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BUSINESS MEETING
BEFORE THE
CALIFORNIA ENERGY COMMISSION

In the Matter of: 

Business Meeting

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CALIFORNIA ENERGY COMMISSION
THE WARREN-ALQUIST STATE ENERGY BUILDING
ART ROSENFELD HEARING ROOM - FIRST FLOOR
1516 NINTH STREET
SACRAMENTO, CALIFORNIA 95814

WEDNESDAY, AUGUST 14, 2019
10:00 A.M.

Reported by:
Peter Petty
APPEARANCES

Commissioners

David Hochschild, Chair
Janea Scott, Vice Chair
Andrew McAllister
Patricia Monahan

Staff Present: (* Via WebEx)

Drew Bohan, Executive Director
Allan Ward, Acting Chief Counsel
Jared Babula, Staff Attorney
Jennifer Martin-Gallardo, Interim Public Adviser
Cody Goldthrite, Secretariat
Michael Sokol, Director, Efficiency Division

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   c. WEST COAST CODE CONSULTANTS, INC.

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3. Discussion of Energy Commission Progress on Joint Agency Report, Charting a Path to a 100% Clean Electricity Future, Senate Bill 100 (2018)


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9. County Of Santa Barbara

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   b. P-Kap Systems, LLC
   c. RAF Electronics Corp.
   d. DAE Technologies Inc.
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18. Lead Commissioner or Presiding Member Reports

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21. Public Comment

22. Chief Counsel's Report
   a. Pursuant to Government Code Section 11126(e), the Energy Commission may adjourn to closed session with its legal counsel to discuss any of the following matters to which the Energy Commission is a party:
18. Chief Counsel's Report (Cont.)

ii. Communities for a Better Environment and Center for Biological Diversity v. Energy Resources Conservation and Development Commission, and California State Controller, (Alameda County Superior Court, Case No. RG13681262)

iii. State Energy Resources Conservation and Development Commission v. Electricore, Inc. and ZeroTruck (Sacramento County Superior Court (34-2016-00204586)


v. City of Los Angeles, acting by and through, its Department of Water and Power v. Energy Commission (Los Angeles Superior Court, Case No. BS171477).


vii. In re: PG&E Corporation and In re: Pacific Gas and Electric Company (United States Bankruptcy Court, Northern District of California, San Francisco Division, Case No. 19-30088)

viii. Chukwuemeka (Emeka) Okemiri v. California Energy Commission, et al. (Sacramento Superior Court, Case No. 34-2018-00246019)

I N D E X (Cont.)

b. Pursuant to Government Code section 11126(e), the Energy Commission may also discuss any judicial or administrative proceeding that was formally initiated after this agenda was published; or determine whether facts and circumstances exist that warrant the initiation of litigation, or that constitute a significant exposure to litigation against the Commission, which might include.

Adjournment

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CHAIR HOCHSCHILD: Good morning friends and welcome. Let's begin with the Pledge of Allegiance.

(Whereupon the Pledge of Allegiance is recited)

CHAIR HOCHSCHILD: Before we get into the agenda, I want to make a few brief remarks and we also have a couple of folks we'll be inviting to the podium in a minute. But when I sent my note to all Energy Commission staff shortly after I started as Chair one of the things I said is, "It's exciting at the Energy Commission to have the opportunity to do good and to make things better." I think part of making things better is not being silent when you see something that's wrong.

And this week, I do want to say a few words about the Senior Official for Immigration at the Trump Administration suggested that the Statue of Liberty was only intended for people of European decent. That is racist. That's racist. It is totally unacceptable. It is contravening of our most basic ideals as a country.

And I'm very proud to be in a state that stands for inclusion, have a Governor who stands for inclusion, have a Legislature and really senior officials at every level, at our Commission, at every level that I know of in our state who really believes in inclusion.
And I have in my family -- we go back to the Mayflower on my mom's side. My wife's parents came from China with nothing, with nothing. They arrived, they made an incredible life. They made incredible contributions to our country. All of us have close friends who've immigrated. We have many first generation immigrants who work here at the Commission. And I want to say on behalf of all of us at the Commission level, "You are as American as everyone else." And anyone who says otherwise, if you're talking about -- if there's anything that is un-American it's un-American to say that. That's just not acceptable.

And I just want to be really clear where we stand as an agency and I think as a state on this question. We're not going to accept that kind of rhetoric. It's not what we're about and we're better than that. And I just really want to be clear about that. And we're going to keep speaking out when these kind of statements get made. It's just egregious, so thank you for letting me air that out.

And there's consequences to that. I will say that. We had a shooting in El Paso again based on racism and another one in Ohio. And so before we get into the meeting, I'd actually like to have a moment of silence in recognition of those victims.
(Whereupon a moment of silence is observed.)

CHAIR HOCHSCHILD: Thank you. With that I will say that we will have some good news to share, very good news in the coming weeks about a new Chief Counsel and a new Public Adviser. We'll get more information on that in the weeks ahead, but I want to begin by asking Mike Sokol to come up to the podium.

Mike, you've been at the Commission for 10 years now. I've watched, we've all watched how you've conducted yourself. You're a true professional. You show up every day with a great attitude, with a lot of energy, incredible collaborative style I would say in handling some really complex issues, most notably 350. I think you're an excellent listener. You really demonstrate really all the values that we're about. And I know when you're outside the Energy Commission representing us around the state I feel very well represented by how you conduct yourself.

And so it's a great privilege for all of us to be able to congratulate you as the new Director of the Efficiency Division. (Applause.)

And before we invite you to say a few words, I'd like to ask Commissioner McAllister to say a few words.

COMMISSIONER MCALLISTER: I'm also ecstatic for this. Well, first of all I want to thank Kristen Driskell. I mean she has -- her last day is tomorrow. I don't know...
if she is in the room, but she has brought a role -- just a professionalism and attention to detail and a team-building mentality to the division. And I want to just thank her for all of her service as Deputy over Efficiency, but also just all of her different positions is Legal and in the Appliance Safety Office -- all her time at the Commission. So we're going to definitely miss Kristen as well.

But with change comes opportunity, and so I'm really excited to have you lead in the Division, Mike. And I'd just echo on that 350 stuff, just all the complex projects that have been lobbed into your court, you've just taken them and have really done some incredible stuff with them. And so I look forward to working with you on all the stuff we have. All the various diverse issues that we have going on in these two agencies.

And I know your collaborative approach is really going to serve the Commission more broadly as we look at SB 100 and 350 and all the issues that really do require interdivision collaboration. So I'm looking forward to working with you and building all those relationships together.

MR. SOKOL: Well, thank you Chair and Commissioner McAllister. And really I just want to say that I'm grateful and excited for this opportunity and really appreciate the trust that the Commission is placing
in me in taking on this new role. Really just given the state of the world, I think we're on the precipice of some really big things here with the clean energy transition and the push towards 100 percent clean energy. And I know there's a lot of work to be done to get to that ultimate vision. And I’m excited to get involved and get to work.

Thank you.

CHAIR HOCHSCHILD: Great. Thank you, Mike.

(Indiscernible) Congratulations.

(Applause.)

CHAIR HOCHSCHILD: So we have one more very special guest. Her name is Isabella. And she's 14 years old and to my knowledge she is the youngest intern we've had at the Energy Commission.

I met her a few years ago. I asked her, "So tell me about yourself. What are you interested to be when you grow up?" And she said, "I want to run the California Independent System Operator," which not too many teenage girls say that. It's great. And part of the reason is her amazing mother is Angelina Galiteva, the Vice Chair of the ISO Board has been an incredible force for good in our state and a key reason that we have the 100 percent law that we do. So Isabella is with us for 10 days. Her internship finishes on Friday. And her project has been to develop a youth engagement plan for the Energy Commission.
She's been interviewing deputies and others around the Commission.
And so I want to invite you, Isabella, up to the podium and just to share a minute or two about some of your ideas.

MS. GALITEVA: Good morning. My name is Isabella and I'm here to write a youth engagement plan for the CEC. So by the end of the week I will be composing a report that will enlist several recommendations or suggestions that the CEC can partake in, in order to further engage the youth and have a greater overall impact on society and the climate crisis.

So one of the main strategies that I came up with was actually to have a division within the CEC that is responsible for monitoring, supporting and advising student-run programs all across California. My big vision, you could say, is to actually have a network all across California that will empower youth to be able to communicate and organize and protest and really have an involvement impact within the climate crisis and perhaps even educate and fix what the adults haven't done.

So part of what the CEC division that I propose will do is actually to have an educational program that will be implemented within school districts. And it could have teacher and student materials that will break down
very difficult concepts and terms that are in many of the reports. And help have an inspiration for youth to get involved and speak out against what they think.

Because what I've seen in my local school district is that the problem isn't that there isn't any motivation to do anything. It's more of the how and how do we really insert ourselves into this equation. Because right now it seems like a big overwhelming mass of, "Oh, well what do we do? How is this going to affect us in our future programs?" So with the introduction of career options and breaking down the difficult concepts, like I said, that really swirls around in the whole business, is that we'll have a really big impact.

We could even introduce electric vehicles in Driving Ed, which will inspire youth to start looking into the electrification process of our grid and infrastructure. And perhaps even convince my mom to get an electric vehicle too. (Laughter.)

CHAIR HOCHSCHILD: It's on the record now, yes.

MS. GALITEVA: Yes. So until I leave on Friday I'm open to any discussion or questions. And I look forward to the rest of my day and days to come. So thank you for -- I'm very grateful for having this opportunity to come and interview and learn and absorb as much as I can.

CHAIR HOCHSCHILD: Great. Thank you.
Are there any questions or comments from the Commissioners?

VICE CHAIR SCOTT: I would be interested to know where you will be, so that we can find you if we have some suggestions or would like to chat with you in further detail.

CHAIR HOCHSCHILD: She's in the intern bullpen, right outside the Commissioners' Office.

MS. GALITEVA: Yes, I'm with the rest of the interns.

CHAIR HOCHSCHILD: It's hard to get an appointment with her, though. She's very sought after.

(Laughter.)

COMMISSIONER MONAHAN: Isabella, I just want to say that I was super-impressed when you interviewed me. Your questions were really good. And this presentation was amazing. Like really, I don't think -- (Applause.) I think even graduated from college I wouldn't be as composed as you are today, so just kudos to you. I really encourage you to get your mom on board with the electrification presentation and (indiscernible).

CHAIR HOCHSCHILD: Good. Thank you.

COMMISSIONER McALLISTER: Also, while you're at that needle her about the upgrading your home for energy efficiency. (Laughter.)
CHAIR HOCHSCHILD: Thank you, Isabella. Great job. (Applause.)

Let's move forward with the Consent Calendar.

Before I take a motion on that I do just want to note the two items on our Consent Calendar are both cities taking the lead on more strict energy efficiency local codes, and this is exactly the kind of leadership that we need. And I just want to congratulate both the City of Carlsbad and the City of Davis for their pioneering leadership. With that, is there a motion to approve the Consent Calendar?

COMMISSIONER MCALLISTER: So moved.

VICE CHAIR SCOTT: Second.

CHAIR HOCHSCHILD: Second by Vice Chair Scott.

All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: Any opposed? Any abstentions?

Okay. That passes unanimously.

Let's move on to Item 2, California ISO.

MS. TRAWEEK: Good morning Chairs and Commissioners. My name is Nancy Traweek. I'm the Executive Director of Systems Operations of the California ISO. And my responsibility is running real-time operations as well as now the RC Operations.

So I'm here today to give a presentation on the reliability coordinator. And I believe there's some
slides, but I'll get kind of started. What is a
reliability coordinator? I thought I'd take a start there.
The reliability coordinator is the entity that has the
highest level of reliability throughout its area footprint.
And I'll get to a little bit of that.

They take a wide-area view of the bulk electric
system above what maybe balancing authorities may look at.
They look at all the seams across balancing authorities.
They ensure that, or prevent maybe issues or emergencies as
they're watching all the limits across those seams. So
they're watching at a very high level, talking to all the
balancing authorities and saying, "Hey, I see something up
here. How are we going to mitigate that? How are we going
to make sure we have reliability?"

We also do several things. We have a 24/7
operation. So the ISO has now its 24/7 operation as a
balancing authority and an additional staff of 24/7
operators as a reliability coordinator. We do outage
coordination approval, so all balancing authorities within
our footprint have to provide outage coordination or their
outages to us. We look at that, we approve them and make
sure there's no issues with those and it won't impact
others.

We do day ahead planning analysis, insuring the
same thing, no impact to reliability. Real time
assessment, monitoring analysis and system restoration.

So the California ISO on July 1st became the RC for the California footprint: all of California, the California ISO BA, plus IID, BANC, TID, CENACE, LADWP. They all came within under our umbrella as the RC for the California footprint.

So now, as of July 1st we're kind of watching over all of that, working with the balancing authorities, looking at all the limits, making sure that everything is reliable throughout that entire footprint.

I have a picture, but as of November 1st we're in the process right now of certifying for the extended footprint, which will be most of the west. So we'll go all the way out to Colorado and we will be the RC for all of that area. So on September 4th, we're going to start our shadow operations for that. And we'll be working for the current RC, which is Peak Reliability. And we'll be doing our shadow operations with them until 11-1, which will then we'll become the official RC for most of the west at that point.

We've been coordinating in that with all of our neighbors, all of the states. It's a voluntary membership. We offered our services voluntarily to all the balancing authorities throughout the western states. And most of them took us up on it. And so we're actually going to be
their RC service provider.

Another thing that we're doing in collaborating with our western states is our EIM. That's been going really, really well. Every year, we get new participants that want to be part of the EIM. That also is a voluntary membership. And they've realized over $740 million of benefit for the EIM participants, as well as for some of the California participants.

And we've also affected, through the transfers of energy through the EIM, about 403,000 metric tons of CO2 reduction, which would be about 85,000 cars in one day. So that's really been good.

Our supply and load diversity is reduced by about approximately 40 percent. So we're really using it a lot along with our other renewable resources as a transfer into California especially when our renewable resources are coming off, that EIM participants are able to transfer energy into us, as well as we're being able to share some of our resources with them. And it's really reduced their use on carbon-type resources. There are all our advanced technologies for that. We use all our advanced technologies for that. Our real-time market is really what our EIM participants are looking at.

So let me now that we have this, let me show you a couple of slides.
So to go back to the RC footprint, the gray area is what we currently are the RC of right now. And that's all of California and CENACE, which is right in Baha, Mexico.

The green area will be our footprint after November 1st. So we're actually taking on quite a bit. The orange area will be the SPP, Southern Power Pool will be the RC for that area.

And then if I could go to the EIM slide? Here's all of our EIM entities. It's quite a bit in the west where we have several that are coming on in 2020, additionals that are coming on in 2021 and now in 2022. So a lot of people have expanded to use our real-time markets to see those benefits for themselves.

Is there any questions?

0:20:18

COMMISSIONER MCALLISTER: Sorry to interrupt, I just wanted to thank you for coming over. When we heard the news, it seemed like a clear opportunity to get it on a Business Meeting agenda and really let the world know. I mean this is a little bit of like the electric sector insider baseball for most people, but it's so important. And really is a step in the direction that we need to go to integrate all the various activities, planning efforts and technical work that are a part of reliability across the
And so we have such a great relationship with the ISO and our other agencies, PUC, ARB on the decarbonization front. And I think the ISO sometimes is underappreciated and not as public, because it's not a state agency like the rest of us. And so it I think has a different role. But I think emphasizing how critical the ISO is and how competent the ISO is at reliability wherever it takes that role on, I think is really something that people ought to appreciate and know about.

And so I just want to thank you and your colleagues for taking on this new effort. Is it based out of the Folsom office? Does it have any other footprint?

MS. TRAWEEK: Actually, it's based out of the Folsom office. We actually run alternate offices. One's in Lincoln, California and one is in Folsom.

And so what we do is we have our staff separate from -- well, we have the same staff that rotate through. So we're operating out of both offices, so in the event of any emergency we can quickly operate from the other office.

COMMISSIONER MCALLISTER: That's great. And just I know we operate in different roles at different scales. And obviously we're the California Energy Commission, but we represent the state across the west. I think Commissioner Scott will probably have some comments here,
but the other states' energy offices as well as the various (indiscernible) and planning entities that lays out the western grid, I think are going to be very well served by having the ISO in this role. So thanks for taking it on.

   MS. TRAWEEK: Thank you.

   VICE CHAIR SCOTT: I do have some comments.
   Thank you for coming in and providing this high-level presentation for us. It is an important change that is taking place across the west. This is a really big deal. I am the Chair of the Western Interconnection Regional Advisory Body or WIRAB, which is part of the Western Interstate Energy Board. And there has been lots of conversation over the last few years.

   Stacy and others on your team, yourself, have done an amazing job kind of going around the west talking to people, explaining what this is going to be and then getting a smooth and orderly transition from the previous reliability coordinator to this is also a very big deal. And so I appreciate you coming to give us kind of this high level overview. There's a lot of background detail, hand holding. And then just been tons of technical things as well to make this happen.

   MS. TRAWEEK: Thank you very much. It has been probably two years-worth of work to get to this point. A lot of people working it, but we're really excited about
becoming the RC and being able to oversee all of this. And we're excited that a lot of the western entities wanted to also work with us in this. And hopefully we'll be as transparent as we can be and everybody will know everything that's going on. And we have a lot of working committees that we plan on keeping throughout the west, so that way everybody has their input into what needs to happen. So I appreciate that.

CHAIR HOCHSCHILD: Well, thank you and congratulations to you and your whole team. I see Darlene hides in the back there. And we want to thank her as well for her being a great MEA. (phonetic) And just we've had a terrific relationship with the ISO Board. I've been working very closely with Chair David Olsen this past week as well as Marybel Batjer at the PUC. And it's just a real tribute to your leadership that this is happening.

And I just want to be clear. Blackouts of any sort are not just bad for the state. They're a real setback for our green energy and climate agenda. It's paramount, particularly as we migrate other services like electric vehicles and electric heat pump water heaters and rail, onto the grid that we continue to have a robust and reliable and clean grid. And so this service you are stepping up to handle is a really important part of that. So congratulations.
MS. TRAWEEK: We're doing everything we can to [indecipherable] --

CHAIR HOCHSCHILD: Great. Thank you so much.

MS. TRAWEEK: -- every summer, every day. So yes, thank you very much.

CHAIR HOCHSCHILD: Thank you so much. Great.

Okay, so let's move on to Number 3, a discussion of Energy Commission progress on the Joint Agency Report Charting a Path to a 100 Percent Clean Electricity Future.

MS. WEEKS: Hello Chair and Commissioners and future Chair Galiteva. (Laughter.) You all know who I am, but I am Terra Weeks, Senior Advisor to Chair Hochschild, Chair at the Energy Commission and moving forward, I will be the overall project manager on the CEC side for the SB 100 Interagency Report.

So I just really want to thank Siva Gunda, Eli Harland, Courtney Smith and the rest of the team for helping get me up to speed. And I'm really excited to dive into this project, so just quickly, a little refresher on the SB 100 Report.

The bill directed CEC, CPUC and CARB to issue a joint report to the Legislature by January 1st of 2021 and at least every four years thereafter. And the report shall include a review of the policy including an evaluation of the potential benefits and impacts on reliability, an
evaluation of anticipated financial costs and benefits to utilities, the barriers and benefits of achieving the policy and then alternative scenarios in which the policy can be achieved including submitted costs and benefits for each scenario.

So the report will contain a combination of quantitative, qualitative analyses to address the topics. And this is all with the lens that this report that we're working on now is the first of an iterative process. And so it's not going to be a comprehensive roadmap for achieving the policy, but will establish a planning and coordination framework.

And similar to the IEPR process we'll coordinate with other agencies to host topic area workshops, which will inform the chapters of the report. And we're also working to see where we can streamline with other proceedings such as IRP, IEPR and CARB's new carbon neutrality workshop series.

So we, the interagency coordination team, are in the final stages of drafting an initial scoping document, which will outline the topics of the report and help inform the final workshop schedule. And will also gain additional feedback in our initial scoping workshops where we'll solicit feedback from stakeholders and the public to finalize the report outline and the workshop series.
So our fist workshop will be in just a couple of weeks, on September 5th, from 10:00 to Noon in the Secretary of State Building. And this will be our first interagency kickoff workshop to really just launch this effort.

The meeting will be led by the SB 100 principals from each agency who are Chair Hochschild, CARB Chair Mary Nichols, and PUC Commissioner Liane Randolph.

And the meeting will include updates from each agency. CARB is going to present kind of the high level picture of our climate energy targets and goals. CPUC is going to present on our current policies and programs, really the "how" we're going to get there. And then CEC will present a little more detail on actual report development process, the workshop series, how we're coordinating between agencies and also interfacing with the public.

And then following the kickoff workshop we're planning to hold our initial scoping meetings in late September or early October.

And I just wanted to also mention that we are putting together a brief video to highlight this effort. Lindsay Buckley on our team is working with the comm teams of the other agencies. And this will just be like a 60-second kind of quick highlights, just something to engage
stakeholders and the public on this process.

And with that, I’m happy to open it up for
discussion.

CHAIR HOCHSCHILD: Well, that's great, Terra.

Thanks so much. I’m just curious, I've been sitting here
looking out ahead at the process. What are you most
concerned about, I mean just in terms of the sticky issues
you're anticipating that we should be mindful of?

MS. WEEKS: I think top of mind for a lot of
stakeholders is what qualifies as zero carbon technology.
But really the intent of this report is to not be
prescriptive. I know when you look at the bill language
and then also Senator de Leon's kind of clarifying letter
that he wrote following the signature of the bill, really
the intent is to allow for as many potential avenues as
possible, still meeting the intent of the bill.

And so I can't say explicitly what will be in the
final report at this point, but it seems like we're leaning
toward looking more at the attributes of technologies
versus a prescriptive list of those kind of technologies.

CHAIR HOCHSCHILD: Other comments? Yeah, Patty?

COMMISSIONER MONAHAN: This was a great briefing.

Thank you. And I'm curious about I mean SB 100 set a
target for the electricity sector. And we have a
Governor's Executive Order setting a target for carbon
neutrality broadly across the economy. Can you talk about the interplay between the two?

MS. WEEKS: Yeah. And I think CARB will really kind of paint that larger picture at the kickoff workshop too and really talk about how this is one slice of the pie, when you look economy-wide. But as the Chair was just saying it's a very important slice of the pie and really thinking through how as we moved toward a clean electricity system that is going to serve additional end uses in residential, commercial, industrial sectors, transportation. And so we're really looking to make sure that we have a reliable, affordable, safe electricity supply to serve these other sectors moving forward.

And thinking about security, resiliency, reliability, to make sure that as we migrate additional end uses on, we can be sure that this will be a robust system moving well into the future.

COMMISSIONER MCALLISTER: So thanks for that. I really appreciate that briefing. And I wanted to just point out a couple of things. One, it's easy to think about -- it's kind of the natural way to think about this for the uninitiated in some of this is it just sort of RPS Version 3 or something. You know, sort of RPS on steroids. And really that's not what it is. I mean it is that to some extent, but as you were suggesting we need to change
the categories to appreciate carbon free versus sort of the narrower definition of renewables.

But also at high, high levels of penetration of renewables it becomes primarily an electric system planning exercise, which RPS to now hasn't really been. And I think the previous item with the ISO stepping up to be the reliability coordinator and their current set of roles as well -- Delphine came back very timely. But really that interagency coordination on this, I think that was prescient with the bill, but the bill requests consultation with the ISO. But I think really in practice we're going to end up involving ISO much, much more because of these system issues that will have to be dealt with as we move forward.

And so I'm really happy that we're building the analytical capability in-house. And this is a multi-division effort, right? So assessments and efficiency end use, renewables, all the various aspects of this, all the facets of it are really going to have to work together in a facile way. And so I think that's great that we all recognize that and acknowledge that and I think we're building tools to do that and certainly play our core role at the Energy Commission and across with ARP and the PUC and the ISO. So I'm really happy to get this process kicked off.
VICE CHAIR SCOTT: I don't have too much more to add to that. I do really appreciate having this as a standing agenda item similar to how we had SB 350 as a standing agenda item because it does crosscut a lot of -- or not a lot of -- everything pretty much all of us work on. And it gives us the ability to get the same update and also to hear what each other is thinking in this space, which will become I think increasingly critical as the process really gets going. And there's different items or topics that we may want to be sure to bring forward to discuss. So I appreciate having this on here and you're great update. Thank you.

MS. WEEKS: Thank you

CHAIR HOCHSCHILD: The only thing I would add. I see a call a new emerging field here, which is the field of flexibility and really a clean flexibility, right? I mean we have to be. And part of that is just being more nimble on demand. I mean, I'm so inspired by the scene by Home Connect, for example, 500,000 customers that with these small, personal home devices collectively that can be a very meaningful resource. And how do we scale that and other iterations of that for commercial cooling or some of these kinds of things that we can be much, much more intelligent about as well as fleets of electric vehicles and all the rest. And this is something we've got to get
ahead of this.

I mean, I think it's really valuable that we have a standing item on this, because it impacts where do we go on our investments on R&D to best support this and on efficiency codes and on electric vehicles and all the rest. It's all one conversation.

And I do, in particular, want to thank and recognize Siva Gunda, who's in the back there, for doing an outstanding job of building a real collaborative culture with the other agencies. We are all in this together.

It's essential. And we have somebody new creating an energy agency architecture who would probably just create one energy agency for California. It's simply that's not where we are and it's not where we're going to be. It's really like right now we have this set up and so really the key is having healthy dialogue and a collaborative relationship and we have that.

And I just really -- but that's work to create that and certainly there's been moments in our state's history where you had Chairs of the different Commissions that didn't talk to each other and didn't like each other and all this kind of pettiness. And we really are in a great place.

I also want to just say I'm particularly excited to welcome Marybel Batjer, as the new President of the PUC.
to the team. I had a great two-hour meeting with her. She's going to be a tremendous partner. And one of her great gifts is what I'd call bureaucracy repair and helping make systems work better. In fact, Siva and I spoke this morning about some ways that we can maybe get her to help with some of our challenges here in getting our agency going. She's really got a gift. She is the person when the DMV is broken, the Governor calls her. And so I think that's going to be a real asset as well as she's just really onboard with where we're going, so really gratified.

And I do want to highlight we'll be sending out a notice this week. We will be doing an en banc meeting on September 17th with all the Commissioners from PUC and ISO. Unfortunately Commissioner McAllister is on travel, but this is something I want to do regularly now.

Actually, I really am committed to trying to have multiple times these meetings with all the leadership, so we can begin this dialogue. Because all these issues are crosscutting, so in addition to the SB 100 process we'll be looking at some other issues together.

So anyways, thank you Terra, for stepping up and helping us through.

All right. Let's move on to Item 4 Adopting Energy Commission Determination of Finding Pasadena Water and Power Integrated Resource Plan Consistent with the
Requirements of SB 350.

MR. DEAVER: Good morning Chair and Commissioners. My name is Paul Deaver. I'm the Program Manager for Publicly Owned Utility Integrated Resource Plans or POU IRPs. Today staff will present the reviews of three POU IRPs and for those adopting the Executive Director Determination of Finding that each IRP is consistent with the requirements of Senate Bill 350.

The three POU IRPs are Pasadena Water and Power, Riverside Public Utilities and Vernon Public Utilities. Although these three items are similar, they are three separate items. Before we get to the review, I want to provide an overview of POU IRP requirements under Senate Bill 350.

The largest 16 POU IRPs, those that have annual loads greater than 700 gigawatt hours are required to adopt an IRP and a process for updating that IRP by January 1st, of 2019. They also must submit these IRPs to the Energy Commission for review. And the IRPs must include the four standardized IRP reporting tables, along with any supporting information for the Energy Commission's review. The POUs also must update their IRPs at least once every five years.

All 16 POUs have submitted IRPs to the Energy Commission by April 30th, 2019, with the exception of
Glendale Water and Power. They requested a 90-day extension to consider replacement options for their natural gas Grayson Power Plant and respond to public comments on the replacement options.

During the IRP Review Energy Commission staff relied on internal experts in the Division and other divisions to help with the review of the different IRP sections such as transportation, electrification and the renewable energy procurements, or RPS. Staff also worked with POU staff to clarify items in the IRPs.

Once the Energy Commission receives the POU IRPs they post them to the website for public comments for 30 days. And after the review staff posts an Executive Director Determination to the website for public comment for 45 days.

I'll briefly go over the requirements for POU IRPs. So POUs first must meet the California Air Resources Board established greenhouse gas emissions reduction targets by 2030. They also must ensure they procure at least 50 percent eligible renewable energy by 2030.

Senate Bill 100 became law on January 1st, 2019, after most of the POUs adopted their IRPs. And it requires a 60 percent RPS. So the IRP reviews will be for SB 350 and will cover the 50 percent RPS.

POU IRPs must ensure that the POU serve its
customers at just and reasonable rates and minimized bill impacts. They must ensure system and local reliability. They must strengthen the diversity, sustainability and resilience of their power system. They must enhance distribution systems and demand side energy resources. They must minimize air pollutants and other greenhouse gases with an early priority in disadvantaged communities.

The results were a number of items that the POU IRPs must address procurement of. These are energy efficiency and demand response, energy storage, transportation electrification, resource adequacy requirements and diversified set of resources.

I'll provide an overview of Pasadena Water and Power and some highlights from staff's review of the IRP. Pasadena is the 11th largest POU in California. They are a not-for-profit electric and water utility in Southern California. They deliver over 1,000 gigawatt hours to more than 60,000 customers. They also deliver water to almost 40,000 households. There are peak demands around 300 megawatts and that generally occurs between 4:00 and 6:00 p.m.

Clearly in Pasadena's portfolio they have coal, natural gas nuclear, large hydroelectric, and some spot market purchases. They also have existing contracts for solar, geothermal, wind and biofuels.
For their submittal to the Energy Commission, Pasadena adopted their IRP in December of 2018 and submitted it to the Energy Commission the same month along with the reporting tables and supporting information.

The Energy Commission reviewed the IRP founding and found that it met all the requirements of Senate Bill 350. And in April of 2019, the Energy Commission posted an Executive Director Determination and Staff Review Paper, going over staff's review. Only Pasadena provided comments during the comment period. These comments were minor, minor clarifications and they do not change staff's findings or the Determination.

A few highlights from Pasadena's IRP. For the renewable energy procurement requirements, or RPS, Pasadena actually plans for a 60 percent RPS by 2030. A lot of this is solar, solar energy increases by over 300 gigawatt hours between 2019 and 2030. And by 2030 solar makes up almost 70 percent of the renewable portfolio.

They also have existing contracts for biomass and geothermal. These remain relatively constant over the reporting period. Their wind contracts actually drop off from about 7 percent of the renewable portfolio down to 0 percent by 2030. And they also use renewable energy credit purchases in the early part of the planning period, but towards the end of the planning period those drop off by
For their greenhouse gas emission reduction targets the California Air Resources Board range for Pasadena is between 128,000 and 226,000 metric tons of carbon dioxide, by 2030. Pasadena plans to get down to right around 200,000 metric tons by 2030 and this is towards the high end of the range, but still within the range. To meet this goal, they plan on exiting the Intermountain Power Project Coal Plant in Utah. They plan to exit this by 2025 and procure additional renewable energy and some spot market purchases.

For the transportation electrification section, if the state meets its goal of 5 million electric vehicles on the road by 2030 we would expect Pasadena to have roughly 40,000 electric vehicles in their service territory in 2030.

Pasadena plans to have about 9,000 electric vehicles by 2030. A few reasons why there's a difference in the forecast, in their service territory there's a lack of widely available charging infrastructure. And up to 40 percent of their customers are considered low-to-moderate income, so there's a little bit of a cost barrier. So to promote transportation electrification in their service territory, Pasadena plans to examine options to expand charging infrastructure and also options to increase the
With that, today I am requesting that the Energy Commission adopt the Executive Director's Determination of Finding Pasadena Water and Power's Integrated Resource Plan is consistent with the requirements of Senate Bill 350.

I'm happy to answer any questions.

CHAIR HOCHSCHILD: Okay. No questions for the dais?

COMMISSIONER MONAHAN: Not really a question, but more of a comment. Thank you for that summary. That was excellent.

I think that it's so admirable that cities are being really aggressive on opportunities to integrate renewables into our power system. I think this highlights a big issue that we're facing though, as a state on transportation electrification, which is there is a sense that our state goals -- that localities don't have a big role to play in achieving these state goals.

I think there's also a message for us as the Energy Commission and the leads on making sure there's a robust charging infrastructure that we really need to ensure that there's an infrastructure that gives localities confidence that we can meet our aggressive goals on electrification. And I would argue that we're going to be looking at even more aggressive electrification in the
heavy-duty side than we have historically.

So I think it just highlights the work that we have to do across the state to make sure that we have the right policies, incentives and infrastructure in place to reach our aggressive goals for transportation electrification and to help clean the air, especially in disadvantaged communities.

CHAIR HOCHSCHILD: Any other comments?

COMMISSIONER MCALLISTER: Yeah, I have a comment. So thanks for that, Paul.

So I have gotten visions on these three and all the rest of them. And what I'm struck with just as a general comment is just the incredible diversity of our POU population, all the POU's and size and all the ways that you know, but that's reflected in their IRPs. And so this was no small task for staff to go through every IRP with a fine tooth comb and make sure that the claims were credible, that the number that numbers added up. And really get back to each POU and ask hey, get more detail. And where the numbers weren't adding up really create accountability there. So I think that's been a really a great -- staff's done a great job with that.

Actually, the one comment about the diversity of supply so you have EV and all the issues they have to treat, I guess I have two questions. One, how do you feel
like -- well just with reference to Pasadena -- how do you feel like the efficiency and demand response piece of this has been developed? I think we should develop some direction going forward to make sure that those resources are all they can be, because they're going to create the head room for the EV coming on board and the heat pump electrification and all that. So I guess I'm wondering what's your view of how well they've done on the demand side piece of it?

MR. DEAVER: So for energy efficiency?

COMMISSIONER MCALLISTER: Yes.

MR. DEAVER: So for energy efficiency they actually meet the SB 350 doubling goals and they've surpassed those. In our guidelines that's one of the items that they must address procurement of. It could be a little more detailed in exactly how energy efficiency is reported under SB 350, how the doubling is reported.

The same thing for demand response, they addressed it adequately. But it was one of those things that you must address procurement of this. We didn't have specific items that they must hit on each of those.

COMMISSIONER MCALLISTER: Okay. So I guess I'll just note that we're developing the California Energy Efficiency Action Plan Update. And I think that's a great spot to suggest to the POUs where we might create some more...
accountability and might lay out from characteristics that they might want to detail in their IRP updates. Not this round obviously, but when they get back to it. And then I have one other question. How are you treating the spot market in terms of carbon content?

MR. DEAVER: So for spot market purchases we use 0.428 metric tons per megawatt hour. This is a standard number.

COMMISSIONER MCALLISTER: Yeah. And so that will we see that over time is there a -- so the IRPs going to last more than one year. Obviously the spot market is going to have to evolve. We're going to have the regionalization discussion. I wonder if there's any conversation about projecting carbon content of a spot market as we are doing for instate resources?

MR. DEAVER: We have not discussed that. We definitely will. Right now it's just to assume 0.428 every year going forward, so we can definitely take a deeper look at that.

COMMISSIONER MCALLISTER: Great. Thanks, Paul.

CHAIR HOCHSCHILD: Can I just ask, before we take up these items is there any public comment on Pasadena or Vernon? I have one for Riverside if there's anyone who'd like to come on up. Okay. Then why don't we take them up one by one. Is there --
UNIDENTIFIED SPEAKER: (Indiscernible.)

CHAIR HOCHSCHILD: Oh, we have a separate presentation for -- I'm sorry. Thank you. So let's go ahead and then entertain a motion for Item 4.

VICE CHAIR SCOTT: I'll move approval of Item 4.

CHAIR HOCHSCHILD: Okay. Is there a second?

COMMISSIONER MCALLISTER: Second.

CHAIR HOCHSCHILD: By Commissioner McAllister.

All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: This passes unanimously.

Let's move on to Item 5.

MR. GUTIERREZ: Thank you. Good morning Chair and Commissioners. My name is Julio Gutierrez from the Energy Assessments Division. I will be providing an overview of Vernon Public Utilities and its IRP filing.

Vernon service area is located within the County of Los Angeles. The utility's customer base is 99 percent industrial and commercial. Vernon's load is relatively flat with a peak load of approximately 184 megawatts during the summer and delivers to its customers' 1.13 million megawatt hours annually.

Because of its customer base its load spikes earlier in the day, between the hours of 12:00 and 2:00 p.m. instead of the typical hours between 5:00 and 9:00
In 2018, Vernon had an energy mix that consisted mostly of natural gas along with large hydro, nuclear and renewable resources. Vernon adopted its IRP in November of last year and submitted it to the Energy Commission in January of 2019 along with supporting information. Energy staff reviewed the IRP filing and found that it meets the requirements of SB 350.

The Energy Commission posted the Executive Director's Determination and Staff Review Paper on May for public comment. Only Vernon provided comments. Comments that were made were minor and did not change staff's findings.

To mention some highlights from staff's review, by 2030 Vernon's energy mix will consist of about two-thirds renewables and approximately one-third from spot market purchases. The remainder will come from large hydro and nuclear. The biggest change in Vernon's portfolio is the termination of its contract with the Malburg Generating Station, a natural gas plant located in the City of Vernon after 2028.

Overall, Vernon is planning for a renewables portfolio standard of 62 percent by 2030. Its renewable portfolio will consist of mostly solar along with biomass, wind and geothermal.
For greenhouse gases, the California Air Resource Board set range for Vernon is between 149,000 to 263,000 metric tons of CO2, by 2030. Vernon plans to meet its GHG requirement at the middle of the range at 201,000 metric tons.

In regards to transportation electrification, Vernon plans to increase electric vehicle use with the goal of 1.7 megawatts of load on to its system. The utility indicates that it currently has limited infrastructure in place to support electric vehicles and would need to address on how to incorporate more heavy-duty vehicles, due to its customers' profile.

To promote the transportation electrification, Vernon plans to collaborate with customers and car dealerships to install and maintain electric vehicle charging stations at customer-owned facilities, coordinate with local air quality agencies on programs and incentives to promote electric vehicles, and is also planning to work with the city to increase city-owned electric vehicles.

Within its service territory, Vernon does not have any disadvantaged communities. It's located four miles southeast of downtown Los Angeles and acknowledged that it does boarder other disadvantaged communities. Taking this into consideration, the utility plans to increase distributed solar generation and perform energy
efficiency upgrades to city-owned facilities and its distribution equipment. By 2030, Vernon, through energy efficiency programs, will reduce its demand by 50 gigawatt hours, slightly about the set target, set by the Energy Commission under Senate Bill 350.

With that, today I'm requesting that the Energy Commission adopts the Executive Director's Determination of Finding Vernon's IRP consistent with SB 350 requirements. I'm happy to answer any questions.

COMMISSIONER MCALLISTER: Thanks. I appreciate that. I kind of asked my general questions I think on the Pasadena item. But again I just want to thank staff for all their diligence in really bird dogging this one by one, we have a lot of POUs in the state. So then the top, for the 16 or 17 years are the ones that have to file IRPs. So it's a lot of work and it's an ongoing effort too.

CHAIR HOCHSCHILD: Okay. Unless there's any public comment on this item I'll entertain a motion.

COMMISSIONER MCALLISTER: I'll move Item 5.

CHAIR HOCHSCHILD: Is there a second?

VICE CHAIR SCOTT: Second.

CHAIR HOCHSCHILD: Second by Vice Chair Scott.

All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: That motion passes
Let's move onto Item 6. And with apologies to everyone in the audience, if you feel your chest rumbling, that is the construction of the new resources agency building next door, all eight stories of it. And so yesterday my whole office is rattling away. So we're going to be stuck with that for a few years while they're busy, so sorry about that.


MR. MATHIAS: Good morning, Commissioners. My name is John Mathias. I reviewed the Integrated Resource Plan filing for Riverside Public Utilities, which is related to the last two items on the agenda.

I'll provide a brief overview of Riverside and its IRP filing. Riverside is a city owned utility that distributes electricity to an 81-square mile territory that includes the City of Riverside. Riverside delivers approximately 2.3 million megawatt hours of electricity to about 109,000 customers. Its annual peak demand is a little over 600 megawatts. And its load profile is typical for the Inland California areas with its summer peak demand between 4:00 and 5:00 p.m. Its winter load profile is relatively flat.

Riverside's IRP was submitted in December of 2018. Staff reviewed the filing and found it to be unanimous.
consistent with SB 350 requirements. And the Staff Review Report of the IRP was posted in April and no public comments we received.

Riverside's current base load resources include geothermal energy from the Salton Sea area, coal generated power from the Intermountain Power Plant, natural gas-powered Clearwater combined cycle power plant and power from the Palo Verde Nuclear Station.

Peaking resources include the natural gas-fired Riverside Energy Resource Center and the Springs Generation Facility, as well as hydropower from the Hoover Dam.

Current renewable resources include seven solar projects that range from 7 megawatts to 25 megawatt capacity. And three wind energy projects ranging from 1 megawatt to the 39 megawatt Cabazon Wind facility.

Riverside plans to meet the SB 350 RPS target including all interim compliance period targets. In 2017, renewable energy accounted for approximately 36 percent of Riverside's retail sales. And geothermal energy is the largest component of that accounting for 60 percent of their renewable energy. And solar energy is approximately 25 percent of Riverside's current renewables.

Riverside's goal for 2030 is 67 percent renewable energy. And to meet that goal they primarily are planning to expand their geothermal energy resources and solar
So in addition to its RPS targets for greenhouse, Riverside is planning to meet the greenhouse gas emission targets that were established by CARB. CARB established a GHG range for Riverside of 257,000 to 487,000 metric tons of GHG emissions by 2030.

Riverside's emissions are already trending downward, down about 15 percent since 2012. In 2017, GHG emissions were 950,000 metric tons. And Riverside's goal is to reach 486,000 metric tons by 2030.

In order to meet its GHG and RPS goals the primary changes to its future resources will be to replace the energy currently received from the coal-fired Intermountain Power Plant with clean energy sources. So Riverside's contractual obligation with the Intermountain Power Plant ends in 2027. And Riverside does not plan to renew that contract. So that power will be replaced by additional solar and geothermal energy and possibly also low carbon power purchases from the Pacific Northwest and Canada.

So staff also reviewed the demand forecast retail rates system and local reliability energy storage and transportation electrification and other requirements related to SB 350 that are in the IRP and final. All of the (indecipherable) IRP to be consistent with all the
requirements.

Today I'm requesting the approval of the Determination of Finding Riverside's RFP consistent with SB 350. And I can answer any questions. I believe there is also a representative from Riverside here who may be able to answer questions much better.

CHAIR HOCHSCHILD: Thank you.

Representative from Riverside, go ahead. Oh, you're here in the room. Great.

MR. LESCH: Good morning, distinguished Chair and Commissioners. My name is Dr. Scott Lesch. I'm the Resource Planning Manager for Riverside Public Utilities and I manage the unit that was responsible for Riverside's IRP.

I just wanted to take the opportunity this morning actually to extend my thanks to CEC staff. It's obvious from the review that they did that they did a very detailed deep dive into our IRP. And I was very happy and encouraged to see that.

I also really appreciated the interaction that we have. We had an opportunity to review the final report before it went out, clarify any like modeling assumptions that they weren't sure about or what our planning objectives were. And of course obviously I'm very happy that it's up for approval today and was found to be
consistent.

I would like to say when this law first came forward that our IRPs were going to come to the CEC and be reviewed, I was not profoundly excited about that.

(Laughter.) However --

CHAIR HOCHSCHILD: You're not alone. You're a diplomat as well, I can tell, yeah.

MR. LESCH: Yes. However, I found it to be a really good process. And I think there's an opportunity for CEC staff and public utility staff to learn from each other through this. And in particular, as you've already mentioned up here, every public utility is a little bit different. We have different cost pressures that affect us. But there's an opportunity for a lot of interaction that I think helps educate both sides to get to the common goals that we're trying to reach. And I would encourage the Commissioners to continue to encourage your staff to engage with us. That we want to engage. And I think it's a very healthy dynamic.

CHAIR HOCHSCHILD: Yeah. I would just add I generally think it's not just the interaction between us at the Energy Commission and the individually too, but the interaction between the utilities, because there's a lot of learning. And I think it's really helpful for folks to see each other's plans and a discourse and I think it's a great
opportunity for everybody to get better as a result of that.

COMMISSIONER MCALLISTER: Yeah, I wanted to -- while I've got you on the podium I guess I think Intermountain obviously looms large in some of the POUs down south. And I guess you've got that resource that is SCPPA. And I'm wondering if you have thoughts on sort of as all of these new resources, procurements and these cycles of planning go together along those lines of working among the POUs, what sorts of value could SCPPA continue to bring in procurement in sort of viewing some of the structural work that maybe an individual or smallish SPOU might not be able to do on its own, but sort of pool resources in that way?

MR. LESCH: We already coordinate very extensively through SCPPA and use SCPPA's process for our RFPs for renewable resources. We do a lot of planning through SCPPA. It's been a very effective organization for us.

COMMISSIONER MCALLISTER: Yeah, I agree.

MR. LESCH: And we expect it to continue.

COMMISSIONER MCALLISTER: Yeah, as this innovation -- as we really push the envelope on renewables penetration and reach to 50-60 percent beyond that could -- it seems to me anyway that that could be a locus for
innovation and going forward to develop new technology that solves problems across the POUs as well, so anyways just a hope and a thought.

VICE CHAIR SCOTT: Yeah, I just want to thank you for those comments. I do hearken back to the days when we were putting together the guidelines for this. And I do think our staff worked very hard to work collaboratively to do this in a transparent way to really listen to what the POUs were looking for. And us as well as kind of what we, the Energy Commission, needed to do under the statute of SB 350.

It made me hearken back to that, right? The hard work that we did to get those guidelines out in a timely way so that all of the POUs have a chance to kind of look through and get the information gathered together. And so I'm cheered to hear that the relationship is continuing in this very sort of collaborative folks learning from each other way, because that's incredibly important. And I think it's just going to continue to enhance the dialogue and also help all of us get to these goals that we're working so hard to achieve.

So I appreciate you raising that and just wanted to kind of reflect on that, not just with Riverside, but with all of the POUs as we've put this piece together.

CHAIR HOCHSCHILD: Thank you for that.
Unless there's other public comment or -- oh, go ahead.

COMMISSIONER MONAHAN: I have a question. I'm excited to have you on this stage, because I am curious, Dr. Lesch, Riverside did a really interesting job on transportation electrification from the looking at what the infrastructure needs would be under different scenarios. And we've seen across the state and across the country actually, quite a range of responses to transportation electrification from municipally owned and publicly owned utilities. And it's interesting to contrast that with what we're seeing with investor owned utilities. And especially with the California investor owned utilities really trying to make a big play around the infrastructure charging needs for transportation electrification.

I'm curious if you have any advice or thoughts for us about how to best support municipally owned utilities as they enter this space?

MR. LESCH: Well, I'll speak on behalf of Riverside, because I don't want to project onto my other municipalities. I think SMUD and LADWP are ahead of the curve for the rest of us. The more mid-size and smaller municipalities, I mean we're just not at the same level of planning and really having the software and technology to do the detailed simulation of our grid that we need to do.
to know where to put infrastructure in and that sort of thing.

Every municipality is a little bit different on whether or not they want to get into this process of being an end supplier of charging infrastructure. In Riverside's case, we really don't want to do that. We just want to supply the backbone infrastructure and let private, commercial entities do that. So I think it will be different with each POU.

I think that the grant programs that the CEC offers are very useful. And it would be nice to see if more municipalities took advantage of that. I know we'd like to on that. I do see some cities doing that. Some are a lot better than others at getting into that process.

I think just keep an open mind, because it's going to be very different depending on which POU you're looking at.

CHAIR HOCHSCHILD: I just have -- there's just some amazing innovation now. I had lunch yesterday with the CEO of SMUD, Arlen Orchard. They are now offering a premium if you're an UBER driver in Sacramento. They, SMUD, pays a premium to the diver if you drive an electric vehicle, all right? I mean there's just some really cutting edge stuff happening now, across all 43 of our POUs. And it's good to just keep an open dialogue. We can
all be learning from each other. Yep.

COMMISSIONER MONAHAN: Yeah, I actually have been wondering if it would make sense for us to do some kind of tool kit for municipally owned utilities on what the range of options are in California? Who's doing what and what can be learned from those investments.

CHAIR HOCHSCHILD: Yeah, and I think one thing that's useful, I mean they do have these two trade associations of the NCPA in the northern part of the state and SCPPA in the southern part of the state and those are great forums for exchange. But I think that's a terrific suggestion. We should look at what we could develop as an Energy Commission. Any other thoughts on that?

VICE CHAIR SCOTT: Well, so this is a little off topic, but we could certainly put something together, like the Ports Collaborative with the POUs on charging infrastructure on electric vehicles. It was something that I was working with Tim Olsen and a few others to try to put together and then we've shifted folks. But that's something, Commissioner Monahan, you could certainly take on as Lead on Transportation to be able to just get some additional information, think through how we can work together with the POUs on getting infrastructure out.

Their structure is very different than the investor owned utilities in terms of being able to raise
the money to do that. There's city councils to go through and things like that. But I do think folks would warmly welcome an opportunity to do something like that or whatever your vision to how to kind of collaborate closely with the POUs on charging infrastructure would be. And sharing information about the interesting and innovative things each of the POUs are doing with each other.

I think that's been one of the parts of the Ports Collaborative that the Ports have really enjoyed is kind of hearing from each other what they're doing and how it's working. And so that's one option that you could use there.

CHAIR HOCHSCHILD: Yeah, some of the -- you learn more from the mistakes than successes, like how not to approach something. It's really just as valuable actually. Unless there's other Commissioner comments or public comments on this item --

MR. LESCH: Thank you

CHAIR HOCHSCHILD: Thank you. We'll go ahead and entertain a motion on Item 6.

COMMISSIONER MCALLISTER: I'll move Item 6.

VICE CHAIR SCOTT: Second.

CHAIR HOCHSCHILD: All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: That motion passes
Let's move on to Item 7, the Appliance Efficiency Regs for Spray Sprinkler Bodies.

MR. STEFFENSEN: Good morning chair and commissioners. My name is Sean Steffensen. I'm a Mechanical Engineer in the Appliances Office in the Efficiency Division. With me is Jared Babula from the Chief Counsel's Office.

I am here today to discuss an opportunity to save a vast quantity of water through efficiency equivalent to as much water as used by all Californians when they shower every day. Staff is proposing the adoption of a resolution encompassing two items related to amending the California Appliance Efficiency Regulations.

Item one, the Proposed Negative Declaration of the California Environmental Quality Act, or CEQA, and item two, the proposed regulatory language that incorporates a minimum efficiency performance standard and certification requirements for the spray sprinkler bodies. I have a short presentation related to this item.

Staff evaluated this project under CEQA and determined the proposed efficiency standard will not have a significant adverse effect on the environment. The standard will not result in a significant changes to the way the spray sprinkler bodies are manufactured or the
materials used to produce them. No comments were received during the 30-day comment period.

Why is water conservation so important for California? Climate change will lead to more persistent droughts and earlier snow melts. These changing conditions will put an increasing strain on our water supply, a resource vital to our economy, communities and natural places. The graphic shows the drought conditions in California over the past 19 years. Although we've had a very wet winter we need to prepare for the next drought. Widespread careful use of water will help us cope no matter how conditions change.

Improving the efficiency of landscape irrigation represents an opportunity to save water in California where it consumes more than 1.1 trillion gallons of water per year. Irrigation losses are due to a variety of reasons. Over-irrigation, excessive water pressure and leakage, during nonoperation contributes to the inefficient irrigation of landscapes.

The water is lost as it runs off the landscape, evaporates into the air or drains beneath the reach of the plant's roots, as shown in the figure. The losses may be significant, such as in the case of over-irrigation where Californians on average provide 50 percent more water than is needed.
At the Commission we have a process that allows anyone from the public to be heard. The green bubbles on this slide show the many times we've listened and engaged with the public to understand the issues and seek input on the solutions. We have published reports to explain our staff proposals and held workshops and public comment periods to seek feedback.

Over the past two years we have heard from the USEPA WaterSense Program, the Irrigation Association, irrigation equipment manufacturers, landscape professionals, water districts, California investor owned utilities, the California water boards, the California Department of Water Resources, university researchers, the Applied Standards Awareness Project and the Natural Resources Defense Council. Their comments informed our process. Thank you.

The staff proposal examines an opportunity to increase the irrigation efficiency of the spray sprinkler bodies through pressure regulation. Pressure regulation addresses the issue of excessive water pressure by maintaining the optimum water flow from the sprinkler regardless of the water pressure. By eliminating excessively high water flow, over-irrigation will also be addressed. The pressure regulating standard will be mandatory for all sprinkler bodies sold or offered for sale.
in California.

The minimum performance level and test method will be identical to the US Environmental Protection Agency Water Sense specifications for spray sprinkler bodies, Version 1.0. The proposal will require manufacturers to certify and mark spray sprinkler bodies.

Some background on these products, the spray sprinkler may be sold plain or with various options. A pressure regulator will control the outlet pressure. Their price varies based upon the options that are included. Staff estimates over 300 million in California that use a significant amount of water.

Technical feasibility means that the products are technologically capable of meeting the proposed standard by the effective date. The University of Florida tested several brands of spray sprinkler bodies with the WaterSense spray sprinkler body test method. The result shows spray sprinkler bodies will meet the proposed standards.

In addition, the USEPA WaterSense website lists over 100 models from five manufacturers as certified to meet the WaterSense specification.

Cost effectiveness is a major other savings to the consumer, compared to the cost to the consumer, due to requiring the appliance to be more water or energy.
efficient. The savings to the consumer must exceed the
cost to the consumer for the proposed standard to be cost
effective. To determine cost effectiveness, staff must
determine the value of the water energy saved, the
effective standard on the usefulness of the device and a
life cycle cost to the consumer of the efficient device.
The proposal is cost effective. The life cycle
benefit is $22 per spray sprinkler body. The savings to
cost ratio is over five to one.
The proposal will deliver nearly $950 million of
cost effective savings to consumers through reduced water
and utility charges. On a statewide basis, staff estimates
the standard will save 152 billion gallons annually, once
all spray sprinkler bodies have been replaced with more
efficient units required by the standard.
The illustration compares to the savings from the
proposal versus recent Energy Commission Water Standards.
The proposal will save more water than the 2015 Water
Efficiency Standard for Toilets, Faucets, Urinals and
Shower Heads. These savings represent over 90 percent of
total urban water use showing significant strides to reduce
water use through efficiency.
Staff finds that the proposed standard is
technically feasible and cost effective, thus meeting the
statutory requirements for the appliance efficiency
regulations in the Warren-Alquist Act.

Staff requests that the Commission adopt the resolution to approve the Negative Declaration and to amend the California Appliance Efficiency Regulations. Jared and I are available for any questions. Thank you.

CHAIR HOCHSCHILD: Thank you, yeah. We do have some company. Do you want them before you talk? Yeah, we have three comments on this item. Let's begin with Ron Wolfarth, if I'm saying that right?

MR. WOLFARTH: Good morning Chair and Commissioners. I'm Ron Wolfarth, with Rain Bird Corporation speaking in favor of staff's proposal.

Rain Bird's roots go back to a Glendora, California citrus farmer who was looking for a more efficient way to use his limited water supply to irrigate his crop. In 1933, he invented the impact sprinkler and Rain Bird was founded on that invention and now it sells his products around the world.

Rain Bird has continued that legacy of innovation and invention. And invented and in 1988, introduced to the market the spray sprinkler body with integral pressure regulation, which is the subject of the proposal you're considering. With patents expired years ago this technology is now offered by several different manufacturers. And it delivers the many benefits that
staff has articulated very well in its reports to you.

While Rain Bird is not often in favor of governmental regulation it sees this proposed regulation as a great opportunity to leverage some proven technology that addresses a very critical challenge facing California citizens. And that's a precarious water supply. It also supports Rain Bird's long-standing philosophy, which is the intelligent use of water.

Rain Bird supports this proposal and encourages the Commission to act in favor of it. Thank you.

CHAIR HOCHSCHILD: Great, thank you.

Let's move on to Daniela Urigwe from Energy Solutions.

MS. URIGWE: Hi, this is Daniela Urigwe from Energy Solutions on behalf of the California Investor Owned Utilities. The California Investor Owned Utilities strongly supports the Energy Commission's efforts to adopt a standard, which will result in massive water savings (indecipherable) benefits (indecipherable) reliability as California's water supply and energy and cost savings for California consumers.

The California Investor Owned Utilities applaud the Energy Commission's work on this program and we look forward to the support of this standard.

CHAIR HOCHSCHILD: Is that it? Thank you.
Let's move on to Edward Osann from NRDC.

MR. OSANN: Yes, thank you Mr. Chairman and Members of the Commission. My name is Edward Osann. I'm the Director of Water Conservation and Efficiency for Natural Resources Defense Council. And we strongly support the standard for spray sprinkler bodies that's under consideration today.

Upon adoption this rule will be one of the most important and consequential water efficiency measures ever undertaken by any state. Based on the staff estimates this standard will reduce urban water use, all urban water use in a normal year by about 5 percent within 10 years, based on full stock turnover. And what's more, the standard is highly cost effective. This is a remarkable achievement.

During the time the Commission has been considering this proposal, the EPA WaterSense Program has adopted a specification for spray sprinkler bodies. We support the incorporation of the WaterSense performance specification and test procedure in the Title 20, in a manner that allows the test results to demonstrate compliance with the requirements of both programs.

Finally, we want to commend the irrigation industry for the constructive role they have played throughout this proceeding and for bringing to market products that will achieve enormous water and energy
savings for the state in the years ahead.

And we also want to note the crucial role of the CASE Team in providing supporting documentation for the staff analysis supporting this rule. Thank you Mr. Chairman for the opportunity to speak.

CHAIR HOCHSCHILD: Thank you. And I just to restate the obvious, we have to remember that when we reduce water waste we're also reducing air pollution. About one-fifth of our electricity in the State of California is spent moving water and waste water. And until we have 100 percent clean energy grid we're creating pollution every time we move water. And so this is important from an air quality perspective as well.

And I just wanted to note Kristen Driskell is back in the room and this is great to go out with a bang on getting this over the finish line. Thank you and all your team for your work.

Commissioner McAllister?

COMMISSIONER MCALLISTER: Yeah. So thanks for that Sean, Jarred and Pat and Kristen and everybody in this effort of the Appliances Office and Division.

I think the support really is a testament of our process. I say this, but I can't say it too often or too loudly, really. We have a process that gets us to a broad buy-in on a lot of this -- on a good regulation. We saw it
with it with computers and monitors. We saw it -- We've seen it with many device categories. And here I think good faith engagement with industry produces results. And that's what we do here. And we end up in a place where the public good is well served. And so I think that's a powerful testament. I want to thank the gentleman from Rain Bird for being here and hopefully regulation is good if I can summarize it. We'll put that in our blog post, how about that? Okay.

But anyway we don't do any of this lightly. And you heard the numbers. I mean, 3,000 gallons per unit and a billion dollars in savings. That's real water. That's real money, so I mean these are big efforts and they're big lifts.

Luckily, we have EPA and WaterSense that provides a great foundation for a lot of the work that we do and test procedures. When we can take advantage of that it makes life a lot easier for everybody. It keeps industry at a standardized context where they don't have to jump through specific hoops for California. And being able to leverage that and essentially move a voluntary requirement or voluntary standard to a mandatory is a logical step when markets reach maturity and technology reaches maturity.

So I think this is the really a fine example, a classic example, of a process that works and ends up in a
good place for the benefit of California.

    So I want to thank you again for all your work, Sean.

VICE CHAIR SCOTT: Thanks. I just want to also add how much I appreciate the excellent briefing by staff to learn some more of the details on this really important topic. It is -- you've said this already -- but the substantial savings both in water and dollars. And kind of with the widget that's there, so this is fantastic I think to be able to bring to California. I also just wanted to say as the Public Member here at the Commission I am always cheered to hear about our great public process. And the team did a really nice job that highlighted that in the presentation.

    I think the robust engagement with interested folks as you've noted leads to good results. And that's where we are. So I just wanted to add that in.

CHAIR HOCHSCHILD: I just wanted to say, Kristen, as your final item here on your second to the last day, did you want to say anything to this or you don't have to if you don't want to. Okay. That's fine.

    All right, with that I'll entertain a motion.

COMMISSIONER MONAHAN: Can I make a --

CHAIR HOCHSCHILD: Did you want, go ahead.

COMMISSIONER MONAHAN: Really fast, because this
is so amazing. It's a win-win-win, right? We're saving money for consumers. We're helping save the environment. We're helping cut pollution and reduce electricity use. So it's just really impressive.

And I really love some of the data points around how much water we save. And I just want to throw one more data point out there, which is it's enough it would cover the residential water use of both Sacramento and Los Angeles for an entire year. I mean it's just staggering how much water we're talking about. So kudos to staff and also the excellent collaboration with industry and with environmental stakeholders and just really like hit out of the ball park. So great effort.

CHAIR HOCHSCHILD: Well, after all that dissention and disagreement with that looks like a tough vote, we'll entertain a motion on Item 7.

COMMISSIONER MCALLISTER: All right, I'll move Item 7.

COMMISSIONER MONAHAN: I'll second.

CHAIR HOCHSCHILD: All in favor say eye.

(Ayes.)

CHAIR HOCHSCHILD: That motion passes unanimously. Congratulations.

CHAIR HOCHSCHILD: Let's move on to Item 8, the City of Gustine.
MR. SANDHU: Good morning Chair and Commissioners. My name is Balraj Sandhu. I'm with the Local Assistance Finance Office of the Efficiency Division.

Today I'm here to request your approval for approximately $2,250,000 through the Energy Conservation Assistance Act Program, also known as ECAA, 1 percent loan to the City of Gustine.

The City of Gustine will use this loan for the improvements of energy efficiency and renewable energy projects including interior and exterior lighting; heating, ventilating and air conditioning; photovoltaic systems at their city hall, fire department, police department, public works building, community center, and the tennis courts; and they will install a variable frequency drive at the Well Pump No. 6.

I just want to add the City of Gustine is only between 5 to 6,000 people. It's a very, very small city.

The City of Gustine will install a utility-tied total sum of 478 kilowatt hour DC carport-mounted, fixed axis photovoltaic systems at four locations.

The completion of these projects will reduce 880,000 kilowatt hours of grid electricity consumption, saving the City of Gustine approximately $140,000 a year.

Based on the loan amount the simple payback is approximately 16 years.
This loan meets all statutory and regulatory requirements of the ECAA loan program and this project is categorically exempt from CEQA.

We request your approval of this loan. And I am here to answer any questions you may have. Thank you.

CHAIR HOCHSCHILD: Great. Thank you.

Any public comments? Okay, let's move to the Commissioners.

COMMISSIONER MCALLISTER: Thanks, Balraj. I appreciate the presentation. And when we see combined projects with efficiency and renewables all in one it's a really integrated approach, particularly for a small city. You know, this is a huge commitment for them. And it's good to be able to offer this kind of finance for them, because they have to be very careful about going to the bond market and all that kind of stuff. So a great project, so thanks very much. If there are no other questions, I'll move Item 8.

CHAIR HOCHSCHILD: Is there a second?

COMMISSIONER MONAHAN: Second.

CHAIR HOCHSCHILD: All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: That motions passes unanimously.

And just before we move on to Item 9 again for
our media team, this kind of stuff is really valuable and really almost always goes under the radar. This is very difficult to get attention. And I just wanted to think creatively by how to partner with these cities on getting the stories out there, doing dedication events that involves the State Senators and Assembly Members and trying to think of ways to highlight this. I'd love to see us be able to see us be able to give two or three times as much money to ECAA recipients as we do to long term. We need -- I mean it just is such a successful program.

I think, when I last looked at it, it was almost 1,000 projects we funded since 1982 or '78 I think is when it started and not a single default. It's an incredible record for us as an agency.

And I just think very few people, outside of the people who use it and us here at the Commission who implemented it know about the program. So that's just a wish I have to elevate the success stories. Thank you for your work on this.

Let's move on to Item 9, County of Santa Barbara.

MR. SITU: Good morning Chair and Commissioners. My name is Gavin Situ. I'm with the Local Assistance, Financing Office of the Efficiency Division. Today I’m here to request approval of approximately $2.73 million through the Energy Conservation Assistance Act loan at 1...
percent, also known as ECAA, to the County of Santa
Barbara.

The County of Santa Barbara will use this loan to
implement two LED lighting improvement projects and two
photovoltaic systems at the county's Betteravia Government
Center and Fire Station 12. Upon completion, the project
will reduce about 1.7 gigawatt hours of electricity
consumption annually and is estimated to save $283,000 in
utility costs annually.

Based on the loan amount and utility cost savings
the simple payback is approximately 9.7 years. This loan
meets all statutory and regulatory requirements for the
CEQA loan program and is categorically exempt from the CEQA
guidelines.

We recommend approval of the loan and I'm happy
to answer any questions you may have. Thank you.

CHAIR HOCHSCHILD: Okay. Any comments? Let's
move to Commissioner discussion.

COMMISSIONER McALLISTER: Actually, Gavin, I
don't have anything to add in relationship to or on top of
the last item. But I agree with the Chair's assessment
that this is a huge success story. And if the Legislature
chose to pump a bunch more funding into it I think we'd
find good use for it. So thanks for that. I'll move Item
9.
CHAIR HOCHSCHILD: Is there a second?

COMMISSIONER MONAHAN: Second.

CHAIR HOCHSCHILD: All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: The motion passes unanimously.

Let’s move on to Item 10, the Renewable Energy in Agriculture Program. Geoff?

MR. DODSON: All right. Good Morning Chair, Vice-Chair, and Commissioners. My name is Geoffrey Dodson and I’m representing the Renewable Energy Division.

I work in our Incentive Office where we administer incentive grant programs promoting renewable energy projects including the Renewable Energy for Agriculture Program, known by the acronym REAP. REAP is a grant program with $10 million in funding from the Greenhouse Gas Reduction Fund, originally created by Assembly Bill 109 of 2017. It is part of California Climate Investments and the funding is provided to support the adoption of renewable energy technology in the agriculture sector.

We are here to ask for your support to approve one proposed agreement resulting from our program’s first Grant Funding Opportunity, which was released in January 2019.

This agreement is a continuation of 43 already
approved at the last two Business Meetings in June and July. If this agreement is approved, there is one more remaining and it is expected at a Business Meeting later this year. The grants already approved are currently moving into the project implementation stage.

There is a notable highlight that I would like to share about this proposed agreement. At just over $25,000 this represents one of the smallest grant dollar amounts. This is significant, because it demonstrates the results of our program planning and outreach to spread our limited funding to agricultural stakeholders of all sizes, including family-owned or sole proprietors representing smaller agriculture operations.

It is a program objective to provide awards among a diverse group of applicants and this award demonstrates our scoring process achieved this goal.

Staff recommends approval of this proposed agreement, allowing the opportunity to proceed with agreement execution and project implementation consistent with our program solicitation requirements.

Thank you for your time and consideration. And I am available for your questions.

CHAIR HOCHSCHILD: Thank you. That's I've been really, really pleased with the progress of this program in a very short period of time. You've done a great job
administering it. Unless there's any public comment or Commissioner discussion, I'll entertain a motion.

VICE CHAIR SCOTT: Move approval of Item 10.
CHAIR HOCHSCHILD: Is there a second?
COMMISSIONER MCALLISTER: Aye or sorry (indiscernible).

CHAIR HOCHSCHILD: Seconded by Commissioner McAllister. All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: That motion passes unanimously.

Let's move on to Item 11, California Clean Energy Fund CalCEF Ventures.

MS. OLIVER: Good morning, Commissioners. My name is Eleanor Oliver. I'm from the Energy Research and Development Division. I'm requesting Commission approval today for 25 small grants proposals for $150,000 each from our most recent CalSEED solicitation.

CalSEED is a small grant program under EPIC that provides funding resources to early state technologies. The third open application period was held earlier this year resulting in almost 100 eligible projects. CalSEED used a screening mechanism to ensure applications aligned with the goals and guidelines of the program and targeted start-ups and entrepreneurs who intended to commercialize...
their technologies.

This solicitation focused on ensuring strong geographic diversity with applications submitted to one of four regional groups in California. Today, I will be presenting the six to seven highest-ranked applications per region.

These applications span a wide range of technologies with most corresponding to energy storage, energy generation and energy efficiency. Some of the technologies were at the concept state whereas others had a basic prototype tested in the lab.

The applications were evaluated for a long-term technical potential, benefits to California including impact on disadvantaged communities and the expertise and readiness of the application team.

I'll be giving a brief summary of all 25 projects, which are grouped by technology area and do not necessarily follow the order on the agenda. In the presentation I have added the corresponding agenda letter after each title.

Starting with Renewable Generation, the first project is a super module by SolarFlexes, which is item 11n or 11r, sorry. SolarFlexes is developing a prefabricated ground mounted adjustable tilt PV system that can quickly deploy and install, reducing cost and time for large scale
PV projects.

The next project is a prefabricated mobile housing technology by Arvind Simhadri, Item 117. This technology will be powered by a community microgrid and can be quickly be deployed in response to disasters such as wild fires and earthquakes.

Next is a hybrid solar PV and thermal system by Icarus RT, Item 11i. This system will be co-located with commercial solar PV to recover heat from the panels, store heat and generate power from the stored heat to increase power availability.

Continuing on is a multi-unit shared solar energy management software system by Ivory Energy, which is Item 11h. This software will enable multi-unit building owners and tenants to equitably share Virtual-Net Energy Metering credits from the central PV system via a unique load tracking algorithm.

The next project is a bi-facial low profile solar rooftop tracking system by P-Kap Systems, which is Item 11b. This system is comprised of light-weight laminate PV tracking hardware that maximizes the potential of bi-facial PV tracking.

The first project under Non-PV Renewable Generation is advanced Piezoelectric energy harvesters by ActiveMEMS, Item 11w, which will enable self-powering IoT applications.
sensors with 24/7 uptime for continuous data gathering and increase industrial efficiency.

The next project is scalable power generating windows by Luminescent Energy, Item 11q, that will use a combination of microscale PV cells and quantum dot technology to produce solar windows that operate under both diffused sky conditions and ambient light sources.

The final project in this group is a portable biomass converter, by Takachar, Item 11a. This technology produces high performance filtration media for localized waste water treatment, while generating sufficient power from the process heat for many local, agricultural and industrial applications.

Moving on to energy efficiency the first project is an advanced solid state lighting by RAF Electronics Corporation, Item 11c, which will use a combination of both non-imaging and imaging optics to produce high performance, high brightness and low power directional lighting.

The next is third generation LEDs with diffused lens by Optec LED, Item 11m, which has a unique slim line housing with specialized heat syncs that could significantly reduce energy consumption for parking lots and street lights.

Continuing on is a ceramic down-converter for LEDs and laser lighting by Luciant, Item 11k, which
utilizes the cerium doped aluminum nitride-based
downconverter to produce lighting systems that are more
efficient, thermally stable and longer lasting than the
current LED technology.

The first project under non-lighting energy
efficiency is the Green Energy Brick by SierraCrete, Item
1lf. This advanced construction material technology allows
for construction of ZNE homes without adding costs with the
breakthrough combination of insulated materials with wood
framing products.

The next project is an integrated solution to
optimize the operation of heat pump water heaters by ZYD
Energy, Item 11g. This system uses a hot water storage
management technology to achieve optimal service via an IoT
based controller.

The final project under this technology area is a
high efficiency density, variable horsepower integrated
motor and drive by GreenTech Motors, Item 11j. This
technology will dramatically reduce end use industrial
electricity consumption with its dropped-in compact design
of the electric motor package.

The final technology area that will be discussed
today is energy storage. The first project is a cobalt-
free Lithium ion Battery cathode by NanoDian, Inc., Item
11o, which uses a nano fabrication technology with low
internal resistance to replace the Cobalt in the cathode portion of existing batteries to enable fast charging capabilities.

The next project is a lithium-carbon based rechargeable battery by EndLis Energy, Item 11l, which will use innovative manufacturing of electrode nano structures for the development of lithium carbon batteries that have lower cost, high energy density and faster charging times than current lithium ion batteries.

Moving on to the next project is a lithium carbon fluoride battery by DAE Technologies, Item 11d, which will convert a high energy density, but non-rechargeable battery chemistry into a rechargeable battery.

Next is a lithium ion battery fire suppression system by RePurpose Energy, Item 11e. This system combats fire and thermal runaways without internal short circuiting of the battery cells, by injecting non-conductive liquid in the battery enclosure preventing chain reactions from reaching adjacent cells.

Continuing on is a portable battery health management for large format lithium battery packs by ReJoule, Item 11s. This management system will continuously and accurately diagnose battery health based on a self-calibration component for each individual battery pack.
The first project under non-lithium energy storage is a rechargeable carbon-oxygen battery by Noon Energy, Item 11t. This technology stores energy by splitting CO2 into solid carbon and oxygen in a flow battery configuration utilizing novel materials and reaction chemistry.

The next project is a Sodium Iron Flow Battery, by Nrgtek, Item 11p. It will provide cost effective long-duration energy storage for both residential and grid level renewable energy balancing, because of the high discharge voltage of the unique chemistry.

Continuing on is a solid state thermal battery by Anatora Energy, Item 11v. This technology aims to store energy as heat and inexpensive raw materials and convert the heat back to electricity with high efficiency thermal PV modules that have been exposed to the light rating from the hot storage medium to lower the dollar per kilowatt for delivery of energy storage.

Moving on to the next project is a rechargeable battery by EnZinc, Item 11x. This battery combines a zinc sponge anode with nickel, silver or carbon with different applications that will match the energy of lithium based batteries that is comparable in cost to lead acid and safer than both.

The next project is a thin film battery electrode...
coating by Coreshell, Item 11u. This unique nano-layering coating will be applied in a roll-to-roll disposition for easy integration of manufacturing and is expected to double the battery's life.

Finally, the last project is a thermal energy storage system using ultra high osmotic pressure polymers by T2M Global, Item 11n, which stores low temperature solar heat, indirectly, through thermal chemical reactions to enhance the performance of renewable technologies.

Overall, these projects represent a very exciting and diverse set of technologies that may help California on its journey to 100 percent clean energy future. This concludes my presentation today. Thank you for your consideration and my staff and I are here for questions.

CHAIR HOCHSCHILD: All right, fantastic.

Well, we have a couple of public comments on the side. Let's begin with Michael Burz of EnZinc. Welcome.

MR. BURZ: Good morning, Commissioners. Good morning, I'm Mike Burz, President and Co-Founder of EnZinc. We're a high-tech battery startup located in San Anselmo and Richmond. We've been working with the Unites States Naval Research Laboratory on the development of this new type of battery, which uses the fourth most mined metal on the planet, zinc. So solar and wind distributed microgrids, urban electric vehicles are all elements of a
renewable energy infrastructure. And batteries are their foundation. We've developed this battery, which has the energy of lithium ion, but is as cheap as lead acid and it's safer than both for both the people and the planet. We are honored to be a CalSEED awardee. And we'd like to thank the CEC, the EPIC Program, the California Energy Fund and the people of California for this award. Thank you very much.

CHAIR HOCHSCHILD: Thank you. Let's hear from Danny Kennedy CEO of New Energy Nexus.

MR. KENNEDY: Thank you very much Chairman and Commissioners. I'm so excited to be back, third year in a row, presenting the CalSEED Cohort Number 3. You (indiscernible) and thank you, Eleanor, for doing such a great job explaining who we've got this year and I just wanted to sort of make a few remarks about the process and how exciting this is.

     Firstly, to thank the staff, Anthony and Josh and Eleanor and others that have really made it happen better, smoother, faster this round. I feel like we're getting our machinery cranking here and finding and funding the fantastic entrepreneurs like EnZinc who are in the house from across the breadth and depth of the communities of California as is our mandate and charge. And you saw the geographic diversity. And I think we're getting better at
We've still got work to do on other measures and impacts across the community and greater diversity still. But I feel like the program is becoming more entrepreneurial and we're getting out there in the outreach phases. And I want to thank our staff at the California Clean Energy Fund/New Energy Nexus. Joy Larson who leads the program; Jane Marsh, one of our interns over the summer who's helped heaps to get the word out for next cohort solicitation as well and just build the system, so that we can do more of this better in the future.

Just to speak to the benefits I heard you, Chairman Hochschild, mention the newsworthiness of some of the decisions you've already made here today. And I believe this cohort of 25 great companies could also be newsworthy.

I think now, and we can work this number out for you for sure, we've reached into well over a dozen districts as elected officials in the state with seed company grants and programs and these entrepreneurs building businesses with this program. So that might be something to talk to in the future and make clearer how the legislative districts of California are benefitting from this program.

And then finally I wanted to make a special call out to the Technical Advisory Committee. You saw the crazy
kind of things we're dealing with. We've got Coreshell Technologies, which actually just to speak to synergies is one of the companies going through the CalCharge creator (phonetic) at Lawrence Berkeley National Lab. And I think they'll probably use some of their CalSEED grant, pays for some of that work by scientists in the National Lab Program.

But we've got things like that then we've got these new ways of doing photovoltaics and the full depth and breadth through the CalSEED Fund. To date we've recruited 70-ish volunteer Technical Advisory Committee members. I think for this cohort we called on 36 of them to do sort of deep due diligence with us and spend their time contributing to the state's program and efforts. And I really want to thank them as volunteers to the state and to the CalSEED fund program and allow us to build this program year-on-year and get it better and ensure that we're getting fantastic quality.

With that I want to thank you. And one thing for the record just to explain the name change California Clean Energy Fund Ventures is still your partner in this and the contracted grant manager for the CalSEED Fund. We've rebranded, globally as New Energy Nexus, because we're now doing similar work supporting startups in six markets including New York, China and elsewhere. Thank you.
CHAIR HOCHSCHILD: Thank you. That's a great name change like the artist formerly known as Prince.

(Laughter.) I just want to commend, Danny, and your whole team. I mean CalSEED is the right name. It does feel like we're throwing out all these seeds to these garden beds. And of course not everyone is going to be successful, but that is the nature of innovation.

And often, you know, it's the first grant right that these guys get and it makes all the difference. And you know getting that seal of approval and becoming part of this ecosystem of support and all the introductions you make are as important as the money I think. And I just think you and your team are doing an admirable job. So thank you for all that.

Now, Vice Chair, did you want to make a few remarks?

VICE CHAIR SCOTT: I did. So as Eleanor mentioned at the beginning of her thorough presentations, so I just wanted to bring it back to front of mind, this is the CalSEED is our small grant program under EPIC. And it provides the funding and resources to early stage technologies. And as you saw there, and as Mr. Kennedy mentioned, a great list of technologies to fund through the small grant program.

I think, also, I agree that this is an excellent
cohort and it is very exciting. The Energy Commission is funding the research and sparking the entrepreneurship that we need to help the state meet its transition to clean energy. And it really is kind of smartly and strategically investing, I think, in small grants to plant the seeds as you have noticed. And also in the funds that give the technologies and innovations all the way up to the other of the technology readiness pipeline, right, so that they're ready for the market. And we're actually going to hear about a couple of those later today too.

But I just wanted to highlight it is really exciting to see the innovation, the entrepreneurship sparking the creativity and putting these small grants out there, really planting the seeds for the things that may be the technologies that revolutionize how we get to our 2045 goals, 2050 goals and further on. So thanks to the team for a great job. Thank you for being here and I --

CHAIR HOCHSCHILD: I just have a few more comments before we think about it, but I do want to just reemphasize one thing we've done to help entrepreneurs, also as they go on to apply for bigger grants down the line, we have created a new ombudsman function. So Jennifer Martin-Gallardo in the back who's our Interim Public Adviser, but that's really what she's spending most of her time doing. Is calling all the recipients from our
Clean Transportation Program, from our EPIC Program and getting feedback on how the process went and what we can do to get better.

And her role is really to be an advocate for the recipients of Energy Commission grants to make our process as friction-free as it can possibly be. And that's going to be an ongoing function. And we're committed to do that. We're here to serve the entrepreneurs. And helping you get the word out that she's available, as a resource, is also really important.

And the other thing I wanted to say, just earlier before you arrived we were having a discussion about SB 100 and looking forward to what are the challenges. I do want to highlight the need for flexibility on the grid, as of next year we'll have 20 gigs of solar in California. And that ramps down we need to meet that need in a way that's clean. And so part of that's the demand response play, part of it's the protocols for EV charging and all the rest. But you think about those entrepreneurs in that space, particularly in (indiscernible).

And I'm also just generally really interested as we all are in threat reduction. It's great to see this one looking at reducing the risk of fires for example in batteries. Wonderful, I mean just thinking ahead about what the risks are. Fire is one of the main ones I worry
about in terms of setbacks for the clean energy economy.

So thanks for all you're doing.

Are there other comments? With that, let's entertain a motion.

VICE CHAIR SCOTT: I'll move approval of Item 11.

CHAIR HOCHSCHILD: Is there a second?

COMMISSIONER MONAHAN: I second.

CHAIR HOCHSCHILD: Second by Commissioner Monahan. All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: That motion passes unanimously. Congratulations.

CHAIR HOCHSCHILD: Let's move on to Item, where are we, 12 UniEnergy Technologies.

MR. TIAN: Good morning Chair, Wise Chair and Commissioners. My name is Qing Tian. I'm with the Energy Research and Development Division. Today we would like to ask for your approval for a new agreement for an energy storage technology demonstration and deployment. This is the last agreement from the BRIDGE Energy Storage solicitation. The other three awards have been approved in the June business meeting this year.

This new project will demonstrate alternative energy storage technologies to lithium ion batteries and (indiscernible) at 25 percent or higher scale up in
performance.

In this agreement the recipient UniEnergy Technologies will demonstrate an vanadium flow battery technology at Farm ACW's facility in Fallbrook, California. And the 1.4 megawatt and 5.6 megawatt hour energy storage system will be installed and tied into a pre-existing 7.5 behind-the-meter PV system.

And the integrated system will provide the required power for pumps and an irrigation system at 1,008 acre farm ranch that includes 150,000 avocado trees and produces 5 million pounds of fruit annually. And this farm ranch is also was located at the end of a long distribution feeder and has experienced a frequent wattage problem in the past.

This integrated system, while used primarily to improve the power quantity at the facility and also conduct big saving and time shifting use of the access solar energy produced at the site. During utility outage it can also allow the Farm ACW to (indiscernible) the facility and supply PV energy to support the load and operation at the facility.

So this project will demonstrate optimal use cases for large PV plus storage applications. And also while being leveraged to commercialize a flow battery technology and the integrated energy storage solution
throughout California.

With that staff would like to recommend approval of this new agreement with UET and also I want to thank you all for your time and consideration for this project. And I will be happy to answer any questions if you have any.

CHAIR HOCHSCHILD: Go ahead, did you want to say anything on the project? Is there any public comment on the item? Do you want to make any comments on this?

VICE CHAIR SCOTT: Yeah, I just -- and Qing said this is his excellent presentation, thank you -- highlight a couple of things from the briefing that both he and Mike Gravely gave me earlier. And one of the things about these new storage technologies is that they're going to be substantially cheaper. They'll be more reliable and they'll be safer.

And a few of the things I think are really great, which you said in your presentation, but I also wanted to highlight is about this particular project is that the size is unique. So it's a little bit bigger than we usually see. That this technology is going to have decent load shifting potential, which as you all know is going to be incredibly important as we continue adding renewables and the peak is changing. Sorry, I’m not being very articulate about that. But all of the things on the grid side that we need to worry about like having a decent load shifting
potential, I think is really a cool thing.

And the other interesting thing about this technology is it's modular and so that means it's repeatable, which is good for manufacturing. So if this is the one I was mentioning that's right close to getting ready to go out into the marketable sphere. So I think this is a great project. And if there aren't questions --

CHAIR HOCHSCHILD: So what is the chemistry? Is this vanadium?

MR. TIAN: Yeah, vanadium.

CHAIR HOCHSCHILD: Yeah, fantastic. And I think one of the other things that's really great about flow batteries is you don't get degradation over time. It just can hold the charge. So.

MR. TIAN: Right. So it's on the medium-duty cycle.

CHAIR HOCHSCHILD: Yeah.

COMMISSIONER MCALLISTER: Yeah. I mean, and I say flow batteries are cool also because they're highly useful, because they -- you can have them for more hours. You know, you can design capacity and sort of peak capacity in kilowatts separately from the energy storage. And so it really lets you customize the battery to different applications that may need more autonomy or less autonomy or more or less capacity. So it lets you kind of optimize
that investment. So hopefully --

CHAIR HOCHSCHILD: What's the round-trip efficiency, is it still about 80 percent?

MR. TIEN: Yeah, that's about right.

CHAIR HOCHSCHILD: Yeah. Okay. Great, fantastic. Any other comments?

VICE CHAIR SCOTT: Move approval of Item 12.

CHAIR HOCHSCHILD: Is there a second?

COMMISSIONER MCALLISTER: Aye.

CHAIR HOCHSCHILD: Seconded by Commissioner McAllister.

COMMISSIONER MCALLISTER: I did it again.

Seconded. (Laughter.)

CHAIR HOCHSCHILD: All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: That motion passes unanimously.

Let's move on to Item 13, Local Government Commission.

MR. TIAN: Thank you

CHAIR HOCHSCHILD: Thank you

MS. SALAZAR: Good afternoon, Commissioners. My name is Rachel Salazar. I also work in the Energy Research and Development Division. I am here seeking approval of a one-year agreement with Local Government Commission for the...
amount of 26,000 to procure the services of a CivicSpark Fellow that will assist staff. The Local Government Commission or LGC for short is the administrator for CivicSpark, which is the Governor's Initiative of the AmeriCorps Program for California. Fellows serve 11-month terms and are required to provide local governments with capacity building on issues related to climate action, affordable housing and other resiliency issues.

And this aligns really nicely with the Research Division's commitment to engage with local governments and community organizations to provide them with increased support and better access to emerging clean energy technologies.

The former will work with the Research Division and assist staff in engaging with local governments to identify local climate action goals and priority energy needs for various disadvantaged and low-income communities. And then this information will be used to inform future funding opportunities as well as resources that can better connect local governments with other stakeholders with similar interests in proposing projects down the line.

The Fellow will also work with at least one local government and will be working on activities such as gap assessments, research, planning and implementation of identified project activities. They may also engage with
volunteers for community support as necessary and finally
will perform knowledge transfer activities.

Staff is currently talking to the cities of Arvin
and Paramount to identify activities for the Fellow to work
on. Both of these jurisdictions are located in underserved
communities and need help in developing and implementing
their clean energy policies. With support from the local
government partners as well as the LGC the staff will be
overseeing these activities and provide guidance to a
Fellow during the duration of this agreement.

I thank you for your consideration and I welcome
any questions you may have

CHAIR HOCHSCHILD: Thanks so much.

Any public comment on this? If not we'll --

VICE CHAIR SCOTT: Yeah, I'll just note this is
another one that I am really excited about. I can't wait
to meet the new Fellow. And I appreciate the staff taking
the time to put the application together and then figure
out how to jump over some of the hurdles that were there to
really make this happen.

I think having a Fellow here, who's bringing the
word and work of what the Energy Commission does with the
Local Government Commission, because the local governments
are also as you all know incredibly important in helping us
with the climate planning, climate action, green energy
policies, all this. And so having someone who will be here for 11 months to undertake that is going to be fantastic.

I can't wait for her to start.

CHAIR HOCHSCHILD: And she will be in --

MS. SALAZAR: She will be working with us over in the Research and Development Division.

CHAIR HOCHSCHILD: Fantastic. Okay, terrific.

COMMISSIONER MCALLISTER: Yeah, I wanted to just thoroughly support this and also just give kudos to the LGC. And the Local Government Commission has been real instrumental in getting the CivicSpark Program up and sponsoring it and getting funding for it. And they have literally hundreds of these volunteers for the last four or five years or so. And I've worked with a few of them over those years and they are typically right out of college or right out of grad school.

They've got a lot of energy. They're totally into public service. They really want to go and hone their skills in an environment that gives them practical experience. And it's incredible what they do while they're there. They come with open minds and no silos and you know they can stitch together stuff that really helps move the ball forward.

And I've got to give this to Ken Alex (phonetic) as well, because he was pretty instrumental in starting the
program back in the day. And so it's really wonderful to have one here. And I just want to pile on with the local government angle. I mean that's where the rubber is on the road, moving all the time. And we have enabled them to do things more creatively, to do more with the resources because they're always understaffed and under resourced. And these CivicSpark volunteers or interns are just a great, great way to do that and create so much good will. And so just kudos to the staff for putting that together and to LGC for helping that program thrive.

CHAIR HOCHSCHILD: And Ken Alex recently emerged from hibernation and sent you and I a bunch of emails yesterday on stuff we need to do.

So I'll entertain a motion on this resolution for Item 13.

VICE CHAIR SCOTT: I move approval of Item 13.

CHAIR HOCHSCHILD: Is there a second?

COMMISSIONER MCALLISTER: I'll second.

CHAIR HOCHSCHILD: So all in favor?

(Ayes.)

CHAIR HOCHSCHILD: That motion passes unanimously.

Let's move on to Item 14, Department of Energy Lawrence Berkeley National Lab.

MR. CRISOSTOMO: Good morning, Commissioners. My
name is Noel Crisostomo, and I am an Air Pollution Specialist working on EV charging infrastructure in the Fuels and Transportation Division.

We request approval of a two-year, $400,000 contract with the U.S. Department of Energy’s Lawrence Berkeley National Laboratory to assess charging infrastructure needs for the electrification of California's medium and heavy-duty vehicle fleet.

As you know, conventional fossil fuel production, refining, and use in transportation accounts for 50 percent of California’s greenhouse gas emissions. In 2018, on-road heavy-duty trucks and buses accounted for less than 10 percent of the state’s greenhouse gas footprint, but emitted 28 percent of the state’s nitrogen oxide pollution and 23 percent of the state’s diesel particulate matter.

Therefore, transitioning this sector to zero emissions is critical to meet California’s near-term federal ambient air quality mandates and its goal for carbon neutrality by 2045. This agreement will develop new tools to project where and how many plug-in electric vehicle chargers the medium and heavy-duty fleet will need by 2030.

The findings of this work will support the Fuels and Transportation Division staff’s implementation of Assembly Bill 2127, which directs the Energy Commission to
expand its electric vehicle infrastructure projections to consider all necessary charging infrastructure including the chargers, make-ready electrical equipment and supporting hardware and software for all vehicle categories. Thus, under this agreement LBNL will be responsible for profiling regional heavy-duty electric charging demands, and will scope the analyses necessary to understand local grid impacts or necessary upgrades.

Staff scoped the work into two phases, with the first focused on the development of the Heavy Electric Vehicle Infrastructure Projection tool or HEVI-Pro for short. Then, HEVI-Pro will assist with analyzing smart charging load profiles and providing a framework for understanding grid upgrades. Our goal for LBNL is to draft these analyses by the late summer of 2020 in alignment with the requirement to complete the first biennial AB 2127 Assessment by the end of 2020.

Notably, staff will coordinate LBNL’s analyses closely with other researchers supporting AB 2127. For example our collaboration with the National Renewable Energy Laboratory to update the light-duty electric vehicle infrastructure projections first published in 2018 and the UC Davis research contract on innovative mobility services that was approved in July.

Finally, under this contract staff will organize...
workshops to ensure that the infrastructure analysis reflects public input and industry expertise.

Thank you for your consideration of this item. I am happy to answer any questions.

CHAIR HOCHSCHILD: Thank you.

Any public comment for this item? Let's move on to Commissioner discussion. Commissioner Monahan?

COMMISSIONER MONAHAN: I just want to say that I'm very excited about this whole project, actually the analysis of our EV charging infrastructure needs. And the opportunity for the CEC to really help lead the state in mapping out what we need to do to make sure that our infrastructure is ready for EVs that are coming in.

This project in particular, as Noel said the public health burden from diesel pollution is so high. What we're learning every day is that more and more can be electrified. And I am continuously surprised as somebody who's been in this space for over 20 years, how much opportunity there is on the heavy-duty side to electrify transportation.

Commissioner Scott and I were lucky enough to go to China earlier this year. And I went to Shenzhen as did the Chair to see firsthand the fact that they've electrified all of their 16,000 buses. They've electrified most of their taxies. And they have over 40,000 trucks
electrified -- over 40,000 in one city in China.

And as we map out what's possible here in California, I think we need to be more ambitious than we've been in the past about envisioning what an electrified heavy-duty system could look like. And this analysis will help support that. I'm super excited that we're here in California working on these issues and that we at the CEC are helping with our partner agencies figure out how to make electric transportation a reality here on the ground.

So thanks to the team and I strongly support this contract.

CHAIR HOCHSCHILD: Great. Is there a motion?

COMMISSIONER MONAHAH: I motion to approve Item 14.

CHAIR HOCHSCHILD: Commissioner Monahan moves approval. Is there a second?

VICE CHAIR SCOTT: Second.

CHAIR HOCHSCHILD: Second by Vice Chair Scott.

All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: That motion passes unanimously.

Let's move on to Item 15 DOE National Renewable Energy Lab.

MR. BRECHT: Good afternoon, Chair and
Commissioners. I'm Patrick Brecht with the Fuels and Transportation Division. I'm the Manager of our Division's contract with the U.S. Department of Energy National Renewable Energy Laboratory or NREL.

I'm here seeking approval of a $1.2 million contract augmentation along with a one-year contract term extension. Under this contract the Energy Commission and NREL developed the Electric Vehicle Infrastructure Projections tool, also known as EVI-Pro as results from EVI-Pro served as the bases for California's goal of having 250,000 EV chargers, including 10,000 direct current fast chargers by 2025. And will be integral in insuring sufficient infrastructure is available to support at least 5 million zero emission vehicles in California on California roads by 2030.

Assembly Bill 2127 of 2018 requires the Energy Commission to conduct a biannual statewide assessment of charging infrastructure throughout California. EVI-Pro will be a key part of analyzing and developing EV charging scenarios including estimates on the types and the number of chargers needed to achieve California's goals.

Since the initial rollout of EVI-Pro in 2018 staff has identified upgrades, updates and expansions that are needed to complete the inaugural charging infrastructure assessment by the end of 2020. This
augmentation will allow EVI-Pro to extend its analysis of charging needs out to 2030. And assess how the need of charging infrastructure is affected by factors such as travel survey data, vehicle and charging technology attributes, business models that enable shared charging as well as trends in vehicle automation and shared mobility.

In addition to supporting the expansion of EVI-Pro, this contract augmentation will allow NREL to collect and analyze historic growth and attrition trends of charging infrastructure. Based on the attrition rate of existing chargers, Energy Commission staff will be able to estimate additions and losses in California's electric vehicle charger population over time. These trends will help the Energy Commission track progress towards the state's EV charging goals.

The NREL analysis will be informed by other research being conducted mentioned earlier by UC Davis and US Department of Energy's Lawrence Berkeley National Laboratory.

In order to allow a time for these additional tasks staff is seeking a one-year contract term extension to March 31st, 2021. Approval of this item will assist the Clean Transportation Program's statewide planning for EV charging and increase the effectiveness of EV charging infrastructures' investments.
Thank you for your consideration of this item.
And I'll be happy to answer any questions.

CHAIR HOCHSCHILD: Thanks.

Seeing no public comments, Commissioner Monahan?

COMMISSIONER MONAHAN: Thanks, Patrick. I'll just reiterate that this tool -- we need to -- we're conducting this big experiment here in California where we don't know all the answers about where to place chargers, how many chargers, what level of number of these chargers or share needs to be fast charging, where do we place them, how do we accommodate new mobility services?

And all these analytical tools are just helping us refine what we know is cutting edge research into how we support this transition to electric transportation. And we don't have all the answers. We need a lot of analytical help, so that we can make our best guess about where and how to invest. So this is all just really helping us build out our team with analysis from across diverse research entities, so that we can do the best job possible on AB 2127.

CHAIR HOCHSCHILD: Great. Any other comments?

If not is there a motion?

COMMISSIONER MONAHAN: I move to approve Item 15.

CHAIR HOCHSCHILD: Is there a second?

VICE CHAIR SCOTT: Second.
CHAIR HOCHSCHILD: Seconded by Vice Chair Scott.

All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: That motion passes unanimously.

Let's move on to Item 16, school bus replacement for California public school districts.

MS. WILLIAMS: Good afternoon Chair, Vice Chair and Commissioners. I'm Sarah Williams with the Fuels and Transportation Division. Today, staff is requesting approval for Item 16, which consists of two grant agreements: one, with Chula Vista Elementary School District and one with Gateway Unified School District.

Under the Energy Commission's School Bus Replacement Program, public school districts, county offices of education and joint power authorities were eligible to apply for funding to replace their old diesel school buses with pollution-free electric busses. Priority was given to applicants based on three criteria: the oldest diesel school buses, school buses operating in disadvantaged communities, and schools that have a majority of students eligible for free or reduced price meals.

Last month staff presented the first 60 awards for the School Bus Replacement Program. Today, staff is presenting an additional two. We expect to bring two more...
agreements and some agreement adjustments to future business meetings. Chula Vista Elementary School District will be receiving 10 electric school buses and Gateway Unified School District will be receiving two electric school districts.

In addition, the schools will be awarded $60,000 per new electric school bus to provide the necessary charging infrastructure and to operate the electric school buses.

The benefits of these buses are many, because there's zero tailpipe emissions. The students riding the buses and the people in the communities they travel through are breathing cleaner air, which improves their overall health. The buses will help schools save money, because of lower maintenance and fuel costs.

With that, staff is seeking approval for Item 16 for two proposed resolutions approving 12 electric school buses. Staff is also recommending approval of staff's determination that both agreements noted are exempt from CEQA.

CHAIR HOCHSCHILD: Great, thanks. Any public comments on that?

Well, good. This is a landmark program. Last meeting was incredible and we got to go on the buses. And you know just it checks so many boxes. It's good for the
health of kids, it's good for our climate problem. Buses in particular are -- school buses are charging when we have surplus renewables on the grid and not having regionalization that is more important than ever. And we're now manufacturing buses in California. So it's just an incredible program.

I really want to thank Vice Chair Scott for her leadership early on in pushing to do this. It's become one of the coolest things. A lot of cool things, but this is really a feather in the cap, so good job.

Did you want to make a few comments on this?

VICE CHAIR SCOTT: No, I'll just echo what I had said last time. This is very exciting. It's great to get these school buses to the -- all electric school buses to the schools. And I'm ready for the buses to be manufactured and there right, so the kids can be riding on them right away.

I also really love -- I mentioned this last time -- the availability that we have to put the infrastructure component together with the school bus component to really help, I hope, make this as seamless as possible to make this transition. You know, in my head when all the kids came back to school the infrastructure was going to be in the ground and buses are just going to be there. I know it's going to take a little time, but it is very exciting.
CHAIR HOCHSCHILD: Fantastic.

Commissioner Monahan, do you want to add anything?

COMMISSIONER MONAHAN: Well, just to say I really love the fact too that these buses can give -- their batteries can give back to the grid, so kudos to Commissioner Scott and the team for this, because it really is a cutting edge. I mean we're like testing out with school districts the most sophisticated technology out there that has the potential to give money back to school districts, if we can figure out that value, that charge back at times that are particularly good for the grid and good for our renewables integration. So it's just a cool project all the way around.

CHAIR HOCHSCHILD: Fantastic. Can we entertain a motion on 16?

VICE CHAIR SCOTT: I will move approval of Item 16.

COMMISSIONER MONAHAN: I will second.

CHAIR HOCHSCHILD: All in favor say aye.

(Ayes.)

CHAIR HOCHSCHILD: That motion passes unanimously. Congratulations.

Let's move on to the minutes. Is there a motion to approve the minutes?
VICE CHAIR SCOTT: Move approval of the minutes.

COMMISSIONER MCALLISTER: Second.

CHAIR HOCHSCHILD: Second by Commissioner McAllister. All in favor say aye.

(Ayes.)

That passes unanimously.

Let's go to the Lead Commissioners Reports starting with Commissioner Monahan.

COMMISSIONER MONAHAN: Yeah. I wanted to say that we are close to the finish line on the Investment Plan for the Clean Transportation Program, which is great for all of us. It's been a really good process. Engaging the Disadvantaged Communities Advisory Group was super helpful. They actually when we had our Advisory Group Meeting, they came to the Advisory Group Meeting, provided testimony, sat at the table with the Advisory Committee.

And we are leaning more towards transportation electrification in this current -- and zero emission transportation in this current investment plan with the recognition that we have very aggressive state goals on decarbonization and electrification of transportation. We have some major barriers, especially on the infrastructure side. And we have this huge opportunity that technology is unlocking.

So we just closed public comment. And I haven't
actually heard what the public comments are. But what we heard at the meeting, I mean they gave us some good information about well maybe we should be thinking more carefully about whether we want to co-locate heavy-duty and light-duty refueling for hydrogen. What should we do with the Advisory Committee to make sure that we're attentive to the needs of disadvantaged communities and that we think about sort of re-envisioning what the Advisory Committee could look like? So that's going to be a process as well.

But we hope, at the September Business Meeting, you'll be seeing that Revised Investment Plan. That's our goal.

CHAIR HOCHSCHILD: Fantastic. Thanks.

COMMISSIONER MCALLISTER: Yeah, just a couple of things. I wanted to just talk a little bit about -- I'll just mention that the IEPR workshops that the Commissioner Scott is leading are really terrific. And those of you who've been on the dais for any of those really have seen that, but in particular recently we had the adaptation workshop, equity workshop. And I just wanted to commend Commissioner Scott for her leadership on keeping all the trains running on time and making sure that the content is there.

Let's see, I wanted to also just mention along the lines of Commissioner Monahan, we're working on the --
we have a work in progress, which is the California Energy Efficiency Strategic Plan or Action Plan Update. And we're sort of folding in SB 350 doubling, the AB 758 Existing Building Energy Efficiency and then also kind of getting a jump start on the AB 3232 Building Decarbonization Plan.

And so that platform of this report is kind of taking all of those things on at once. It just sort of made sense to do that. And I have to commend the staff, Michael Kenney and all the Efficiency Division staff who is working on this.

We did a bunch of workshops around the state, gathering a lot of stakeholder feedback and have really been collecting a lot of info on that. So the draft is done and will be out for comment relatively soon. And it'll be a work in progress for a little while, but hopefully we'll get that adopted sometime this year.

And finally I did make a trip, well I've made a couple of trips, to talk with OEMs, original equipment manufacturers, in HVAC and water heating, the water heating space. I went out to Atlanta to Rheem's global headquarters. And also visited Georgia Power, part of The Southern Company that you know is doing some amazing things on electrification. And it's really quite impressive.

Alabama Power also is a Southern Company subsidiary. They are building communities that are all
electric, that are passive house, some of them, that have
energy storage right there. And they are getting a whole
	on of data and figuring out how to operate those buildings
and how people like them, the behavioral aspects in their
context, even with flat rate 13 cents a kilowatt hour. No
increase in block rates. So they're figuring out ways to
make this work and help with their grid flexibility in a
completely different context, where they're very coal heavy
and it's not about decarbonization, it's about load factor.
It's about optimization of their grid.

So it's really interesting actually to look at
all the context of where these light bulbs are going on,
literally and figuratively, to serve the mother of
invention, right? Slightly different needs but then
invention is going to serve us well.

And then also Daikin, a Japanese company which
makes HVAC systems that are pretty advanced HVAC systems,
looking for a way to come into California. And again it's
going to help with our grid flexibility. It's electronic
controls, variable speed, just the kind of technology that
we want to help with our power grid management in real
time. And so you can kind of envision hundreds of
thousands of millions of units, from various companies.
Not to be picking winners, but that could be aggregated and
bid into the ISO capacity market or rather the day ahead
and they're even almost real time.

And so I think when we get to our Load Management Standards proceeding and we really involve in earnest a lot of these industrial actors, we'll be able to push out the kinds of technologies that we need. So that 10 years down the road, 5 years down the road, however long it is when we actually have sort of a rate regime that supports real time action we'll be able to automate a lot of that. And we'll be able to have some scale, like right out of the gate.

And so I think we have to be very intentional about planning for that starting now, so that when all the conditions come together, the planets align, we actually have all the elements in place to actually achieve success. And get that load manipulation, that load flexibility that we really need that's going to be part of our optimal path to get -- not only to make room for all this other electrical stuff. But also just optimally prime the business of electric utilities, which is going be a big deal for ratepayers.

I wanted to just also reiterate the welcome, I guess Secretary Batjer sits down tomorrow, actually at the PUC. But she has definitely wasted no time in getting around and talking to everybody and kind of seeing what she's gotten herself into. But she's kind of like the bureaucracy whisperer, in a way. So high hopes for her
kind of doing a very intentional -- I think intentional is
the word really that fits her well. And so certainly I
know all of us want to collaborate with her and help avoid
duplication, help make sure that we're really rowing
together and contributing our resources in ways that make
sense.

I know on the innovation, in that direction on
utilizing data for better decision making that go out she
was a real leader in that. And I have no doubt will
continue to be so. So I'm looking forward to working with
her and all the other Commissioners over there which are a
terrific bunch.

And then finally just again reminding folks about
the NASEO Annual Meeting, I think they've been in touch
with I think all of the Commissioners at this point. We're
looking for hopefully roles where we can work around the en
banc. And get you all down there to participate in the
panel, lead a panel. And really show California in all of
its sort of policy and wonk-ish glory to the other states,
so all the 50 states and 6 territories will have their
energy officers, and a lot of stakeholder groups and
service providers down in Manhattan Beach on September 16th
to 18th.

And so I get to host that meeting and really just
am trying to ensure that it has a rich substrate for really
good discussions and networking among all the actors here. And people are just -- every day we get calls, I get calls, I'm sure you all do too. "What are you doing on this? What are you doing on that?" Well, this is the place where that is the whole topic of the conference for three days. And it's a national conference. It's not all about California, but we certainly want to give it that California flair. And contribute to the discussion in a substantive way the way we know we can. And Manhattan Beach is easy to get to, right next to LAX. And we're hopefully going to have some Hollywood flair in one form or another in there and take advantage of the Southern California location to give people a good time as well.

So anyway --

CHAIR HOCHSCHILD: If you can get Hollywood Town at the National Association of State Energy Officials, that is an impressive (indecipherable).

COMMISSIONER MCALLISTER: Remarkably there's a pretty significant community of the actor class and the Hollywood class that is really dedicated to the environment.

CHAIR HOCHSCHILD: That's good.

COMMISSIONER MCALLISTER: And they -- it's kind of right up their alley. Former Governor Schwarzenegger
and some of the actors really are interested.

CHAIR HOCHSCHILD: No. You know, Commissioner McAllister, I really just want to commend you for the leadership. You're chairing this group. And it's (indecipherable) spend a lot of your time and just really that's tremendous. The engagement of the other states is half of what we to be doing. So thank you for --

COMMISSIONER McALLISTER: Well, I really appreciate that. Because I feel like so we're a huge economy and a big state and we're doing this less. But historically we've navel gazed a little bit, right? And we've sort of we're our own ecosystem and we haven't looked outwardly as much as we might have.

And there's incredible stuff going on in other states on financing. And climate change is actually coming back into the discussion even in red states, where sort of it was kind of dead there for a while. But it's actually there's a lot of alignment and people I think really appreciate having California in the room. As long as we're pushing the pieces of the agenda that are common to all the states. They don't want a bull in the china shop. They want collaboration. They want true collaboration.

And that's what NASEO sets up and gives them. That's why I'm involved with the organization, because it's a real positive can do. It's a small group of staff but
they work very well with DOE. They have great
relationships on Capitol Hill. They do briefings and they
just strategically bring in the right state energy official
at the right moment to talk about the right topic. And it
just adds a huge amount of value.

They're also sponsoring the jobs report, the
Energy Jobs Report. So they've taken that over when DOE
disowned it at the transition into the Trump
Administration. And NASEO picked it up, because they saw
the value.

CHAIR HOCHSCHILD: You know, on this topic of the
engagement of the states one thing to think about, we are
in addition to NASEO we are also a member of the Clean
Energy States Alliance, which is 17 states. We meet
regularly. We send an Energy Commission rep. It's been
Natalie Lee, in the past, to that. And they do case
studies of policies. They'll do like an in-depth study of
it to distribute to all their members.

So if you have a policy, Commissioner Scott if
you're thinking about the CalSEED program or something else
we want to highlight, or some strategy we're doing on
efficiency or clean transportation that is worthy of a case
study that we want distributed to the other states, that's
a great vehicle to use. And we don't have to pay for that.
They just do it. We pay an annual membership fee and it's
a nice thing. We did it I think on our New Solar Homes Program and maybe at least one other policy.

Go ahead, yeah, Commissioner Scott.

VICE CHAIR SCOTT: All righty. Let's see, so a couple of things to report to you all. I had the opportunity to give a key note at the UC Davis Industrial Energy Efficiency Symposium. And that was actually really great. It was a nice opportunity to highlight the Energy Commission's research programs, the PIER Natural Gas, EPIC and also the Food Production Investment Program, which there were many folks in the room. This was kind of the symposium that Davis had brought together and had folks from UC Davis. It had folks from the University of Houston, representatives of course from state and other regulatory agencies, the utilities, the environmental community and a lot of the industrial sector as well.

And a lot of this is a little bit wonky. It's waste to heat recovery and things like that. It's forward osmosis to use less water when you're concentrating foods and things like that. But it was great to kind of have a chance to get together with the folks and brainstorm some things. There were people in the audience who have been funded by Energy Commission programs. And then it's nice to have people who are forward leaning. They want to be on
the cutting edge. And they're looking for ways to use less water, less energy in their processes.

And as you all know the industrial sector is a huge component of California's economy. So figuring out how we kind of keep moving together is really important. So I was pleased to have a chance to do that.

Commissioner McAllister has already mentioned our Integrated Energy Policy Report. That's going strong. We had a climate adaptation workshop, which was very interesting I thought. We were joined by Commissioner Randolph from the PUC, so it's great to have some cross-pollination there.

We did one also on advancing energy equity where we had an opportunity to really go through, although it was very quick, very high level, very brief, all of the accomplishments that the state has made since SB 350 was enacted. And while there is still a ton to do, we have actually made a lot of really great progress on a lot of the issues that we identified as key things to address.

I was pleased to be joined by our partners, Richard Corey from the California Air Resources Board and then also Commissioners Shiroma, Rechtschaffen and Guzman-Aceves from the Public Utilities Commission. Again, this is something where our agencies collaborate well, lots of
cross-pollination. So it was delightful to have them up here on the dais with all of us.

We also have done our preliminary transportation demand. We can't forget the bread and butter of the IEPR. And so getting some of that information together to see where the team is looking at preliminarily. And then of course we'll have an updated demand forecast coming soon.

So that was very good as well. So a lot of IEPR goings on. I think we have maybe two or three workshops and then stay tuned for lots of delightful drafts to read.

I also just wanted to introduce, I have here a new intern, she just started last Monday, Alejandra Hormaza. Are you out there? Yeah, there you are. And she is a -- well she just finished up her master's degree at UC Irvine in mechanical engineering. She's on her way to a PhD. And she's going to dig in to some key issues for us while she's here on my team. So welcome. Glad to have you. And she's sitting next to my two also terrific interns who I introduced to you I believe last month.

That is me.

CHAIR HOCHSCHILD: Great, thank you so much. And welcome to all of you. And we want to give you, all of our interns a great experience while you're here. And I know any of us at the Commission level are always happy to do a meet and greet if you want to visit and deputies too. I
really think having mentors is really key. I know some of
the early internships I did in organizations changed my
whole career trajectory. So it's great to have you here
and happy to welcome of you.

And when we close today we -- I would like to ask
all my colleagues that we take a picture with our celebrity
intern, Isabella, as soon as we're done here.

A couple of highlights of mine, I just really
want to thank Commissioner Monahan for a great public
workshop and visit with all the transportation
stakeholders. I was there for two hours of it. I was able
to join you and I just thought it was really well run. And
great to hear not just everyone's perspective, but have the
stakeholders hear from each other and hear the rational for
the direction we're going. And to have that kind of
exchange, I just thought you did a spectacular job. So
thank you for your work on that.

I've been spending a lot of time on HR stuff. We
basically had five key positions that I've been engaged
with and actually I think we're five for five on that. So
that feels really good as of yesterday.

And also the military, we have about 100 and
something generals, admirals in town today. I met with
General Connolly from the Marine Corps, our new Marine
Corps Director. Basically, 85 percent of the Marine Corp's
assets are in California. About a third of the US Navy's assets are in California. It's an incredible footprint. We're the number one state in terms of DOD investment, 30 bases in the state. Commissioner Scott and I have traveled to a ton of them, yeah. And the relationship between us as an agency and us as a state has been really good.

    The big issue we're dealing with right now is offshore wind. And there's a very big negotiation that I’m going to go to on the 21st, down in San Luis Obispo. Well, unfortunately I'll miss the big million solar earth's dedication (phonetic) we've been planning with the Governor on that date. But this is a really key moment for us, while Commissioner Douglas is on travel.

    So I also just wanted to say congratulations to Michael Picker on a long and productive stint in state government. He has worn many hats. I just read this book on the history of the Brown Administration and learned that his first job was in the mailroom in the early Brown campaign and from that to the Governor's Office and many other hats and most recently with the PUC, so thanks and congratulations to him.

    I also just have stepped down as the Chair of the Board of Veloz, which is an organization that Vice Chair Scott was instrumental in starting a couple of years ago. I'm very, very pleased at the progress we made. We got a
fantastic board going. We raised a good chunk of money and we've not gotten 10 million views on the Schwarzenegger kicking gas video, which I've shown everywhere including to a lot of these generals yesterday which was a lot of fun. I've shown it at multiple conferences and it's still going viral. We did 37 billboards in Los Angeles, San Francisco, Sacramento, Davis, Bakersfield and Stockton, which that (indiscernible) is just coming down there. It was a one month fight, but I'm really pleased with that. And Caroline Choi from Edison is taking over. I'll still be on the Advisory Council, but she's terrific and we're in great hands. And then the final thing is we're doing this en banc. Commissioner Scott and I worked together on an early draft of that. We took a lot of feedback from the ISO and PUC. And I'll be releasing that notice this week for September 17th. But we have two new Commissioners at the PUC now, two new ones at the ISO and of course Commissioner Monahan joining us. And it's really a chance to get all of us together.

This is not a one-off. I want to be doing this regularly, because all these issues cross sector. We just need to make sure we're communicating well and building the relationships. So this is going to be an all-day function really from 10:00 to 4:30 is what we've budgeted it at the
John Burton Hearing Room in the State Senate. And thanks for Barry Steinhart for his help in getting that locked in and to Vice Chair Scott for her help in the early preparation of the agenda and the staff.

I think that was it for me. So with that, unless there's other comments we'll do a photo and this meeting's adjourned.

Oh, I'm sorry. Whoops, yeah we have a few more things including public comments. Sorry, a little eager to get out of here.

Let's go to the Executive Director's Report.

MR. BOHAN: Thanks, I'll be brief. I just have one item. It's the next installment in our unsung heroes series. And I want to acknowledge Zach Dextraze. Zach, stand up if you could. And it just so happens we have Zach reports to Adrienne Winuk who reports to Rob Cook, who reports to me, who reports to you. So we've got the whole line here.

Zach's got a great story. He started with us in 2014 as a student. And we've been very, very successful with turning students into staff and in this case to a really, really excellent one. So Zach is in Contracts, Grants and Loans. And he's particularly an expert on our FI$Cal and the crossover between the accounting part of FI$Cal and the contracts, grants and loans part.
And I just wanted to read one quick quote. This gentleman wrote in, a grant recipient, and said, "Zach's knowledge of the CEC procedures and it's proactive role in communicating with the project manager, and if necessary others, has helped move the process forward and avoid the invoices sitting unprocessed." And it goes on.

You know we get contact from a lot of folks. And generally speaking it's when there's a problem and something isn't going well. So it's unusual that someone reaches out and acknowledges one of our staff and says, "You know, thanks a lot for doing a great job."

So I just wanted to acknowledge staff and put a face to a name. (Applause.)

CHAIR HOCHSCHILD: Great, thank you.

CHAIR HOCHSCHILD: Public Adviser's Report?

MS. MARTIN-GALLARDO: I'll be brief as well. I think that my report speaks well into the kudos we had for Zach just a moment ago.

I wanted to report that I have concluded my calls to the transportation grantees. And I am in the process of creating a report for you and we'll be meeting with the people that we have designated within the Energy Commission to discuss how we move forward to reduce those friction points. And we'll be having that meeting at the end of this month or beginning of next month.
Beginning next week, I'll be reaching out to the EPIC grant recipients, so that we can begin those phone calls.

And I'll say in the interim it's been very rewarding to both work with the grant recipients and also to work with staff on how we can relieve some of those friction points. And I'm encouraged by all of the great communication collaboration that staff is having and the willingness to work through all of the issues that are in front of us.

CHAIR HOCHSCHILD: Great. Well thanks so much. You're doing a great job.

Any further public comment? Hearing none, let's go to Chief Counsel's Report.

MR. WARD: No report. Thank you.

CHAIR HOCHSCHILD: Okay. This meeting is adjourned. Thank you.

(Adjourned the Business Meeting for closed session at 12:48 p.m.)

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REPORTER'S CERTIFICATE

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 23rd day of August, 2019.

PETER PETTY
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Notary Public
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IN WITNESS WHEREOF, I have hereunto set my hand this 23rd day of August, 2019.

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Myra Severtson
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