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BUSINESS MEETING
BEFORE THE
CALIFORNIA ENERGY COMMISSION

In the Matter of: )
)21-BUSMTG-01
Business Meeting )
______________________________ )

REMOTE ACCESS ONLY

Public comment is accepted solely through the Zoom platform.

The California Energy Commission’s (CEC) November 15, 2021 Business Meeting will be held remotely, consistent with Assembly Bill 361 (Rivas, Chapter 165, Statutes of 2021) to improve and enhance public access to state meetings during the COVID-19 pandemic and future emergencies by allowing broader access through teleconferencing options. The public can participate in the business meeting consistent with the direction provided below.

Please note that the CEC aims to begin promptly at the start time and the end time is an estimate based on the agenda proposed. The business meeting may end sooner or later than the time indicated depending on various factors.

Pursuant to California Code of Regulations Title 20 section 1104(e), any person may make oral comment on any agenda item. To ensure the orderly conduct of business, such comments will be limited to three minutes or less per person. Any person wishing to comment on information items or reports (non-voting items) shall speak during the general public comment portion of the meeting and have three minutes or less to address all remaining comments.

MONDAY, NOVEMBER 15, 2021
10:00 A.M.

Reported by:
Peter Petty
APPEARANCES

Commissioners (Via Remote)

David Hochschild, Chair
Siva Gunda, Vice Chair
Karen Douglas
Andrew McAllister
Patricia Monahan

Staff Present: (Via Remote)

Drew Bohan, Executive Director
Linda Barrera, Chief Counsel
Noemi Gallardo, Public Advisor
Carousel Gore, Equal Employment Opportunity Officer

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iii. Interlink Products International, Inc. v. Xavier Becerra, Drew Bohan, Melissa Rae King (United States District Court for the Eastern District of California, Case No. 2:20-cv-02283)

b. Pursuant to Government Code, section 11126, subdivisions (a) and (e), the CEC 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 constitute a significant exposure to litigation against the CEC, which might include personnel matters.

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PROCEDINGS

NOVEMBER 15, 2021 10:02 a.m.

(Start of Introductory Video.)

MS. MURIMI: Welcome to the California Energy Commission's Business Meeting.

Zoom's closed captioning feature has been enabled to make Energy Commission business meetings more accessible. Attendees can use this feature by clicking on the "Live Transcript" icon and then selecting either "Show Subtitle" or "View Full Transcript." Closed captioning can be stopped by closing out of the live transcript or selecting "Hide Subtitle." Those participating solely by phone do not have the option for closed captioning.

The Energy Commission will continue to post the transcript of this Business Meeting rendered by a professional court reporter in the docket system and on the Business Meeting webpage.

Consistent with Assembly Bill 361, today's business meeting is being held remotely through Zoom to improve and enhance public access to state meetings during the COVID-19 pandemic. The public can participate in the Business Meeting consistent with the instruction for remote participation found in the notice of this meeting, and as set forth in the agenda posted to the Energy Commission's website.
Pursuant to California Code of Regulations Title 20 section 1104(e) any person may make oral comments on any agenda item. Once the public comment period begins if you'd like to speak, please raise your hand by clicking on the "Raise Hand" icon at the bottom of your screen.

Please note that if Zoom were to shut down, we would switch to the Verizon phone line at (888)823-5065. The pass code is "Business meeting." Public comment would then be accepted through Verizon.

To ensure the orderly and fair conduct of business, public comments will be limited to three minutes or less per person for each agenda item voted on today. Any person wishing to comment on the information items or reports, which are non-voting items, shall reserve their comment for the general public comment portion of the meeting. And shall have a total of three minutes or less to state all remaining comments.

If you're joining by phone press *9 to raise your hand and *6 to unmute. After the Public Advisor calls on you to speak, spell your name, and state your affiliation if any.

Welcome to the California Energy Commission's Business Meeting. The meeting will now begin.

(End of Introductory Video.)

CHAIR HOCHSCHILD: Well, good morning friends and
welcome. I'm David Hochschild, and welcome to our November 15 business Meeting.

Chief Counsel's Office has asked that I be explicit about the other Commissioners in attendance to ensure a quorum. So joining me today are Vice Chair Gunda, Commissioner Douglas, Commissioner McAllister and Commissioner Monahan. We have a quorum, so we'll proceed with this Business Meeting by having Commissioner Douglas lead us in the Pledge of Allegiance.

COMMISSIONER DOUGLAS: All right, well good morning.

(Whereupon the Pledge of Allegiance was recited.)

CHAIR HOCHSCHILD: Thank you, Commissioner.

I do want to highlight an exciting event that we have coming up, which is our second annual Clean Energy Hall of Fame Award ceremony. I want to thank Noemi and all the others who've been involved in making this happen, and our whole advisory committee and selection committee involved in that.

We're going to be honoring six winners, who are contributing to building clean energy future here in California. They include a Lifetime Achievement Award for Dr. Peter Lehman, the Founding Director of the Schatz Energy Center, which has been doing really path-breaking work for a number of years.
For our Youth Game Changer Award, we're awarding it to Communities for a Better Environment's Youth for Environmental Justice.

And our Clean Energy Champion Award winners include Eddie Ahn, the Executive Director of Brightline Defense; Nicole Capretz, Founder and Executive Director of the Climate Action Campaign; Mutual Housing of California and Abigail Solis, Manager of Sustainable Energy Solutions at Self-Help Enterprises.

To register for the event, the link is in the Zoom chat.

And I'm also happy to announce that at today's Commission meeting we're going to be approving nearly 8 million in investments during this business meeting as well over a billion dollars in our plan for the Clean Transportation Program.

So with that let's turn to Item 1, Consent Calendar. Do we have any public comments on this, Noemi?

MS. GALLARDO: This is Noemi Gallardo, the Public Advisor. If anyone is interested in making public comment, please use the raise hand feature on Zoom. If you're on the phone press *9.

I do not see any hands, Chair. You may proceed.

CHAIR HOCHSCHILD: Okay, unless there's Commissioner discussion, Commissioner Douglas, would you be
willing to move the item? (Brief pause.)

COMMISSIONER DOUGLAS: Sorry, I move the Consent Calendar.

CHAIR HOCHSCHILD: Okay, Vice Chair Gunda, would you be willing to second that?

VICE CHAIR GUNDA: I second Item 1.

CHAIR HOCHSCHILD: All in favor, Commissioner Douglas?

COMMISSIONER DOUGLAS: Aye.

CHAIR HOCHSCHILD: Vice Chair Gunda?

VICE CHAIR GUNDA: Aye.

CHAIR HOCHSCHILD: Commissioner Monahan?

COMMISSIONER MONAHAH: Aye.

CHAIR HOCHSCHILD: And Commissioner McAllister?

COMMISSIONER MCALLISTER: Aye.

CHAIR HOCHSCHILD: And I vote aye as well. Item 1 passes unanimously.

Let's turn to Item 2, Water Conservation and Efficiency Update.

MR. JOHNSON: Good morning Chair, Vice Chair, and Commissioners. My name is David Johnson, and I am a Mechanical Engineer in the Appliances Office in the Efficiency Division.

Today, I will provide an informational update on the Efficiency Division’s efforts on water conservation and
efficiency. Next slide, please.

There are numerous state agencies with regulatory authority related to water, including but not limited to the Department of Water Resources, the State Water Resources Control Board, and the Department of Housing and Community Development.

The California Energy Commission has an exclusive authority to adopt appliance efficiency standards to promote the efficient use of both energy and water. The CEC adopted California’s first appliance efficiency standard in 1977 and has adopted numerous standards since then.

These water appliance efficiency standards benefit California by conserving water by eliminating wasteful water use, and hence making more water available for uses Californians value. For example, enjoying our numerous beautiful reservoirs, creating a gorgeous garden with California native plants, or growing delicious fruits and vegetables.

There are also energy savings associated with the water savings. It takes a lot of energy to move water around the state, and the California State Water Project is in fact the largest single consumer of electricity in California. Additionally, in cases where we are reducing hot water use, we are also saving the electricity or
natural gas used to heat that water up.

Importantly, these water savings will be achieved while reducing the overall cost for consumers. Hence, water appliance efficiency standards provide multiple benefits to California with few or no downsides. This is a tool we should leverage, especially given the current drought situation. Next slide?

This has been an unprecedented drought year. On August 5th, the Edward Hyatt Power Plant at Lake Oroville was forced to shut down due to low water levels for the first time since it opened in 1967.

On August 16, a first-ever “Level 1” water shortage was declared for Lake Mead on the Colorado River. If the water levels continue dropping, which is predicted by the U.S. Bureau of Reclamation, Southern California’s water allocations will be reduced.

As of October 19, more than 87 percent of California was either in extreme or exceptional drought. And on the same day, Governor Newsom declared a statewide drought emergency.

Water Year 2021 was the driest since 1924 based on statewide precipitation. And if we look ahead, there is no reason to believe that the situation will get better by itself. Next slide, please.

Forecasts from the National Oceanic and
Atmospheric Administration predict La Niña climate conditions for the second winter in a row, and that drought conditions will continue or worsen for most of California this winter. Long-term weather conditions are notoriously difficult to predict, but NOAA also states that it will take several seasons of above-average precipitation to replenish our reservoirs, rivers, and soil moisture. This current drought will hence very likely last well into 2022, and potentially beyond.

Regardless of the length of the current drought, recent research indicates that anthropogenic warming has increased drought risk in California. On the right, you see three graphs showing the variations of the Palmer Modified Drought Index, precipitation, and temperature in California from 1894 to 2014. As expected, low precipitation is a precondition for droughts.

The likelihood for drought conditions are significantly increased however, when dry and warm conditions are co-occurring. We have seen a dramatic increase in the average temperatures over the last few decades. With additional global warming, it is going to be virtually guaranteed that years of low precipitation is accompanied with historically warm conditions, making droughts more probable. Hence, we should both expect and prepare for more frequent and more severe droughts.
Water efficiency is a powerful tool for conserving California’s precious water. And I will now give an overview of CEC’s historical, ongoing, and future water efficiency efforts. Next slide.

This graphic shows the total water usage of showerheads, faucets, toilets, and urinals in California from 1970 to 2013. The blue line shows the estimated actual usage as a result of water efficiency regulations, whereas the red line shows the estimated usage without regulations.

In 2013, the savings from water efficiency regulations on these four products equaled 684 billion gallons per year. To put that number in perspective, the average human water use in California between 2011 and 2015 was 13.6 trillion gallons per year. The average indoor residential water use over the same period was 854 billion gallons per year. Hence, while water efficiency standards by itself is not going to solve all of California’s water issues, it is an important and significant tool in our toolbox.

As an example of the impact of water efficiency standards, and as seen in this graphic, it is remarkable that while the population of California has doubled from 1970 to now, the total water usage of showerheads, faucets, toilets, and urinals has decreased.
The CEC is not done leveraging water efficiency, and the green arrow indicates the additional savings, which gradually will be achieved from regulations adopted in 2015. Next slide.

At the height of the 2012-2016 drought, the CEC updated the Title 20 plumbing standards. First, the standards for toilets, faucets, and urinals were lowered, and at full stock turnover, this will provide 87 billion gallons a year (Bgal/yr) in water savings.

Later in 2015, the CEC adopted a tiered standard for showerheads, which ultimately set the standard for showerheads to 1.8 gallons per minute in 2018. At full stock turnover, this represents 38 Bgal/yr in water savings.

As was seen on the previous slide, urban residential water use is roughly split equally between indoor and outdoor applications. After having addressed the appliances with the largest water consumption indoors and acknowledging that the water use of clothes washers and dishwashers is federally regulated, the Appliances Office turned its focus towards outdoor water use. Next slide.

Landscape irrigation systems are often quite wasteful.

As indicated in the schematic on the left, water is wasted through evaporation, runoff, and deep
percolation. Deep percolation happens when too much water is applied too fast, and the grass or plant is oversaturated with water. The CEC has addressed parts of this waste through two rulemakings.

In 2019, the CEC adopted standards for spray sprinkler bodies requiring spray sprinkler bodies to have pressure regulation and hence addressing the issue of excessive water pressure and resulting excessive flow rate.

As shown in the schematic in the middle, addressing excessive application flow rates lead to significant savings, and at full stock turnover, this standard is estimated to save California 152 Bgal/yr.

Standards on landscape irrigation controllers address the issue of excessive application time. There is no need irrigate during rain, and one can irrigate less when the temperature is 80 degrees Fahrenheit compared to 105 degrees Fahrenheit. The standard would require all landscape irrigation controllers used in residential or light-commercial applications to either be weather-based irrigation controllers or soil moisture-based irrigation controllers. In short, irrigation controllers will become a lot smarter, and as a result at full stock turnover, California is estimated to save 92 Bgal/yr. This is an ongoing rulemaking and we hope to have the regulations adopted in 2022. Next slide.
Combined these recent standards are estimated to save 369 Bgal/yr at full stock turnover. This is equivalent to conserving slightly more than a full Folsom Lake, filled to its maximum capacity, each year. This is praiseworthy, but we are now in a new drought emergency and we need to conserve all the water we can. Next slide.

In addition to the ongoing rulemaking on landscape irrigation controllers, the CEC approved the order instituting rulemaking on dipper wells at the October business meeting.

We hope to open multiple additional rulemakings on water efficiency standards in the months and years ahead. When looking for new opportunities for water efficiency standards, the CEC will consider water uses within the residential, commercial and industrial, and agriculture sectors. As seen in the table to the right, future water efficiency standards might potentially include updates to current Title 20 regulations, standards addressing behind-the-meter leaks, appliances used in the commercial sector, or water use in the agriculture sector.

In particular, water use in the agriculture sector is massive. The CEC can utilize its Title 20 authority to reduce unnecessary water consumption without affecting what farmers can grow or how they can grow it.

If the CEC can identify appliances used within the
agriculture sector suitable for water efficiency standards, it will be a good thing both for farmers and for California generally. In short, the CEC will target any water saving opportunity within our Title 20 authority, which provides significant water savings and are cost-effective and technically feasible.

And with that, I conclude my presentation and I am available to answer any questions you may have.

CHAIR HOCHSCHILD: Thank you for that terrific overview. I was just curious do we know -- you know, with energy use we're using about a third less energy than the rest United States. On water use per capita, do you know how we stack up against the rest of the country or the national average?

MR. JOHNSON: In terms of embedded energy (indiscernible)?

CHAIR HOCHSCHILD: No, just sorry, I was just asking like water use per capita in California versus the rest of the country.

MR. JOHNSON: Oh, I'm not quite sure. And obviously that depends also if we're splitting between indoor water use, outdoor water use, residential use in general and then urban and industrial. And I don't have quite those numbers, but I can get those to you compared to the other states.
CHAIR HOCHSCHILD: Okay, well a terrific overview, really encouraged see it.
Let me just open it up if there's other Commissioners wishing to ask a question or make a comment.

Commissioner McAllister?

COMMISSIONER McALLISTER: Just a quick comment, I just want to acknowledge David for your leadership. I mean, you haven't been at the Commission that long, but you're making a big impact on a lot of leadership and I just really appreciate that. And kind of bringing some fresh eyes and building some tools and helping us find the right priorities and identify the savings opportunities. And, you know, I think the fact that you're articulate came across just now on your presentation, but also on the background research and just kind of the overall narrative is just really relevant for where California is these days. And we can't let the foot off the accelerator. We've got to keep looking for savings.

The other thing I would say just by way of observation, you know that big pie chart does show that agriculture is kind of the big piece of it, right. But we also have to take into account the infrastructure costs for local water districts and kind of the impact that that growth in water consumption has for driving long-term investment for those districts. And so I think that there
are lots of reasons why sort of right-sizing water consumption and getting it as low as reasonably possible also helps the water districts right size their long-term investment plans.

And as we know, just like with energy the water not used is it makes all the rest of our problems smaller. So I want to just -- that's why we have this authority that applies to water as well. There's energy embedded there, but it's independently a great source of improving California as well.

So anyway that's I just want to make those comments and give -- also, you know, Jessica, she presented the dipper wells last -- well two business meetings ago. And I think we just have a great team, including David and the whole team on the water efficiency, also Sean as well. So I wanted to just highlight those the staff and their really wonderful work, so thanks.

CHAIR HOCHSCHILD: Thank you.

Commissioner Monahan?

COMMISSIONER MONAHAN: Well, I want to thank David as well. That was really fascinating and I think this drought is top of mind for all of us in California. And I think having regular briefings actually on this topic, it could be helpful for business meetings. It's just such a critical issue and learning about the
opportunities, I think will just be great for all the Commissioners.

I'm wondering, David, can you talk a bit about the ag sector, this 80 plus percent, and how it intersects with other agencies that are involved with ag?

MR. JOHNSON: Yeah, so the agriculture sector, it uses a lot of water. And the last drought initiated then Governor Brown to have some regulations. And the most significant change there is the sustainable groundwater Management Act, which is under DWR, our Department of Water Resources.

And so in drought in the agriculture sector when there is not enough water and they don't get enough water deliveries they typically resort to run water pumping and they compensate using that. But then over the last few decades our groundwater levels have decreased, and that Sustainable Groundwater Management Act is aiming to create sort of a sustainable management of our groundwater. So that's going to be a significant part in that agriculture sector.

COMMISSIONER MONAHAN: Yeah, I actually meant the CDFA and our partner agencies, and how we're all working collaboratively on this issue.

MR. JOHNSON: Yeah, no we're interacting with them. And obviously we have different ways of encouraging
water conservation. Some of them are carrots and there are a lot of very good programs to incentivize and help farmers to utilize the most effective technology and it's complicated, right? And it varies from farms to farms, a lot of this is local technical assistance. And we are trying to find the ways where we can help using our authority. So, for example with Title 20 it is maybe identifying products where there are a bit more efficient products on the market and also less efficient.

So one is, for example, emitters for drip systems. So ensuring that you're applying a uniform distribution of water to your field, because if it's not uniform, then you need to apply as much water, so that the section of your field that gets the least water gets enough water. But then you're applying too much water to other parts of the field, which might not help your crop yield.

So that's an example where the CEC can interact and work with other agencies and in sort of a combined effort plan.

COMMISSIONER MONAHAN: Thank you.

CHAIR HOCHSCHILD: Any other Commissioners wishing to make comments on this? Vice Chair Gunda, please.

VICE CHAIR GUNDA: Thank you, Chair. I just wanted to echo the other Commissioner and yours' comments.
I just wanted to say thank you to David. It's an important issue. And I also want to second Commissioner Monahan's recommendation on just tackling this on a regular basis. I think it will be really helpful.

Thank you, David, I think the question that the Chair raised about the per capita comparison between the United State at large and us, and then also we know like Australia has done a lot of work on drought. And I think any international lessons that we could continue to learn would be really helpful too.

So I just wanted to say thank you and yeah it would be great to continue to track this.

CHAIR HOCHSCHILD: Thank you.

Yeah, I would second that having visited both Israel and Australia over the last few years that we're way, way behind those two countries, which I think are the undisputed leaders in the world on this stuff.

And I just really wanted to urge us all to be really bold and ambitious here. And I think we should go into this next decade assuming the worst case scenario of an extended drought. Obviously, Australia had a 14-year drought and that's certainly something we should be expecting. If we end up getting lucky with a bunch of rain that's an upside, but I think the smart thing to do is to assume the worst case scenario. And to be really
aggressive on the standard.

So please keep us posted, David, and to you and your team on the next steps. And we want to be moving as expeditiously as we can with rolling out the next wave of these standards. The last set of standards, I think were a big success. And we did that I believe under Governor Brown's leadership and we had a whole suite of those water standards all at once a few years ago. And I think that was really well received. So thank you so much for that and unless there's other comments or questions we'll move on. Thank you, David.

So let's turn now to Item 3 Expansion, Reorganization and the Renaming of the Public Advisor's Office and the revision to the CEC Tribal Consultation Policy.

MS. GALLARDO: Good morning Chair, Vice Chair and Commissioners. For the record, I’m Noemi Gallardo, the Public Advisor. I’m before you today seeking your approval of a resolution to expand, reorganize and rename the Office of the Public Advisor and to revise the Commission’s Tribal Consultation Policy. Next slide.

We are seeking to expand the role and responsibility of the office to formally handle two things. First, is to help advance energy equity through the Commission’s programmatic efforts. This entails
implementing the Commission’s Inclusion Diversity Equity and Access Initiative in partnership with Carousel Gore, the Equal Employment Opportunity Officer, who you see here.

The other role and responsibilities relate to tribal affairs. We seek to move the Tribal Liaison and Tribal Program from its current home in the Siting Transmission and Environmental Protection Division, also known as STEP, to the Public Advisor’s Office.

The Tribal Program was originally established about 10 years ago and was placed in STEP, because that division had the most interactions with tribal governments at that time due to the high potential to encounter Native American cultural resources during the siting of projects.

Over the years, however, as California Native American Tribes have become more familiar with the Commission and our dimensions, the tribes have sought access to other programs that provide funding and technical assistance.

Staff recommends responding to this broadening tribal engagement by placing the Tribal Program in the Public Advisor’s Office, which is an office that specializes in outreach, engagement and has a wider scope to be able to connect the tribes to the Commission’s various programs throughout the agency.

You see a photo here of Katrina Leni-Konig whom Governor Newsom recently appointed to serve as the Deputy
Public Advisor and will also serve as the Commission’s Tribal Liaison. She brings tremendous leadership and project skills and experience, including her engineering and grants background that will help increase engagement with tribes. She’s also an experienced coordinator and convener who will focus on strengthening the Commission’s Assistant Tribal Liaison Program.

On the right, you see Tom Gates who has dutifully served as the Commission’s Tribal Liaison for the past decade. He will now serve as a Tribal Advisor in the office. Tom is coaching Katrina and me, along with sharing the wealth of history and information he knows about California Native American tribes.

I’ll end this section by stating that I am both honored and grateful to have the opportunity to work and serve with these three incredible leaders. Next slide.

The second change we are proposing is to revise the Commission’s tribal consultation policy. This policy is utilized by the Governor’s Tribal Advisor and tribes to understand the Commission’s process and to know who to contact regarding tribal matters.

The Commission adopted its first tribal consultation policy in 2014, and later amended it in 2017, to reflect mandates requirements. And we’d amend it again now to reflect the changes we are discussing today.
changes are purely ministerial and would clarify the Tribal Program is in a new office, identify the Deputy Public Advisor as the Tribal Liaison, update the contact information for the new tribal liaison and the public advisor and fix some typos.

Finally, we propose changing the name of the Public Advisor’s Office that reflects the various changes I’ve outlined today. The name would change to the Office of the Public Advisor, Energy Equity and Tribal Affairs. This change would make the focus of our office more apparent to the public and demonstrate the Commission’s commitment to both.

I’m excited about the name change, however, the new name does not lend itself to a fun or easy acronym. For now, we're calling it PAO+. Next slide.

I will conclude my presentation by humbly requesting your approval of the resolution to expand the role and responsibility of the Public Advisor’s Office, to revise the Tribal Consultation Policy with ministerial changes. And to change the name of the office from the Office of the Public Advisor to the Office of the Public Advisor, Energy Equity and Tribal Affairs.

I’m available for questions. Katrina Leni-Konig and Tom Gates are here in case you have questions or comments for them. And I’d also like to thank Jimmy
Qagundah and Renee Webster Hawkins for their support
throughout this process from a legal perspective. They're
also available for questions if needed.

Again, thank you Chair, Vice Chair and
Commissioners, for your consideration.

CHAIR HOCHSCHILD: Thank you, Noemi. Do we have
any public comment on Item 3?

MS. GALLARDO: So let me check on that. Anyone
wishing to make a public comment, please use the raised
hand feature or press *9 if you are on by phone.

Chair, I do not see any hands raised. I believe
there is no public comment.

CHAIR HOCHSCHILD: Okay. Well, obviously this is
a great step forward and I think a really nice move to make
now with the Governor's appointment of Katrina to be Deputy
Public Advisor and Tribal Advisor. And let's just see if
it's Commissioner discussion and Commissioner Douglas, go
ahead.

COMMISSIONER DOUGLAS: Yes, thank you, Chair
Hochschild. I wanted to express my support for this item
and also thank Noemi for the presentation and congratulate
Katrina on her appointment. She has a real breadth and
depth of knowledge and experience and she has many ways in
which she'll be able to complement the existing strengths
of the Public Advisor's Office, as well as bringing in a
real commitment to equity and a real interest and desire
and experience in working with tribes.

As the CEC's Tribal Lead Commissioner, I want to
really welcome Katrina in her role as Tribal Liaison. And
also express my gratitude to Tom Gates who has ably served
in that role for years. And whose tireless commitment to
the Tribal Program has enabled the Energy Commission to
foster the kinds of relationships with tribes that has
really informed and helped us understand the value of this
partnership, going forward. And just the many ways that we
can continue to build on the foundation that Tom has helped
us set. I'm very pleased as well that Tom will continue to
play a critical role in the Tribal Program as the Tribal
Advisor.

Speaking more broadly about equity, I think it
makes a lot of sense for the Public Advisor's Office to
officially take on a title that reflects the years of hard
work. And the many contributions that that office has been
making in order to help ensure that the Energy Commission's
work around equity and diversity, inclusion and the ability
for interested persons to participate in the Energy
Commission's proceedings, their work in advancing -- their
efforts in advancing that work have been unceasing over
years. And I'm really pleased to reflect that in their
title.
And finally, I wanted to just briefly support the Energy Commission's Tribal Consultation Policy Updates, which have been developed to reflect these organizational changes while retaining the core components that reflect the Energy Commission's commitment in this area.

And so those are my comments, thank you.

CHAIR HOCHSCHILD: Thank you so much, Commissioner. Let me thank you for just tremendous tribal engagement over the years. You know, both on the energy planning side and with these consultations and offshore wind and others, Lithium Valley. As well as the incredible progress we've been able to make with these seven tribal solar microgrids.

And I was wondering if, Katrina, you could just share a few thoughts from your side, looking ahead at what you see the agenda being in terms of tribal engagement and the types of work you're hoping to engage you?

MS. LENI-KONIG: Sure. Thank you, Chair. And thank you, Commissioner Douglas as well. I just want to just recognize that I'm really honored to be stepping into this role. It means a lot to me to be doing this work and that all of you have entrusted me and invited me into this role; also acknowledging Noemi who has been a great mentor and partner for me. I'm really excited to be working with her and her tremendous team. And also thanking Tom Gates...
for passing along the knowledge that he's been sharing with me throughout the time that I've been at the Commission. And then also working to serve as Tribal Advisor going forward, I'm really looking forward to working with him, with Commissioner Douglas's Office and to advance our Tribal Program.

I'm really excited that the Tribal Program is sitting within the Public Advisor's Office. The fact that we're sitting at that agency level we're really able to work and support the Tribal Program to work across all of our divisions and all of our programs.

So we have this distributed Tribal Program where all of the assistant tribal liaisons represent our small offices and our divisions. And we work with those tribal liaisons to make sure that -- those assistant tribal liaisons to make sure that they are embedding tribes into their programs. Making sure their perspectives are accounted for and that we're really proactively engaging with them. So that I'm really looking forward to strengthening that team, making sure that we're bringing those perspectives to our programs. And I think that there's a lot that we can do from the Public Advisor's Office from our support of the assistant tribal liaisons.

And then also just the growing engagement we have with tribes. We've had three conferences thus far. Our
California Tribal Energy Resiliency Conference, and just this past spring, was a great opportunity to learn about what tribes are needing for developing climate resilience. And we look forward to more conferences going forward. And just continue to bring that bring tribal issues to the table.

And also looking forward to the tribal gap analysis, so the results of that and how that can help and serve and develop better programs for tribes. So that's where we're at.

We're also working to support our environmental justice communities. Noemi's been leading the DACAG work for the CEC. And so that's been a great opportunity for us to continue to uplift and advance energy equity throughout our programs. So that's what I'm excited about.

And I'm just again honored to be stepping into this role. Thank you.

CHAIR HOCHSCHILD: Great.

Yeah, go ahead, Vice Chair Gunda.

VICE CHAIR GUNDA: Thank you, Chair. I just wanted to echo your comments and Commissioner Douglas's comments.

Noemi, thank you so much for your leadership. Thank you so much for envisioning this and thanks for bringing all this under one umbrella. I think as Katrina
mentioned, I think it really serves the Commission as a whole to have all the elements working together seamlessly.

Katrina, with brief interactions that you have incredible commitment and passion for these issues, so I'm just really glad that you're in this role. And look forward to you know all the work that you're going to continue to do.

And Carousel, you've been a welcome change at the CEC in everything that you bring to the table. And Tom thanks for patiently helping me learn about the tribes and tribal issues. I just want to congratulate the team.

You know, Commissioner Hochschild and myself are going to work on IEPR next year and equity is going to be an important element for IEPR next year. And I'm really looking forward to working with the PAO+ and doing a really wonderful job. So I look forward to your continued guidance, Noemi, thank you.

CHAIR HOCHSCHILD: Now I want to also lift up that I saw in the paper this morning that President Biden is convening the first national gathering of all the tribes that the White House is going to host of over 500 tribes. So it's really great to see we have a partner in DC on that.

Yeah, Commissioner Monahan, go ahead?

COMMISSIONER MONAHAN: Well, I just want to heap
on, because I love PAO+. The fact that energy equity in tribal affairs are just being highlighted as like this is a critical part of what Energy Commission does. It's not just about siting, which is not to minimize that. But that there's a whole array of activities that we can be doing to support tribes, and then advanced energy equity across the state.

So I want to thank our Public Advisor, Noemi, congratulate our Deputy Katrina in her new role and also Tom. It's been amazing to have somebody so dedicated and thoughtful and willing to do anything, I think, to support tribes is really unique. And we've been very lucky to have Tom as a resource and to continue to have him as a resource in the Public Advisor plus office.

So really I think you'll get nothing but heaps of praise for this transition and name change, so thank you all.

CHAIR HOCHSCHILD: Thank you, Commissioner.

Well, two points I wanted to just lift up before I ask for a vote on this topic, which is number one actually when I was at the COP in Glasgow I had the opportunity to meet with some indigenous leaders from Canada. There's just some amazing rising young leaders in the indigenous community. And one thing I'd love for Noemi and Katrina to really think about with Tom and others, is
how we can create internship opportunities for young up-and-coming indigenous leaders in California to come in, to participate, and to be deliberate in the outreach and design of that.

I think internships can change people's lives. And I feel that myself, I was very fortunate to have some incredible internships, as a young man and really shaped the rest of my career and I think we're doing some really path-breaking work on clean energy. So I would sort of welcome some proposals from you guys for how to be deliberate in creating internship opportunities for young folks in the tribal community in California.

And then secondly, I really wanted to commend Noemi for raising this issue, along with Katrina, about technical support for grant writing. You know, we saw this on our tribal visit that Commissioner Douglas and I did some weeks ago to the North Coast where there were tribes that were just really well suited for the kind of microgrids and other things we're funding through the EPIC program. But they had never applied for a grant before and really just didn't have the background or experience for how to go through that process.

And I do think that was a great suggestion, so I'm going to be supporting that in this next budget process. And see if we can get funds to support
disadvantaged communities that don't have experience applying for grants to get them the support they need to be able to apply. And I just want to thank really Noemi for bringing that forward.

COMMISSIONER MCALLISTER: Hi, can I wrap up with a comment?

CHAIR HOCHSCHILD: Yes, please go ahead Commissioner McAllister, yeah.

COMMISSIONER MCALLISTER: Yeah, no we have to have the full compliment. And but I just strongly, strongly support this and I want to hold up Noemi as just an exemplary liaison for us across the board, but certainly with the tribes. And Carousel as well and congratulations to Katrina.

And also thanks to Tom. I just in working through the tribal challenge that Commissioner Douglas led, and kind of understanding how important the gap analysis actually was, and he was just super, super knowledgeable basically. He has just such a depth of knowledge.

I wanted to point out something -- well so obviously I support the name change. And I really think the more we can do to not only tell the world that we're listening, but actually listen. And incorporate what we hear into our various policies; that just kind of performance basis is what we want to achieve, right? We
want to really respond to our stakeholders in the most
need. And I think as all of us understand now the
response to climate, the climate emergency really demands
no less. And it won't be accomplished without that. And
that's actually kind of a tip of the spear. So anyway, I
wanted to make that comment.

And then also you know I have traveled a little
bit. Somewhat in Canada, but in Australia and New Zealand,
they have a really interesting way of opening their
meetings with an acknowledgement of the people who were on
the land before. And it's really kind of powerful to make
that announcement sort of at the beginning of an open
meeting. You know, they'll say -- just acknowledge the
people from who the land was essentially kind of taken.

You know, I don't want to get too political here,
but I just think it is -- there is a deep rich history of
the land that we are on in California that tribes are
deeply in touch with. And so I think that some way to
acknowledge that might be something that that the new
Public Advisor's Office could work through and see if
there's a way we could possibly do that, and sort of honor
that history.

CHAIR HOCHSCHILD: You know, I really appreciate
you making that point and it's okay to say "taken," it was
taken.
COMMISSIONER MCALLISTER: And you know, one of the one of the things that made me feel really proud to California was Governor Newsom's apology to the tribes, which he did I think it was first few months in office. Really called it what it was, it was a genocide. And he used those words and made that apology, and I think that was really profound. And certainly in my meetings with tribal members I think it was very meaningful to be that explicit.

It might be a good thing, Katrina and Noemi, if you wanted to take up that suggestion that Commission McAllister made with Commissioner Houck at the PUC and get her input on it, as the first Commissioner of Native American heritage. And maybe we can work through some suggestions there, but thank you for raising that.

Are there further comments from Commissioners on this item? Okay, hearing none, I would request a motion on Item 3 from Commissioner Douglas if we could.

COMMISSIONER DOUGLAS: Move approval of this item.

CHAIR HOCHSCHILD: Okay, Vice Chair Gunda, would you be willing to second that?

VICE CHAIR GUNDA: I second Item 3.

CHAIR HOCHSCHILD: All right, all in favor say aye,
COMMISSIONER DOUGLAS: Aye.

CHAIR HOCHSCHILD: Vice Chair Gunda?

VICE CHAIR GUNDA: Aye.

CHAIR HOCHSCHILD: Commissioner McAllister?

COMMISSIONER McALLISTER: Aye.

CHAIR HOCHSCHILD: Commissioner Monahan?

COMMISSIONER MONAHAN: Aye.

CHAIR HOCHSCHILD: And I vote aye as well. That item passes unanimously, congratulations everyone. Thank you, Noemi and Katrina.

Let's turn now Item 4, Disadvantaged Community Advisory Group Annual Report.

MS. GALLARDO: All right, so this is Noemi Gallardo, the Public Advisor again. It is my honor to introduce you to the two presenters from the Disadvantaged Communities Advisory Group today. We also call that group DACAG, you might hear that. We have Angela Islas, the Chair of the DACAG and Adrian Martinez, a member of the DACAG. They're here to present Item 4, which is the DACAG Annual Report covering the time span of April 2020 through April 2021. And I do see Adrian's on, let me make sure that we have Angela. Right, I see Angela coming through as well.

Angela and Adrian, feel free to begin whenever
you're ready.

MS. ISLAS: Hi, everyone. Yes, so again this is Angela with the DACAG. I'm actually in a hotel in San Francisco, so I apologize if I'm off camera and just trying to get through this item for you all. But I really appreciate being here today with my colleague, Adrian, to present to you all our 2020-2021 Annual Report.

And I will say that we did a very honorable service this year to make this annual report very, very short for you all to review. And, you know, I think that it was really a great strategy from all of us to be able to put this together in a more concise and very thorough just explanation of what we had done this previous year. And this is a very different format from all of our previous reports, so that was definitely a very big change that we had with this report this year.

But I do want to just kind of give an introductory of how this report really came together. And it was a very, very long kind of you know journey to get this report together, because obviously last year we were all very impacted by the very unprecedented pandemic. And having to go switch into virtual settings and seeing that there was a lot of delays in just many of the tasks and different you know presentations that we've wanted to see throughout the 2020 year in the DACAG.
But we were just all, you know, as a collective body we had to really, really think about just how to adapt into this new area of being able to present. And being able to work with you all very collaboratively to still support you all, as much as possible throughout the programs that we've been in touch with, with the CEC and CPUC since 2018. So definitely it was a very, very adaptive year for all of us in the DACAG. And a lot of just kind of some priorities that we had to include in this year's list that we had for the 2020-2021 period.

I know that a few of those items that I can think from the top of my head we've included, some COVID-19 response priority group. That we wanted to really ensure that any item that you know the agencies had in response to COVID-19. And in response to just kind of like what was happening, you know, throughout the state based on just like energy programs, etc. That was something that we wanted to establish for just that purpose. For that group to be able to work closely with the agency staffs on that.

And I know we also had included some items, which was the PSPS shut off kind of work. And we've also included some other small items that had to deal with telecommunications and broadband access. We included that just because that was a very, very hot topic during the 2020 year and so on, so forth. We've seen that as well in
the 2021 period.

So definitely those items were very, very well thought out within the group. And we still were tackling transportation very heavily, as my colleague Adrian is going to explain here in a little bit. But we were definitely just very much so trying to stay focused as best as possible with all of our items and supporting your staff as best as possible. And providing comment letters and also just providing our feedback as best as possible.

So very much so, this report is going to give you all just that sense of how much we all worked very, very hard to really stay on track and really stay much so close to all of your staff in really getting our feedback to you all at our best.

So I'm going to kick it off to Adrian. He's going to actually give you guys a little bit more detail about our priority areas with updates on the priority groups. And I can go ahead and end the session once Adrian's done.

MS. MARTINEZ: Well, good afternoon or good morning sorry. I'm sorry, let me make sure I've got the right date. My name is Adrian Martinez and I work for Earthjustice and I've been on the Disadvantaged Communities Advisory Group for since 2018 since its inception. And I'm going to provide a little bit of a review, just a little
bit of background.

We've identified several priority areas and oftentimes we'll have presentations from staff of the Public Utilities Commission and the Energy Commission talk to us about issues. And every member is in one or more subgroups. And so from the beginning, one thing I just want to say I'm not in all the subgroups, but I'm in several. And just to kind of really appreciate all the staff and Commissioners that have engaged with us. The presentations are often very detailed, thoughtful, provide a lot of background to the whole Committee on how to provide meaningful feedback or kind of our mission and then from the statute and other legislative kind of direction. And it's been really kind of I think an important discussion point on several issues.

But some of the topic areas that we addressed, and have ongoing kind of priorities, one is energy storage. We have a subgroup on the Electric Program Investment Charge or EPIC program, solar access, we have transportation electrification, biomethane, building electrification, workforce development. We have an AB 617 subcommittee, Senate Bill 100, a public safety power shut off now committee, telecommunications broadband, digital divide, COVID-19 response. We have a subgroup that's working on the CPUC's environmental and social justice
action plan. And we have a group that's more broadly on community engagement.

We had several highlights from last year that are in the program. I just want to highlight a couple. In one, the Committee had significant engagement on the EPIC program providing feedback on how to provide more benefit to disadvantaged communities.

I'm going to talk a little bit more about transportation later in the agenda when the investment plan comes up, because that's an area where our committee has engaged extensively. We've had significant engagement around broadband digital divide. Some of the issues that often come up is to use some of the exciting and new products in the clean energy space you need broadband to do that. And certain communities are kind of cut off from those technologies. So we are developing programs where there are communities that can't take the benefit, and how do we kind of overcome those challenges moving forward.

The report also includes a significant number of letters that our Committee has sent to the relevant agencies, to the Energy Commission and PUC. And so you can read a little bit more detail, but we've been pretty busy. I think a lot of these same priorities will likely be priorities for the upcoming year. So, you know, I think we'll be working and there may be some additional
priorities that pop up from time to time, but that's a quick summary.

And obviously Committee members are listed on the website, so you can reach out to Angela or any of the Committee if there's more questions, but it's just quick overview. And thanks for inviting us to the Business Meeting to present this report. Thanks.

CHAIR HOCHSCHILD: Well, thanks to you both, Adrian. I appreciate that very much.

This is an informational item, so we're not going to take public comment on this, because there's no vote. But I will turn to Commissioner discussion to be starting with Commissioner Gunda.

VICE CHAIR GUNDA: Yeah, Chair, thank you so much. Thank you, Chair Islas and Member Martinez, thank you so much for your support on the DACAG. I had the privilege of joining a bunch of meetings this year and just this is a voluntary role. And for you all to take time from your busy schedules to help support our programs, but also the statewide transparent transition towards a clean and equitable future, I just wanted to thank you both. And the entire membership for your continued support and guidance. And then thank you for the update and look forward to another wonderful year of working together.

CHAIR HOCHSCHILD: Thank you, other Commissioners
or Commissioner Douglas?

COMMISSIONER DOUGLAS: I wanted to add just add
my thanks to Commissioner Gunda's. As he noted the DACAG
Members are volunteers and they're offering a really
valuable support to the Energy Commission in the work they
do, and by being a sounding board for us. And by making
recommendations and asking questions and really engaging in
dialogue with us. And in producing the report that they do
for us to look at and so on. So I want to again express my
appreciation.

As the Lead or Co-Lead Commissioner on a number
of areas renewable energy, some of our equity work, our
tribal program, siting of course, and more I was
particularly interested in areas of the report talking
about the equity lens. And ensuring its present as we look
at areas around RPS implementation of SB 100, land use, and
broadly public participation and community engagement. And
so I thought that was really helpful.

And in terms of takeaways from the report, just
to highlight a few thoughts. First of all, I'm just happy
with the way the relationship between the Energy
Commission, the CPUC, and the DACAG has been working. And
I want to thank the staff team of both agencies as well;
CEC and CPUC, for helping us make it work along with the
Commissioners as well from the CPUC. And it's been a
really great opportunity, as I said, for us to have this
dialogue. And I know that all the Commissioners really
from the Energy Commission and the CPUC have taken
advantage of it.

So I'm looking forward to working with CEC staff
and others to look more closely at the report and
recommendations. And think about how we incorporate this
into our work and continue the dialogue with the DACAG and
again appreciate the work on the report.

CHAIR HOCHSCHILD: Thank you.

Other Commissioners wishing to make a comment,

Commission Monahan?

COMMISSIONER MONAHAN: Well, just really briefly.

I know we'll talk about this a little of the Clean
Transportation Program Investment Plan, but the DACAG has
really helped us. So I just want to give my personal
thanks to Adrian and Angela, Roman and the all the folks
that engaged on clean transportation. We're listening and
we are striving to be more attentive to equity and to do a
better job explaining what a benefit is to a priority
community. And so there's going to be a whole body of work
around that and just you know, so appreciate it, I'm
thinking before you've even started to engage in this work,
but just look forward to having a dialogue around that.

And making sure that as we move forward with our
investments that we're really attentive to ensuring that
these provide benefits that are tangible to people who need
them.

So yeah, I look forward to the next agenda item
and we'll get into this more deeply, thank you.

CHAIR HOCHSCHILD: Yeah, Commission McAllister.

COMMISSIONER MCALLISTER: Yeah, just I want to
thank both you, Angela and Adrian, for your leadership on
this, and your colleagues as well. You know, overseeing
the efficiency work that we're doing that's with programs
and buildings. And I think it's very clear that we need to
scale up our investment across the state in our existing
buildings and particularly focusing on under-invested
communities and families and households.

And I think again, I think there's a wave of work
ahead of us on that. And bringing resources to that is
critical, but actually understanding how we engage with
communities as a state agency in figuring out what that
chain of kind of communication and action needs to look
like to get to those benefits that Commissioner Monahan
just referred to. And they are all very tangible benefits
that that can accrue. Some are harder to quantify than
others and we've begun that conversation both with DACAG as
a group, and also with the most interested members.

And I want to just encourage individuals and
smaller groups of members of DACAG that are interested in
buildings and energy efficiency. But really any topic that
we work on at the Commission to reach out to the respective
Commissioner and staff to have a more interactive back and
forth, because I think that can be extremely helpful. It
already has been and will continue to be, so really looking
forward to getting a critical eye on the things that we do.

And I think there's an openness that we have, and
must have, to do better. And please, help us continue to
figure out those pathways. I think that's the pathway to
overall success here in the state, so I really want to
thank you all for your commitment to this, and your
dedication and your investment in what we're trying to do.

CHAIR HOCHSCHILD: Thank you, Commissioner
McAllister.

Let's go back to Vice Chair Gunda.

VICE CHAIR GUNDA: Yeah, I'm here. Sorry, I kind
of wrote some notes and I kind of rushed through mine and
shouldn't have.

I just wanted to also thank you Chair,
Commissioner Douglas specifically. You know, both of you
have -- I mean, it all starts at with kind of a sustained
leadership on making sure equity is a focus. And I think
Chair Hochschild, through the working groups and the round
tables that you've been putting -- and Commissioner
Douglas, the SB 100 round table that you put together has been extremely useful for the SB 100 work. So I just wanted to thank you both for your leadership, and Commissioner McAllister and Commissioner Monahan.

You know, it's just a really good group to be a part of who really values equity and who really wants to push that forward. I think I just want to acknowledge it's not every day we can acknowledge everybody on the Commission who was also really working hard to put their heart into equity.

And I think too the DACAG leadership, keep us accountable as Commissioner McAllister said. Keep pushing us, but also I just want to acknowledge that it's been a lot of effort done to work really hard to make this a centerpiece of our work, and we'll continue to do so.

I just wanted to say that, Chair.

CHAIR HOCHSCHILD: Thank you so much.

Unless there's further comments, let's thank our presenters. And we'll turn now to Item 5, the 2021-2023 Investment Plan Update for the Clean Transportation Program.

MR. BRECHT: Good morning Chair, Vice Chair, and Commissioners. My name is Patrick Brecht and I’m the Project Manager for the 2021-2023 Investment Plan Update for the Clean Transportation Program.
Today, we are seeking your approval of this Investment Plan Update. If approved, the current Lead Commissioner Report version originally published on November 1, will be reissued as the Final Commission Report. This will also approve the plan’s proposed funding allocations for fiscal year 2021-2022, and signal the planned funding allocations for the subsequent fiscal years. Next slide.

The Clean Transportation Program provides funding support for projects that reduce greenhouse gas emissions within the transportation sector, which accounts for roughly 50 percent of state greenhouse gas emissions. Furthermore, the Program plays an important role in petroleum reduction, adoption of zero-emission vehicles, improved air quality, economic development and recovery, investments in low-income and disadvantaged communities and job growth and workforce development. Next slide.

Now reducing air pollution from transportation is especially important to achieving a more environmentally just society, given that our air quality burdens fall disproportionately on the vulnerable and disadvantaged communities. As this slide indicates, in the top bar chart, Black, Asian-American, and Latinos have twice the exposure to harmful toxins than white residents. And as you can see, the exposure is even more disproportionate by
Household Income as the lower bar chart indicates. These disparities underscore the importance of the Clean Transportation Program, which provide investments that will lead to a cleaner, more healthy transportation sector. Next slide.

Now the Clean Transportation Program was established by California Assembly Bill 118 in 2007. The Program is funded through a small surcharge on California vehicle registrations and provides up to $100 million per year. California Assembly Bill 8 extended the program to January 1, 2024. Next slide.

Now in its 13th year, the Clean Transportation Program has provided over $1 billion to alternative fuel and vehicle technology projects in communities that can immediately accrue health, environmental, and economic benefits from these investments.

This chart captures the total amount of funding previously expended across to various fuel types. Next slide.

This slide shows key outcomes from the Clean Transportation Program to date, including percentage of funding in low-income or disadvantaged communities, as well as the amount of match funding committed by project partners. The program has funded over 15,000 installed or planned chargers for plug-in electric vehicles. We’ve also
supported the largest network of hydrogen fueling stations
in the nation with 83 funded hydrogen-fueling stations,
plus approval to fund an official 73 stations based on
deployment progress, funding availability, and Clean
Transportation Program Investment Plan funding allocations.
Next slide.

Now for the purpose of the Investment Plan. It
guides the Program’s investments toward meeting the state’s
clean transportation goals, takes into consideration state
regulations and other funding programs to promote
coordination across agencies, allocates funding for
multiple fuel and vehicle technologies, transportation
sectors, and supporting activities such as workforce
development and integrates feedback from the Advisory
Committee, Disadvantaged Communities Advisory Group, and
the public.

For this investment plan, we had two Advisory
Committee meetings, consultations with the Disadvantaged
Communities Advisory Group, and 50 comments to the CEC
docket. Next slide.

The Advisory Committee was established to provide
advice and guidance to the California Energy Commission,
and to serve as a forum to consult on matters relative to
developing the Clean Transportation Program Investment
Plan. It’s composed of members representing a wide range
of interests in clean transportation and clean energy
issues.

The Committee was reconstituted in February 2020 with membership expanded to better reflect California communities. Membership was increased for environmental justice communities, public health organizations, rural and tribal communities and labor and workforce training groups.

Next slide.

The CEC seeks to increase the participation of disadvantaged and underrepresented communities from a diverse range of geographical regions. The CEC also seeks to effectively engage communities disproportionately burdened by pollution and improve economic resiliency, including rural and tribal communities.

And this effort includes, as mentioned earlier, consulting with the Disadvantaged Communities Advisory Group for guidance and recommendations on program effectiveness as it relates to disadvantaged communities and other vulnerable and underrepresented groups.

Prioritizing and investing in proper community outreach and engagement, and partner with local community-based organizations.

Providing a scoring preference for projects located in or benefitting disadvantaged communities, as defined by CalEnviroScreen 3.0 and the 4.0 that's
And developing an open process to identify metrics of community benefits that go beyond funding allocations as Commissioner Monahan had just mentioned. Next slide.

This chart shows that 51 percent of program funds were awarded to projects located within disadvantaged and low-income communities. Now, CEC remains committed to the goal of providing at least 50 percent of program funds that benefit priority populations including low-income and disadvantaged communities. Next slide.

Now, let me shift to provide context for developing the Clean Transportation Program Investment Plan.

The allocations and implementation of the Program reflects the effect of numerous policies and goals, by legislation, regulation and executive order. The net result of these policies has been to steer our program toward zero emission fuels and technologies and ultimately achieve a carbon-neutral economy by 2025. Next slide.

Executive Order B-16-12 set a target of 1.5 million zero-emission vehicles, or ZEVs, on the road by 2025 and tasked various state agencies with specific actions needed to support this goal. Subsequently, in January 2018, Executive Order B-48-18 set an expanded
target of 5 million ZEVs on the road by 2030, as well as a network of 200 hydrogen-fueling stations and 250,000 electric vehicle-charging stations, including 10,000 DC fast chargers, installed or constructed by 2025.

Most recently, Executive Order N-79-20 requires 100 percent of in-state sales of passenger cars and trucks being ZEVs by 2035; 100 percent of operating medium- and heavy-duty vehicles being ZEVs by 2045, where feasible; and 100 percent of drayage trucks and off-road vehicles and equipment being ZEVs by 2035. Next slide.

Now speaking of charging infrastructure, this graphic shows some of the progress California has made toward our 2025 goals. At the bottom, you can see we have approximately 66,770 existing Level 2 chargers, plus over 118,000 expected from allocated funds from our program, utilities, and other sources. A gap of approximately 54,280 level two chargers remain, as does a gap of approximately 385 DC fast chargers. Next slide.

In addition to the charging infrastructure gap, there is a need to address the hydrogen infrastructure gap. This slide shows the number of hydrogen fueling stations from existing and allocated funds, indicating a gap of 21 hydrogen stations from the state’s goal of 200. Next slide.

Now what informs the Investment Plan?
We have the AB 2127 Report or the Electric Vehicle Charging Infrastructure Assessment—Analyzing Charging Needs to Support Zero-Emission Vehicles in 2030. The Commission Report published in July 2021, which finds for passenger vehicle charging in 2030, this report projects that more than 700,000 public and shared private chargers will be needed to support 5 million ZEVs. And nearly 1.2 million to support the roughly 8 million ZEVs anticipated under Executive Order N-79-20 as mentioned earlier. And an additional 157,000 chargers are needed to support 180,000 medium- and heavy-duty vehicles anticipated by 2030.

Now second, we have the SB 1000 Report or the Electric Vehicle Charging Infrastructure Deployment Assessment. This first report was published in December 2020 and focused on the number of chargers by geography, income, and population. The next version of the report is expected in January 2022, and will address drive time to fast charging opportunities by geography, income, urban and rural areas, and CaliEnviroScreen scores.

We also consult with the Disadvantaged Communities Advisory Group as mentioned earlier. And most recently, adjusting to General Fund augmentations from Budget Act of 2021, which brings me to my next slide.

On July 12, 2021, Governor Gavin Newsom
strengthened California’s commitment to a clean energy future by approving the 2021–2022 budget or the Senate Bill 129-Skinner Budget Act of 2021, which includes a three-year, $3.9 billion budget for ZEV-related investments by CARB, the Governor’s Office of Business and Economic Development or Go-Biz and the CEC.

The budget prioritizes diesel emission reductions by earmarking funding to replace 1,125 drayage trucks, 1,000 school buses, and 1,000 transit buses with zero emission alternatives and refueling infrastructure. Of that package amount, the CEC will administer $1.165 billion towards infrastructure deployment to accelerate charging and hydrogen fueling station deployment and grants to promote instate ZEV and ZEV-related manufacturing.

The investments will help the markets for ZEVs and infrastructure grow to scale and, more importantly, serve as a foundation for an equitable and sustainable economic recovery by drawing private investments to California and creating jobs in manufacturing, construction, and engineering. Next slide.

This slide shows how we are proposing to translate the aforementioned funding priorities into real funding allocations over the next two-and-half fiscal years.

You can see the total funding for medium- and
heavy-duty ZEV infrastructure in recognition of the need to
swiftly transition the most polluting vehicles toward zero-
emission technologies in the most sensitive regions of the
state. This includes both battery electric and hydrogen
fuel cell. Now let me move to the next slide, which is a
little more descriptive I suppose.

This slide provides a table, which breaks down
the funding by fiscal year.

The proposed allocations for the 2021-2023
Investment Plan Update combine both Clean Transportation
Program funding and the general fund ZEV Package
investments. The table shows the proposed funding
allocations for FY 2021–2022, as well as the funding
projections for the remainder of the Clean Transportation
Program as well as the $1.165 billion, actually $785
million in the current budget, over three years made
available through the general fund ZEV Package.

The funding allocations are focused on ZEV (both
battery-electric and hydrogen fuel cells) infrastructure
and ZEV manufacturing. The proposed allocations reflect
state goals for ZEVs, as well as near- and long-term carbon
reduction, improved air quality, and equity, with a focus
on providing benefits for disadvantaged communities.

In the current fiscal year, combining the light-
duty charging and hydrogen refueling allocations suggests
about $317 million aimed primarily at passenger vehicles. And about $391 million for medium- and heavy-duty vehicle ZEV infrastructure.

Now, over the full three-year period the funding would total over $382 million to support passenger vehicles’ ZEV infrastructure. And about $695 million to support medium- and heavy-duty vehicles’ infrastructure needs.

The CEC proposes to front-load investments to ensure public adoption of ZEVs is not stymied by lack of infrastructure. And for light-duty charging infrastructure, the CEC proposes $270.1 million in the current fiscal year. And an additional $43.9 in the remaining two years of the program, which brings us close to the goal of having 250,000 chargers by 2025 and put the state on course to reach 2030 goals.

For light-duty hydrogen infrastructure, the CEC proposes $47 million for the current fiscal year and an additional $30 million in future years, which will make progress toward reaching the state goal of having 200 stations open by 2025. These stations should have the capacity to refuel about 280,000 fuel cell electric vehicles (FCEVs)s. The auto industry estimates that the population of fuel cell vehicles will grow from 7,129 in 2021 to over 61,100 by the end of 2027, so station capacity
will no longer be a barrier to near-term deployment.

Now on the medium- and heavy-duty front, General Fund investments will prioritize diesel emission reduction by earmarking funding to replace, as mentioned earlier, 1,125 drayage trucks, 1,000 school buses and 1,000 transit buses with zero-emission alternatives and refueling infrastructure.

Now, funding for ZEV and ZEV-related manufacturing comes entirely from the General Fund. With this funding, we will be able to “increase in-state manufacturing of zero-emission vehicles, zero-emission vehicle components, and zero-emission vehicle charging or refueling equipment.”

Allocations for zero- and near-zero fuel production and supply would remain steady over the next two-and-a-half fiscal years.

Funding priorities for this allocation may include increasing the in-state production of low-carbon fuels from waste-based feedstocks such as woody biomass from forest or agricultural sources, supporting upstream blending infrastructure, and improving the state’s supply of renewable hydrogen from renewable electricity over generation or biomethane. Let all that sink in and we’ll move to the staff recommendation.

Staff recommends approval of the 2021-2023
Investment Plan Update. This will approve the plan’s proposed funding allocations for fiscal year 2021-2022, and signal the planned funding allocations for the subsequent fiscal years. Staff also recommends a determination that this plan is exempt from CEQA.

Thank you and I am happy to answer any questions you have. And I should mention we have I think 12 or so commenters, which will speak about the plan in a bit.

Thank you.

CHAIR HOCHSCHILD: Thank you, Patrick. Let's turn now to public comment on Item 5.

MS. GALLARDO: This is Noemi, the Public Advisor. We do have a list of speakers who have indicated to us that were going to be on, and I do have a list to call them in a particular order. But all of those, of you speakers who have been invited, if you could raise your hand using the raised hand feature that would be helpful to me.

We'll start out here with Tyson Eckerle. Tyson, you can turn on your video box — I see you now — and then feel free to unmute to speak when you're ready.

MR. ECKERLE: All right, well thank you very much for the opportunity. This really is a big deal we're talking about transformational investments. And I think this plan does a great job of capturing the lay of the
land, anchoring to our shared goals, establishing a clear roadmap to get there.

And I think a lot of my work, we're working on the collective zero-emission vehicle market development strategy. And it's really about the four pillars of the ZEV market. You know, we have infrastructure, vehicles, end-users, and workforce. You need all those four pillars to be in balance to successfully develop the market.

And this year as a collective, we identified infrastructure really as a key market enabler. We have a lot of vehicles coming, but infrastructure is a big gap. And so this plan really takes that challenge head-on.

We're also really looking forward to building the industry in California, continue to build industry in California. We're very excited about the investments in manufacturing. It's a critical tool in the toolbox. At GO-Biz, we work with a lot of businesses who are very interested in coming here and developing their supply chains here, and so we're very excited about it.

Both of those, the infrastructure and the manufacturing and the workforce development, all have really the opportunity to impact people's lives. Especially people in priority communities and so we're very excited about the focus that you have there.

And then just as a final point I wanted to point
out and commend the Commission and Commission staff on
collaboration. There's been great ongoing collaboration
across agencies, especially working with the Air Resources
Board on the marrying the vehicle incentives with the
infrastructure incentives. And I think that's really
important, critical going forward, and that it's critical
for that last pillar in the ZEV strategies, the end user.
The easier we can make this stuff for end users the more
likely we are going to be to succeed.

And so I just wanted to thank you for your
ongoing leadership, your great work in this space, and it’s
a beautiful plan and we are very excited about it. And
sticking with that I can hand it back, but thanks for the
opportunity to comment.

MS. GALLARDO: Thank you, Tyson.

This is Noemi, the Public Advisor again. Next up
will be Sydney Vergis. Sydney, when you're ready feel free
to unmute and begin.

MS. VERGIS: Chair and Commissioners, thank you
for your time. My name is Sydney Vergis and I'm the
California Air Resources Board Division Chief overseeing
medium- and heavy-duty vehicle regulations and many of
CARB’s off-road, light-duty, medium- and heavy-duty vehicle
and equipment incentive programs.

I'd like to start with appreciation for your
staff who have worked with us to ensure that CARB’s and CEC’s investments are aligned and complimentary.

In addition to offering general support for this investment plan there are two themes that I would like to lift up: equity and medium- and heavy-duty infrastructure investment.

On equity, we know that over 75 percent of Californians still breathe unhealthy air and every year thousands die prematurely due to air pollution, which is unacceptable. And the need to transition to accelerating the use of zero-emission technologies in the air quality and health benefits they provide is of an unprecedented scope and scale. So we're going to need every tool in the tool shed to get there. And targeting equity investments that will benefit from public investment, as well as prioritizing outreach efforts and investment commitments to funding projects in and benefiting disadvantaged communities are really critical components contained in this plan.

On medium- and heavy-duty zero-emission infrastructure we are all embarking together on a zero-emission transformation of our goods movement system in California. And of course we're doing this because this is absolutely necessary for community health and climate.

The investment plan recognizes the state's
contribution to the zero-emission transformation, in particular through the commitment to zero-emission infrastructure where support is particularly important in early years to help get this market started in addition to the private sector action.

I’d like to underscore that medium- and heavy-duty zero-emission trucks are here and more are coming. On the regulatory side, starting in 2024 per CARB regulations Class 2b to Class 8 tractor trucks, so everything from work trucks to long-haul heavy-duty trucks, will be required to be sold in California.

Based on the Advanced Clean Truck Regulation alone we expect over 300,000 zero-emission trucks to be coming to California by 2035. And CARB staff are currently working on developing a second regulation that will go to the Board in late summer of 2022 that will signal the end of zero-emission truck --- that will signal the end of the combustion truck sales in California, specifically through a 100 percent OEM zero-emission medium- and heavy-duty sales requirement by 2040.

Just a few last things on the state of the zero-emission truck market, they are commercially available and many already have an excellent business case. Specifically, commercially over 100 models of medium- and heavy-duty zero-emission trucks are already commercially
available. And on the Class 8 side at least six OEMs have announced that they are in production or will be in production by 2022 for those zero-emission models.

On total costs of ownership zero-emission trucks already pencil out against combustion in a number of different use cases. Entities like Lawrence Berkeley National laboratory or finding that, for example, Class 8 battery-electric trucks offer a 13 percent lower cost of ownership per miles compared to diesel, which translates into a three-year payback period. That equation only gets better as CARB’s ACT regulation comes into play and really underscores the need to explore every zero-emission option and avoid locking in additional fossil fuel and consumption assets.

On the incentive side, as staff noted the Legislature appropriated dollars to get over 1,125 zero-emission drayage trucks, 1,000 zero-emission school buses, and 1,000 zero-emission transit buses on the road. With the vehicle incentives run out of CARB, and the infrastructure incentives run out of CEC, we have a long history of collaboration and so we will continue to do so on these investments.

Again appreciate all the collaborative work that your staff has put into developing this plan and for our continued partnership. Thank you.
MS. GALLARDO: This is Noemi, the Public Advisor again. Thank you, Sydney.

So now we have Adrian Martinez from the Disadvantaged Communities Advisory Group. Adrian, feel free to unmute when you're ready.

MR. MARTINEZ: Great. Thanks for having me on this agenda item. Again, I'm Adrian Martinez. I'm a Senior Attorney with Earthjustice in our Right To Zero campaign, but I'm also a member of the Disadvantaged Communities Advisory Group. We've been engaged on the Transportation Investment Plan for a little while now, for the last couple cycles, and it's been a really meaningful engagement.

First, I just want to thank Patrick and the rest of the team for working with us and providing us lots of information on the plan and also Commissioner Monahan for her engagement.

I have a few pieces of input that the DACAG has wanted to convey. So first there's a lot of support for the continued focus on zero emissions, this is a critical issue for disadvantaged communities. And a lot of the health and other benefits will hopefully accrue to those communities by a focus on zero emissions across all sectors, from passenger vehicles but also up to larger equipment like trucks and buses.
Second point, is there's a desire to ensure equitable distribution of charging. I think the plan does a lot in that respect, but I also want to continue focus on hard areas to get zero-emission equipment and charging. So, for example, apartment buildings and also continue to focus on providing charging in disadvantaged communities.

A third issue the Committee wanted to highlight for the Commission through the implementation is providing resources to cities, counties, and agencies. We are finding that there are a lot of bottlenecks across the chain to get this equipment and these zero-emission vehicles out. And we hope these funds can go to providing resources to agencies and cities and counties, large and small, to take advantage of these programs and provide the benefits.

The Committee wanted to promote providing significant investments to public agencies. The hope is that entities like transit agencies, school districts get a lot of funding for zero emissions. These are agencies that are inherently operating in the public interest and so there's a desire to make sure that these entities get funding and support through these programs.

The fifth issue that was identified was, to the extent allowed by law, focusing on off-road equipment or areas that attract significant amount of off-road and on-
road equipment. The genesis of this is that a lot of toxic hotspots have been formed around our freight centers like ports, railyards, warehouses, and how can we work to clean up communities that have been overburdened by this industry for a long time.

And then, as Commissioner Monahan alluded to earlier in the meeting, kind of a real focus on defining benefits. Some of the programs there's concern about how benefits are designed, particularly around the fueling infrastructure and fuel programs and so really kind of looking at that issue.

But overall, the DACAG is very excited about this historic investment in zero emissions and excited to kind of continue to partner with the California Energy Commission to make the programming as it continues to be a success. And thank you.

MS. GALLARDO: Thank you, Adrian.

This is Noemi, the Public Advisor. So next up is Lucas Zucker from CAUSE. Oh sorry, is it Lucia?

MS. MARQUEZ: Yes. Good morning, my name is Lucia Marquez. Apologies for not having access to video this morning, but I'm the Senior Policy Advocate with The Central Coast Alliance United for a Sustainable Economy in CAUSE. And I will be giving joint comments on behalf of advisory committee members Mr. Zucker from CAUSE and also...
Neena Mohan from the California Environmental Justice Alliance.

CAUSE is a social, economic and environmental justice organization working the central coast region of California, which is a member organization that have an alliance of ten different grassroots environmental and social justice organizations across the state, which was created to uplift local experiences and solutions at the statewide level through policy and its implementation.

As the staff report shows, the lowest income neighborhoods in the state have double to triple levels of exposure to high levels of diesel particulate matter. It’s Black, Asian and Latino residents who are twice as likely as white Californians to live in a neighborhood with high diesel exhaust.

So transitioning to heavy-duty freight transportation infrastructure to zero-emissions is particularly important, because it has the largest impact of air quality in public health and disadvantaged communities. Not only are heavy-duty trucks the most polluting vehicles, but also concentrated in the most impacted parts of the state where low-income communities of color live in diesel-backed zones near ports and warehouses and trucking routes.

Particularly with the current congestion at ports
due to COVID-19 it's our communities who are dealing with more diesel exhaust than ever. It’s these investments in heavy-duty zero-emissions are extremely urgent. As environmental justice advocates we are pleased to see this investment from the state, but would encourage the Commission to devote as much resources to heavy-duty infrastructure as possible.

With that being said, we’re a little disappointed that the final version has still not addressed concerns raised through the process by environmental justice advocates about negative impacts of polluting biofuel production on nearby communities. Close consideration and analysis of impacts to environmental justice communities from -- on various fuel types, including their full life cycle, is critical to ensuring equity in creating a more sustainable transportation system.

Additionally, concerns regarding potential displacement risks of personal EV charging infrastructure in neighborhoods experiencing identification pressures have not been addressed.

Mitigation measures to prevent undue harm to our overburdened communities from clean transportation policies must be actively included in any implementation. At minimum we encourage the Commissioners to at least devote resources to tracking potential unintended consequences of
these investments related to equity to assess their impact on disadvantaged communities and guide future investment decisions.

We just want to say thank you to all the staff for their hard work and developing support. And we hope that you can take our additional recommendations into consideration. Thank you so much.

MS. GALLARDO: Thank you.

This is Noemi, the Public Advisor. Next is Ugonne. And Ugonne I apologize. I'm sure I'm mispronouncing your name so forgive me, but please restate your name so that folks can hear it pronounced correctly. Whenever you're ready, go ahead.

MS. OKUGO: Thank you for the introduction, my name is Ugonne Okugo. I am with the California Electric Transportation Coalition, and I will be representing Advisory Committee Member and CalETC Executive Director Eileen Tutt.

Thank you to Lead Commissioner Monahan, CEC staff, and advisory committee members for the work on the Clean Transportation Program Investment Plan Update. CalETC fully supports the adoption of this investment plan today. CalETC supports the general fund investments in truck and charging infrastructure outlined in the proposed 2021, 2022 state budget and the EV targets supported by
these investments, including over 1,000 drayage trucks, 1,000 school buses, and 1,000 transit buses.

We support the investments in ZEVs at CARB and ZEV infrastructure at CEC. These investments will continue to attract manufacturing to California and ensure that cars and trucks on the road have access to the fueling infrastructure they need to maximize zero-emission miles driven.

CalETC also supports the investment in light-duty charging infrastructure, particularly those focused on shared access multi-unit dwellings, e-mobility, and other equity-related investments that act to expand EV access to all Californians. Light-duty investments facilitate the need for investments in medium- and heavy-duty vehicles infrastructures through technology transfer.

We want to be very clear there is not enough infrastructure to support the cars and trucks on the road today and we need to build out fast to support the transition to 100 percent ZEV fleet of cars and trucks. There is no inherent conflict between infrastructure support for light-duty infrastructure and medium and heavy-duty, we need both. And until every California can drive and fuel an electric vehicle, including those renting or living in multi-unit dwellings we need to support light-duty infrastructure.
We are also pleased to see CEC's commitment and investment in the implementation of ZEV infrastructure build-out. CalETC shares common goals with the plan’s mission to equitably invest funds into low-income and disadvantaged communities, ZEV infrastructure planning and build-out, and ZEV manufacturing. We hope to continue our private and public partnership to achieve these common goals. And on behalf of CalETC I would like to thank you and reiterate our enthusiasm and support for the CTP Investment Plan Update. Thank you.

MS. GALLARDO: Thank you.

This is Noemi, the Public Advisor. I will invite Leslie Aguayo to speak next.

MS. AGUAYO: Hello. Hi can you hear me?

MS. GALLARDO: Yes, we can.

MS. AGUAYO: Hi, thank you so much. Good morning Commissioners and staff, thank you for the opportunity to speak today and provide comments on the Updated Clean Transportation Plan. My name is Leslie Aguayo. I'm the Climate Equity Program Manager for the Greenlining Institute and also a member of the Clean Transportation Advisory Committee.

I would like to start by first acknowledging CEC Commissioners and staff for their hard work on the updated plan and continuing to push for a clean transportation
future for Californians, and as well as Commissioner Monahan for her leadership. I'd also like to highlight some important equity inclusions in the plan along with some recommendations.

First I'd like to thank the inclusion of the distinction between benefits to place versus benefits to people included in the updated plan. It’s really important and often very easy to complete deployment of investments as access to infrastructure and opportunities for upward mobility, so thank you for that distinction.

I also wanted to echo and appreciate CEC’s commitment to produce a definition of benefits along with metrics to measure how these benefits are going to be created. And I’d like to also encourage the CEC to diversify the perspectives that would be part of the table to produce a definition and make sure that benefit is measurable, acceptable, and shared to all low-income and disadvantaged communities.

Additionally, I'd also like to reiterate and echo Noemi Gallardo’s earlier point regarding the critical need for technical assistance and capacity building, particularly for lower resourced community-based organizations, as oftentimes participating grant applications are limited by their abilities to apply for such larger grants. We are seeing an influx in funding
from state and federal courses, but we also have to ensure that we're supporting these organizations with management for funding and distribution of the financial resources.

I'd also like to encourage the CEC to consider a few additional equity recommendations, including the diversification of data in looking at housing, unemployment, land use, and changes as a result of COVID-19. And catalyzing climate change consequences, so it's the sea-level rise, heat waves and wildfires to inform their clean transportation; not only deployment, but also program implementation as we're seeing changes in population and demographics.

I'd also like to thank Tiffany Hoang and your team for their work on the SB 1000 data, which has really informed equity and ZEV infrastructure.

And the first iteration of the SB 1000 electric vehicle charging infrastructure deployment assessment published results that electric vehicles and public chargers are allocated within populations of low-income communities and have the low-income communities have the fewest public chargers per capita. Given this information I’d like to point out that while the CEC has invested 50 percent of funding in DACs and in low-income communities only 10 percent, which is 1,339 stations total have actually gone to disadvantaged communities and low-income
communities. And although while deployment is not the only measure of equity I'd like to encourage the CEC to fill this discrepancy.

And lastly, I'd also like to encourage the CEC to consider the recent passage of the Biden Infrastructure Plan, which includes equity considerations in itself, including equitable and proportional representation as well as equity as a metric and support to retain and retrain deployed and unemployed workers. And given the national commitments to equity – excuse me --- to equitable distribution of that and charging infrastructure investments, the CEC should consider how it plans to align our state goals with national priorities while continuing to not only comply, but lead on equity standards, given its position as a flagship for clean energy transportation and equity.

Thank you for your time.

MS. GALLARDO: Thank you.

This is Noemi, the Public Advisor. Next is Bill Magavern. Bill, when you're ready feel free to turn on your video and unmute.

MR. MAGAVERN: Good morning, I'm Bill Magavern. I'm the Policy Director with the Coalition for Clean Air and also a member of the Advisory Committee on Clean Transportation. And we support the plan that's in front of
you today. I think that we're very fortunate that this has been a banner year for clean transportation funding in California thanks largely to the budget surplus and also what I think were, in general, very wise decisions made by the Legislature and the Governor during the budget process. And we think that this plan will spend that money well. We're particularly in favor of the commitments on investments in disadvantaged communities and particularly benefiting the people who live in those disadvantaged and low-income communities.

And I'll note that we and our partners in the Charge Ahead California campaign, I have worked with Senator Gonzales and Assemblymember Reyes on policy bills that would codify similar language into law. And those are two-year bills, so we very much hope that at least one of them will be passed next year and will have these requirements in statute.

One of the major benefits of this investment plan is the prioritization of infrastructure for medium- and heavy-duty vehicles. As you heard from CAUSE our communities, particularly low-income communities of color, are plagued by toxic diesel exhaust that is coming primarily from engines in medium- and heavy-duty vehicles, as well as off-road equipment. And it's really urgent that we reduce and eventually eliminate those toxic diesel
emissions from our community and that's going to require
the transition to clean equipment. And we really urgently
need the infrastructure to support that clean equipment and
this plan is a major step towards that.

Along similar lines, we think that when the state
is subsidizing hydrogen fueling stations, that those
stations should be capable of serving the buses and trucks
that will run on clean hydrogen fuel-cell electric engines.
That's an important option to keep for our trucks and
buses. And fueling is one of the biggest needs that we
have in that sector, so we want to make sure that those
investments go as far as they can and can support medium-
and heavy-duty, as well as light-duty engines.

And finally, we’re glad to see that the
Commission has been supporting clean mobility options. We
need to make zero-emission clean mobility available to all
Californians, especially those in disadvantaged and low-
income communities who have tended to be the last in line
to have access to those programs. And we know that in
order to fully clean up transportation in California, we
need to clean up not only the engines and fuels, but also
to reduce the miles traveled by our vehicles. And that
means expanding mobility options to include better access
to cycling and pedestrian infrastructure as well as, of
course, public transit.
So thank you very much for hearing my comments and we look forward to the implementation of this plan.

MS. GALLARDO: Thank you.

This is Noemi, the Public Advisor. Next is William Barrett. William, when you're ready feel free to turn on your video and unmute.

MR. BARRETT: Thank you very much. My name is Will Barrett, I'm the Senior Director for Clean Air Advocacy with the American Lung Association and also a member of the advisory committee for the program. And I really wanted to echo what many have said, really thank you for allowing us to speak today. But also really thank Commissioner Monahan and Mr. Brecht for all your work on this important program and the whole team behind it. I really appreciate the work. Ultimately we support the plan and really do view the proposed investments in zero-emissions as both significant and strategic investments in protecting public health.

Our recent State of the Air Report published by the American Lung Association each year finds again that almost every Californian lives in a county that is impacted by unhealthy levels of ozone of particle pollution. We also know, as noted in the plan that the many communities face disproportionate burdens, especially in our lower income communities and communities of color.
And we know that the transportation sector is the leading source by far of unhealthy air and climate pollution in California. So it's really important to note, as others have said, the role of the heavy-duty truck population on the air quality challenges we face. Over half of our smog and particle pollution in California is caused by the heavy-duty truck sector, which is basically less than 5 percent of all the vehicles on the road. And then on the climate side the light-duty passenger vehicle sector contributes about half of our carbon pollution impact.

So we know that this plan is really getting to the heart of our air and climate challenges and that the investment and heavy-duty ZEV infrastructure is especially important. Not only for meeting California’s air quality goals, but also for protecting the health in our most impacted communities from diesel and the combustion of other harmful transportation fuels. And we know that the ongoing reliance on fossil fuel combustion impacts our lungs, our hearts, creates a cancer risk for too many communities and contributes thousands of premature deaths annually in California.

As noted in the presentation earlier the plan really does intend to invest heavily in our most impacted communities. And we appreciate really the discussion of
moving the metrics with tracking program success beyond location to those other metrics, including public health, so that we know that the benefits are really accruing in the communities that desperately need clean air today.

We also note that as you move forward in adopting this plan with our strong support, we really want to make sure that you move forward and maintain that focus on getting the infrastructure in the ground for the heavy-duty sector as quickly as possible, to go to zero emission closing the charging gap on the light-duty side as well. And really front-loading to the extent possible as much of the investment as we can to really front-load the public health benefits of all the great work that's outlined in the report.

The last couple things just really to highlight, the importance of continuing the consultation and meaningful involvement of the DACAG in this process. I really appreciated the comments that folks made today on the equitable distribution of benefits. I think that needs to remain at the top of the line for moving this program forward successfully. And then really, as Mr. Magavern noted looking at the 50 percent metric for investment in our disadvantaged communities, low-income communities, really treating that as a floor for the program and really wanting to see that built in as the baseline going forward.
And then finally really just moving as quickly as possible to get these benefits out in the real world, making sure that the funds are moving as quickly as feasibly possible. And I know your staff is committed to that.

So with that, again I just wanted to say thank you. Really wonderful and thoughtful work went into this plan, and we support it. And we look forward to continuing to work with you to implement it and make sure that the benefits accrue in real time in communities that need it most. So thank you and I hope everyone has a happy and healthy holidays ahead, thanks.

MS. GALLARDO: Thank you.

This is Noemi, the Public Advisor. Next up is Michael Pimentel. Michael, when you're ready you can turn on your video, unmute and begin.

MR. PIMENTEL: All right. Well, good morning, Mr. Chair and Commissioners. I'm Michael Pimentel, Executive Director of the California Transit Association. By way of background, the association represents 85 transit agencies in the State of California and more than 220 organizations nationwide including all manufacturers of zero-emission transit buses, as well as a few international consultancies that have been supporting transit agencies in the transition to zero-emission vehicles.
As the representatives of the industry that has led the heavy-duty sector and deployment of zero-emission vehicles, we're so pleased to hold a seat on the Clean Transportation Advisory Committee and to have had the opportunity to continue to share our advanced learnings with the state and other sectors. I join you today to voice the association's strong support for the 2021-2023 Investment Plan Update for the Clean Transportation Program and to urge your adoption of the plan today.

This year's plan, which as other speakers have noted, is supported by historic investments from the state's General Fund represents a true evolution in the state's investment strategy for facilitating the transition to zero-emission vehicle technologies. The plan proposes multi-year funding for various industry sectors and importantly helps fund them while also providing set-asides for critical industries like mine.

In doing so, this plan will give transit agencies among other industries, the funding certainty that is critical for conducting large-scale transition planning and making large purchase orders with zero-emission vehicles with the knowledge that funding will be available to provide support for the supporting infrastructure.

The plan’s proposed investment of $88.5 million in public transit will concretely help deploy 1,000 transit...
buses. And we are hugely encouraged this plan also proposes $282 million for the medium- and heavy-duty sector generally, which may be directed to transit agencies through various programs and projects that were seen by the CEC.

This funding level is an increase from the draft plan we initially engaged on and we appreciate CEC staff’s willingness to help meet a request and further prioritize investments in the medium- and heavy-duty sector.

As this plan is implemented, we would encourage the CEC to ensure that transit agencies receive a significant portion of the funds available to the medium- and heavy-duty sector, further augmenting the $88.5 million already guaranteed to transit agencies.

I would note for you that all transit agencies in California are required to transition to 100 percent zero-emission bus fleets by 2040 and several of them are taking aggressive steps to transition even sooner; some by 2030, others by 2035. And despite this progress, funding is a dominant impediment to the transition that we, as an industry, fully support.

And so in closing, I do want to thank you all for the consideration. And I want to send a special thanks to Commissioner Monahan and CEC staff for advancing a truly thoughtful and collaborative plan here today, thank you.
MS. GALLARDO: Thank you.

This is Noemi, the Public Advisor. Bill Elrick is next. Bill, feel free to begin when you're ready.

MR. ELRICK: Great, thank you. This is Bill Elrick of the Hydrogen Fuel Cell Partnership and also an Advisory Member for the Committee, so thank you for the opportunity to speak today. We really applaud the Clean Transportation Program and specifically this investment plan for continuing to effectively stimulate and accelerate a broad portfolio of clean fuel technologies into the market. This has been one of the most impactful co-funding and stimulus mechanisms in California, which really is saying something so kudos to Commissioner Monahan and the rest of the CEC staff and management for putting this forward.

I want to really recognize and applaud CEC in this plan for continuing to listen, learn and adapt the focus and activities within each subsequent investment plan. Following comments others have made in the last agenda topic, increasing the awareness and attention of the priority communities and their needs is greatly appreciated, and making sure the program and this investment plan really redirect some of the attention towards these greatest needs and opportunities.

I also want to highlight the program’s
advancements as far as the latest hydrogen infrastructure
GFO for its shift toward a more market-based approach.
This solicitation directly increased the number of hydrogen
stations funded by a factor of ten. It increased the
private investment co-funding. And it overall lowered
hydrogen infrastructure costs. These market-building
approaches from CEC are critical to the program's long-term
success and its objectives in market transformation and
that transition to 100 percent ZEVs. Similar to the
response by CalETC a few minutes ago, we need more ZEV
infrastructure. And we need to support both light-duty and
heavy-duty applications to reach our goals.

My sole disappointment in this investment plan is
that it still fails to include the latest hydrogen light-
duty market self-sufficiency report by CARB. This is
another government directive related to AB 8. And it
outlines how the California light-duty hydrogen fuel cell
vehicle market could be self-sufficient within this decade.
That's the first identified ZEV pathway worldwide and it's
directly related to the CTP’s core mission of market
transformation. This report really needs to be integrated
into this investment plan immediately.

The remaining elements within the investment plan
related to hydrogen and fuel cell vehicles looks really
good. It's starting to better recognize the need to get as
many ZEVs as possible on the road as quick as possible in more people's hands. And our organization is very eager to continue to work and even expand our support and involvement with CEC in this area.

CEC and these investment plans have shown the urgency in working to transition California's transportation market and provide a diversity of technology options that will enable more of Californian citizens to participate in this transformation. That urgency and even California's leadership were highlighted in these recent COP meetings.

As the existing AB 8 program begins to wind down and reauthorization builds momentum, CEC and the CTP should lean in and focus even more aggressively on market transformation mechanisms, so we can accelerate the common overall objectives of the program as well as our society and achieve the clean energy and transportation systems we all need. Thank you.

MS. GALLARDO: Thank you.

This is Noemi, the Public Advisor. And next is Andres Ramirez. Andres, when you're ready unmute and you may begin.

MR. RAMIREZ: Good morning my name is Andres Ramirez. I'm speaking on behalf of my organization, People for Mobility Justice and I'm also a member of the DACAG.
My organization is speaking in support of the Clean Transportation Program Investment Plan. We feel it’s an important step towards reaching the climate goals that our state has set for ourselves.

And in particular we would like to commend the commitment to equity. I really would like to applaud the Commission and staff for not just providing lip service to equity, but having a true commitment to creating metrics that will help us reach our equity goals in this state.

Just particularly in terms of investment and disadvantaged communities my organization represents the disadvantaged communities of Los Angeles County and we definitely feel and echo a lot of the comments that have been made today in terms of the impact locally.

I also would like to highlight particularly the commitment in terms of the opportunity we have recovering from COVID and this investment really providing a platform for the state to recover economically, particularly in in disadvantaged communities where the pandemic has hit the hardest, both economically and health wise. This investment into this clean energy or clean mobility technology is really an opportunity for operations, maintenance, for our communities to have a ready workforce that's willing and able to do so.

I'd also like to highlight the importance and
really, really commend both staff and the Commission for being open to hearing the voices in the community and continue to engage community as these programs are funded and doled out.

We also recommend that there be strong evaluation for the agencies implementing these programs to ensure that the goals that are the heart of the plan are being met. And that are not simply being a checkbox that people are making in terms of putting infrastructure in random places in the SoCal disadvantaged communities, with not real intention of making it work and support the needs of those communities.

I thank you for your time and that and I commend you for voting for this. Thank you.

MS. GALLARDO: Thank you.

This is Noemi, the Public Advisor. I am going to read a comment from one other of our speakers. This is from Stan Greschner, Chief Policy Officer at GRID Alternatives, also former Chair of the CEC’s Disadvantaged Communities Advisory Group.

“I want to offer my strong support for the proposed Clean Transportation Program Investment Plan. I commend the Commission for your proactive efforts to bring more community perspectives into the planning process over the past year and for thoughtfully centering equity in...
these discussions.

“The plan calls for at least 50 percent of the funding to support projects that benefit low income, disadvantaged and tribal communities. Along with a recognition that siting projects in these target communities does not necessarily equate to benefiting those communities.

“I encourage the CEC to continue working directly with community members and community organizations to support the design of specific funding programs that will allow for more accessible EV charging options benefiting target community members, more training and upscaling of workers for clean transportation related careers, and geographically targeted investments that reduce air pollution, especially in the medium- and heavy-duty sectors.

“These proposed investments, coupled with upcoming investments from the Federal Infrastructure Bill position California to meet our ambitious ZEV goals over the next 10 to 15 years.

“I support this investment plan. Thank you.”

All right, so that ends the invited speakers. And now we will open it to the general public comment. I do see one hand raised. So a reminder to please restate your name, spell it for the record and
indicate your affiliation, if any. Clint Koble, your line is open and you may begin.

MR. KOBLE: Okay, I don't see my video button, so I can't punch that. But anyways, my name is Clint Koble, K-o-b-l-e. I am a small business advisor for the Sierra Small Business Development Center. And I engage regularly with banks, businesses, Chambers of Commerce, tourism agencies and communities that depend upon tourism for a great part of their livelihood in the Shasta-Cascade region. And I'm here this morning to speak in support of the draft investment plan, and in particular regarding charging infrastructure in rural communities.

As you know, much of the industry is shifting towards the production of electric vehicles. I think there were 40 new models out this year. The federal government is going to be changing over to electric vehicles produced in the United States. And we know that by the year 2024, just several years from now that half of our tourism market in the Shasta-Cascade region, is going to be millennials. And we know they tend to visit us with electric cars, e-bikes, mountain bikes, cell phones, all that. But they're coming into our area for adventure and thinking recreation. And we need to prepare for them. And one of the obstacles we have is this perception and also the reality that we don't have as many charging stations as we need to
accommodate that emerging market.

And as you know the Dixie fire this year
destroyed many of our county economies in the Shasta-
Cascade region, entire communities and economies who will
need to be rebuilt. Greenville California, for example,
where 75 percent of the town was destroyed.

As a parallel to Greenville, California, there
was a town in 2007, Greensburg Kansas, that was 95 percent
destroyed by an EF5 tornado. And they made the conscious
decision to use public investments and to build back
stronger, better, and greener. And now they are one of the
leading towns per capita for LEED buildings in the world,
so they have done great things. We want and we need to do
that in Greenville California, so we're going to need
public investments. And your public investments in the
electric vehicle-charging infrastructure can be the
catalyst that will pedal our struggling rural economies to
be better, stronger, more resilient, and greener.

In addition to overcoming perceptions that we
don't have enough charging stations, we know that we’ve got
to convince people that there are still things left to see,
so we're spending money. And with your investments I think
we can team together and do that, so we're really looking
forward to your help.

In summary I just want to repeat your words that
the investment plan will establish funding allocations based on identified needs and opportunities, including a focus on zero-emission vehicles and infrastructure. It'll help us prioritize jobs, economic stimulus and equity in the life of these challenges, so much of what Patrick said. So thank you for your time and I really support the investment plan.

MS. GALLARDO: Thank you.

This is Noemi, the Public Advisor, just checking to see if anyone else would like to make a public comment. If so, please raise your hand using the raised hand icon on the screen or pressing *9 on your phone.

Chair, I see no more hands, then we can proceed.

(No audible response.) Chair, you're muted.

CHAIR HOCHSCHILD: Sorry about that, here we go. Thank you for that, Noemi.

Let's turn now to Commissioner discussion on Item 5, starting with Commissioner Monahan.

COMMISSIONER MONAHAN: Well, I just want to start by saying today is really a historic day when it comes to zero-emission vehicle infrastructure. So this investment plan represents the single largest investment in zero-emission vehicle infrastructure by any state. So we're talking $1.1 billion out of the $1.4 billion plan that’s allocated to charging stations and hydrogen refilling
stations for passenger cars, trucks, off-road equipment, school buses.

And it's also a historic day when it comes to U.S. investments. So today President Biden is signing the Infrastructure Bill, which includes up to $7.5 billion for ZEV infrastructure across the country. So really this is like ZEV infrastructure day for the country I would argue, not just in California, but across the United States.

So our $1.4 billion plan runs through 2023. That's when, as you heard the Clean Transportation Program plan expires. And we want to make sure that we're setting a plan for the next several years so our grantee network, it can reliably count on this funding going forward.

And we're working hand-in-glove with our sister agency the Air Resources Board. We want to make sure that vehicle incentives and charging infrastructure is aligned. Interestingly, the Air Resources Board is also voting on their clean transportation plan this week, so it's big week for clean transportation in California.

I want to thank Tyson for his leadership on the ZEV market development plan. It just shows how all of the relevant agencies in California are working together to make sure that we can meet our zero-emission vehicle goals.

And as you've heard equity is a core principle. And I've been really like opposed to these “Check the box
if it's in a disadvantaged or low-income community, that means we're done.” Like really no, no, we are not done. We need to be really clear on what a benefit is. And that's a goal of ours over the next year is to get a clear definition with input from all the stakeholder community to ensure that we're tracking the right metrics and holding ourselves accountable to that.

We heard, I think, from just about everybody who spoke about the importance of equity. And I want to emphasize for some of the criticisms or concerns that were raised there's a whole approval plan is one step, but then actually distributing the money and putting together grant programs that's the next step. And we have a lot of power in the implementation phase to ensure that we're paying attention to full lifecycle implications. And so I would encourage all the stakeholders to help us make sure that we spend that money wisely.

So the budget is going to allow us to meet the state goals for 2025 in terms of ZEV infrastructure: 250,000 chargers, 200 hydrogen stations, also to get infrastructure out there for over 1,000 school buses, transit buses, drayage trucks. And so this, the plan is really attentive to the public health impacts. And I'm really excited that we're going to be having these concrete goals that we have to hold ourselves accountable to. And
as you guys have all heard me talk about the ZEV dashboard over and over again I want that to be the place where we highlight our progress and are transparent about where our investments are going.

So the plan includes attendant attention to vehicle grid integration, so we want to ensure that electric vehicles, in particular are good citizens of the grid. And from our 2030 analysis of charging needs, the charging for passenger cars as well as medium- and heavy-duty electrification could increase total energy about 21 percent on a typical weekday and that's based on today's energy use. But that's a flexible load that we could use to help clean the grid and we need to make sure that we're capitalizing on that very flexible load.

And the team has conducted a significant amount of research, I mean I'm sorry -- of outreach in developing this plan. And you say you've heard from all these folks, the stakeholders. I just appreciate all the stakeholders who have helped us. Being an advisory committee member to the Clean Transportation Program takes a lot of work, it takes a lot of work. Those are hundreds of pages of reports you’ve got to go through, so I want to thank the advisory committee members. And it was really nice actually to be able to see them on the screen. Usually we can't see the commenters, but thank you Noemi for helping
make that happen.

So there are lots of people involved in the development of this plan. And I wonder, Noemi, could we show the list of folks again? Because there were so many I can't -- I'm not going to go through all their names, but I think it'd be helpful just to see that list of people involved in the plan.

MS. GALLARDO: This is Noemi. I don't know if we have a list available.

COMMISSIONER MONAHAN: It was one of the -- the last slide, I think, that Patrick showed, but --

MS. GALLARDO: Yeah.

(Overlapping colloquy.)

COMMISSIONER MONAHAN: We don't have to do it, but let's just say a lot of people have been involved. Patrick, in particular, thank you for your leadership. Patrick has been -- he's shepherding all aspects of this plan. Tami Haas and Charles Smith, who supervised the plan development have been great. And finally Noemi, you as our Public Advisor, really I want to say thank you to all you have done to help us be better in terms of outreach and making sure that equity is a core, a cornerstone of all that we do.

So I'm excited to support this plan. I hope you are too, and I look forward to your comments.
CHAIR HOCHSCHILD: Thank you, Commissioner Monahan.

Let's go to -- I can't actually see other Commissioners in my window, but are there other Commissioners wishing to make a comment on this?

COMMISSIONER McALLISTER: This is Commissioner McAllister, I'd love to.

CHAIR HOCHSCHILD: Yeah, great.

COMMISSIONER McALLISTER: Just very briefly, I want to just thank first off the staff, just pile on the staff, great work on this. And also Commissioner Monahan for your leadership, I mean you've really provided I think a guiding light to this effort.

And I want to just reiterate my top-level point is the load flexibility piece of this. I couldn't agree more with you on being smart about where and when and how we are charging our electric vehicles, in particular, as a grid resource and as a reliability resource and as decarbonization resource. And having a positive influence actually on both reliability and costs. If we can take advantage of those green electrons when they are available and use them for good to get around that's going to help us reach our world goals more effectively and efficiently and cost-effectively.

So it's great to be sort of aligning the building
work and vehicle work around this and looking forward to
keeping those sectors coordinated as they are increasingly
interconnected and linked in just real time now. So thanks
again to staff for this, very happy to support it.

CHAIR HOCHSCHILD: Thank you, Commissioner.

Vice Chair Gunda.

VICE CHAIR GUNDA: Yeah. Thank you, Chair. I
also just wanted to congratulate the team. Patrick, thank
you so much for going through that presentation. It’s
really helpful. And also thank you for providing different
responses to our office on some of the questions we had. I
really appreciate FTD as a whole and all the team to kind
of help navigate this extremely important investment.

I really love Commissioner Monahan coining this
as the investment in a day, that hopefully we can have a
resolution somewhere. But Commissioner Monahan, kidding
aside, thank you so much for your leadership, thank you for
bringing your empathy, your ability to bring people
together, and years and years of experience in
transportation to help shape this important investment for
the State of California and for all Californians, so thank
you.

And I also want to extend thanks to all the
advisory committee, without whom we cannot do work like
this. And shepherding an investment of this size, with so
many people feeling good about it is the real success, so thank you to you.

And just I think in closing Commissioner McAllister already articulated the more electrification we have the more hydrogen vehicles we might have that might depend on electrolysis. The kind of having the data that as we do the investments, gathering the data and working together to ensure we have the necessary data points to model the future and help develop a resilient and reliable system with the grid is essential, so I’m looking forward to working with you.

And, again, congratulations to you and your entire team for an absolutely wonderful effort here.

CHAIR HOCHSCHILD: Well said.

Commissioner Douglas, did you want to make a point?

COMMISSIONER DOUGLAS: You know, just very briefly. Obviously, a tremendous amount of work has gone into this and that’s just very clear from the comments and from the scope and scale of the plan. And I’m very pleased to support it, and I want to thank Commissioner Monahan and the staff and the advisory committee members and others who worked hard to get to this place.

CHAIR HOCHSCHILD: Thank you, well said.

Well, my only point here would be that
alternative energy in the energy space is the wrong word to use for renewables at this point. Fossils are a minority on our grid today, we’re bringing renewables mainstream. And the same is true for clean transportation. Eventually the vehicles that we're talking about supporting with this infrastructure are going to be the dominant form of transportation. And that begins with big investments like this. Really, infrastructure is the key barrier right now. And so this is a big step, a big milestone, but it's just a down payment; more to come. We’ve got the team, we’ve got the focus, we have an incredible advisory committee and coalition working on this and really California is leading the way.

So I just want to thank Commissioner Monahan for her incredible work and dedication and heart that she has put into this work since she got here. And to Hannon Rasool and the whole team, Patrick and everyone else who worked on this, happy to support.

And so with that I would ask Commissioner Monahan if you'd be willing to move this item?

COMMISSIONER MONAHAN: I move this item.

CHAIR HOCHSCHILD: Okay. Vice Chair Gunda, would you be willing to second?

VICE CHAIR GUNDA: Second Item 5.

CHAIR HOCHSCHILD: All right all in favor say
aye.  

Commission Monahan?

COMMISSIONER MONAHAN:  Aye.

CHAIR HOCHSCHILD:  Vice Chair Gunda?

VICE CHAIR GUNDA:  Aye.

CHAIR HOCHSCHILD:  Commissioner Douglas?

COMMISSIONER DOUGLAS:  Aye.

CHAIR HOCHSCHILD:  Commissioner McAllister?

COMMISSIONER MCALLISTER:  Aye.

CHAIR HOCHSCHILD:  And I vote aye as well.  Item 5 passes unanimously, congratulations to the whole team.

With that what we'll do is recess for lunch for an hour.  Why don't we reconvene at 1:15?  And we'll take up Item 6 at that time, thank you.

(Off the record at 12:18 p.m.)

(On the record at 1:15 p.m.)

CHAIR HOCHSCHILD:  Great.  Okay, welcome back everybody.  Thank you for all the public comment and support.  I don't want to ever take it for granted, these landmark votes and what we just did.  Approving over a billion dollars for clean transportation is really a wonderful, and exciting and important milestone in our momentum and movement towards a clean transportation future, so that's a really big one to get done.  So congrats to all the stakeholders and staff who worked on
So with that let's turn now to Item 6, the 2021 through 2025 Electric Program Investment Charge Proposed Investment Plan. Jonah Steinbuck.

MR. STEINBUCK: Thank you, Chair. Hello everyone. I’m Jonah Steinbuck, Deputy Director for the Research and Development Division. And today the R&D Division is seeking Commission approval for the 2021-2025 Electric Program Investment Charge Proposed Investment Plan, referred to as “EPIC 4,” the fourth investment plan under the EPIC program. The R&D Division managers and I will be presenting our proposed plan for years two through five of the proposed investment plan. And this builds on the Year One EPIC Interim Plan that was approved by the CPUC earlier this year.

Today we will be presenting a high-level overview, and the full details are in the investment plan report, which was posted in advance of this meeting and also updated to show some non-substantive clarifying edits. Next slide, please.

So EPIC 4 spans five years of R&D investment through 2025.

The funding for the CEC is nearly $150 million per year, and almost $750 million over the five years. The EPIC 4 investment plan was developed through...
an extensive stakeholder engagement process. And in consultation with the Chair and Commissioner McAllister who served together on the CEC R&D Committee.

The plan is organized according to six strategic objectives that we’ll be discussing, and supports achievement of our state clean energy policies and goals, including 100 percent renewable and zero-carbon electricity by 2045, 100 percent zero-emission vehicle sales by 2035, among others. Next slide, please.

So EPIC 4 investments will deliver a range of benefits for Californians.

The program supports California’s entrepreneurs and researchers who are advancing technology innovation and commercializing new clean energy technologies.

This innovation then delivers ratepayer benefits in a wide variety of forms, including environmental sustainability, energy equity, affordability, grid reliability, and electricity system safety. Next slide, please.

So as some context and background, this is a look at an illustrative subset of the investment areas for EPIC over the past decade, since the CPUC established the EPIC program.

As an example, we funded ChargePoint to develop cloud-based vehicle charging algorithms that allow EV
charging to be responsive to grid signals. Participating customers realized annual energy savings of about $500 per year per EV. And that lowers the total cost of ownership and supports accelerated EV adoption.

As another example, with EPIC funding, Sunfolding developed a tracking system driven by compressed air. This greatly reduces the number of mechanical parts and maintenance requirements for trackers and delivers an estimated 20 percent reduction in the levelized cost of energy when compared to a setup with traditional mechanical trackers. And this technology is now commercially available.

Additionally, over the past decade, there has been a continuous process of strengthening the administration of the EPIC program, building from the foundational principles from the CPUC, including ratepayer benefit and policy relevance.

So for example, we’ve built up our support for entrepreneurial ecosystems across the state, added programs to support early manufacturing and technology scale-up activities, and continue to build our stakeholder engagement, including with under-resourced communities and their representatives. Next slide please.

This is a high-level look at our overall investment and impacts from the past decade. So we’ve
invested $846 million and that has catalyzed more than $3.5 billion raised in private capital after firms received an EPIC award, more than four times our initial investment. Our investments have spanned the 385 projects across the state, with 68 percent of the demonstration projects in under-resourced communities.

As a result of these investments we have generated thousands of jobs, more than $18 billion in energy savings, $86 to $191 billion in estimated health savings over the next couple decades, as well as significant contributions to the knowledge base for clean energy innovation, with more than 2,900 citations to EPIC research. Next slide, please.

But now returning to our EPIC 4 plan, in looking ahead to the next 5 years we conducted 12 workshops and events over the past half year. This enabled us to hear from state, national, and international experts on topics like industrial decarbonization, energy storage, and offshore wind, among others.

We benefitted from and are thankful for the very strong engagement with over 1,900 participants across these events with very helpful comments and questions that improved the focus and impact potential of the EPIC 4 plan. We also coordinated with our colleagues at the CPUC, other agencies, and across the CEC to ensure proposed
R&D is complementary with other activities and leverages synergies.

And we coordinated with the Disadvantaged Communities Advisory Group. As Adrian Martinez noted earlier in the meeting, that included briefings, public meetings, and newsletter communications to gather input and feedback. Over the past year we've had five meetings with members of the Disadvantaged Communities Advisory Group to discuss EPIC 4 investment planning. And we also incorporated written comments from its members. Next slide, please.

So the EPIC 4 investment plan includes six overarching, strategic objectives shown here. These span R&D for renewables, for grid reliability, distributed energy resources, efficiency and electrification, support for entrepreneurs, and equity and the environment.

And for each of these strategic objective the R&D managers and I will give a high-level overview and highlight one or two specific R&D topics under each. Next slide.

The first strategic objective focuses on renewable generation technologies that will be important for achieving a 100 percent renewable and zero-carbon electricity by 2045.

The SB 100 joint agency analysis showed that grid
capacity will potentially triple by 2045 relative to today. So the buildout is very substantial and will need a portfolio of technologies to meet that capacity and ensure reliability.

Proposed EPIC 4 research would invest in technologies to help meet that buildout, driving cost reductions and supporting improvements in technology performance and durability.

To stay brief, I’ll just say a bit more about one of the topics, offshore wind. Next slide, please.

So the purpose of this research topic is to advance offshore wind as a key resource for SB 100 buildout. Earlier this year, California and our federal partners announced an agreement that opens the West Coast to offshore wind development for the first time.

Proposed EPIC 4 R&D would support implementation of this agreement and would focus on floating technologies given the water depths off our coast.

So we’re proposing four R&D focus areas:

The first is optimizing component designs for cost, operational efficiency, and durability. So examples include long and efficient blades, tall towers for accessing higher wind speeds, and support structures to handle the water depths and waves.

Second, developing standardized processes for
installation and O&M for floating offshore wind components.

Additionally, grid integration innovations and port infrastructure readiness strategies. So this could include studies on needs for grid expansion or port infrastructure and research on durable cabling for conveying power onshore.

And last, environmental impact assessment and minimization. This could include studies and tools to understand the implications for marine life, habitat, and upwelling, and develop mitigation strategies.

The goals include lowering cost; reducing the technical and financial risks; informing environmental planning; and supporting reliability.

I’ll now pass to my colleague, Mike Petouhoff, for the next strategic objective.

MR. PETOUHOFF: Thank you, Jonah.

This next strategic objective is to create a more-nimble grid to maintain reliability as California transitions to 100 percent clean energy.

This initiative assumes success of the previous initiative, which Jonah outlined, as well as that we’ll have a 3x increase in the growth, annual growth rate of clean generation with much of that coming from intermittent wind and solar. And that we’ll electrify transportation and buildings to create more load in new use profiles. So
we'll need to have a grid that can respond to and firm in shape the intermittent renewable energy that comes from the forces of nature. In short, we're going to need to deal with the “when”, the “where”, and the “how much” of power flow.

The first group of technologies across the top of this slide address the “when” of energy flow: the short and long duration storage and the zero-carbon firm dispatchable resources. These will make up for the peaks and valley of energy supply, so that supply meets demand at any given time.

The second group of technologies across the bottom of this slide are related to grid modernization. These technologies will address congestion at certain locations resulting from increased and more intermittent generation. The focus on grid congestion will be on technologies such as power flow control that can address “where” energy flows to avoid points of congestion. And such as advanced conductors that can increase the “how much” energy flows on a potentially congested line by increasing ampacity without extra weight. And together this supports the Garamendi Principles to minimize the impacts of new construction or rights of way as we increase transmission and distribution capacity.

We’ll also need to address power quality issues
that will arise in the grid of the future. As our natural gas fleet phases out it will no longer provide the stabilization from rotational inertia and will involve demonstrations of technologies to maintain synchronization. And also to control power factor and to control harmonics. And lastly we will need to focus on cybersecurity issues that will need to be addressed in the grid of the future, which is going to have more access points and higher degrees of modulation. Next slide, please.

This slide focuses in on the supply side technologies to support grid reliability to compensate for intermittent renewables.

For short duration storage we’re working both on improving lithium-ion as well as developing alternate battery technologies. Some of those alternates include zinc magnesium, zinc air, sodium metal, vanadium redux flow batteries, lithium sulfur, zinc bromide flow batteries, iron chromium flow, and slow speed fly wheels.

Our objectives will be on improving performance factors like degradation over time, the capacity for depth of discharge, and improving safety issues like thermal runaway as well as cost-effectiveness for the overall technologies. So we will work both to improve lithium-ion and also to develop alternative technologies to provide supply chain diversity.
In addition to focusing on development of energy storage technologies we’ll also be demonstrating additional energy storage use cases that supports grid reliability. These use cases might well include the use of onsite energy storage to improve vehicle to grid integration and many other use cases or applications, which support grid reliability.

For long-duration energy storage we're going to be developing storage such as flow batteries, flywheels, compressed air, liquid air, molten sulfur, molten salt, and even green methane and green hydrogen that may be used for storage. We’ll focus here on minimizing cost and environmental impact as compared with pump hydro.

And we are also developing a protocol to compare emerging types of long duration storage as they evolve in terms of their overall cost to ratepayers, the reliability services they provide to the grid, and importantly impact on the environment and local communities especially.

The protocol will include recyclability and materials lifecycle sourcing analysis, so that as we look at the materials that will compose the batteries of the future we’ll think about the resource constraints no that come with it.

And now I'll turn it back over to Jonah for the
next chapter.

MR. STEINBUCK: Thanks, Mike. And if you could just progress -- yeah, thank you.

So this next strategic objective covers a wide range of technology innovation topics related to distributed energy resources, or DERs, and seeks to maximize the benefits that they can deliver for both customers and the grid.

The benefits of DERs come in many forms: load flexibility, peak demand reductions, reducing or deferring grid upgrades, and supporting climate resilience and reliability.

The proposed R&D will help enhance the cost and performance attributes of DERs, support integration of DERs with the grid, and maximize their value.

Specific R&D areas include improving DER forecasting, developing low-cost renewable backup power systems, advancing grid-supportive EV charging and high-performance building design, among other areas.

I’m going to pass next to my colleague Erik Stokes to cover the design-build competition under the strategic objective.

MR. STOKES: Great. So thanks, Jonah.

So one of the topics we wanted to highlight in our strategic objective is our design-build competitions.
So we’ve found our design-build competitions to be an effective tool, to really help facilitate the deployment of new energy technologies into the built environment.

And the way we’ve kind of structured our design-build competitions is we just fund so many teams in the design phase, up to 12 teams broken across 4 geographical groups. And the design phase is really important to help start to align a lot of the business models and some of these other downstream activities, such as local permitting as well as design construction practices in the building sector. And align those with some of the emerging technologies that we're supporting through the broader EPIC program.

The first design-build competition we held what’s called the EPIC Challenge. And it focused on an advanced energy community.

We are currently in the process of our second design-build competition. And for the second one we focused on the mixed-use building sector and how do we make this building sector resilient, more affordable as well as all-electric and able to support both the broader grid and be a strategic deployment of the broader grid.

Several kind of benefits we see from this topic, one is to be able to demonstrate some technical pathways. In some of the harder building sectors it's going to take
the decarbonized and make sure that these building stops
can support the broader energy goals.

Second, this really provides an opportunity for
building stakeholders to kind of reach beyond conventional
technologies and conventional practices. And it
incentivizes them to try to adopt some of these emerging
technologies and emerging practices with the hope that some
of these, after they've been able to test them, take the
wheel, that they'll become standard practices in their
traditional, normal operations.

And third, helps facilitate the adoption of
advanced technologies and practices. And as I mentioned
earlier being able to align some of these design
construction practices around some of the key features and
benefits with energy technologies. Just as an example,
it's we've seen a lot of advancements in solid-state
lighting. That can bring benefits just beyond the energy
benefits of the technology.

And being able to kind of align design practices
around some of these newer technologies can help pave an
early way for them to be commercially available by taking
full advantage of some of their other characteristics.

So with that I’ll turn it back to Jonah who will
talk about the other topic we're highlighting in the
strategic objective.
MR. STEINBUCK: Thanks, Erik.

If you could just progress to the next slide, thank you.

So this topic focuses on enabling and demonstrating the benefits of using EVs as distributed energy resources. So we expect in the range of 8 million EVs in California by 2030. And those can serve as important assets for providing power to the grid or to a site as the Commissioners were highlighting in an earlier discussion on the Clean Transportation Program.

So the technology advancements here may include developing grid-interactive inverters in bi-directional charging equipment that support power flows from EV batteries to the grid or a site when the vehicles aren’t in use or when the charging need is flexible.

Second, advancing software for integrating EV charging with site or building management systems and demonstrating high-accuracy, low-cost sub-meters for EV chargers. This could facilitate tailored rates for EVs - as appropriate and help avoid costly separate service requirements.

The goals here are lowering costs at the site, enabling EV operator benefits, and delivering ratepayer savings through more efficient use of the existing electricity infrastructure.
And I’ll pass next to my colleague, Virginia Lew, for the next section.

MS. LEW: Hello. This strategic objective focuses on technology advancements to improve the value proposition of energy efficiency and electrification technologies in the industrial and building sectors.

California’s industrial sector accounts for over 20 percent of the state’s greenhouse gas emissions. And a large portion is due to high temperature process heating, which accounts for 85 percent natural gas use in industry.

Research topics focus on decarbonizing industrial high temperature process heating and separation processes.

One topic advances energy efficiency in the cement industry, an industry that produces over 8 million metric tons of CO2 annually in California.

The building sector accounts for 25 percent of the greenhouse gas emissions.

To meet the state’s decarbonization goals replacement of fossil fuel appliances with high efficiency electric systems will be needed.

Research topics here focus on reducing barriers to decarbonization such as through advancing building end-use electrification, increasing energy efficiency of existing buildings and end uses, and enabling electric load flexibility. Next slide, please.
This slide highlights one of our building efficiency research topics focused on high efficiency heat pumps that use low global warming potential refrigerants. Heat pumps will continue to use high global warming potential refrigerants. And these refrigerants are more potent greenhouse gases and can be hundreds to thousands of times more damaging than carbon dioxide. Recent analysis by the Energy Commission’s Efficiency Division indicates that use of these high global warming potential refrigerants can reduce the amount of greenhouse gas emissions’ benefit from heat pumps by up to one-third.

This research topic focuses on designing, testing and demonstrating high efficiency 120 volt and 240-volt heat pump water heaters and HVAC heat pumps that use low global warming potential refrigerants and reduce refrigerant leakage during the equipment’s life and also at the end of life. These units must be comparable or better than existing electric heat pumps with respect to efficiency, life, maintenance and capital costs.

The 120-volt heat pump water heaters and HVAC heat pumps are aimed to avoid electric panel upgrade costs. So the residential portion of this objective is targeted for installations in under-resourced communities. Next slide, please.

I’d like to pass it now to my colleague Erik.
Stokes who will discuss the next strategic objective

MR. STOKES: Yeah, thanks, Virginia.

So our next strategic objective we’ll continue our efforts under EPIC’s user support clean energy entrepreneurship across California.

Since around 2016-2017 under EPIC we've kind of stood up several programs, specifically geared towards startup companies and helping kind of pull these early-stage companies, these early stage technologies through the initial stages of the innovation pipeline. These efforts have helped support over 200 startup companies who have gone on to raise over approximately $2 billion in private sector investment after their initial support through the entrepreneurial ecosystem.

Looking ahead to EPIC 4 we have kind of three goals we want to accomplish with this strategic objective. One, we want to continue these programs that have been so important to startup companies, especially helping them move through the earlier stages of the innovation pipeline.

Second, as we kind of pull a lot of these startup companies through the earlier stages we are seeing gaps in the later stages that they are running into in their pathway towards commercialization. We want to help address some of those gaps in the later stages.

And finally, we want to expand and broaden some
of the entrepreneurial talent pool and start to kind of lay
in some of your non-traditional, potential clean energy
entrepreneurs into kind of our pipeline. And really help
them scale their innovations and their ideas towards
commercialization. Next slide, please.

So the topic I am going to talk about under this
strategic objective would be a new entrant into our
entrepreneurial ecosystem. And it’s really aimed at
helping bring in new entrepreneurial talent into
California’s clean energy startup sector.

In kind of our conversations with Greenlining
over the years through the CalSEED program they kind of
talk about their equity-in/equity-out framework. And then
most of our efforts on equity and then kind of support the
equity-out, this one is really aimed at the equity-in. And
we see a really big opportunity. There is a tremendous
amount of intellectual property that’s being developed that
research institutions such as the National Lab’s University
of California system. But it hasn't left the labs.

And on the flip side we believe there's kind of
this untapped entrepreneurial talent pool that if we can
kind of match the two, we think we can go to really help
accelerate a lot of these technologies towards the
marketplace. So this topic would establish kind of a new
type of incubator program, with the specific goals of
really trying to recruit diverse entrepreneurial talent and help match that talent with a lot of the intellectual property being developed at the research institution. And the big focus of this new incubator program would be to provide a lot of that support services a lot of these new potential entrepreneurial energy entrepreneurs and really help try to lower some of the entry barriers into energy entrepreneurship. One, by helping them finding the right type of intellectual property at the research institution. Helping them negotiate some of the licensing deals that you need to start your clean energy venture. And then providing other types of support to help get them started, such as helping them find access to the funding and loans, helping them finding access to mentors, and other types of support services that can help them under initial guaranteed scale of their technology and their potential business.

So with that I’ll turn it over to Jonah who will talk about the last strategic objective in the plan.

MR. STEINBUCK: Thanks, Erik.

All right, this last strategic objective contains R&D concepts supporting public health and equity, climate resilience, and environmental sustainability as we make progress towards our decarbonization goals.

For this objective, we are proposing research to
inform technological solutions for issues such as the disproportionate impact on under-resourced communities from climate-related stressors, like extreme heat and the impacts of climate change on the grid for example, from heat waves, drought, and wildfire. Next slide, please.

So this is one specific R&D topic. The aim of this topic is to support a climate-resilient transition to a zero-carbon electricity system. So research will focus on evaluating climate impacts on electricity demand, supply, and distribution to inform electricity system planning and operations. For example analysis could examine the effects of future extreme heat on air conditioning demand, and the impacts of drought on the availability of hydropower.

Additionally, this research will quantify the benefits of energy technology portfolios and strategies to address climate change impacts. So this could be at the grid-level or community-level and could examine technologies like distributed generation, microgrids, storage, as well as operational strategies like demand response and demand flexibility. And this research will then inform resilience and reliability investments. Next slide, please.

So in conclusion I would like to recognize the whole R&D Division team for their very significant effort.
to develop the initiatives in this investment plan. I’d also like to recognize in particular Misa Werner, who served in a lead role and whose contributions were just critical to get us to this point. And I would like to recognize Laurie ten Hope for her leadership and guidance throughout the investment plan process.

And with that we ask for you to adopt the EPIC 4 Investment Plan and our staff determination that this action is exempt from CEQA. And we request that you ask the Executive Director to finalize the plan and submit it to the CPUC by December 1st for their consideration.

Thank you. That concludes our presentation, and we are available if you have any questions.

CHAIR HOCHSCHILD: Great work, Jonah and team, thank you so much.

Do we have public comments on Item 6?

MS. GALLARDO: This is Noemi, the Public Advisor. If anyone would like to make a public comment please raise your hand using the icon on Zoom. If you are on by phone press *9. I do see a hand raised, so a reminder to please spell your name and indicate your affiliation, if any. The first speaker is Jim Hawley. Jim, your line is open and you may begin.

MR. HAWLEY: Thank you, Noemi. Jim Hawley, H-a-w-l-e-y. Lawrence Berkeley National Laboratory is the
affiliation. I just want to say good afternoon Commissioners and staff. And as you know Berkeley Lab is a multipurpose national laboratory managed by UC, funded by the U.S. Department of Energy, to advance public science and solutions to some of our most pressing challenges in energy.

And I’ll say Berkeley Lab and our 4,000 researchers and staff deeply appreciate the opportunity to support the work of the Commission. And I want to start with a public thank you, particularly to staff who created an EPIC renewal process that clearly identified your policy priorities to the research community and listened to our feedback that was inclusive. And that ultimately, I think, creates a strong roadmap for future investment.

Through EPIC, California has and continues to lead the development of clean energy technologies. But given the enormity of the problems we face we will unquestionably need new and improved technologies to meet the state’s climate goals. Berkeley Lab agrees that the draft plans objectives that were just described are necessary. Importantly, we're excited that the plan not only identifies key technology development areas, but also supports the entrepreneurial ecosystem that Erik mentioned is needed to bring new markets’ ideas to market. And it directs importance to support to addressing specific
problems of consumers who need affordable and accessible
solutions.

While the draft plan has the focus needed to
support the achievement of goals and publications like the
SB 100 report, we also appreciate its flexibility to
capitalize on new opportunities. For example, the Federal
Infrastructure Bill that the President will sign today
includes over $20 billion to accelerate development of new
low- and zero-carbon energy technologies, the EPIC
program’s inclusion of a federal cost-share program will be
extremely important to ensuring that California can compete
successfully for federal funding.

In summary, Berkeley Lab appreciates the
Commission's work here to develop a strong roadmap for the
future. Thank you for your leadership.

MS. GALLARDO: Thank you.

Let's see, I do not see any other hands, Chair,
for public comment.

CHAIR HOCHSCHILD: Okay. Thank you, Noemi.

Well listen, I sometimes feel like a broken
record, but I'm just going to say again this is phenomenal.
And the work of the whole EPIC team and the R&D team, just
tremendous. I mean, just looking at this list I just feel
each and every item of the topics that were lined up
address all the key challenges. It feels comprehensive,
it feels detailed, it feels on point and timely. Just incredibly proud of the team, and I want to first of all thank Jonah and everyone else who worked so hard to prepare this. So I'm thrilled to support this.

Let me just open it up to any others, maybe starting with Commissioner McAllister. Any comments on this?

COMMISSIONER MCALLISTER: Yeah, so I just want to thank you Jonah and the whole team, Virginia and Erik Stokes, Mike Petouhoff and Misa as well, and just the whole team. I mean this was a massive team effort, including with our colleagues across at the PUC.

And these ideas have gotten -- I think were put together in a really compelling way. Many, many research ideas that are all critical in one way or another for our state. And then getting them vetted both here and through the PUC’s process, I think, really gives them a legitimacy that is unrivaled in terms of research agenda.

And so I really want to thank you and congratulate you for sort of your first big deliverable as the deputy of the Division. And of course Laurie's fingerprints are on it in a big way and we owe a lot of gratitude to her for this and many other things. But I just want to give kudos.

And in particular, the pivot that we're making,
it's many things that I oversee and all of us oversee in our own ways. And it’s shifting attention or really expanding our attention beyond traditional considerations with reliability and really focusing on the distribution grid, a lot of the action is down at the distribution grid.

In addition to that, it's really a top to bottom, reliability is a top to bottom enterprise. And so the focus on making sure DERs get incorporated well and can contribute to reliability from sort of bottom up and, as well, as our buildings in the same way and our vehicles in the same way.

And kind of building the ecosystems necessary to optimize our path forward and make sure we have reliability and just take care of those electrons, because that's what it's about.

Anyway, so I wanted to just say again congratulations. And the focus on equity, I think, is it's highlighted at the end there but I think it's kind of woven throughout. And that's what we're trying to do across the whole Commission. So I want to just appreciate that aspect of this as well, so much care and thought and knowledge has really gone into this portfolio. So really looking forward to working with you all as a team and the Chair going forward. And really delivering benefits for all Californians.
CHAIR HOCHSCHILD: Thank you, Commissioner.

Other Commissioners wishing to chime in on this,

Vice Chair Gunda, yes please.

VICE CHAIR GUNDA: Yeah Chair, thank you. And Commissioner McAllister thank you for your words as well.

I just want to extend my thanks to Jonah, Mike, Erik and Misa and Virginia, it’s just a great, great kind of work.

I think R&D as a Division has a very unique opportunity to look at the enterprise-wide work we do. And has an ability and opportunity to really integrate all the work and needs, not just at CEC, but then working with CPUC and then bringing their perspectives. For me, I think a successful R&D Division at the CEC is kind of the cornerstone for kind of how we're going to feature climate goals. So just really grateful for all of your work and thoughtfulness and getting this moving. And just hearing the comments from Jim Hawley and data appreciation for a robust process, and just very, very nice to hear.

And as the Chair kind of mentioned, to me, I think it's extremely timely. All the topics that you raised are things that we are hearing every day, so it all feels like we're doing the right things. And the focus on equity, the focus on DERs, broadly resiliency and reliability just kudos to the team for bringing all those pieces into a cohesive framework. So more than anything, I
just wish you all the best. And hopefully we can put out some stations that are adaptable. As we go forward over the next five years, it's going to be an incredibly important transitional period for the state.

Look forward to working with all of you. I mean, there's so many intersections with SB 100, the gas transition, you all talked about the dispatchable and firm zero-carbon resources, which are all important pieces. So just looking forward to working with you all.

And just in closing thanks to Laurie. I think it's a good parting gift from Laurie to all of us just kind of completing this and seeing this through, so yeah good luck to the team. I'm looking forward to working with all of you. And yeah, congratulations.

CHAIR HOCHSCHILD: Thank you.

Commissioner Douglas.

COMMISSIONER DOUGLAS: I just wanted to congratulate the team as well. The amount of work and the depth and the breadth of the strategic objectives and the ground that's covered here is impressive. Of course, I'm very pleased to see offshore wind and a lot of the environmental topics and work as well that support our renewable energy work as well as so much more. And I want to thank the team for their hard work on this and I look forward to seeing this rollout and implementation.
CHAIR HOCHSCHILD: Commissioner Monahan?

COMMISSIONER MONAHAN: I’ll be very fast, because there's been so much said already, but I just think the two investment plans that we are -- it sounds like moving forward with approving today like together they really -- EPIC focusing on R&D, the clean transportation focusing on deployment. And how the two are working together, because there are a lot of intersection points, so I just really appreciate the depth of work that went into this EPIC investment plan.

We are going to miss Laurie, and I'm glad that she does have this parting gift. But Jonah, nice job pulling this together. And I really look forward to implementing the plan, together with the Clean Transportation Program’s investment plan.

CHAIR HOCHSCHILD: Well, thank you.

All right, with that I would entertain a motion on this item. Commissioner McAllister, would you be willing to move Item 6?

COMMISSIONER MCALLISTER: Absolutely, I move Item 6.

CHAIR HOCHSCHILD: Okay, Commissioner Monahan would you be willing to second?

COMMISSIONER MONAHAN: I second.

CHAIR HOCHSCHILD: All right, all in favor say
aye.

Commissioner McAllister?

COMMISSIONER MCALLISTER: Aye.

CHAIR HOCHSCHILD: Commissioner Monahan?

COMMISSIONER MONAHAN: Aye.

CHAIR HOCHSCHILD: Vice Chair Gunda?

VICE CHAIR GUNDA: Aye.

CHAIR HOCHSCHILD: Commissioner Douglas?

COMMISSIONER DOUGLAS: Aye.

CHAIR HOCHSCHILD: And I vote aye as well. That item passes unanimously.

Let’s turn now to Item 7, Blueprints for a Medium and Heavy-Duty Zero-Emission Vehicle Infrastructure.

MS. REID: Good morning, Chair and Commissioners. I'm name is Kate Reid, Air Resources Engineer with the Fuels and Transportation Division’s Freight and Transit Unit. We’re seeking approval today for two agreements resulting from the “Blueprints for Medium and Heavy-Duty Zero-Emission Vehicle Infrastructure Solicitation”.

This solicitation was released in July 2020. $3 million was available to fund planning “blueprints” to identify actions and milestones needed for implementation of medium- and heavy-duty zero-emission vehicles and the related electric charging and/or hydrogen-refueling infrastructure.
A minimum of $1 million of total funds was set-aside for public entities. Subsequently, the Energy Commission increased the total funding to approximately $8 million, which allowed all applicants with a passing score to be funded.

Under this solicitation, 40 projects were proposed for award. The majority of those projects were presented and awarded at previous business meetings. Today I will present two more, and the remaining projects will be presented at later business meetings. Next Slide, please.

The proposed projects will create roadmaps for large-scale infrastructure projects, plan for resiliency, and provide best practices and key lessons learned for future replicability at other private and public agencies.

These blueprints will also help other agencies and fleets understand, which technologies may work best for their applications, routes, and driving environments, which will ultimately accelerate meeting California’s goal of transitioning medium- and heavy-duty trucks and buses to zero-emission by 2045.

Finally, the majority of these projects, once implemented, will benefit low-income communities, disadvantaged communities, and/or tribal lands. Next slide, please.

Forty agreements were selected for approval and
award. The breakdown of vehicle sector is shown on this slide. Most of these projects will address fleets, goods movement, and transit. The remainder will seek to address smaller sectors such as school buses, port equipment, and the “other” category shown here, which is comprised of airport ground support, ferries, and refuse collection. Next slide, please.

The first proposed agreement is with Central Coast Community Energy. The Central Coast Medium-Duty and Heavy-Duty Zero Emission Blueprint is sponsored by Central Coast Community Energy or 3CE, which is the Community Choice Energy provider for Santa Barbara, Monterey, Santa Cruz, San Benito, and San Luis Obispo Counties. 3CE was established by local communities to source carbon-free electricity. Sponsorship by 3CE enables this project to address the needs of all communities in the five-county region, to integrate with existing electrification initiatives of 3CE, and to comprehensively address vehicle-grid integration issues from a utility perspective.

The key goal of this Blueprint is to accelerate the deployment of ZEVs and related infrastructure to help decarbonize medium- and heavy-duty vehicle usage throughout the central coast region. Next slide, please.

The next proposed agreement is with the MHX, LLC. As a multi-modal epicenter of heavy goods movement, the
Ports, the I-710 Heavy-Duty Corridor, and associated intermodal transfer facilities will require an integrated zero-emission vehicle blueprint planning and engagement process to facilitate an accelerated, forward-thinking, and cost-effective ZEV transition.

MHX links directly with each of these key intermodal system operators and is a uniquely positioned hub entity to identify solutions for MD/HD zero-emission vehicle recharging or refueling across these key nodes of California’s intermodal logistics ecosystem. MHX owns and operates seven of its own depots and transshipment facilities in Compton, Fontana, Carson, Vernon, Helendale, Rancho Cucamonga, and Stockton, as denoted in the graphic on this slide. All of these facilities are served by rail, all offer multi-commodity trans load capabilities, and five include substantial indoor storage facilities.

The proposed project will enable MHX to fully equip its fleet with heavy-duty ZEVs and resilient charging or refueling infrastructure and articulate a holistic and futuristic view of freight planning – with a special focus on heavy goods movement at intermodal terminals in California’s leading ports and railyards. Next slide, please.

Staff recommends approval of these two grant awards and adoption of staff’s determination that the
projects are exempt from CEQA. That concludes my presentation. Thank you all for your time and consideration of these items.

CHAIR HOCHSCHILD: Thank you, do we have public comment on Item 7?

MS. GALLARDO: This is Noemi, the Public Advisor. Attendees if you would like to make a public comment please use the raise-hand feature, if you are on by phone press *9.

Chair, I do not see any hands raised for public comment.

CHAIR HOCHSCHILD: Okay. Let's turn to Commissioner discussion, starting with Commissioner Monahan.

COMMISSIONER MONAHAN: Well, you've seen these blueprints before and you'll see a few of them in the future. And as I said before these types of blueprints are just really critical for being able to plan out all the different actions that need to occur in order to zero out emissions, especially from the goods movement sector. So I think these are really valuable and they're an important sort of base level before we start the investments in the actual build-out of the infrastructure.

CHAIR HOCHSCHILD: Terrific.

Any other Commissioners wishing to make a comment
on this? Seeing none, I'm in full support and would welcome a motion for Item 7. Commissioner Monahan, would you be willing to do that?

COMMISSIONER MONAHAN: I move to approve Item 7.

CHAIR HOCHSCHILD: Okay, Vice Chair Gunda, would you be willing to second?

VICE CHAIR GUNDA: I second Item 7.

CHAIR HOCHSCHILD: All in favor say aye.

Commissioner Monahan?

COMMISSIONER MONAHAN: Aye.

CHAIR HOCHSCHILD: Vice Chair Gunda?

VICE CHAIR GUNDA: Aye.

CHAIR HOCHSCHILD: Commissioner McAllister?

COMMISSIONER MCALLISTER: Aye.

CHAIR HOCHSCHILD: Commissioner Douglas?

COMMISSIONER DOUGLAS: Aye.

CHAIR HOCHSCHILD: And I vote aye as well. That item passes unanimously.

Let's turn now to Item 8, BESTFIT Innovative Charging Solutions.

MR. CORRIGAN: All right, do we have the slideshow up and ready to go? Okay, cool.

All right, good morning, Commissioners. I'm Kyle Corrigan and I am an Associate Energy Specialist in the Fuels and Transportation Division and I work in the Light-
Duty EV Infrastructure and Analysis office. Today, I’ll be presenting several proposed agreements from our BESTFIT Innovative Charging Solutions solicitation. Next slide.

This solicitation focused on charging solutions for electric vehicles, and the headline for this item is “Innovation.” California is so diverse that there is no silver bullet, one-size-fits-all charging solution for EVs. California’s aggressive transportation electrification goals will encompass a diverse selection of EVs and use cases, such as innovative fast-charging models, modernized automatic charging systems, and the capability to manufacture new tools for these developing technologies. These will all require tailored solutions.

The BESTFIT Innovative Charging Solutions solicitation sought projects that would develop and accelerate the commercialization of truly innovative technologies and business models to add to the state’s portfolio of charging solutions. The proposed agreements I will present contain numerous benefits, including boosting driver confidence in transitioning to an EV, lowering the cost of charging and installation, minimizing grid impacts, and improving equitable access to charging. Next slide.

Funding for this solicitation was split between light-duty projects and medium- and heavy-duty projects. Today I will only be presenting on four proposed light-duty

CALIFORNIA REPORTING, LLC
229 Napa Street, Rodeo, California 94572 (510) 224-4476
projects and one proposed medium- and heavy-duty project. Next slide.

Our first proposed agreement is with Eneridge, who will install six Ultrafast chargers with integrated battery packs. Eneridge will use Free Wire’s Boost Charger DC fast chargers. These chargers utilize integrated battery packs to charge from existing infrastructure and can replace two to four 7.2-kilowatt Level 2 chargers to provide a much higher charge rate via the 120-kilowatt DC fast charger. The charge rate provided by the DC fast charger is over 10x that of a single Level 2. The integrated battery packs make it possible to utilize the same infrastructure as the L2 chargers. This provides a solution to costly infrastructure modifications to accommodate high-speed DC fast chargers. Eneridge will monitor the status of the six chargers and record utilization data. Next slide.

Our next proposed agreement is with ConnectMyEV, who will develop and deploy an automatic charging solution. Some key project benefits are streamlined charging through automation; high throughput, compact charging; and space efficiency for fleets and apartments in dense cities.

The system will utilize charging stalls to queue EVs for charging. It will accommodate up to three EVs at one time allowing for a simple automatic system. This
would maximize charging output by automatically rotating EVs as they are charged. This will help prevent wasted time when an EV is fully charged at a charging station, which is especially helpful for high-demand charging situations. Next slide.

Our next proposed agreement is with Andromeda Power, who will develop and manufacture a new adapter that will provide networks demand response capabilities in non-network chargers. These adapters provide a new solution to integrating non-network chargers. And this can be a lower-cost solution to managing peak demand when several EVs are simultaneously charging. The simplicity of the adapter would provide a cheaper option for networking chargers without needing to fully replace the non-networked devices. Next slide.

Our next agreement is with ChargePoint. This project solved a key issue for space-constrained light-duty EV fleet operators by providing a charging solution that is flexible and can be installed into a variety of parking configurations and depot spaces. This flexibility can further remove barriers to fleet operators adopting EVs by making it possible to utilize a variety of charging models. This system can easily accommodate different vehicle types, such as vehicles with different port locations depending on the model. And this can also help with many different
parking or queuing configurations. Next slide.

And then our final agreement and the only medium/heavy duty agreement is with Electriphi, Incorporated. The proposed agreement will demonstrate the potential for accelerated commercial deployment of advanced utility and grid-integrated smart-charging management in the context of a large and diverse electric school bus fleet.

The primary focus will be on minimizing operating, purchase, and installation costs with a secondary focus on demonstrating advancements in charging interface including demand response and load management programs. This project will be based in Sacramento, specifically the Twin Rivers Unified School District, and demonstrate Electriphi’s advanced Smart Charging Management, SCM, system. It will demonstrate related utility grid service program innovations developed by SMUD. Next slide.

The market potential is great for these five agreements. Each of these agreements has its own niche use-case scenario that has potential to upgrade the modern EV infrastructure marketplace. Innovative ideas such as using existing infrastructure to accommodate newer technologies are always welcome as cost-effective solutions in a rapidly changing marketplace. These new ideas
utilizing automation each provide their own unique value to
the EV infrastructure marketplace of today.

The benefits of innovation and automation are
clear, whether it’s a robot pulling your car into a
charging stall or a program running to manage grid strain
from several simultaneously charging fleet vehicles. It
goes without saying that each of these new ideas provides
its own unique value to the EV infrastructure marketplace
of today. Next slide.

Staff recommends approving the proposed
agreements with Eneridge, ConnectMyEV, Andromeda Power,
ChargePoint, and Electriphi, Inc. In addition, staff
recommend adopting staff’s determination that this action
is exempt from CEQA.

This concludes my presentation, thank you. We
have a few representatives who are available for public
comment. Thank you.

CHAIR HOCHSCHILD: Thank you.

Do we have public comment on this item Noemi?

MS. GALLARDO: This is Noemi Gallardo, the Public
Advisor. Let me remind folks if anyone would like to make
a public comment please use the raise-hand feature to
indicate you would like to do so. If you are on by phone
please press *9.

Chair, I'm not seeing any hands raised. Oh
actually yes, I just saw one. All right, Damon Kim, a
reminder to please spell your name, indicate your
affiliation if any. Your line is open and you may begin.

MR. KIM: Good afternoon, I'm Damon Kim from
Eneridge. It is my pleasure to join the Business Meeting
and give a short appreciation to California Energy
Commission as one of the orders of BESTFIT grant program.

First of all, I would like to thank CEC for
giving us the opportunity to demonstrate and deploy our
charging stations with 120-kW Ultrafast charger with
integrated battery pack developed by FreeWire Technologies.
As a charging-station service provider and small and
minority-owned business, this grant will be very helpful to
successfully finish our project in Southern and Northern
California and to help us to support California’s EV
adoption goals. Thank you.

MS. GALLARDO: Thank you.

All right, that is the only hand I saw raised,
Chair, no more hands.

CHAIR HOCHSCHILD: Okay. Thank you.

Let's turn to Commissioner discussion.

Commissioner Monahan.

COMMISSIONER MONAHAN: Well, I mentioned before
there's this intersection point between the Clean
Transportation Program and the R&D from EPIC, and this is
one of those places where there's a little bit of overlap. I would say these are forward-looking. We realize that we don't have all the charge management strategies that we need for every use-case and so to me, these are really an exciting -- I'm going to keep asking the team for more of these types of investments, because we really need to make sure that we are future-proofing our investments in charging infrastructure.

And I would say there's two major themes from the series of investments that Kyle has outlined. One is for innovation on the charge management, so vehicle integration side. The other is innovation on the actual architecture of the charging infrastructure. And so this package of investments does both.

And I'm excited to give my wholehearted support for them. I think hopefully we'll see more of those in the future as well. And we'll have some lessons learned from these investments.

CHAIR HOCHSCHILD: Thank you.

Unless there's other Commissioner comments I’d welcome a motion from you, Commissioner Monahan, on Item 8.

COMMISSIONER MONAHAN: I move to approve Item 8.

CHAIR HOCHSCHILD: All right. Commissioner Douglas, would you be willing to second that?

COMMISSIONER DOUGLAS: I second Item 8.
CHAIR HOCHSCHILD: All in favor say aye.

Commissioner Monahan?

COMMISSIONER MONAHAN: Aye.

CHAIR HOCHSCHILD: Commissioner Douglas?

COMMISSIONER DOUGLAS: Aye.

CHAIR HOCHSCHILD: Commissioner McAllister?

COMMISSIONER MCALLISTER: Aye.

CHAIR HOCHSCHILD: Vice Chair Gunda?

VICE CHAIR GUNDA: Aye.

CHAIR HOCHSCHILD: And I vote aye as well. That item passes unanimously.

Let’s turn now to Item 9, Approval of the Minutes. Any public comments on Item 9?

COMMISSIONER MCALLISTER: I'm going to abstain.

Just FYI, I'm going to abstain since I missed that meeting.

CHAIR HOCHSCHILD: Okay, thank you. Any public comments on Item 9?

MS. GALLARDO: Attendees, this Noemi Gallardo, the Public Advisor. If you would like to make a public comment on this item, please raise your hand using the icon on Zoom. If you are on by phone please press *9 to indicate you would like to make a comment.

Chair, I do not see any hands raised on this item.

CHAIR HOCHSCHILD: Okay, we'll have Commissioner
McAllister abstain. Commissioner Douglas, would you be willing to move Item 9?

COMMISSIONER DOUGLAS: I move Item 9.

CHAIR HOCHSCHILD: And Commissioner Monahan would you kindly second?

COMMISSIONER MONAHAN: I think it's Item 8, but yes I second Item 8.

CHAIR HOCHSCHILD: No, we're on Item 9. This is Approval of the Minutes.

COMMISSIONER MONAHAN: Oh sorry, I must have (indiscernible) --

CHAIR HOCHSCHILD: No, it's Item 9.

COMMISSIONER MONAHAN: Oh yes, I second.

CHAIR HOCHSCHILD: All in favor say aye.

Commissioner Douglas?

COMMISSIONER DOUGLAS: Aye.

CHAIR HOCHSCHILD: Commissioner Monahan?

COMMISSIONER MONAHAN: Aye.

CHAIR HOCHSCHILD: Vice Chair Gunda?

VICE CHAIR GUNDA: Aye.

CHAIR HOCHSCHILD: And I vote aye as well, with Commissioner McAllister abstaining. That item passes 4-0.

Let's turn now to Item 10, Lead Commissioner Presiding Member Reports. Why don't we begin with how about Vice Chair Gunda to start us off?
VICE CHAIR GUNDA: And thank you, Chair. It looks like both Commissioner Monahan and I had an affinity to a second Item 8 that we both voted on. (Laughs)

But anyways, since the last business meeting there's a few things that happened that I wanted to just share with all of you and the broader stakeholders that are in attendance today. So we kind of went through a few different analyses that were kind of important for this winter.

So staff has completed some preliminary work to help inform winter reliability as we're going into the winter on the natural gas side, given global gas prices have been a little higher. And so at CEC, our gas team and the CPUC gas team worked closely together, to kind of have an informed understanding of how we are looking this winter.

Just for all of you the Northern California system looks pretty good. And there is a little bit of an elevated risk of reliability, more so on the prices in the south zone of SoCal system. So still nothing to really worry at this point but staff are closely monitoring that, keeping an eye to keep us all informed. So that's on the assessment side just going into the winter on the gas side.

I'm really glad that we got through the summer this year, so I'm betting we can now put behind the
electricity reliability for the summer now that we're in mid-November. So we're looking good. But there are a few things that happened since we met last time.

As we move into the 2022 there has been a decision on Redondo Beach at the Water Board, so there's going to be an extension of those 800 megawatts going into next summer. So our staff are looking into updating our stack analysis for 2022 with Redondo Beach with some of the new resources that are coming online. And also I know CPUC has put out a proposed petition on the emergency procurement for next year. So once we have some numbers and all that staff are going to look into updating the stack and then bringing it back to all of us to get a sense of summer 2022 as we go into that.

I also had a few opportunities to speak and talk about our clean energy journey. There's a number of cool meetings I was a part of, a couple of things that I wanted to note. Staff put together a peer-to-peer exchange on the natural gas discussion more broadly, the natural gas transition nationwide. And it has been an interesting discussion just to think about the similar issues that so many states are grappling with on the gas transition and different states thinking about hydrogen, RNG, CCS (phonetic), but also looking at ways to make the transition equitable by thinking about accelerated depreciation of
such. So I mean Colorado is doing some good work, very interesting work, Minnesota is looking at some cool ideas. So it was great to kind of be a part of that, part of the discussion.

I also had a chance to speak at Lesley McAllister’s symposium on energy and law last Friday. And I just wanted to note that specifically, because it was just an honor to be there to support the legacy of Lesley McAllister, as we all know, the late wife of Commissioner McAllister. And one of the things I shared there, and I just wanted to share here, is that so much of this transition that we are in calls for a moment of coming together with integrity. And coming together as closely as we can to develop a consensus and move forward together with humility and an appreciation and a love for future. I

And I think Commissioner McAllister does it so beautifully. And I am just so glad to highlight that when in the company of Commissioner McAllister, and through him I’ve come to know a little bit about Lesley McAllister. And I’m just so glad to be a part of this group. And Commissioner McAllister, thank you for the opportunity to speak there. It was just an absolute privilege to be there. And thank you for all your work and I was just very, very glad to be there.

There’s a couple of workshops that I wanted to
point out. We kicked off the non-energy benefits
discussion on the SB 100 thanks to Commissioner Douglas in
a partnership with her on just moving the discussion
forward. It has been something that the DACAG and a lot of
the environmental justice groups have been asking us to
think about. So this is going to be a kickoff over the
next two, three years we're going to work on the non-energy
benefits and integrate that into the SB 100. So that was
November 1st.

And November 2nd we had a scoping plan workshop
at CARB that was done very collaboratively, to think about
the energy system and transition (indiscernible)
transition. Again, very similar discussions, the role of
hydrogen, CCS, and all of that was put on the table.

So taking all those questions in I had an
opportunity to have my one-on-ones with most of the DACAG
members. As we go into the 2022, I would really like to
think through the energy transition and equity and
developing a framework for some of the decisions we have to
make on the energy system. So just flagging that to all the
colleagues here and the stakeholders that it's going to be
an important discussion to have. I think we are a lot of
long-term resources that need to be decided today. And
having a framework that we all feel comfortable to move
forward in decision-making would be extremely timely and
beneficial, so that's something we're going to be looking into.

And lastly, I'm trying to hire a first advisor, so I've got a bunch of applications and looking through them, hopefully make a choice by the end of the month and have a team.

And I want to always kind of close off with Liz. Liz's baby is doing great. I'm still getting a bunch of pictures from her, wonderful. And thanks to my team, Miina, Le-Quyen, Sudhakar and Alicia (phonetic) for all their work. Back to you, Chair.

CHAIR HOCHSCHILD: Thank you. Let's go to Commissioner Monahan next.

COMMISSIONER MONAHAN: Well, first I want to say it's nice to see Vice Chair Gunda more relaxed. I think he in particular has shouldered a lot of the responsibility around reliability this summer, so I hope you have a good break and that it lasts a long time.

So I was on vacation in Kauai (phonetic) for some weeks, so I had to put my work hat back on. I had a great time in Kauai. I would recommend it for anybody who wants to see beautiful places.

But a few things that have come up since our last Business Meeting, this morning actually right before the Business Meeting I was on a small White House meeting
around the Infrastructure Bill and the money that's coming
to states. And the federal government is really wanting to
ensure that some coordination with the states and pulling
together advisors to help with that process, so looking
forward to having the funds flow to California in a way
that makes the most sense for us to be able to achieve our
goals.

I have done the number of presentations from a
national perspective on California. Again, to kind of
communicating California success in this, so one was with
the National Academy of Sciences Engineering and Medicine.
Another was I was the keynote at the Colorado Sustainable
Transportation Summit with Will Toor who's the head of the
Colorado Energy Office. So it's a pleasure, of course,
always to talk about what California is doing and help
other states as they try to follow our lead.

We've had a couple of workshops that have been
really interesting. One was on $150 million for ZEV
manufacturing grants and that's way more money, much more,
by a factor of 10, 20 then we've ever had for this
category. So the team has pulled together a workshop. I
think they're doing a great job in terms of thinking
through all the different tracks, potential tracks,
including lithium-ion extraction, I mean lithium extraction
rather, from the Salton Sea. And battery manufacturing in
addition to ZEV manufacturing, component manufacturing, and chargers and hydrogen infrastructure. So there's a lot of ways that we can support this industry in California to make sure that we remain kind of at the center when it comes to ZEV manufacturing, not just ZEV deployment.

And last thing I want to mention I went to the opening of the Enel X office. And you may know Enel X from its work as a global energy provider and management systems. So they've opened a new office in San Carlos, totally worth seeing. It's very interesting, they're basically doing what we want in terms of not just chargers, but thinking through the smart-charging aspects and really linking it to demand response, renewable energy generation. So a really innovative company and glad to see them opening an office in San Carlos. That's all.

CHAIR HOCHSCHILD: Great. Thank you.

Commissioner McAllister?

COMMISSIONER MCALLISTER: Sure, well thank you. Let's see, I did miss the last business meeting because I was actually at an in person meeting in Portland, Maine. It was the NASEO Annual Meeting. And I just want to highlight not any particular issues, because it's always a wide-ranging conversation, but just the fact that we during the pandemic, and now actually in person, have been making sure to coordinate with other states around all the issues
that we care about. And as Commissioner Monahan said, often we have something to share that can help lead the way for other states. But I think there's also often it's a two-way street and other states are coming up with innovative solutions as well.

And even the likes of Louisiana looking at carbon sequestration and utilization and stuff. So we have different perspectives on that and we probably end up in a different place than many other states on that. But still the building blocks are worth collaborating on wherever we can. And so I think that's just a positive sort of approach to take to the Hill and help shape what's going on with the infrastructure bill and other arenas as well, so.

And let's see, just FYI the NASEO, which is the National Association of State Energy Officials, they do keep very on top of the flows of funding potential for California. So we benefit from that by being members and have really kind of a main line to the committee staff and others in DC.

I wanted to highlight the CREPC WIRAB meeting, which was three weeks ago. So CREPC is the Committee on Regional Electric Power Cooperation and WIRAB is the Western Interconnection Regional Advisory Body. And they really are all the states getting together. It's a mix of PUC folks and state energy office folks to just think West
wide about different issues. And there's a lot going on right now in terms of a Western conversation around RA.

And then also the expansion of the day ahead market by the California ISO. And that's sort of, I think, going to play out. It's early days, but it is leading towards much more collaboration and communication across the Western Interconnect, which is I think really a positive thing.

And the ISO and the PUC are very much engaged, so Elliot and his team and Commissioner Rechtschaffen over the PUC largely, and Commissioner Guzman are carrying that water. But really interesting and I look forward to some progress there.

Let's see, I want to just say a few thank yous. The IEPR team has been just burning the midnight oil, and just on all the different volumes that are emerging now, and sort of final internal review, agency review, before they go public.

And I to thank Commissioner Gunda for his partnership on many of the topics in IEPR this year. But really all the Commissioners as well for reviewing and for attending many of the workshops, our most recent one being the building decarbonization or grid interactive efficient buildings where we had the Department of Energy, David Nemtzow. And really a wide ranging very productive discussion, I think, to sort of try to true up our various
activities around high performing new construction that's grid flexible.

So I just want to thank Heather and the whole team, you know, many, many people to thank there. But they've done a great job this year.

One thing I wanted to just mention quickly in the NASEO context that I forgot was there's a lot of institutional memory in terms of what happened during ARRA. And so, a lot of I think what we can bring to the table is helping reflect upward to the Department of Energy and maybe that's through your participation in that, Commissioner Monahan and that advisory group, of any channel that we have. But I'm trying to avoid the programmatic potholes that sort of befuddled some of the ARRA, the American Reinvestment Recovery Act, back in the day. That's now been 10 or 15 years, but I think we still can learn a lot from that and really get the money out more effectively as a result.

So let's see, a couple of other things now. So we continue to meet the Housing and Decarbonization Working Group across the agencies. And I just wanted to highlight that there are a couple of new people in agency land that are just going to be super positive. One is Sasha Kergan who is now the Deputy for Secretary Castro Ramirez over at the agency, Consumer Affairs, the Business, Consumer Affairs.
Affairs and Housing Agency -- really invigorating sort of participating in that conversation on behalf of that agency.

And then Sam Assefa, who is the new head of OPR who came down from Seattle, and is just full of good ideas. And so I think sort of looking at the state's efforts in affordable housing, particularly new construction, and we will be moving on to talking about existing buildings. That's really positive. I think there's a lot of positive engagement there.

And not least by the Department of Community Services and Development, which is also being also beginning to get engaged.

So two last really quick things. So I was happy to help kick off the CEC Familia that all the CEC staff that have Hispanic Latino Latinx roots, they got together. And I was really happy to see that forum and just another instance of our trying to be inclusive and sort of fly all the flags that we have at the Commission, which are dozens and dozens of them. And in particular I think it's appropriate for the Latin American connection, Mexico primarily, but really across Latin America with California. And I just think I'm so proud to be in an agency that can celebrate that. And celebrate diversity in a real way. So thanks to Guadalupe Corona who organized that alongside
with Noemi and Carousel. Really it's a beautiful effort, so thank you.

And then finally I just want to thank Commissioner Gunda, Vice Chair Gunda, for speaking at the Lesley K. McAllister Climate and Energy Symposium, the 13th one. And a few of you at least knew Lesley or had met her and she was so -- she put her heart of the law and into environmentalism. And really found a way to add incredible knowledge and nuance to Cap and Trade and just many, many other kind of detail regulatory conversations that are fundamental to our making progress. And just her legacy is still just -- her footprint, her legacy is just massive.

And I also wanted to just acknowledge Commissioner Houck over at the PUC and Alice Reynolds from the Governor's Office who also participated in that event. And Scott Anderson and the whole USD, the University San Diego EPIC team, they have an EPIC down there at their Energy Policy Initiative Center that organizes that symposium every year. So it just means so much to have that engagement, so thank you. And I really appreciate that.

So I think that's it for me thank you.

CHAIR HOCHSCHILD: Well, thank you for sharing that. And I do think it's true that people can continue to do good even after they're gone and inspiration carries on.
So I'm so glad to hear that symposium is a success. Thank you for sharing that.

Let's go to Commissioner Douglas next.

COMMISSIONER DOUGLAS: Thank you, Chair Hochschild. So I have looked at my calendar and I actually don't think I have items to share from since the last business meeting. I've been busy, but no major milestones or anything and so I think I'll pass on this report. But thank you.

CHAIR HOCHSCHILD: All right, great. So I can just give a couple highlights. I've been on travel for three-and-a-half weeks. Offshore wind was one of the big things I was spending time on. I visited three different wind factories in three different countries and then went to three different wind projects, offshore wind projects in Portugal, in Denmark, and in the UK. And the main message I wanted to bring back is that this technology is legit. It is going big time. And I do not think most people in the United States have yet come to see just how significant a resource this will be.

So in the UK they're getting 10 gigawatts today of offshore wind. That's what's installed today. They're going to 40 gigs. Their peak demand is only 60 gigs and the wind resource is phenomenal. It's basically blowing all the time off sure. So they're going to get the
majority of their electricity from this technology and the movement is further and further offshore. You know, their projects they're building now are 50, 60 miles offshore in some cases, so far out of sight. And the scale is just phenomenal.

So I visited the largest wind turbine in the world, which is 14 megawatts is getting installed in a couple weeks in in Denmark. And just as an example, I mean the blades on that turbine are longer than a football field. They're doing 105 meter blades now. And every estimate of when it would be the largest, and what the ceiling on the size of the technology is (indiscernible), they can just keep going through that.

So my conclusion, I think we are headed towards 25 megawatt turbines and maybe significantly larger. And that's all very, very good for cost reduction. And just super encouraging to see and to learn from some of the folks who've been on the front lines for a long time there. They've been doing offshore wind in Denmark since 1991. And in the UK, a lot of their experiences I download at length with Commissioner Douglas about what we can learn from this, so that was really encouraging.

I wanted to especially thank Alana Sanchez who helped organize all the complex logistics for this multifaceted trip.
I did have a good meeting with Secretary Granholm as well as Governor Lujan of New Mexico, Governor Bel Edwards of Louisiana, Governor Ige of Hawaii among others. Some great delegation visits with Germany, Israel and others. And a bunch of dialogue on different topics. But the highlight for me really was the offshore wind. That's the main thing I'm taking from that whole trip, is just our need to really scale that technology.

And so grateful again for Commissioner Douglas and her incredible leadership and the whole team working on this. I think this is time very, very well spent. It's been a long day, so I'm going to just stop there and thank everybody.

And with that let's see, I think we need to go to Executive Director's Report. Drew, do you have anything to report?

VICE CHAIR GUNDA: Chair, I don't know Commissioner Monahan went, did she?

CHAIR HOCHSCHILD: Yes, she did.

VICE CHAIR GUNDA: Okay, thank you.

CHAIR HOCHSCHILD: Drew, do you have anything to report? Is Drew still with us? Oh, there he is, so yes. Are you on mute, Drew?

MR. BOHAN: Apparently. Yes, thank you. Is that better?
CHAIR HOCHSCHILD: Yes.

MR. BOHAN: All right, good. Lips moving with sound coming out is better, so two quick things for you guys.

Thank you Chair and Commissioners, I just wanted to report that our telework policy is finalized. The CalHR finished their policy last month. CNRA sent theirs to us week before last. And last week we sent ours to the unions, and we have to wait 30 days to them to review it. And we need to confer if they would like us to, and we will have the final telework policy. As you know it is very bullish on telework. So that will be our future going forward. Hopefully folks will be more in the building as the pandemic eases, but I wanted to let you know that that's done.

And I also just want to say happy holidays to all of our staff with Thanksgiving coming up, a well-deserved break. We have been pushing hard. You guys have been pushing hard as our leaders and staff has just been working so hard. And so I hope they will be able to take a nice long break over Thanksgiving. Thank you.

CHAIR HOCHSCHILD: Thank you.

Public Advisor's Report?

MS. GALLARDO: Hello, there. No major report, I just wanted to say thank you for all the support today, and
just the entire year. And especially the support and
uplifting of the DACAG. They are working really hard.
They're a great advisory group. I'm really grateful that
we have them and to be able to work with them, so just
wanted to acknowledge you for uplifting them. And that's
it for me.

CHAIR HOCHSCHILD: Thank you. Any public
comment, Item 13?

MS. GALLARDO: Let me read those instructions,
just a sec. All right, sorry about that.

So this is the period for any person wishing to
comment on information items or reports of the meeting
agenda or any other item. Each person has up to three
minutes to comment and comments are limited to one
representative per organization. We may reduce the comment
time, depending on the number of commenters.

Use the raised hand icon to indicate your
interest in making public comment. If you're on the phone
press *9 to raise your hand and *6 to unmute.

After you are called on, please restate and spell
your first and last name. State your affiliation if you're
representing a tribe, agency, organization or any other
entity. Do not use the speakerphone when talking, because
we won't hear you clearly.

All right, let me check for hands. I do not see
any hands raised, Chair.

CHAIR HOCHSCHILD: Thank you.

Item 15, Chief Counsel's Report?

MS. BARRERA: Hi Chair and Commissioners, I don't have a formal update. But I do want to just let you know that the Chief Counsel's Office has an Attorney I and an Attorney III position open. And we've been very proactive and I've gone to in-person meetings at law schools and also virtual meetings and will continue to do so. So if you know anybody who's exciting and bright and passionate about supporting the Commission's missions, please spread the word about our attorney positions. Thank you.

CHAIR HOCHSCHILD: Thank you so much for that.

All right, good to know.

All right, we are adjourned everybody. Thank you.

(The Business Meeting adjourned at 2:41 p.m.)
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 24th day of November, 2021.

(PETER PETTY)
CER**D-493
Notary Public
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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 24th day of November, 2021.

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