products are critical tools for state agencies and energy system stakeholders as they plan investments and make legislative and regulatory decisions. In order to meet the needs of the state, CEC's analytical products are in a constant state of development and evolution. Examples of burgeoning products include the summer stack analysis, reliability reports, and land use screens. These new analytical products and data are vital to state energy planning efforts but lack a proper home.

While the Energy Almanac posts descriptive or historical data and analysis, there is currently no place on the CEC website that hosts supply and demand data and analytical tools in an accessible, understandable, and easily navigable way. And because the CEC is always developing new products and many of those products will need to be officially adopted for use by other state agencies. The proposed solution to this challenge is the California Planning Library.

As part of the IEPR 2022 -- oh, excuse me.

Next slide, please.

As a part of the IEPR 2022 Update, the CEC will identify, consolidate, integrate, and enhance the CEC's data and analytical products into a California Planning Library. The Planning Library will be an area within our public website developed and maintained by CEC staff. It will serve as a collection of resources that are online and organized into a new area. Some of the products that are prioritized for inclusion land use screens, Energy Demand Forecasts and scenarios, the California reliability outlook, and summer stack analysis.

Next slide.

The California Planning Library would provide a centralized location for stakeholders and the public to find CEC's analytical products and corresponding data. The Planning Library will make data and analytical products easier to find, allow us to identify opportunities to modernize the way we are presenting data to the public, showcase key takeaways and reports, provide links for widely used reports, and help support a process and avenue for adopting important analytical products.

Next slide, please.

I'll now hand the mike over to Kristen, who will dive deeper into the California Planning Library details and logistics.

MS. WIDDIFIELD: Thanks, Hilary.

The 2020 IEPR Update Scoping Order was the first step towards building the foundation for the Planning Library. As of today, the CEC has a dedicated team actively working on and leading the development of milestones and next steps. As part of our planning process and to identify priorities for implementation, we will utilize a phased approach to creating this new platform within the CEC website.

The initial phase will include organizing our existing datasets, deliverables, and work products. Staff will work with state partners to get feedback via avenues such as today's workshop and we will review comments submitted.

We will also consult with in-house technical experts to identify which products can be easily placed or linked immediately. Subsequent and ongoing phases will focus on the modernization of data and analytical tools, as well as the expansion of our initial product

list, incorporate -- and incorporating links to data partners.

So while this will -- while we will not be able to include all of the information right away, this will be an ongoing process and we will remain committed to enhancing and growing the California Planning Library.

Next slide.

In an effort to ensure transparency, increase accessibility, and communicate which products and deliverables to expect and when, we would like to incorporate some sort of time line or calendaring system. This will allow us to achieve several goals.

First, we will work on identifying what we consider to be big planning deliverables. As Hilary mentioned, the CEC is home to many technical experts who conduct a wide variety of analysis so, as a result, there are a great deal of products generated. And like any organization, the CEC has its own methodology for nesting certain deliverables under certain offices, units, and other buckets. The Planning Library should help streamline some of those clicks to help all data users find what they are

looking for more quickly and easily.

Next, we would like to highlight when those big planning deliverables will be released or updated. The CEC recognizes that our technical experts have a good understanding of how long it takes to obtain a dataset, clean it, conduct their analysis, and ultimately generate some findings of some sort, whether it be a white paper, docketed report, or another form of a deliverable. However, the CEC also recognizes that details of these time lines are not well known and vary from project to project, so it may be challenging to know when to expect them to be posted.

So as part of our California Library -- California Planning Library platform, we hope to incorporate an anticipated release date for some of those major big planning deliverables which will be developed on a regular or a recurring basis. And example of this could include the California reliability outlook, which we currently show as being released in the fall.

Finally, we would like to provide links to those products which have been adopted. The CEC is committed to working with state partners

to develop products that can inform the work that is completed outside of this department

We also recognize that certain products cannot be incorporated into external analysis until they are adopted, so sharing and highlighting the links to those work products will assist with the effort to increase access for all users. An example of this could include linking to the California Energy Demand Forecast.

Next slide.

As we think about the intended audience for the Planning Library, we certainly recognize that there are a number of what we might call power users out there or those who have a heightened interest in the deliverables produced by the CEC. In fact, we have invited several of those stakeholders to be part of our panel discussion today. And that input will begin to inform the development of the Planning Library. So thank you in advance for your contributions today.

In addition, there are several forums where regular interaction with state partners occurs routinely, such as the Joint Agency Steering Committee, Demand Analysis Working Group

meetings, and others.

Further, the CEC recognizes that there is a tremendous amount of information and analysis that is produced on a yearly basis. I know that I, myself, am not a scientist, an engineer or an economist. However, I'm a researcher, so it will be important that the California Planning Library is accessible and usable for all individuals and groups who visit.

Next slide.

Okay, so we've talked a lot about the background concept, purpose, and why we're going to launch the California Planning Library. Now, let's take a high-level look at our estimated time lines for what we are calling Phase 1 of this project, which will take us from where we are at today to the end of the Calendar Year 2022.

So to start, here we are at the first IEPR workshop. After today's meeting, we will review all of the feedback received and we will incorporate those thoughts into our project plan to refine the scope, if needed. This will occur between these last few days of April and into next month, as well. During May, we also expect

to finalize our project plan which will include making any adjustments to our proposed time line and milestone expectations.

During the following months of June and July, we will begin to engage and gather input from CEC staff and technical expert on which products they believe to be most relevant based on communication and data requests from stakeholders.

Once all of the products for inclusion have been identified, we will determine whether they can be added immediately as part of Phase 1 or if they will be part of a subsequent release. This will take place in August.

Then starting in the fall, the chosen products and deliverables for the initial launch will be organized into a layout that makes sense to data users. This will also be when we will develop the new platform within the CEC website internally.

And finally in December, we plan on launching the California Planning Library for users to begin accessing.

Although is it is not indicted on this slide but as we have discussed previously,

ongoing and subsequent phases will include the modernization of data and analytical tools, as well as the expansion of our initial product list, and incorporating links to state partners.

Next slide.

So this slide is going to highlight some of the preliminary specific planning products that the CEC has identified for likely immediate inclusion. This means that we will provide direct links to the deliverables associated with each of these. So as you review this list, just keep in mind that the proposed list is not inclusive, exclusive or by any means a final summary for Phase 1. However, it is a starting point and will provide a foundation for everyone here to react to with questions and comments.

And as you can see on the bottom, there is a notation for products that are in the pipeline, meaning we will be actively working on integrating them. And at this time that includes land use screens and SB 100 results.

Next slide.

So for members of the public and other guests attending this meeting, in person or remotely, we wanted to share some questions which

we would like you to consider as you think about submitting comments and following up with project staff more directly, and these include the following.

So just broadly or CEC deliverables, what products or datasets do you most frequently use?

Of the products you utilize, is there a preferred format or geographic level of granularity you would like to see?

How can we make products easier to find?

Are there ways to make them easier to utilize?

Are there datasets or products missing?

And do you have questions about the terminology that we've used?

As it relates specifically to land use screens, how would you like to see this information presented? And what features would you like to see incorporated?

Next slide.

So on behalf of Hilary and myself, we would like to thank everyone for attending, specifically the Commissioners for the invaluable feedback they will be providing as we move forward on this project.

Next slide.

So lastly, here's contact information for both Hilary and myself, as well as Erica Brand, who we did not previously introduce, but we will be working with her very closely on linking the land use screen's components to the California Planning Library. She was kind enough to share her direct contact information for those who would like to reach out to her on that.

Next slide.

So now we're going to -- now we're going to transition to the -- oh, sorry, no. We're good.

VICE CHAIR GUNDA: No, it's all good. We're all kind of like figuring out how to do this remotely and in person.

MS. WIDDIFIELD: Yeah.

VICE CHAIR GUNDA: I feel so lonely up here. It's a pretty big dais.

So, anyway, so I think just want to thank you both for that wonderful presentation. And I think this effort is going to be such an important transitional work for CEC that I cannot overemphasize. With the work that Jason Harville is leading on bringing in more data in terms of

the IMD information that we'll get and the more and more granular information we're getting across so many different domains, I think you're just laying the ground for the future of doing CEC's work, right, which is being the data repository and really helping with common planning assumptions and, more broadly, thinking about the role of access, data access.

So I think it's just wonderful what you're kicking off here. And I look forward to the amazing work.

A couple of opportunities here. And I don't know, I know Erica's not on the actual dais here. But you know, Erica, if you want to comment on the land use side a little bit on what the Siting Team is thinking about in terms of the land use and how that integrates into the broader planning, especially on SB 100 which is a transitional issue, it might be helpful?

MS. BRAND: Hi. Good afternoon, everyone. My name is Erica Brand and I work in the Siting, Transmission, and Environmental Protection Division here at the CEC. And as mentioned, I am one of the staff members working on the land use screens.

And so for those who aren't familiar with land use screens, they've been used for several years by the California Energy Commission and the California Public Utilities Commission in energy system modeling. And essentially what it is, is assembling together a set of spatial environmental land use information that helps inform the technical resource potential, renewable resource potential that's used in modeling.

So our team is taking the existing screens, we are updating the information, and we are working with other agencies to review, and then coordinating with the team here to make that information available as part of the Planning Library.

VICE CHAIR GUNDA: Just to follow up on that one, so the intent, ultimately, would be as we go towards the SB 100 planning, those will be adopted by the Commission, similar to how Hilary and Kristen framed; right?

MS. BRAND: Yeah, that's correct. And then the information will be used to inform the SB 100 modeling moving forward.

VICE CHAIR GUNDA: Thank you.

MS. BRAND: Thank you.

VICE CHAIR GUNDA: Thanks for taking the challenge.

So, Hilary, if you could just comment on, Hilary or Kristen, on the equitable transition; right?

So one of the things we've been trying to underpin is the access as a way of equity, and also improving that analysis to really be meaningful questions, you know, answering meaningful questions that are, you know, of interest for environmental justice groups.

Is there anything else you want to add on what else we can do to improve, you know, equity as we think through this in a Planning Library? Anything you want to add? You don't have to but --

MS. POORE: I think you captured a lot of it, that data access is vital to an equitable transition. And I think this effort ties in really nicely with like equity indicators and like all -- or the effort to look at all of our like work at the CEC through that equity lens.

VICE CHAIR GUNDA: Great. So I think in the long term, again, I'm just thrilled of the

effort. I know we've been talking about this for two or three years. And I also want to just thank all the stakeholders that have reached out to us in a variety of forms, you know, to like really have us come to this realization that the way we arrange the data, the kind of analysis we do, and really giving it the Commission's approval or adoption as a way to commonly use it in important work.

Thank you for all your input up to now and look forward to getting more of your input as we formalize this process and move this project forward at the Commission. Thank you.

With that we can hand it back to Heather. Do you want to move to the second panel?

MS. RAITT: Sure. Thank you. Thank you so much, Hilary and Kristen and Vice Chair Gunda.

And so we'll move on to Erik Lyon, who is going to be moderating the panel. And so we have a panel discussion from the users for our California Planning Library.

So go ahead, Erik. Thanks.

MR. LYON: Hi. Yeah. Thank you, Heather.

Welcome everyone. So I'd like to start

by inviting our panelists to join.

And as they're getting on video, I just want to reiterate what the Vice Chair and Hilary were just mentioning, that, you know, the Planning Library is really critical to getting the facts on the ground, you know, so that California can sort of, you know, be coordinated in its effort to, you know, make an energy transition to clean zero-carbon sources, you know, while keeping equity in the forefront.

And you know, we -- it's going to be really difficult to do that without having, you know, this sort of best, you know, best knowledge of what's going on in California right now and what's going to happen in the coming years, so I just wanted to echo that sentiment.

And are our panelists able to join? Sorry, I can't see. Yeah, I see everybody now. Okay. Great.

So I will start by welcoming Delphine Hou. Delphine is the Director of California Regulatory Affairs at the California ISO. And so welcome, Delphine.

MS. HOU: Thank you, Erik.

MR. LYON: Next we have Patrick Young,

Senior Regulatory Analyst at the CPUC's Energy Resource Modeling Team, as well as Eileen Hlavka, CPUC Senior Analyst. So both of them are coming from the Energy Division at the CPUC.

We have Eduardo Martinez, the Modeling, Forecasting, and Economic Analysis Senior Advisor at Southern California Edison. And Andrew Mills, the Principal Electricity System Modeler at the California Community Choice Association, or CalCCA. And Kate Kelly, who is the consultant for Defenders of Wildlife.

MS. KELLY: Good afternoon.

MR. LYON: Welcome. Yeah. Thank you all for joining us.

I want to start by just going around to give three to five minutes each to introduce yourselves. And just give us a sense of, first, you know, what your organization is for those who might not know, but also, you know, importantly, how you use the data that will come from California's Planning Library.

So to start, I'm going to turn it over to Delphine.

MS. HOU: Great. Thank you so much, Erik. I hope you can hear me loud and clear --

MR. LYON: I hear you.

MS. HOU: I want to hear on that first.

MR. LYON: Thank you.

MS. HOU: Fantastic. All right. Well, I'm very excited to be here today.

First of all, thank you so much to the Energy Commission, and Vice Chair Gunda and Erik for inviting the CAISO here. This is actually, kind of in our nerdy world, super exciting.

We all deal with so much data. And as the independent system's grid operator, we have not only data that we extensively coordinate and use on the planning side but, also, a huge amount of need for data on the operational side. So it, really, it spans the spectrum of a lot of the work that the CEC is heavily involved in and is primary, everything from the forecast that comes out to, you know, SB 100 work, to reliability modeling, so much of the same that were in the presentation prior.

So specifically about the data uses, I want to talk a little bit about the planning studies we do. So I think most people may know, we have a transmission planning process every year that does require a huge amount of data.

And we are coordinated to the Joint Agency Steering Committee on the Demand Forecast, but also working very closely with the Public Utilities Commission.

And within that, it's not even just the transmission planning process but there are so many related planning processes, everything from resource adequacy, looking at local capacity needs, flexible capacity needs, long-term studies, even the, you know, 20-year outlook that we just did for the future of the CAISO footprint. All of that is dependent on a lot of work that the CEC produces.

But also, you know, in sort of the more near-term time period, we also do a lot of, you know, forecasting for the operational space, looking at what's going on with summer, or even nearer terms in terms of really understanding day to day, you know, what are the resources?

Especially now, a new conversation that we want to have is not only distributed energy resources, like behind-the-meter PV, but sort of the variety of it where we can have behind-the-meter storage, of electric vehicles charging and discharging to the grid and providing services.

So all of that requires a lot of visibility about what is embedded in that forecast, what is coming on in our systems, and really working together. And, obviously, that's not only very data intensive but that's also very intensive in terms of how we collaborate and communicate with each other. So this, again, a very exciting process.

We also have a variety of ad hoc analyses that we do to try to understand kind of up-and-coming issues. You know, we were just having some conversations earlier today about battery storage and how that's, you know, coming up and penetrating more and more and more systems. But that also, you know, because of the limited duration of storage at the moment, we really need to pay attention to things like, you know, what does the load shape look like? What is the hourly granularity? What does that need?

So I think the first time the CEC -- and you know, really absolutely very grateful to the CEC for taking a stab at turning the annual forecast into an hourly forecast. I think the first time that came out there was just -- you know, the Excel file blew up by like 50 times its

size.

So I think this is really critical, as we all have more data, need more data, to have it organized in a way that is easier for the end users. But not only that but, also, to be very clear about what the datasets are so that we can track through and have that transparency for all of our stakeholders and all of our processes.

So again, we really appreciate this from everything that we do from the planning to the operational space, but also to interact and be able to communicate with other agencies across the state, our stakeholders, and even back to, on the federal side, the Federal Energy Regulatory Commission. This is all absolutely critical to us, so thank you so much for having us. And really appreciate this effort.

MR. LYON: All right. Thank you, Delphine. I think that those are good segues to some of our follow-up questions, so we'll circle back to those.

Next, I'll turn it over to Patrick Young and Eileen Hlavka. I don't know if you want to go separately or if you just want to sort of jump in together but I'll let the PUC go next.

MR. YOUNG: Thank you, everyone. I'm kind of -- this is Patrick Young, Regulatory Analyst at the CPUC's Energy Division, the Energy Resource Modeling Team. I'm going to give a little overview of myself and my team's work. Then I'll turn it over to Eileen to add a little more color for the gas data usage side.

I'm kind of glad that Delphine went first and gave like the really overall view of everything, all the analysis that we've done in the past few years and the coordination that our different agencies have done. That pretty much covered a lot of what I might be expected to say but Delphine said much more eloquently.

I'm going to, instead, sort of take it down from the sky-high overall view down to specifics that I do in my day-to-day work. My team's overall responsibility is to gather, analyze, and manage data related to systemwide electric and gas infrastructure reliability and operations. So that kind of establishes the scope of what we do day in and day out.

We use data to develop and run models of electric and gas systems to, primarily, assess systemwide reliability now and in the future.

We use this information to inform CPUC proceedings. The main ones we currently inform are the Integrated Resource Planning proceeding, and also the Aliso Canyon Order instituting investigation. I hope I got that acronym right. And the information is generally used to plan infrastructure, changes, and procurement that needs to occur in the coming years to meet state policy goals.

To get a little bit more specific about the modeling that our team does, we do electric system production cost modeling, as well as capacity expansion modeling. And for those that are not super familiar, I'll just give a one-sentence description of each.

Production cost modeling mainly is focused on looking at the generation units we have on the system, and the Electric Demand Forecast, and a whole bunch of other information that goes into operating that fleet of generating units and looks on an hourly basis and sees if we can operate the grid with the generating units we have now plus what's forecasted to come on in the future, and whether that is able to operate under future weather and demand conditions, which is

where the CEC comes in.

Capacity expansion modeling is related but it's actually trying to build out the optimal fleet of resources into the future, whereas a production cost model just looks at a single year and you have to already determine what your fleet is.

So that's kind of the distinction between the two models.

The fundamental input to these models is the IEPR California Energy Demand Forecast, as well as related data products, such as the Natural Gas Fuel Price Forecast and GHG Price Forecast.

So that’s kind of an overview of, really down in the details, what we're doing in the trenches of putting together these models and some of the fundamental inputs to these models.

We've done a lot of work with CAISO and the Energy Commission over the years so that we're all sort of, you know, working together and not using different datasets in our models and then trying to compare our answers. It doesn’t make sense.

So as Delphine mentioned to the Joint

Agency Steering Committee process, we've really made a lot of progress in the past few years of, you know, who's got data development responsibilities, making sure we're all using the same vintage and set of data and we understand what it means, so that when we use them in our models we each can produce answers that we can then compare to each other and make sure we're all on the same page.

And finally, I'll tough on the land use screening information, since that is one of your emerging efforts, and that is a very important data product that the CPUC and the CAISO use, particularly in the aspect of capacity expansion modeling, because we want to figure out like where are the resources of the future going to be built and how are we going to make sure we have the infrastructure to make those things happen?

I guess I'll turn it over to Eileen now if she wants to introduce herself and speak about the gas infrastructure-related data that she uses.

VICE CHAIR GUNDA: Perfect.

MS. HLAVKA: Thanks, Pat. All right. Yes. Thank you, Patrick.

And I'm Eileen Hlavka and I work on the gas planning and reliability side, so we use a wide variety of data and forecasts, especially the IEPR, and other ad hoc products, as well.

We're really, in the areas that I work on, focused on maintaining the safety and the reliability of the natural gas system and the infrastructure, as well as thinking about how that gas system might change over the years to serve the goals that California has set for itself, so that can include the Aliso Canyon proceeding that Patrick mentioned, there's an open proceeding on what's the long-term future of the gas system, so there's a lot of open questions there where kind of the more data that we can throw at it and the more forecasts we can throw at it the better.

I would note, there's no gas side equivalent to the IRP process. So we're just, you know, kind of doing it through other processes, looking at reliability and using what's out there.

One other note is that, on the gas side, the utilities put together a California Gas Report, so we also use that. That has somewhat

analogous, in some ways, information that -- or forecasts of what's the future demand, future supply expectations. So those are some of the ways that we think about that on the gas side.

And I will pass it back to our host. Thank you.

MR. LYON: Okay. Thank you, Eileen. I appreciate that.

So next up is Eduardo.

MR. MARTINEZ: Good afternoon. You guys can hear me okay; right?

MR. LYON: I can. Thank you.

MR. MARTINEZ: Yes. So as you mentioned, I'm the Senior Analytical Forecaster at Southern California Edison, so one of the major IOUs within the state. I guess we have a special relationship with the IEPR. In addition to being heavy users of the IEPR Forecast, as I mentioned, we also provide inputs, obviously, every two years.

With that said, we do have a really strong relationship with CEC staff within the IEPR process, and even without the IEPR process, so we really value that relationship, especially with the folks that we deal with in Sacramento on

a regular basis.

In regards to how we use the products, so as I mentioned, we provide the inputs. But the IEPR Forecasts obviously have a lot of significance for us. It provides us a very useful benchmark when we do our own forecasts of load, and also from a planning process. But it also helps us, too, in that when we do our own CAISO-wide modeling for price modeling, it provides us a very good benchmark as to what the forecasts are for the other LLCs within our tact and planning area, and also within the rest of the state.

In emerging areas, especially in areas of building modification, that provides us a very useful insight for us, especially for the hourly forecast and the shapes, as some of the other speakers have talked about.

So that relationship, basically, is that we do do our own forecasts but the IEPR Forecasts that are produced are invaluable to us, but also having the access to the staff to be able to explain to us what goes into the IEPR Forecast is very useful for us.

In the past, we did applaud the effort

from about two years ago from the CEC staff for the transportation electrification. That was sort of the tableau-based prototype that they had come up with. We applauded that effort and we would very much like to see something like that.

Actually, something as a comparison that we've talked about is actually with the Energy Information Administration, EIA, data is with their Annual Energy Outlook. And as most people know, they make their data from their forecasts available on a very easy searchable format online. I know we're kind of sort of in the planning process right now. But I think something as user friendly as that would have a lot of value add to that. I, myself, use that on an annual basis, especially want to get efficiency forecasts for like say overhead lighting, some sort of air conditioning, I have to have it bookmarked because that's really simple for me to kind of go there.

So I think with this Planning Library, I think it would be really -- I think that would be a good benchmark for the CEC, for those users to have something as useful as the EIA's on product is there.

There.

MR. LYON: Awesome. Thank you. That sounds like a great idea. But, of course, I will not commit to anything on behalf of the CEC.

MR. MARTINEZ: Okay.

MR. LYON: I'll get in trouble for that later but I love the idea.

Next up is Andrew. And I believe Andrew also has a slide to share.

MR. MILLS: Hello. Good afternoon and thanks to the CEC to provide input on this Planning Library.

I'm a Principal Electricity System Modeler at the California Community Choice Association. And my role there is to use the PLEXOS production cost model to inform integrated resource planning.

CalCCA is a is a member organization for most of the CCAs in California. And in aggregate, CCAs are anticipated to be about a third of the CPUC's jurisdictional load in 2022, or about a quarter of the California load altogether. And we did reach out to some of the member -- CCA members to get input personally on these remarks. And I'll briefly summarize some

of the comments on this slide and then touch on them more in the panel discussion.

So first off, we really support the idea of developing a central repository or at least something that's like a table of links to all of the data. This will really improve our ability to find and access and then effectively work with the data.

One of the key data products that we work with, as others have mentioned, is the IEPR Load Forecast, but not just the forecast itself but, also, the constituent parts of that are the really important parts. So really trying to understand the buildup process to get to these hourly load modifiers is really important for these shapes that are included in the forecast. These modifiers include things like the energy efficiency, behind-the-meter PV and storage, and the effects of climate change.

The members would also benefit from increase in the granularity of these forecasts and the load modifiers to cover their respective regions.

We also want to better understand the affect on weather on the load forecasts. We see

that load variation with weather is important for assessing reliability or tell events, like a 1-in-10 or 1-in-30-year weather patterns can really have an outsized impact. And so having more information on that available and sort of the way that that's treated in some of these forecasts can be really helpful.

Finally, the CalCCA is building on the CEC's IEPR PLEXOS model to analyze Integrated Resource Plans in the CPUC's IRP proceeding. And so we support the continued maintenance and public releases of this database. It provides a really nice common starting point for a lot of these analyses and, also, a useful public benchmark for it.

And so I'll have some more comments as we go through the discussion but I'll end with that. Thanks again.

MR. LYON: Okay. Thank you, Andrew.

And last but certainly not lease, Kate Kelly.

MS. KELLY: Hello. Thank you so much. And thank you to the Commission staff for putting together this workshop. And this is an important topic and something that Defenders of Wildlife

has been thinking about quite a bit.

I'm Kate Kelly. I'm a consultant for Defenders of Wildlife. And I work at the intersection of land use planning and energy policy.

At Defenders, we work towards the protection of wildlife, ecosystems, and landscapes while supporting the timely development of renewable energy resources in California. Achieving a low-carbon energy future is critical for California, we all know that, for our economy, our communities, and the environment. Achieving this future and how we achieve it is critical to protecting California's diverse natural and working landscapes.

Ultimately, energy planning is land use planning. And appreciate the Chair's acknowledgment of that in his opening comments, and Ms. Brand's explanation of land use screens.

We use CEC's data in analytical products, along with those from the public, the ISO, the Natural Resources Agency, the Governor's Office Planning and Research, and a host of others to better understand the implications of energy and transmission development on our natural and

working lands. We do this to identify opportunities to achieve both California's energy goals and the protection of our wildlife and ecosystems. It's a lot of data sources to be looking at and pulling from across the universe of California energy planning.

Currently, planning for energy and transmission is hampered by a lack of a centralized and transparent user-friendly data repository that includes datasets for IEPR, busbar mapping, SB 100 implementation, the ISO's 20-Year Outlook, 30 by 30, water resources and land retirement, and datasets coming from California Natural Resources Agency, CalEPA, and last but not least, wildfire planning.

So centralized planning library and mapping tools that allow uniform analysis and enable agencies and stakeholders to issue-spot on energy policy and planning, and on potentially generation storage and transmission projects, is going to be essential for moving forward and building this new transmission and generation system in a matter or years versus decades or, you know, a century.

So Defenders of Wildlife, we appreciate

this effort. We look forward to participating in it and strongly support the creation of the Planning Library. I'm looking forward to the conversation today. And thank you, again, for holding the workshop.

MR. LYON: All right. Thank you, Kate.

So we can dive into some slightly more detailed questions now.

I think if it's okay with you, Kate, I'll just put you right back on the spot and we'll go in reverse order for the first question, just to mix things up a little bit.

MS. KELLY: Okay.

MR. LYON: So can you start by telling us, you know, what types of data in the Planning Library, but maybe outside of the Planning Library, what kind of data and analytical products are most useful to your organization and you rely most heavily on now?

MS. KELLY: You know, because energy planning is land use planning, and land use planning requires geospatial mapping and the ability to understand in a three-dimensional aspect where it all fits and where it intersects with different resources and different needs, so

having robust geospatial mapping tools would be essential. And having them, you know, housed in one location so that we're not trying to, you know, craft things and pull from a variety of different locations.

Part of the barriers that we see as part of that is trying to figure out even what data is called necessarily. Because as, you know, an ENGO, we are not energy planners by our first initial nature and we recognize that that can be a challenge. And we see that that can also be a challenge for local government and other agencies that are trying to figure out how to incorporate this kind of information in their long-term planning.

So having the geospatial tools, having things like the interconnection queue mapped so that we can look and see where connections are being considered, if there's hotspots and how that fits into other areas, it sort of ties backwards and across to busbar mapping, being able to do that from a local government standpoint and from an environmental planning standpoint so we can see what's really fitting and working together.

So those are things that come to mind, you know, quickly. And I know that others will probably have quite a bit more to add to that.

MR. LYON: Sure. Yeah. Can we call in Andrew next to chime in there?

MR. MILLS: Sure. Yeah. As I mentioned, the IEPR Load Forecasts in general are the primary product that we're using and, again, sort of the constituent parts that go into that on the load modifier. So these are things like energy efficiency, electric vehicles, PV and behind-the-meter storage, and things like that and the way that they modify the shape are all really important for planning.

And then one of the things, too, that's been great for us, as I mentioned, is this CEC IEPR PLEXOS model that has been made available to us and that we're using that as our starting point for our own modeling.

And one of the things that’s really nice about that is that it brings together a lot of the data on the power system and a lot of that pulls from the CEC internal dataset. So that has these load forecasts for a variety of different regions. It has all of the different thermal

generators in California, their performance and emission rates from public data. You have information about hydro energy and other renewable generators, and then transmission line readings. So I should also mention the gas price forecasts, carbon price forecasts, are all in there.

And really having all of this in a central location where it's sort of a cohesive dataset that's all related to one another is extremely helpful for us. The one downside, of course, is that that PLEXOS database requires that you have a PLEXOS license to it. So trying to emulate that, where you have all of that data available in one place in a way that's easy to manage the format of it and the relationships between it, could be really nice to replicate that in the Planning Library.

MR. LYON: Okay. Great. Yeah. Thank you.

How about Eduardo?

MR. MARTINEZ: Sure. In terms of the barrier, I think the other users probably have the same experience, is that we tend to become like sort of like the IEPR Forecast expert within

our organizations and that a lot of -- it can be overwhelming if you're not dealing with the IEPR Forecast on a regular basis.

So one good suggestion that we got when we sort of brainstormed this internally before this call was just sort of like a data dictionary or, basically, like a 101 or like a read-me.

Another factor, too, is that because sometimes the IEPR Forecasts aren't static, there's an update, sometimes we've found that some users will have a previous version that will go into a very complex model. And we'll find several months later, hey, that got updated. You should have done -- maybe you should have like have gone to the docket and try to find the most recent one.

So that's why we're really excited about that interface, to kind of make it easier for non-expert users, like myself, who need to grab the IEPR Forecast and have a good understand. Like between the mid-mid forecast, energy efficiency alone can sort of like be sort of daunting for a novice user, per se.

So I think in terms of the barrier to entry, I think that would be a very -- a lot of

value add, even for an experienced user, like myself, but especially for someone else within the company who has to go get -- grab and IEPR, a piece of IEPR data, and have confidence that they know exactly what they're using. And even something like, you know, what level of line loss are the figures reported? Because that's often a question that we have to go back to Nick Fugate and his team to ask like, hey, this particular tab, like what level of line loss is it at? So --

MR. LYON: Absolutely. Yeah. It seems like a theme here that's coming out is sort of -- I mean, you mentioned data dictionary but also, you know, that sort of relates to inputs and assumptions, you know, what specifically do these things mean, you know? Even if you have the numbers, you know, how best to interpret them. Awesome.

How about Patrick and Eileen? So the first question, what types of data and analytical products are most useful to you?

MR. YOUNG: Yeah. This is Patrick again. And it sounded like some of the folks have already started responding to some of the

barriers that they encountered but I'll --

MR. LYON: Go ahead.

MR. YOUNG: -- I'll just try to stick with products that are useful. And you know, I think folks like Andrew and Eduardo have already kind of mentioned things that are of interest to us, too, because I think we're all interested in using, especially the Demand Forecast data, as primary inputs to the energy modeling tools that we use.

So to speak most generally, I think data that is, you know, direct inputs to our models is the most useful thing. And that requires some level of coordination so that, you know, the Energy Commission is not producing data that is not that useable to the consumers of the data. I think folks have already mentioned a lot of the specifics of that.

So I'll just stop there.

MR. LYON: Yeah.

MS. HLAVKA: Yeah. I would just add, in echoing some of what's already been said, and it's exciting to hear the enthusiasm for looking at weather variability as there's increasing interactions between the gas and electric side.

And you know, those -- so that could really be shifting going into the future. Gas, like electricity, the system is built to serve peak demand.

So peak-day demand forecasts and scenarios and having those look at winter, as well as summer, as really valuable, as well as, of course, the IEPR and all its sectoral granularity and elasticities and things, you know? We value all those pieces and would especially emphasize looking at what's happening on peak days.

MR. LYON: Yeah. Absolutely. You know, I think another thing that's coming out here is sort of disaggregation. You know, I've heard disaggregation by sector. Delphine mentioned, you know, going to an 8760, you know, an hourly model. I think Andrew asked for, you know, the sort of disaggregated parts, the load modifiers that go into the forecast, and even how weather, you know, might be affecting the forecast or those various load modifiers.

So I think, yeah, that's something we'll take away, is how do we get this in all -- in the right granularity for everybody's needs? That's

really great.

And, Delphine, with that, I'll pass it back to you for this first question again or we can take the first two questions, the types of barriers and products that are most useful to you.

MS. HOU: Great. Thank you, Erik.

Actually, I want to go back to the first question and just note that I think each of the panelists said something that definitely resonates with me, so I'll kind of start backwards --

MR. LYON: Okay.

MS. HOU: -- from the first order.

So Kate mentioned geospatial mapping tools, mostly for land use from her perspective, but I'll just jump onboard with that. Because we, at the CAISO, you know, through the busbar mapping that we have, that locational granularity is absolutely critical to us because that will highlight where there are constraints, potentially, on the system from the transmission side.

But also, as we're moving into the operational space, that is also really critical

for us to understand, you know, what's going on with the things that the CAISO doesn't have much visibility to, which is, you know, a growing behind-the-meter segment. So understanding things like, you know, where are all the behind-the-meter solar, where's all the behind-the-meter storage, et cetera, that really impacts how we're able to track in real time for our operational needs cloud coverage, if there's smoke, if there's wind. Even the concentration of load impacts for building electrification, if that's congregating around certain areas of the grid, do we need to be more aware of that? Or are areas of the grid much more active with behind-the-meter storage than others?

We need to understand why the load is changing beneath us so that we can position the wholesale supply side to respond to that. Because today there isn't -- you know, for example, if we just take the simple example of behind-the-meter PV, there isn't much more of a response except that the sun shines, the system generates, and then, you know, the load disappears. But if a cloud comes over, then it's no longer generating, and it's really up to the

wholesale side to produce electricity to serve that existing load.

So we don't have control. We don't have a direct tie. But really understanding what resources are there and trying to put that into our models and optimization will give us much more confidence in our operational capabilities. So I definitely agree with Kate on that.

Andrew, I just want to completely second everything that you said about PLEXOS modeling. The CAISO also uses PLEXOS modeling. We really appreciate the transparency of the datasets that the CEC puts out there because it's much easier for us then to be able to compare and contrast the modeling that's been done and to highlight areas where, you know, maybe there is just a mistake and we need to rectify that. So we think that's a huge win for transparency. That's a huge win for really getting everyone on the same page so we can talk the same language.

And, yes, we you need a license to request those but it's industry standard, so we're hoping that this is something that more and more people will get accustomed to.

Eduardo, yay for versioning control. We

often times, you know, we're struggling to get some work done and so we're saying, oh, just give me the last IEPR Forecast you have, not realizing, well, in the docket there's been update. We should have kind of checked the docket again for a refresh.

So I think sometimes, just for our own sanity, that versioning control is super helpful. And then not having to go into each IEPR docket but having a centralized repository, that would actually streamline, save us some time, and especially as Eduardo said, trying to kind of get us, like people like me, nontechnical users, an easier time into that.

I'll just also note that in addition to having that centralized structure, for me, if somehow we can have an awesome search function, that would also be fantastic, but I'll leave that for last on the -- and agree also with everything that Eileen and Patrick said.

On the barrier side, I don't think CAISO, you know, when we were thinking about this, there wasn't -- we didn't identify any major barriers. But maybe we're in a special situation because we are in so many conversations with the CEC and the

CPUC, I think we're, you know, in that way in a position where we see much less barriers. And I think when do see need we're able to kind of escalate that to the CEC in these good, transparent public forums.

So I would say for us, I can't think of anything that comes to mind on the barriers side but appreciate it.

MR. LYON: Great. Thanks, Delphine.

And I know some of us have already, you know, touched on barriers. You know, I'm hearing, you know, just finding the data, interpreting the data, you know, making sure we have the latest copy of the data and the forecast.

Would anyone else like to chime in about any other barriers that they face accessing data from, you know, IEPR or other data sources that would be in the Planning Library?

MR. MARTINEZ: Sure, I can add, especially on the efficiency side. There's a lot of interest of being able to get down to the climate zones or the building zones data that's available. I think that would be a big value add, if that granularity, that level of

granularity was added to the data library for us.

MR. LYON: Great. Thank you. Yeah. Yeah. It sounds like geographical disaggregation is a whole other level I didn't mention, so we'll keep that in mind, as well.

MR. MILLS: And one other thing I wanted to note just is, you know, after finding the data and then using it once, it's also nice to make sure that that data is going to have a fairly stable format in the future so that if you have some sort of process that's going to pull and ingest that data so that you can use that to update other products, it's helpful if that just stays fairly stable. So kind of focusing on that stability is also important.

MR. LYON: Yeah. That's a great point. Yeah. I've been burned by issues like that on my end before and it's very frustrating, so that's really important.

So any --

MR. YOUNG: I'm going to add on to what Andrew just said. I second, you know, the naming conventions and file formats, making sure that they're computer readable and the format doesn't change over time. Because I'm sure a lot of us

are using code to ingest this data and we need to make sure that the meaning of the data and the location of the data in the column and row of the file stays static.

And I'll cover a few of the other barriers that I think some have already mentioned. But if you'll bear with me, I'll just repeat for emphasis.

MR. LYON: Please.

MR. YOUNG: You know, we've talked about the right granularity. And, obviously, there's different dimensions. There's the geography. There's the time, you know, annual, monthly, hourly. And then, you know, there's also the stochastic element, as well, because weather varies over time and there's a relationship between generation output for wind and solar and electric demand. These are all related to weather.

And you know, one of -- this is already being covered in the Joint Agency Steering Committee process, but one of the things that the CPUC is waiting for is a stochastic dataset. Because, currently, the IEPR is output in a single typical year format, so you have a single

forecast for each forecast year and that consists of a single set of hourly shapes.

And we know the CEC is undergoing an effort to develop this stochastic dataset that includes a weather element. And it will be fantastic when that is produced because the fact that CPUC is having to produce its own stochastic dataset is causing a bit of a headache currently with the analyses that are happening because, you know, the analysis that the CEC puts into its Demand Forecast is not quite the same as what the CPUC does. And so we deviate from each other, even though we both come from the same starting point of, you know, say an annual forecast that starts with the same numbers.

MR. LYON: Yeah, that's great. That's important.

MR. YOUNG: While I have the floor, I'll just mention a couple of other things that are kind of down in the weeds but at least important for me.

You know, there's so many different data products. And you know, over time, I've been working at this for a while, and not all of the workbooks that are posted are what CPUC and other

power users consume regularly. And it would be nice if certain breakouts of the IEPR Demand Forecast became official products that were posted regularly, rather than having us to go and make requests from the Demand Forecast Office staff to produce this breakout of, you know, behind-the-meter PV by forecast zone, or self-generation forecast capacity and energy by planning area, or what have you.

If these could all become official products with documentation that explains the relationships between all the data so that if we crosscheck data and some of the granular data, does it add up to the total for the wider geography or timescale? And some of those -- some of the arithmetic to do that is not always obvious because of certain shortcuts or assumptions that CEC staff have made but the power users don't know they've done that, and so the arithmetic doesn't quite work out and we're scratching our heads.

So those are all down in the weeds but, nevertheless, one of the challenges of when you're actually using all this data and trying to make sure that it makes sense in your model.

MR. LYON: Yeah, absolutely. The weeds can be very important for this stuff, absolutely.

Kate, I saw you had your hand up. Did you still want to make a comment?

MS. KELLY: Sure. It's, actually, almost a bridge between barriers and the next question about how data is presented. And you know, it's definitely a plus-one on data consistency. And I would advocate for data, you know, having at least a standard set of information that is required for any type of generation, in particular transmission, so that it's easily identifiable across the Board.

You know, as an example, you know, there are transmission -- or you know, substations that have similar names that aren't anything to do with where they're physically located, for example, the Red Bluff Substation down in the desert, that kind of thing. So having, you know, standardized information that includes things like geographic information where there's lats and longs or/and also county location would be great.

And then one thing I would offer as a consideration is as we all have social security

numbers or some sort of taxpayer I.D. number, resources could also have a cradle-to-grave identification number that we allow it to be able to track from the very first time it pops up, either on a queue or in its, you know, getting its land use approvals, all the way to decommissioning, regardless of ownership, changes of project name over time, that would allow better tracking of the resource as we, you know, pass through, you know, generations of folks that are working on this issue.

MR. LYON: That's a great idea. Thank you.

That seems like a good time to keep going with this segue. But in terms of better ways to present the data, I'll go ahead and open it up to anyone who would like to speak to that. We can make sure everyone gets a chance.

MR. MILLS: I'll just say that we have heard that just sort of trying to track down data and, you know, sort of navigate through dockets and various things has been a challenge for people. And just sort of, you know, one of the things you want with data is to make it easy to find and access so that it then becomes useful to

have that sort of ease of access. It's just hard to become something that's regularly used by people.

So that's the main thing. And really support this general idea of the Planning Library that helps all that.

MR. LYON: Great. Thank you.

Somebody else was trying to say something?

MS. KELLY: Yeah. I'll pivot to another data issue.

You know, currently, we focus so much on transmission zones and those have no basis in reality for those of us who work in the geopolitical or ecoregional landscape. And so having that type of information cross-referenced through geopolitical/ecoregional areas would be great. It would allow for, for example, consistency with all the 30 by 30 planning that's happening and the mapping that's going on through Cal Nature.

It would allow for counties and councils of government and other subregional areas to be able to also participate in the planning for energy and understand how it's fitting. So, for

example, if you have a transmission zone that moves across both the Central Valley and the coast range, you know, possibly out to the coast, that's crossing a number of areas that aren't consistent with that planning zone.

So I would suggest that looking at, as part of the building of the geospatial mapping, that we have it set up so that it can be applied in an ecoregional and geopolitical range group level, as well.

MR. LYON: Can you, yeah, talk to me a little bit more about what those -- what that means, ecoregional and geopolitical?

MS. KELLY: Sure. So at the very most basic, geopolitical could be at the county boundary level --

MR. LYON: Um

MS. KELLY: -- or the San Joaquin Council government level. An ecoregional level would be the San Joaquin Valley, the Antelope Valley, or the Central Coast, North Coast, those sorts of regional levels that have an ecosystem that is consistent with each other. And then, finally, to be able to bridge it into what's happening on the marine spatial planning for offshore wind.

MR. LYON: Oh, yeah. Okay. Great.

In terms of better ways to present the data, I've already heard sort of, you know, an API or a standardized format, you know, similar to how EIA does it.

Are there any other, you know, ideas on how we can better present data for you?

MR. MILLS: No other ideas, just support for that idea, the like EIA like API that, again, if you have a standardized format and you're sort of regularly ingesting in these things, then being able to automate that with an API is just sort of that next thing that makes it easier to use again. So, yeah, the EIA, I think, is a good model for that.

MR. LYON: Excellent. Thanks. And I guess that's an application programming interface for those not familiar.

But any last thoughts on better ways to present the data before we move on?

Delphine?

MS. HOU: Oh, sorry, it wasn’t -- I guess this is somewhat tangential.

I was wondering, and this is just my lack of knowledge on this part, so when something is

updated or maybe as you're thinking about the Planning Library for the future, if something is updated with a newer version, how would stakeholders be notified of that? Is that planning up for an email distribution? I think on the CAISO site there's a couple of documents that we have where you can prescribe to an RSFC (phonetic), that if the document is updated with a new version, it will ping -- you know, it will ping you when that happens.

You know, but for us, that's a very limited amount of documents and it's fairly specific. But I would imagine, you know, quite a lot of the Planning Library could be updated, and so I don't know want to, you know, drive people crazy with pinging all the time.

So maybe that's just something to think about or it could just fall on the user to constantly kind of check before they do some analysis to make sure there isn't something newer there.

But just thinking of that in case you -- that hasn't been brought up yet. Thanks.

MR. LYON: Yeah. That's a great question. I don't have the answer for that. You

know, I see Heidi Javanbakht on the line.

I don't know if you're available to unmute and speak to that at all or if anyone else has a better idea?

MS. JAVANBAKHT: Yeah. I think -- this is Heidi -- that's something that we'll have to think through. The current process for the adopted documents that are, you know, posted is that there is an email sent out if you're on the distribution list for that specific docket. But, yeah, with some of these products on the Planning Library potentially not being adopted, that's, yeah, something we'd have to think through.

MR. LYON: Thank you, Heidi.

MS. JAVANBAKHT: Um-hmm.

MR. LYON: Great question, Delphine.

So we can go ahead and move on to question number four. How can we make data and information easier to find?

And you know, I'd really like you to consider both data and information a little bit separately; right? You know, there's the datasets but, also, you know, how do we make the key findings and takeaways from these datasets, you know, easier to pull away?

MR. YOUNG: Hey, Erik, this is Patrick. I wanted to backup just a little bit to that last point that was mentioned about, you know, notifying when you get the latest vintage of data.

MR. LYON: Sure.

MR. YOUNG: And I think I would like to point out that sometimes less is more because when you develop a big model and you use lots of different pieces of data, sometimes you want them to have the same vintage of information because there's relationships between the data where it doesn't make sense to update one component but not the other because then you're not -- you might not be using the same underlying assumptions. If something has changed recently in a new dataset, it might be inconsistent with the rest of the data you have in a model.

So I guess I just want to point that out. And maybe some thought could go into how you organize the Planning Library where, you know, the vintaging and relationships that have -- or datasets that have common sets of assumptions, make sure that all those vintages are, you know, sort of organize better so that we're not using

two sets of data that are kind of inconsistent with each other.

Does that make sense?

MR. LYON: Yeah, it does. You know, it makes me think of sort of how the Census organizes their data where they have, you know, obviously the big year -- or you know, the big every-ten-year census, but then they also have the American Community Survey that's done, I think, every year or couple of years. And so that's sort of a more limited dataset and so, you know, you wouldn't necessarily use, you know, the Census one year but then the Community Survey the next.

You know, you'd sort of have to know, this one's updated at a more regular interval, you know, so it's going to have some things, you know, more regularly, but it might just not have other things, it might not be comparable to, you know, the full census, things like that.

So maybe we do a big update of the whole IEPR Forecast but maybe there's other products that are like more, you know, more regularly updated or, you know, more granular in some way. I don't have the answer for that. I'm just

thinking about it.

But, yeah, does anyone else have any thoughts about how to go about that?

MS. KELLY: This is Kate.

You know, the Energy Commission, through its use of Data Basin, and particularly the California Statewide Energy Gateway, and then the Offshore Wind Energy Gateway, are good examples of how that could work. Both of those gateways include reports and documentation, as well as provide a transparent mapping platform. And it's super user friendly and it does not require folks to have licensed software to build their own maps and research their questions and analyze what they're thinking about.

And the value of that tool, also, it includes the live data tables so that users can click on maps that they've generated or that have been generated on the platform and view all the underlying metadata, as well, and they can create and save their maps and, you know, share them with others, either publicly or privately.

So some centralized housing of the data in something like Data Basin in one of the platforms as a gateway could be an initial first

step, if not the final step, for how to host the Planning Library.

MR. LYON: Excellent. Thank you, Kate.

Okay, so do we have any more thoughts on how we can make data information easier to find?

You know, and I'll also, maybe as an addition to this question, say I know you're all power users. You're pretty well -- you know, you're well adapted to finding our data. How could we make it easier to find for people who, you know, haven't had to jump through the hoops before?

Andrew?

MR. MILLS: Well, I'm actually a fairly new user to a lot of the CEC data. And so I think it was mentioned earlier that the idea of having some sort of data dictionary that would accompany this could be really useful. And so something that would allow you to -- you know, you have the dataset that you're going to be using for something, but then something that really helps you with that interpretation that goes along with it.

And if those things are linked to each other and clearly laid out so that somebody who's

coming across that dataset and starting to use and know where to find all of the information about what goes into the dataset, what it means, where they would go to find more about the assumptions that are going into it could all be really useful, so sort of that really canonical (phonetic) data dictionary could really help out with that.

MR. LYON: Absolutely.

I see Kate, and then Delphine.

MS. KELLY: Just real quickly, for the data dictionary, sort of de-jargonized keywords --

MR. LYON: Um-hmm.

MS. KELLY: -- so that someone can help figure out what the technical term is by using a layperson's term would be really helpful.

MR. LYON: Yeah, I think that's great. You know, I think you both, you know, sometimes you need that technical information for somebody who's, you know, really in the weeds and needs to know, you know, these really minute details. But you also need somebody to be able to read it and, you know, can gloss over that if it doesn't have a really strong meaning to them.

Delphine?

MS. HOU: Thanks, Erik. I have a slightly different angle on this. And this is more of a question for the CEC, and also the other users here.

I know a lot of information exists. And sometimes what we end up doing is kind of swimming through documents and finding it.

So, for example, in the actual IEPR, which is, you know, a huge volume, there is all sorts of very, very rich information that maybe that is what we're asking for. That could be what we're asking for overlaps a lot with what we're asking for in terms of the data dictionary; right? Because I like the IEPR because it is written in pros, it's kind of conversational. It kind of brings a new user into why this is being developed, you know, how to actual use it, you know, kind of context around that.

So I have a lot of sympathy for the CEC because I don’t want you all to produce a lot of new data. I think it all exists. So I don't know which comes first, is it the description the website that is this consult data dictionary that we're asking for or is it a redirect to the

actual IEPR document where that context is still there?

So that's one way that I'm hoping to help the CEC in kind of recycle a lot of the really excellent work that's already been done and maybe house it in a way that's much easier to update. I don't know whether it's easier to update documents or the website. But I do want to note that a lot of this exists but maybe not in just one location or, you know, obviously hasn't yet migrated to this new Planning Library.

In addition to that, there's been, you know, for us, you know, our, quote unquote, "power users" where we are kind of digging very deeply into the weeds. And so there I'll make a pitch for the CAISO that, you know, often times, you know, not just the data, but we're also looking for the actual, you know, formula that, you know, went into developing the data or how that process flows. And sometimes we kind of have to dig through the IEPR docket, through the presentations, to get that documentation. Because that is so deep in the weeds, it's not going to, you know, show up in an IEPR report.

MR. LYON: Um-hmm.

MS. HOU: So I would say for maybe the power users that want that gory, gory detail, maybe that could be housed somewhere that's kind of lifted out of the document -- out of the docket presentations into some central location, as well as for newer users that might need the context and the background, and maybe just a link that, you know, this is a new methodology, you know, see X link for older stuff that we did, so that they kind of are following the conversation.

Thank you.

MR. LYON: Yeah, a little more sort of technical documentation, that’s a great idea. Okay.

Any other thoughts on making information easier to find or we can move on to the next question?

Okay, so what information gaps exist in products developed by the CEC? And along with this one, you know, what is it, you know, that you really -- that you would really hope to do that these information gaps are precluding you from doing?

MR. MARTINEZ: Well, I can ask a question. One thing that we are wondering --

MR. LYON: Please.

MR. MARTINEZ: -- because of the confidentiality concerns, with the data that would be in the data library would, obviously, would be public; right? But that might limit some of the LLC-specific forecasts of other products that you guys develop internally but, obviously, because of confidentiality concerns, that you're not going to publish. So I think having access to that somehow through a confidential way would be value added for us.

MR. LYON: Yeah, sort of, yeah, behind-the-scenes IEPR for, you know, the organizations that are, you know, implementing and developing the policy, that seems like it could be useful.

MS. HOU: Well, I'll second what Eduardo said.

Oh, I'm sorry, Kate. You had your hand raised.

MS. KELLY: Oh, no, I -- please go ahead. I've been talking way too much as it is.

MS. HOU: I appreciate that.

So I'll second what Eduardo said. And maybe the way that CAISO has done that is that we do have a confidential portal where to access the

information it is required that you sign an NDA. Part of it is because there are also critical electricity information that needs to be protected. So I don't know if the CEC runs into data that falls into that category.

But to the extent that there are users, maybe, that would need that level of information, I, you know, do support having that additional portal. And whatever protections the CEC needs in terms of NDA or otherwise, I think that's reasonable to request, as well. But that could be helpful in terms of understanding that there are those kind of layers of data and then what needs to be done to access it.

Thank you.

MR. LYON: Thanks, Delphine. Yeah, I think that's great.

Eileen?

MS. HLAVKA: Well, thanks. I think to some extent this was covered a bit (Indiscernible) but certainly would echo enthusiasm for a greater geographic granularity, whether that's by climate zone or geopolitical, or whatever is possible, and including both on the data side and for forecasting. And I think I

already spoke to enthusiasm for peak days. And I appreciate that that is something, it looks like, is coming up in the reliability items.

And I would note that those kinds of things could be really, you know, useful, not just to state agencies but to local planners and generation planners, maybe they're looking at microgrids or DERs, or researchers looking at the whole picture, including in terms of gas and, you know, what does that demand mean if it stays gas or if it changes to electricity? And, of course, we have, yes, enthusiasm for the peak day for planning.

And one note that's a little more in the weeds but may be easier to implement, there's the existing electric and natural gas sales quarterly reports that have an incredible amount of detail that the utilities report, which is, of course, as Eduardo kind of got at, that's confidential at that level of detail.

But I wonder if that could be aggregated up to various scales that would be nonconfidential and, thus, give folks access to data, like by industrial NAICS codes? You could start to look at how different industries are

looking in different, and maybe that would be an interesting product.

Thanks.

MR. LYON: Yeah. Yeah, so we're sort of getting back to this question of aggregation versus disaggregation, now with this other layer of how do we protect privacy while we do that, get as granularity as we can?

Andrew?

MR. MILLS: I'm just going to echo some of those comments from Eileen, particularly on that granularity. And it's really important to also be thinking about that in terms of the buildup of these hourly shapes for energy efficiency, behind-the-meter resources, climate change, all those things at that LSE level. And these are just really important for that long-term planning.

And in particularly in the case, we've had some newer CCAs form who don't have long-term record of some of those shape modifiers in their own data to be able to create those forecasts accurately.

And so relying on the CEC to provide that sort of information to them as that starting

point can be really important. And it would help them to then create sort of alternative load forecasts or understand what happens if they're -- what they envision is going to be happening is different from the CEC and sort of start to create scenarios around that, and so on. So really being able to understand that and bring that down to the LSE level is important.

MR. LYON: Excellent. Thank you.

Yeah, Kate?

MS. KELLY: Great. Thank you.

Additional data that would be really useful to have would include real-time generation storage transmission project permitting status that would include project location, environmental, and land use permitting status because we're doing a lot of planning for what's going when, where and how.

But if I look at, for example, the work that's coming out of SB 100 and then try to crosswalk to the local government level to see how many solar projects are being, you know, proposed and permitted in Tulare County, that data is not readily available.

MR. LYON: Um-hmm.

MS. KELLY: Some counties have very good and up to date lists available. Other times it requires looking at multiple locations and, you know, still to track it down.

It's important to figure out what, you know, we're thinking about of where we're planning and what actually is in the permit process and is looking at a five- to ten-year time line to development. And it, you know, also will give more information on how the interconnection queue is functioning in relationship to where projects are being proposed and developed.

Setting aside and moving from permitting status and shifting back over to land use and environmental datasets that I know you're looking at, including, you know, really is a cornerstone to any of this mapping work is done, to be able to concurrently meet California's goals under both SB 100 and 30 by 30.

Some of the other datasets that could be or, actually, should be included on there would include Multi-Benefit Land Repurposing Program, also known as SGMA, the Sustainable Groundwater Management Act, where we're looking at retiring

close to a million acres, potentially, in the San Joaquin Valley that may be suitable for additional renewable energy development or housing or other uses, and how do we incorporate that into energy planning is going to be implementation.

Statewide vegetation mapping, we have it in some areas but has not been completed statewide, and that will further identify environmental considerations.

And then ripping off something that someone said earlier, the -- you know, and understanding, you know, load, having some ability to look at a centralized mapping of executed PPAs. I know there's confidentiality issues associated with that. However, for example, CCAs PPAs, now that’s a mouthful, if you want to dig through all of their agendas, you will find that information. And I believe that SB 1020 also proposes some disclosure of that information, as well.

So I would look at and encourage consideration of, you know, how these PPA information can be included in that layer so that we can begin to better understand what's been

proposed, where, when, and when it's coming online, and look at it in a geographic scale.

MR. LYON: Great. Thank you. Yeah. And those PPAs are power purchase agreements for our fans following at home.

MS. KELLY: Yes.

MR. LYON: Yeah. That sounds like there's a lot of, you know, rich and detailed information sort of in those and in the permits.

Do we have any other data gaps that anyone would like to mention? Okay. We can move on.

This is our last formal question. And we have a few other topics we could circle back to. But you know, what could you do or wish you could do with our data that, you know, you just currently can't in the form that it is today? And I'll leave the floor open again for this one and see who wants to chime in.

MR. MILLS: Okay, I'll jump in. I'll just, again, echo some comments that were made earlier, I think, by Patrick and Eileen about the importance of getting some information on weather years. We're interested in really trying to create a distribution of weather data for us in

the long-term modeling. And so we want to be able to understand what sort of a 1-in-2 weather year versus 1-in-10 or 1-in-30. And that then sort of helps you understand the load forecast but, again, also these modifiers. And we're interested in this because these extremes are really important for reliability planning. And the LSEs need to know sort of what extremes are plausible and then how frequently they're expected to occur.

And I think this was mentioned earlier, by having sort of a standard set of definitions of what these extremes are, that allows for these planners to all kind of be on the same page as to what to expect and to make sure that everybody's giving them proper weighting for it. So I understand that that information exists in some of these products but making that sort of part of what's available to other users would be really helpful and making that something that other entities could be relying on at the same time could really help out.

MR. LYON: Great. Yeah. Absolutely.

Anybody else have a wish list for data? All right. Any other thoughts? Okay.

You know, so one thing that I think is, you know, related to all of our data planning efforts is this huge treasure trove of data coming in from meters across the state, interval meter data and it's measuring electric consumption at an hourly level. And I'm curious if anyone here has thoughts about, you know, how we can be integrating that data into our forecasting and our other data products?

MS. HOU: I have no good ideas about how you can integrate that into your products but, yes, we would be hugely supportive of it if you can. I think that's kind of the challenge. And, actually, in your last question I was trying not to weigh in because, you know, it gets a little bit unwieldy depending on how much data is put out there.

And I do agree, so for example, you know, we talked about geographic granularity, I absolutely agree that we need more geographic granularity. But I think what level that comes in at is kind of a balance between, A, what's available, what needs to be aggregated so that we keep the confidentiality preserved, but also kind of what would be most useful? Because, you know,

for meter data, we can ask for kind of an insane amount of granularity, down to the minutes and the seconds.

But I think maybe the conversation we should have is to say, okay, where do we start that's reasonable? And I would say today, given where the forecast has gone, I would even say hourly, I mean, that level, which is still a lot of data. Even that level of data probably is where we need to be because I think, especially for the load modifiers, we do want to understand how that's impacting the load shape. And we're seeing that become a very dynamic issue there.

You know, the CAISO, we often say we don't ever go anywhere without our duck. So we have our duck curve, which is alive and well, but I do also think it's a matter of time before we have a large amount of storage penetration or even a large amount of fuel substitution that really starts to change that load shape. It's just a matter of time.

So I think even if the data today on an hourly basis isn't maybe being used to its maximum potential, I think we're going to, very quickly, even need to turn around and say, boy,

we wish historically we had tracked that so that we understand where it's going in terms of forecasting.

So I would say, yes, to the extent it's possible, I absolutely agree. But, yeah, I almost feel bad, or I guess I shouldn't feel bad. I'm going to be a kid in a candy store, yes, we want it all.

MR. LYON: Yeah, today you're allowed to be a kid in a candy store.

MS. HOU: Okay.

MR. LYON: But, yeah, what I'm hearing is, you know, just, you know, tracking how load shapes are changing. You know, the really obvious one, as you are alluding to, is solar and how that changes load shapes. But you know, I think we could use that same sort of philosophy and apply that to heat pumps and all these other end uses and storage and all the rest to sort of see how, you know, California's load shape is today and how it might change in the future as more of these technologies are adopted.

Anyone else want to weigh in on this authority question?

MR. MARTINEZ: Yeah. I think the load

shape brings up a pretty interesting question. And, actually, a lot of this comes from forecasting CCAs in our service territory because they're not all equal; right? We have some CCAs in warm-weather climates. We have some CCAs on the coast, so I think having more data on the load shapes. But if we can get it down to sort of the subservice area, like those climate zones, it sort of would help, I think, a lot out at the CCAs themselves, as well, too -- and also for folks how are on the call who sort of have like a statewide CAISO-wide perspective and some of the modeling that we do with our different groups.

MR. LYON: Okay. Great. Yeah. Thank you.

Any other thoughts on this?

We'll be turning over to questions from the dais and Q&A shortly.

But before I do that, I wanted to see if we could just go through back -- go back through all the panelists and just give me, you know, one takeaway that the CEC should remember from today? And I'm going to really challenge you to limit it to one. You know, I always want to say, oh, I have two or three. But what's one from each of

you?

Let's see. Delphine, would you mind kicking us off or do you want another minute?

MS. HOU: Oh, that's going to be hard. I'm going to put in a plug for what we were just talking about. Because I think, you know, to CEC's credit, there's an incredible amount of excellent information there. I think the Planning Library for the existing information is going to make our lives a lot easier and more organized, so I see that as an incremental improvement from where we are.

But I'll focus on kind of the brave new world of what we were just talking about, is really getting down to, you know, even to the metering level of understanding, you know, what's coming at us for the future. So I'm going to focus on that, which is to maybe put my eggs in the future basket of looking forward to understanding, you know, what are the load modifiers of the future, what are they, and kind of how they're going to be impacting our load?

So I'll end there with that. Thank you.

MR. LYON: Thanks, Delphine.

Patrick, can I kick it over to you, one

takeaway from today?

MR. YOUNG: Sure. I'm going to try to sneak in, two, by saying that I hope someone talks about granularity.

But I'm going to say definitions or data dictionary --

MR. LYON: Um-hmm.

MR. YOUNG: -- if you will. I think it's really key that we've got a ton of data, but just because you grab the data, it's not always clear what is the units, the scope, or the meaning of the data. You know, someone mentioned like losses. Like often times I grab a piece of data, I'm like wait, is this with losses or not with losses? I'm not sure. That's just a very specific example but definitions, like present the data but always include like enough description so that you really know what the data is.

MR. LYON: Perfect. If I can just tell a quick anecdote?

I once just was banging my head against the table with some temperature data from NOAA and I couldn't figure out why it was so weird. And it turns out it was in tenths of a degree

Celsius and I couldn't find it anywhere in the documentation. Anyway, that's neither here nor there.

Eileen, can you give me one takeaway from today?

MS. HLAVKA: Maybe the peak, to look at peak day, is what's happening on a peak day, maybe a winter peak day, from a gas perspective?

MR. LYON: Perfect.

Eduardo?

MR. MARTINEZ: We've kind of talked about this theme but I guess we can't just make it just applicable for us power users. I think we have to have accessibility for the novices within organizations and just your regular Californian who really wants to take a look at it. I think if we make the data available, which in itself will be really awesome, but if it's still hard to find, I think that we're not going to live up to the full potential. I mean, so I think we have to keep in mind the non-power users and so that they feel comfortable using it.

MR. LYON: Absolutely. Thank you. Yeah. I really appreciate you mentioning that. Yeah, there's a very, you know, large, diverse group of

people who could make a lot of good use out of this data, so thank you.

How about Andrew?

MR. MILLS: Yeah. I really support Eduardo's point there.

So a different one, and slightly different from that, too, is this PLEXOS model, which we haven't talked about too much. But, again, that has served as sort of a way that the CEC has organized a lot of its data so far. And it's, just again, been hugely valuable. So I really want to commend the CEC for making that public.

And as far as this planning library goes, if there can be a way that sort of stays synchronized with that model, perhaps, and is a vehicle for making this data information available to other users like that, I think we'd really support that, so thanks.

MR. LYON: Okay. Perfect.

And once again, last but certainly not least, Kate.

MS. KELLY: Well, thank you. Thank you again for such a great workshop today. Plus one to everything that I've just heard from my

distinguished panel colleagues.

And then I will close with energy planning is land use planning. So robust land use and environmental datasets that have -- are consistent, that allow for centralized and common understanding of the knowledge and basic -- you know, as Vice Chair Gunda opened this with is basic, you know, background information so that we're working from common assumptions.

MR. LYON: All right. Thank you. And so thanks again to all of our panelists.

We're going to move now to Q&A from the dais. And then I think we'll also have some time for questions from attendees.

So I will turn it over to you, Vice Chair Gunda.

VICE CHAIR GUNDA: Thank you, Erik. That was really fabulous, really good, good discussion. And, as usual, it's really wonderful to see everybody on the Zoom. Hopefully, we can see each other in person very soon. One thing with the Zoom is it helps to look at all of you in the same place and not turn my head around.

But anyway, so the other side, so from the dais, it's a big dais with one person, so I'm

going to provide some questions. But I just want to really kind of underscore the points that, you know, I think Kate, you know, really closed it off with there's just this -- you know, and I think everybody mentioned this, the need for consistency and need for consistent information as we go through this rapid transition.

And I love, Kate, when you talk about energy planning is land use planning, totally agree with you. And I think more and more we're talking about the intersection of energy and water, as well as, you know, the land. So it's kind of all coming together and we don't necessarily touch on all of them comprehensively.

So that that goes to my first question, you know just kind of taking this to the 30,000-foot level, as we think through this transition, and then we want to make this energy transition as equitable as possible, and I think we're starting with the assumption that, you know, underpinned -- underpinning, you know, that effort is really the need for good consistent data and analysis; right?

So that's kind of -- so if you were to just kind of articulate, you know, how do you see

the overarching policy goals of the state, when we talk about clean reliable, affordable, you know, and equitable energy to all; right? That's the overall theme that we keep talking about, you know? And we touched upon the need in electricity planning, land use planning, today a little bit. But as you take it up a notch, you know, what do you think about the venue, the way we move forward in ensuring that as we develop these independent analysis, there is some sort of a cohesiveness?

I mean CARB does that, you know, has the overall purview on developing the Scoping Plan you know? It comes every four years. And in some ways the Scoping Plan is trying to get us to a mitigated future; right? But as we move along the pathways towards there, a lot of the discussions happen more in a siloed fashion.

So I want to just ask on your thoughts, like you know, how do you -- and how do you all kind of think about, in your roles, about keeping this consistency moving forward in these efforts?

And I think somebody has got to raise their hand or I'll just call Delphine, who is my friend.

So Delphine, calling on you.

MS. HOU: That's fine.

You know, I think a lot of it is derivative of the transparency that we were all talking about. You know, I think as Kate had mentioned, some of the analysis that is being done really requires that level of granularity and understanding of where we're coming from. And I think in our own world at the CAISO, you know, a lot of what we do in our stakeholder processes is try and be transparent. I think that's where we can have those different voices that kind of weigh in on those issues. But I think that you can only do so effectively, you know, if we have the right data and we're all starting from the same starting point.

So you know, I appreciate that you know CAISO is being called a power user. But I also understand that that also means that there are others that are, you know, trying to catch up and there's a lot to be done, and a lot to consume.

So I think this effort in particular is extremely helpful in having that, as Eduardo stated, just, you know, kind of socializing all the good work that's there, but also bringing

people up so that, you know, they can also bring forward those different perspectives.

So I hope that helped.

MR. MILLS: Another comment on that --

VICE CHAIR GUNDA: Oh, Andrew, please.

MR. MILLS: -- is just, you know, in general, I think one of the reasons why we're interested in getting some of this information to be more granular in terms of the breakdown of the things that go into the load forecast is to think about what are those various levers that you have where there's different points of control on things; right? So people kind of think of things as like how can I participate in this transition through electric vehicles or through behind-the-meter PV and things like that?

And if we have that forecast broken down into those different buckets like that, it's easier to start those conversations around those places and sort of say, well, here's the common understanding of where we are with that right now and what's your vision of how that's going to change and how does that relate to these other things? Then you can kind of take that forward and say, well, what is the impact on, you know,

your overarching interests in terms of costs, affordability, equity, you know, emissions and things like that.

So I do think that that granularity helps provide kind of a common starting point for a lot of these conversations.

VICE CHAIR GUNDA: Great. And just a couple other kind of thoughts if you all want to comment on?

One of the things I was kind of thinking through is, you know, as we develop this effort -- you know, first of all, thank you for generally -- you know, like I heard a lot of support on this effort. And I think we kind of put some value proposition on the table. You know, Hilary did a fabulous job articulating the challenges that we're trying to go after.

From your vantage point of view, if you could articulate the value proposition from your point of view? I think there is a, you know, consensus on transparency of data, I guess, was one that was articulated as the real value of this. But anything, you know, like a single word or add a sentence that you think is a real value proposition of this, I think I want to kind of

put it as underpinning for this effort as we move forward.

Kate, please. Go ahead, Kate.

MS. KELLY: I would go with informed decision making, and not just at the Commission level or at, you know, the higher levels of state agencies but across the board.

And to, you know, Delphine's point, I would add into power users to bring along its local government and so the decision making is informed at that level, as well.

VICE CHAIR GUNDA: Any other thoughts on it from anybody else? I'm not seeing any.

I want to just ask one last question and I'll pass it back to Heather, I believe, to -- or Amanda for questions from the public.

So just on the, you know, way that you're thinking internally in your organizations, obviously, CEC is kind of trying to take the challenges that are within the mandates we need to do to kind of move forward a solution. How are you, internally in your organizations, dealing with your clients on how you make sure that they have data?

And so I think it's a two-part question

on given where you are, you know, kind of located in the ecosystem of the work we're all doing together, you know, what are the challenges that you are observing and how are you trying to tackle them, so as a way for us to kind of learn from you all?

And I think, Delphine, you've mentioned, you know, the way CAISO organizes data and kind of like active communication when things change. So love to hear just, you know, at a high level, what are the problem statements you, as an organization, struggle with; right? I mean because you're being hit with the same things and how are you approaching it?

MR. MARTINEZ: So I can offer some --

MS. HOU: Oh, go ahead.

MR. MARTINEZ: I might be giving away some secrets since some of my past users are listening to this call. But what we try to do, though, is that whenever we do an internal forecast is that we structure sort of a handoff meeting. Because we found, by trial and error over the years, in that sometimes the data just by itself without context doesn't help those organizations, as well. So whenever we do, for

instance, for the RA adequacy Forecast that we just did, we just updated our bundled forecast. But sort of reached out to our procurement folks when we do our fuel (indiscernible) power budget, for instance.

So I think a lot of what we do is that we try to -- a lot of it is just finding out how the users -- what they need, then sort of catering our presentation of that data to that so that we can give them as much value add as possible. You know, that's kind of tricky, obviously, for the CEC statewide. But I think like a mindset like that may help out.

VICE CHAIR GUNDA: Okay. Any other thoughts?

MR. LYON: Kate, would you like to respond to that?

MS. KELLY: (Audio feedback). Sure. I'll go again with (indiscernible) decision making (indiscernible). You know, I think we --

MR. LYON: It's a little fuzzy to me. Is this all right?

MS. KELLY: Yeah, there's a ton of feedback.

VICE CHAIR GUNDA: Yeah, your, Kate, your

voice is a little distorted. I think that the voice just changed the sound.

MS. KELLY: (Indiscernible.)

VICE CHAIR GUNDA: If you want to mute and unmute once, sometimes it helps.

MR. LYON: And mute the hearing room mic, too, while she's talking.

MS. KELLY: That's actually probably the issue. Thank you. (Indiscernible.)

MR. LYON: It's pretty difficult to understand you. I'm not sure.

VICE CHAIR GUNDA: We are trying to address that here. Maybe somebody else wants to take a turn before Kate?

MR. LYON: Okay. Thanks.

VICE CHAIR GUNDA: Delphine, Andrew, do you have any thoughts you might want to offer?

MS. HOU: I was going to -- this is Delphine here. I was just going to respond to your original point, and I agree with you, it's a challenge for the CAISO, as well. And, in fact, a lot of our data is really geared towards the engineering teams of the various participants. And that has been a struggle as we have more and more and a variety of stakeholders in our

processes. So it's, you know, not a surprise that our Transmission Plan has kind of grown in scope and verbiage and background to, you know, several hundred pages in trying to document that.

At least that is -- you know, at this point, we are still kind of separated in our data planning. So we have our main transmission planning process that has, probably, the most data coming out of it. And also, you know, separate processes for our local and flex capacity.

But I think all of it, I think the kind of data that I think most folks are interested in actually is derivative from the CEC. It's a lot of the Demand Forecast because it is a foundation of a lot of the analysis that we do.

So I think this process, actually, you know, it's kind of like the tide that rises all boats. Because, you know, what happens is if that foundational assumption put into our process is clear and well understood, then I think the results that come out of our process are also, you know, well understood and supported.

So we've always found that to be the case, which is why, you know, we have such a

close working relationship with the CEC because that resonates all throughout not only our stakeholder process but when eventually, for example, a project goes and goes back to the PUC for siting and permitting. So there's a lot of questions, even in that process which is, you know, much further downstream, to go back and look at things like the Demand Forecast that the CEC produced, so I think this does help.

I know CAISO is a little bit more -- maybe our datasets are a little bit more on the engineering side of life, so we do struggle with that in trying to explain that to a more general audience.

But at minimum I think the Demand Forecast has been a huge area of focus, even in our processes. And it always, always helps the CAISO to be able to point to the CEC and say here's a transparent process that the Forecast went through and here's how you can get the data and validate it and look at it yourself.

VICE CHAIR GUNDA: Kate, do you want to try again?

MS. KELLY: Is this any better?

MR. LYON: That's much better. Thank

you.

MS. KELLY: Okay. Great. Thank you so much. Sorry for the trouble there.

I'll just reiterate the transparent decision making in that with the amount of energy that we need to build and transmission that we need to build, it all comes with conflict. And so being able to analyze and explain how decisions were made and the reasons for that decision and how we sought as, you know, collectively, all of us, to come up with a least-conflict solution is important to be able to explain to our community, as well as to each other, in this process.

VICE CHAIR GUNDA: Awesome. Yeah, I just wanted to hear, of course, the thundering approval of everything you're saying, all of you.

So just, I want to, kind of before I pass it on to Amanda, I just want to say thank you so much for taking the time this afternoon, spending this much time with us, thinking this through and providing your insights. You know, I think this is going to be an evolving project. We're all going to work together more and more. You know, just incredible gratitude.

I think a sentiment we often share with each other, you know, none of us can do this alone. And to the extent that, you know, we all, you know, coordinate and do this together, I think, you know, we have a chance of the success in really making sure, you know, climate change doesn't, you know, destroy, you know, the future of our children. So hopefully, you know, we'll do a good job. So thank you all for your time again.

With that, I'll pass it on to Amanda for the Q&A.

MS. POLETTI: Thank you, Vice Chair. We didn't receive any comments from -- questions from the audience, so I'm going to turn it back over to Heather.

VICE CHAIR GUNDA: Great. Thank you, Amanda.

So, Heather, it's back to you for --

MS. RAITT: Sure. Yeah. So, actually, thank you. Thank you, again, Erik and to all our panelists, just to echo thanks for being here and for taking the time.

So we will, actually, just move on to public comment. And so Rosemary Avalos from the

Public Advisor's Office is here to help us with that.

So go ahead, RoseMary.

MS. AVALOS: Thank you, Heather. (Audio feedback.) (Indiscernible.) Okay. Okay. I'm going to go ahead and give you information now for the public comment period.

MR. LYON: RoseMary, I believe now the hearing mic and your personal mic are both muted, so we can't hear right now.

MS. AVALOS: Thank you. Can you hear me now?

MR. LYON: Yes, although we're getting a bit of an echo in the background.

MS. AVALOS: Ah. Can you -- I'm going to look into what the echo is. Just a moment, please.

MR. LYON: I'm not sure if this is the problem but, Heather, your mic looks unmuted. That might be related.

(Pause)

MS. AVALOS: Thank you, audience, for your patience. Can you hear me now?

MR. LYON: That sounds much better. Thank you.

MS. AVALOS: Okay. You're welcome.

So moving on to public comment, comments will be limited to three minutes per speaker. And we'll go ahead and remind everyone that to make a public comment, you'll want to raise the raise-hand feature on your Zoom screen. And so far, I don't see any raised hands.

Now if I call on you and you're using your phone, I'll call on the last three numbers of your phone number, so you'll want to go ahead and state your name and any affiliation.

Okay, I'm going to go ahead. I see one hand raised and that's with the phone number 385. You may go ahead and make your comment. Please state your name and affiliation if any.

MR. UHLER: Hello. This is Steve Uhler, U-H-L-E-R. I find this a breath of fresh air to hear this discussion today.

I'm a technologist with at least 40 years of experience in handling data and manufacturing. And when it comes to analytical products, I like to go with off-the-shelf.

I would suggest looking into Gantt charting and material resource planning systems. These will be agnostic to whatever you want to

put into them. You don't have to worry about leaving out some GIS information or whatever else.

I've been kind of following the Energy Commission's data systems and noting things like QFER data, there's information missing and such, and kind of wonder why QFER exists when there's EIA data that is superior. But even the EIA data has got some bad data in it, which kind of leads me to believe that it's not really used. People haven't picked up on that. A distribution network listed in EIA data, it is in Kansas but it's intended -- they show it being used in California, stuff like that.

So in other words, if you were to take some of the existing data systems, like EIA data for electricity, and use it instead of using these other QFER data systems -- the new Energy Almanac actually is taking a step backwards by losing what you call granularity as far as units and stuff like that. So most everything that you want to do here has been done by somebody before.

I would really like, as far as finding data, somebody throw some of that meter -- that smart meter data into this docket and I'll

process it, or at least give me a link to it. I've been waiting for almost five years for the Commission to give me such data, such as that.

But there's -- a lot of the things that are being asked for, they've already been done, and they already exist in off-the-shelf products.

Let's see. Easier to find, here's a brief example about the difficulty about making things easier to find.

The docket itself leads off with a domain of year. It really should lead off with the domain of subject. And I've tried to actually put that into my titles of my documents and somebody in the docket seems to want to remove those. So you're probably going to find resistance in people changing what they've been doing for years unless you make a clean break. And a great way to do that is to go to another analytical system that's been used for years, like Gantt. Gantt; he's a guy who, you know, worked in steel a long time ago and does scheduling and you could do scheduling down to the second.

As far as hourly data, when it comes down to things like what the stack is intended to do,

you really want to know what's going to happen in the next 35 or 40 minutes and how you can steer out of a reliability issue. There's no need to look at history for that if you put in the Gantt chart, put it in a material planning system and run it.

Now as far as people being updated and having their own special looks, those materials can be written for product structure to handle land planning and everything else. These systems are out there. We won the second World War with this. We brought people in who knew nothing about building aircraft and built so many aircraft that we're still using some of the parts today.

So I haven't put in a written comment but I'll go into more detail. And anybody has any questions on any of this stuff?

Another area is, that I've recently commented on, is load management MIDAS database. A change in the structure there would also mean that the rate database could also be used for the planning database that you're probably, largely, going to use in this Gantt format if you go to it.

So, yeah, this is a breath of fresh air. I'm hoping to not have to battle with -- every time that an update to a database for a generation happens, I have to go through and find out that somebody's, you know, removed something that didn't belong there or hasn't updated it in ages.

So anyways, thanks. Thanks for the opportunity to speak here today.

MS. AVALOS: And thank you for your comment.

A reminder to folks attending on Zoom, use the raise-hand feature to let us know you'd like to comment.

Also, for those that are on the phone, dial star nine to raise your hand.

I'll give a few seconds to see if we have any raised hand.

All right, seeing that there are no raised hands, I'll turn the mic over to you, Vice Chair Gunda.

VICE CHAIR GUNDA: Thank you. Thank you, RoseMary, for doing that.

Yeah, you know, I've already premised my closing comment. I think I just want to express

gratitude to the entire CEC Team, the IEPR Team, the EAD, as well as the IT Team trying to figure out what's going on with the echo, everybody, for just kind of moving this workshop forward.

And I think, you know, to Mr. Uhler's comments, I think it's -- thank you for your continued interest in what CEC does and providing, you know, feedback on an ongoing basis. I think, you know, the primary function, one of the primary roles of CEC is to kind of think through how best the data could be shared and, you know, in a transparent and accurate way. And I think, you know, hearing comments is always helpful.

And I want to just give our team internally here, who's been hearing a lot of those comments and trying to really take a fresh look at how best to do this and modernize that effort, so keep the comments coming. Keep the feedback coming so we'll take our best shot at trying to lift to the spirit of what CEC is hoping to do.

And with that, I pass it off back to Heather. Thank you, everybody.

MS. RAITT: Thanks, Commissioner.

I'll just add that we welcome written comments and that they're due May 18th. And there's information posted in the website notice about how to do that, and then on this slide that we're sharing right now, but -- so I hope to hear from people.

Thank you for the conversation today and that's all I have unless you wanted to say something else? Okay. Great.

Thanks, everybody. We'll see you for our next workshop when -- to be scheduled. Thanks.

(The workshop concluded at 3:13 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.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand this 8th day of July, 2022.

MARTHA L. NELSON, CERT**367

CERTIFICATE OF TRANSCRIBER

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 transcribed by me, a certified transcriber and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

I certify that the foregoing is a correct transcript, to the best of my ability, from the electronic sound recording of the proceedings in the above-entitled matter.

June 8, 2022

MARTHA L. NELSON, CERT**367