

DOCKETED

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BUSINESS MEETING

BEFORE THE

CALIFORNIA ENERGY COMMISSION

In the Matter of:)
) 22-BUSMTG-01
Business Meeting)
 _____)

WEDNESDAY, JUNE 8, 2022

Notice of Meeting Continuance to 11:00 a.m.

In-person at:
 Warren-Alquist State Energy Building
 1516 Ninth Street
 Art Rosenfeld Hearing Room
 Sacramento, California 95814
 (Wheelchair Accessible)

Option for Remote Public Access via Zoom.

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.

Reported by:
Peter Petty

APPEARANCES

Commissioners

David Hochschild, Chair
Kourtney Vaccaro
Andrew McAllister

Staff Present:

Drew Bohan, Executive Director
Linda Barrera, Chief Counsel
Dorothy Murimi, Public Advisor's Office
Keith Winstead, Lead Compliance Project Manager
Joseph Hughes, Engineering Office AQ Manager
Jennifer Baldwin, Lead Counsel
Matt Pinkerton, Chief Counsel's Office

Also Present

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Jennifer Martin-Gallardo	2
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Che Geiser	6
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Alexandra Kovalick	9
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Pursuant to Government Code Section 11126(e), the CEC may adjourn to closed session with its legal counsel to discuss any of the following matters to which the CEC is a party:	
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1 P R O C E E D I N G S

2 JUNE 8, 2022

11:08 a.m.

3 (Start of Introductory Video.)

4 MS. MURIMI: Thank you for joining us for the
5 California Energy Commission's Business Meeting. The
6 California Energy Commission's June 8th, 2022 Business
7 Meeting will be continued to 11:00 a.m. instead of
8 beginning, as originally scheduled, at 10:00 a.m. Pacific.
9 All other meeting information, including public
10 participation instructions remain the same. Thank you for
11 your patience and continued participation in the California
12 Energy Commission's proceedings.

13 Welcome to the California Energy Commission
14 Business Meeting. Zoom's closed-captioning feature has
15 been enabled to make Energy Commission business meetings
16 more accessible. Attendees can use this feature by
17 clicking on the "Live Transcript" icon and then selecting
18 either "Show Subtitle" or "View Full Transcript." Closed
19 captioning can be stopped by closing out of the Live
20 Transcript or selecting "Hide Subtitle." Those
21 participating solely by phone do not have the option for
22 closed captioning.

23 The Energy Commission will continue to post a
24 recording of this business meeting on the Business Meeting

1 webpage in addition to posting a transcript of this
2 business meeting rendered by a professional court reporter
3 in the docket system on the business meeting webpage.

4 To increase access to the California Energy
5 Commission's proceeding, this meeting is being held in-
6 person and is also available for remote participation.

7 The public can participate in the business
8 meeting consistent with the instructions for remote
9 participation found in the notice for this meeting, and as
10 set forth on the agenda posted to the Energy Commission's
11 website. Pursuant to California Code of Regulations Title
12 20, section 1104(e) any person may make oral comments on
13 any agenda item.

14 Once the public comment period begins, to
15 indicate you would like to give a comment in-person please
16 use the QR codes shown in the room and fill out the form.

17 For remote participants, please raise your hand
18 by clicking on the "Raise Hand" icon at the bottom of your
19 screen. If you are joining by phone, press *9 to raise your
20 hand and *6 to unmute.

21 To ensure the orderly and fair conduct of
22 business, public comments will be limited to three minutes
23 or less per person for each agenda item voted on today.

24 Any person wishing to comment on information
25 items or reports which are non-voting items shall reserve

1 their comment for the general public comment portion of the
2 meeting and shall have a total of three minutes or less to
3 state all remaining comments. After the Public Advisor
4 calls on you to speak, spell your name and state your
5 affiliation, if any.

6 Welcome to the California Energy Commission's
7 business meeting. The meeting will now begin.

8 (End of Introductory Video.)

9 CHAIR HOCHSCHILD: Well good morning, friends and
10 welcome. I'm David Hochschild, Chair of the California
11 Energy Commission. I'm joined by Commissioner Vaccaro. We
12 do not yet have a quorum, because Commissioner McAllister
13 is enroute. He should be here in about ten minutes. But
14 we can do a number of other items and why don't we begin,
15 if we could, with the Pledge of Allegiance.

16 (Whereupon the Pledge of Allegiance was recited.)

17 CHAIR HOCHSCHILD: Before we begin, I did want to
18 just take a moment to acknowledge the extraordinarily
19 devastating series of events with regard to gun violence in
20 our country over the past few weeks and really over the
21 year. There have now been more mass shootings in 2022 than
22 there are days in the year. And the Gun Violence Archive,
23 which tracks this information, defined a mass shooting as
24 an event where four people or more were killed. And we had
25 more of those in 2022 than we've had days in the year, so

1 far. And it's unacceptable. It's outrageous. It's
2 incredibly painful to watch.

3 I know our hearts go out to the victims in Uvalde
4 and in Buffalo. My wife's family actually knew the
5 gentleman who was killed in, I guess it's Laguna Beach in
6 Southern California, in the church shooting. And you know,
7 this has to stop.

8 I just wanted to create a moment to acknowledge
9 the depth of this crisis and it's something that can't
10 continue. And so I just wanted to create, especially -- I
11 don't know, Commissioner Vaccaro, if there's any thoughts
12 or comments, you'd want to offer on that before we move on?

13 COMMISSIONER VACCARO: No, nothing to offer. But
14 thank you for raising that. That's really important.

15 CHAIR HOCHSCHILD: Yeah. Thank you. So with
16 that we'll move on to the agenda.

17 I think actually what we're going to do is begin
18 with Commissioner Updates and then we'll move into the
19 rest. If you would like to go first, I can take continue
20 and --

21 COMMISSIONER VACCARO: Yeah, mine are pretty
22 brief but yeah thank you, happy to go first.

23 So it's been a busy time for offshore wind, so I
24 think that's where I'm going to focus a little of my
25 attention this morning. So first thing that happened this

1 morning that was really pretty important is the Coastal
2 Commission -- I don't know how the vote turned up, I had to
3 leave to come to this meeting -- but the Coastal Commission
4 is considering BOEM's Federal Consistency Determination for
5 the Morro Bay Wind Energy Area. It's a really pretty
6 significant step forward for offshore wind in California.
7 I made some remarks this morning and we'll see how that
8 vote goes.

9 But in April, the Humboldt Wind Energy Area
10 Consistency Determination was presented for the Coastal
11 Commission and they approved it unanimously. I think we
12 expect the same today, so for those of you following
13 offshore wind that's really pretty significant what's
14 happening at the Coastal Commission today.

15 Another, I think, important thing to note is that
16 there was a task force meeting, an intergovernmental BOEM
17 California Intergovernmental Task Force meeting. That
18 occurred on June 3rd. That's pretty significant. These
19 meetings have been held since 2016 through a number of
20 state agency partners, federal partners, tribal government,
21 local government representatives come together and really
22 talk about planning updates, what's happening for
23 development of offshore wind in federal waters off the
24 coast of California. Chair Hochschild participated as did
25 I and a number of other state representatives.

1 And so it's particularly significant, because the
2 topic at hand was the proposed sale notice that has been
3 issued by the Bureau of Ocean Energy Management for the
4 first-ever lease sales off the California coast. Those are
5 planned for the fall of this year. The first step there is
6 the proposed sale notice. It's out for public review and
7 comment. That's due August 1st, so we're busy reviewing
8 it.

9 The Chair made some remarks in the press, and I
10 echoed them, that we're incredibly encouraged by this step
11 that BOEM has taken. And what we see even though we're
12 still giving a closed read is that BOEM has been listening
13 to California. We have a number of values and priorities
14 here in California with respect to our coast, our marine
15 coastal ocean resources, among other interests, fisheries,
16 and BOEM has looked to take those into consideration in
17 this proposed sale notice. So that's another just very
18 significant milestone, and something my office and others
19 at the Commission are focused on.

20 Finally, with respect to offshore wind I think at
21 our last meeting I mentioned that we were postponing, we
22 had postponed taking action on the staff draft report, the
23 first deliverable under Assembly Bill 525. And the reason
24 why is we said we were going to do some more public process
25 around new information that came in around the time of the

1 workshop. And so I am very pleased to say that at the end
2 of this month we will be having that follow-up workshop.
3 "Save the Date" should be out soon, so just sort of people,
4 keep your eyes open if you're on the listserv for that, but
5 end of the month is what we're looking at. Not going to
6 give the firm date as I sit here because it might change,
7 so wait for the "Save the Date."

8 And then the final thing I'll just mention, it's
9 not offshore wind-specific, but in terms of upcoming travel
10 I'll be traveling to Arcata with my advisor Eli Harland.
11 We're going to go to an event, celebrate a microgrid at an
12 airport on the north coast. It's an EPIC-funded project.

13 And in addition to that we'll sort of be doing
14 some offshore wind-related work, taking a tour of the
15 harbor, meeting with some of the folks at Humboldt Cal --
16 what is it now? It's not Humboldt State --

17 CHAIR HOCHSCHILD: It's now Cal Poly Humboldt.

18 COMMISSIONER VACCARO: Yeah, it's Cal Poly
19 Humboldt and others. And trying to turn it into a little
20 bit of stakeholder engagement on a number of issues,
21 including, but not limited to offshore wind. So that's it.

22 CHAIR HOCHSCHILD: Thank you. Thank you,
23 Commissioner, for those comments and all the good work.
24 And I just wanted to add I was also really pleased at the
25 depth of the stakeholder engagement feedback and just

1 generally the interest in offshore wind. Commissioner
2 Vaccaro and I attended the Offshore Wind Summit in San
3 Francisco probably six weeks or eight weeks ago now. And
4 you know, there were 500 people there. They were sold out
5 and they ran out of room, so it was really exciting to see
6 the depth.

7 And for those of you who are not familiar the
8 acronym BOEM stands for the Bureau of Ocean Energy
9 Management, which is the federal agency responsible for the
10 lease of federal waters. The state waters go from the
11 shoreline out 3 miles and federal goes from 3 to 200 miles.

12 And these guys have been fantastic. I just want
13 to acknowledge their incredible professionalism and
14 diligence and hard work and collaborative approach to be at
15 this point, ready to do a lease sale in October of 583
16 square miles off the coast of California, which is the
17 first west coast offshore wind lease sale to happen just 18
18 months into the Biden Administration. For those of you who
19 know what's involved to get to that point, it's a lot of
20 work and it's a real tribute to that team. And I couldn't
21 be prouder of them and of our partnership with them. And
22 thank you, Commissioner, for all your leadership.

23 So, in terms of updates, I want to start with
24 something personal. I'm just incredibly, incredibly proud
25 of my mother, who I went last weekend -- she got an

1 honorary degree at Harvard, she's 81. She's been in the
2 Sociology Department at UC Berkeley her whole career. And
3 she spent actually a lot of time going to Louisiana to I
4 understand -- wrote a book called, "Strangers in Their Own
5 Land" about the experience of folks in Louisiana. And kind
6 of looking at some of what's driving the politics there,
7 and still going strong and still writing. And it was such
8 a treat to my daughter. And my dad and I went out to be
9 with my mother for that weekend and it was just a total
10 delight. So I am overflowing with pride for my mom this
11 week and so that was a real treat.

12 I have some exciting updates to share, starting
13 with an event. I want to acknowledge Liza Lopez from PG&E
14 who helped facilitate an event, when was that? On Monday,
15 I guess. Elliot Mainzer, the CEO of CAISO and I went down
16 to Moss Landing to dedicate the new energy storage project.
17 This is a 182-megawatt facility of Tesla storage batteries
18 onsite at the Moss Landing Power Plant with Patti Poppe,
19 the CEO of PG&E and some others.

20 Just as a note here, as we're scaling up what's
21 going on in California is really the electric grid is
22 ascendant. And the reach of that grid is going further and
23 farther than anybody imagined. We're now putting about
24 1,000 electric vehicles, new electric vehicles on the road
25 every day in California. And that's driving electric

1 demand. And we are, of course in the building sector
2 seeing enormous growth in electrification, high-speed rail
3 is all-electric. And increasingly buses, Proterra and BYD
4 making electric buses, and now a billion and a half dollars
5 for electric school buses in California, which we're going
6 to be working on. So the grid is more important than ever,
7 reliability is more important than ever, and storage is an
8 essential part of the solution.

9 So just for context last year in 2021, we
10 installed 2 gigawatts of energy storage in California.
11 Okay, prior to that all lithium-ion storage total was 200
12 megawatts, so we went up 10X in one year.

13 We're doing another 2 gigawatts this year. We'll
14 have, by the end of this month, we'll have over 3 gigs of
15 energy storage online.

16 And this is really critical. Most of this is
17 four-hour lithium-ion batteries. And when you think about
18 the threat to reliability it's really important to remember
19 what we're really worried about is like somewhere between
20 20 and 60 hours a year, right? It's actually a very small
21 number of hours where our backs are really up against the
22 wall. And these resources can play a huge role as part of
23 the solution in helping to use all that surplus renewable
24 energy. We have some solar during the day, and dispatch it
25 later in the evening when we need it. So this is really

1 exciting.

2 And also to see the development of this project,
3 it took a year to build and ten months to commission, okay.
4 But this is -- you know, when you're doing a project of
5 this size there's a big learning curve. So going forward
6 this is why I love doing site visits, because you learn
7 things you will never learn unless you go there. Now they
8 can build a project of that size in six months and
9 commission it in one month, maybe up to two months, so you
10 get faster.

11 Furthermore, in October I helped dedicate the
12 Tesla battery manufacturing facility in Lathrop. They are
13 now building these Megapacks and they're building an
14 equivalent of 50 of the projects that I dedicated at PG&E,
15 50 of those a year here in California. So just really
16 exciting to see the incredible growth. They are sold out
17 for the next two years at this manufacturing facility, so
18 storage is really ascendant.

19 And I just again want to pay tribute to the
20 incredible team here at the Energy Commission on the R&D
21 side, because we are funding a whole bunch of really
22 exciting lithium-ion technologies. Coreshell and Sepion
23 and Cuberg and many others that are making lithium-ion more
24 efficient, less expensive, and more reliable, better energy
25 density.

1 Just as an example, I drive a Chevy Volt for the
2 last four years. They did this battery replacement free.
3 The battery pack I had when I bought the car four years ago
4 was a 60-kilowatt-hour battery, 238-mile range. They've
5 swapped in the new one, same form factor, same size, it's
6 65-kilowatt hours, 259-mile range. And so that, you can
7 kind of see the trend line, so this is good. And this is
8 part of why electrification is succeeding is because the
9 envelope of possibility is literally growing every month as
10 we get better and better technology.

11 And so one great example of that is electric
12 aviation. So after the PG&E event, Elliot and I went down
13 to visit Joby. So Joby is really like the leading electric
14 aviation company. They have a functional -- basically a
15 vertical takeoff airplane. It has 6 propellers that goes
16 150 to 200 miles in range, it's operational. This company
17 employs 1,000 people. They've raised over a billion
18 dollars and there is -- welcome, Commissioner McAllister is
19 here -- and we got to tour their facility. They're
20 manufacturing in California, and just amazing to see.

21 I think a lot of us, myself included who said,
22 "Electric aviation, what are you talking about?" and all of
23 a sudden, it's happening, So it's coming. And Airbus is
24 now developing an electric jet in Europe. And so the grid
25 is more important than ever as these end uses expand, so

1 really exciting.

2 While they didn't let me fly the plane, I did get
3 to do the simulator, which I think was a lower risk
4 proposition for them. But that was an amazing visit as
5 well.

6 I wanted to highlight as well the action of the
7 Biden Administration. On Monday President Biden took a
8 very, very constructive and important action. He issued a
9 two-year reprieve from the tariffs -- that this
10 anticircumvention petition that is now underway at the
11 Commerce Department basically, which had stopped solar and
12 storage installations in California for the last eight
13 weeks. That has now been resolved and these projects can
14 move ahead as the investigation proceeds.

15 And then in addition to that he invoked the
16 Defense Production Act, which allows a whole bunch of new
17 federal tools to be deployed to support the fast ramp-up of
18 manufacturing for electric heat pump technology, for
19 building insulation, for critical grid infrastructure, and
20 for hydrogen and batteries as well.

21 So these are very bold, very significant federal
22 actions that will allow loans, loan guarantees, federal
23 procurement, expanded manufacturing to happen in support of
24 an agenda that's highly aligned with our climate agenda.
25 So I just wanted to acknowledge the significance of that

20

1 action for purposes of our agenda and for grid reliability
2 and for all the things we're trying to scale up.

3 We are trying to do two things at once in
4 California. We're trying to aggressively confront climate
5 change by transitioning to clean energy. And we're trying
6 to sustain electric grid reliability aggressively. And so
7 both things have to happen, and these actions help support
8 both those, so I just want to commend the White House and
9 all the team that worked on that.

10 I did also want to share a little bit about our
11 budget. It's not final. It has to go through the
12 Legislature still. But all in when you add up the money we
13 expect to get at the Energy Commission from the Federal
14 Infrastructure Package, we're looking at a budget that's
15 going to land between \$7 and \$8 billion. This is a sum
16 that we've never had this many resources come into the
17 Energy Commission at one time before.

18 I'm incredibly proud and I know all my fellow
19 Commissioners share that pride in the hard work of the team
20 across the agency. And the diligence, people are working
21 overtime, really, in every division. And I think we are
22 ready to deploy these funds with excellence. I'm
23 incredibly confident of the ability of the team to do that.
24 It's everything from electric school bus funding to energy
25 storage, renewable research, all sorts of great, great

1 things across the spectrum, offshore wind and lithium
2 recovery and everything else we've been working on,
3 building electrification and decarbonization and EV
4 charging infrastructure across the state. So long-duration
5 energy storage, \$380 million for that, and we've never made
6 investments of this scale before. But we're really excited
7 for this opportunity to partner with the Legislature to get
8 this over the finish line and get these solicitations out
9 on the street.

10 You guys have heard me say this again, but
11 California -- and the reason I'm doing this work, I know
12 this is shared as well with my colleagues -- I mean, we are
13 a giant incubator for the clean energy industry solutions.
14 The solar industry was born in California and scaled up
15 here. The wind industry was born in California and scaled
16 up here. The electric vehicle industry, energy storage,
17 energy efficiency codes and standards. And with this
18 budget we can supercharge all that. I think the right way
19 to understand this budget is to think of it like any of the
20 other landmark climate policies, AB 32 or SB 100, because
21 it's that significant what we can get done.

22 And then as we've seen again and again and again
23 when we scale things here they spread, and they go up. I
24 really believe the lighting standard being the most recent
25 example of this when we required LEDs and got that standard

1 going, that just got adopted by the Department of Energy.
2 That's the standard for the nation and so we're the tip of
3 the spear on this. So I just wanted to reiterate how
4 significant this budget is and how I think it's just a
5 milestone moment for our agency and really reflects the
6 commitment and collaboration of the whole team.

7 I also wanted to share one of the pieces of the
8 budget that I've been focused on is direct air carbon
9 capture. So full disclosure, I was skeptical of this
10 technology category for a long time, probably most of my
11 career, because I felt it was sort of a fig leaf for the
12 fossil fuel industry to continue business as usual. I now
13 believe it has to be a part of our strategy. We have so
14 much excess CO2 in the atmosphere we have to have a
15 strategy to, even as we move to zero-emissions here that's
16 not enough, we have to have a strategy to withdraw carbon
17 from the atmosphere.

18 So I did join a delegation of legislators. We
19 were the first delegation to go see the Orca project, which
20 is the largest scale, first-of-its-kind direct air carbon
21 capture project in Iceland some time ago. And we have \$100
22 million in the budget that the Governor has proposed to the
23 Legislature to advance carbon capture technology in
24 California. There's about I'd say roughly 50 percent of
25 the innovation happening in this space is already happening

1 in California. I've done a number of visits to the leading
2 companies here and we are going to be pushing this forward,
3 this is a new area for us. We haven't done it before, but
4 the process is amazing.

5 In the case of the project I saw, the way to
6 think about that it really is kind of the reverse of
7 fracking. They are withdrawing CO2 from the atmosphere and
8 then they are mineralizing it into rock. And so it remains
9 in an inert form in perpetuity and it's amazing to see.
10 And there's a couple different strategies around that, but
11 this is an exciting new area for us, and I think one that
12 has a lot of a lot of promise.

13 Other highlights, I did a Roundtable. I do this
14 once a year with the top clean tech venture capital firms
15 in San Francisco. We had about 30 people. President
16 Reynolds joined, the L.A. Manager from Chrysler joined, and
17 a couple of other leaders in the field. And we had a good
18 dialogue about trends and clean tech investment and policy.

19 And it's, I think, an exciting time, a
20 possibility for all the industries across the clean energy
21 space that are coming to California. There's a really nice
22 benefit of being co-located, having the talent for
23 manufacturing, the investors, the policy, the resources
24 and, of course, the state policy framework all together.
25 And I think that is really important to the Governor to

1 keep that vibrant ecosystem going. And so it was a great
2 dialogue.

3 And I think that is it for me. So we're just
4 doing Commissioner Updates, we're starting with that if you
5 don't mind, Commissioner McAllister.

6 COMMISSIONER MCALLISTER: And did I miss
7 Commissioner Vaccaro?

8 CHAIR HOCHSCHILD: No, she has already gone.

9 COMMISSIONER MCALLISTER: Well great. Well sorry
10 to be a little bit otherwise occupied this morning, but
11 thanks for accommodating.

12 CHAIR HOCHSCHILD: And congratulations to your
13 daughter.

14 COMMISSIONER MCALLISTER: Oh yeah. Well when
15 you're a single parent there's nobody to shovel it over to,
16 so you really have to just try to make yourself available.

17 And I just, first of all I just can't fully
18 convey how appreciative I am of we have a relatively full
19 room. This is probably the fullest room we've had in a
20 really long time so thanks everyone for being here. But if
21 there's one thing, we've learned in the COVID pandemic era
22 it's work/life balance has sort of taken on a new meaning.
23 And I think we've all -- certainly I have, and I feel it
24 throughout the Commission, Chair and Drew and Linda and all
25 our Commissioners, I think, set the tone for that well --

25

1 we just have to find ways to maintain the work/life balance
2 and sort of sustain our families and sustain our colleagues
3 at the same time. And that's sort of become a little bit
4 of a more postmodern effort, I think, as sort of very
5 geographically dispersed and it requires us to multitask
6 and our brains to work in ways that we're maybe not
7 accustomed to but it's a really positive thing, I think.

8 And so I had a very meaningful family event this
9 morning that I really wanted to be there for my kids. And
10 my son just got home from college last night by midnight,
11 and it was just a really meaningful thing for us all to be
12 together. So my daughter got an award that just showed her
13 own resilience. And I actually am sort of looking to her
14 for leadership now, because she's just an amazing person.
15 And so I appreciate your sort of accommodating me on that
16 and her.

17 I'll be relatively brief, there's so much going
18 on. And I really want to just sort of maybe use yesterday
19 as a little bit of an object lesson or a sort of an example
20 of how much is going on.

21 In the morning first thing I spoke at the
22 California Hydrogen Leadership Summit and just huge, over
23 the Sheraton, a full conference room, so 400 or 500 people.
24 And in a similar vein with your comments about direct air
25 capture, it may be not quite so black and white, but I

1 think I've always thought that maybe hydrogen would have a
2 role in our transition and I've just been a little fuzzy
3 about what that might be. And I think as we've learned
4 more about it, we know it's relevant for our medium- and
5 heavy-duty transportation. We know it can be a storage
6 mechanism that crosses sectors, but the details of that are
7 kind of TBD a little bit. But there's an amazing amount of
8 capital going into that space and there's some quite
9 interesting technological advances.

10 And then the other area it seems like hydrogen
11 has to play a role, is in some of the hard electrifying
12 industrial sectors, both thermal and chemical. And so it's
13 a molecule that can do some things that others can't do.

14 And beyond that I think I think we're still
15 learning, but there's a lot of optimism. And I think
16 there's some chaff and there's a fair amount of wheat there
17 and I think we need to sort of continue to separate the two
18 and determine what hydrogen is for, sort of put a path
19 forward. And our staff is doing a great job sorting that
20 out and coming up with a roadmap. And if and when we get
21 some resources from the Legislature, through the budget
22 process, then we'll be in a position to really help push
23 that conversation forward and sort of get clarity there for
24 the longer term.

25 And Tyson Eckerle and colleagues across the state

1 agencies are working on putting in and developing a
2 proposal for the hydrogen hubs, for the DOE hydrogen hub
3 solicitation, so I think there's some really interesting
4 developments in that space.

5 So anyway, I was pleased to see a lot of high-
6 level engagement and an increasing sort of uniformity of
7 kind of knowledge and vision in that space, in the hydrogen
8 space, so lots TBD, but I think we're making positive
9 progress.

10 And then later on yesterday, I gave a talk to the
11 AHRI, that's the American Association of Heating. It's the
12 American Heating and Refrigeration Institute. And they're
13 a really key industry agency for the heat pump
14 manufacturers, both on the water and the HVAC side. They
15 have an annual meeting here in California and just all of
16 the manufacturers and many of the trade allies and
17 suppliers get in the room.

18 And we had both. So they had their conference,
19 and we have staff attending many of the sessions. I gave
20 the lunchtime talk. And just the engagement there and the
21 sharpness of the industry with respect to California, now
22 that we've suggested this \$6 million, or 6 million heat
23 pump goal by 2030 they really want to help us make it a
24 success.

25 And at the end of the day we brought together GO-

1 Biz and CAEATFA and CARB, PUC, Energy Commission and all
2 these manufacturers, very senior people at the
3 manufacturers. And had a very kind of honest, open I think
4 really effective ice-breaking session starting to talk-
5 turkey about what it's going to take to scale up the heat
6 pump markets in California.

7 And we had just a lot of great engagement. And
8 certainly some skepticism. California a hard place to do
9 business, all that kind of stuff, right? And that's
10 exactly kind of the trust-building that we need to do is
11 really come to the table, be open and honest about our
12 intentions, invite them to participate, sort out any
13 barriers that they come up to, come up with, and put on
14 the table. And that's how we do it. And being persistent
15 over time and building those relationships.

16 And then I think if and when we get significant
17 funds to push further in this direction, I think we really
18 have -- we're gathering all the conditions really well to
19 enable scaling of this market that's so key for our
20 building decarb for our economy decarb, and has lots of
21 economic upside potential. And they all want to hire more
22 contractors and push more equipment into California and do
23 more and larger projects and work with the builders and so
24 we want to enable that. We want them to be successful.

25 One kind of interesting thing, and I think

1 positive attribute that the heat pump industry has, heat
2 pump, HVAC and water heating industry has, it is actually a
3 finite number of firms. And so you can kind of get them
4 all in one room and say, "Hey what do you need?" and it's
5 not a very diffuse. There are a few players that own much
6 of the marketplace.

7 And so to the extent we can help -- not sure how
8 much we can -- but to resolve some of their supply chain
9 issues. They have to compete with the global marketplace
10 for compressors and other components. And so we need them
11 to iron out some of their supply chain issues so they can
12 put product in California.

13 So anyway, I think the takeaways are we're going
14 to put together a little brain trust of the interested
15 companies and there were a bunch of them that want to
16 participate in that and keep meeting with staff and pulling
17 in agencies as needed and work out the refrigerant issue
18 with the fire marshal and just kind of see where we can
19 have a positive impact. So anyway, that big day kind of
20 helping activate some of these conversations yesterday.

21 Beyond that let's see,² I guess I just kind of
22 wanted to -- we're going to hear about some interesting
23 things in the efficiency and program realm today. And just
24 dozens and dozens of staff involved in those efforts, so I
25 want to just acknowledge them as a group. We'll hear more

30

1 detail going forward.

2 And the linkages, it just seems like we all have
3 intersecting issues across all the divisions these days.
4 And I know that every day the Renewable Division with the
5 programs, and of course the Efficiency Division, there's so
6 much that they are working on together across those two
7 divisions. And then, increasingly, with the analytical
8 kind of work at EAD to help us target programs and
9 understand impacts and just the kind of the richness of our
10 increasing analytical skills in EAD and FTD.
11 Transportation and buildings are just becoming sort of
12 twins really in this family of efforts that we need to push
13 forward for decarbonization.

14 And just the capabilities of our deputies, I
15 mean, and Chief Counsel's Office as well. I mean they're
16 all getting involved in these issues and working together
17 very well as a team, I think, better than any time I've
18 been at the Commission. So I think I can say that. And I
19 don't want to leave out the Siting Division and Executive
20 Office, but everybody's really, really rowing in the same
21 direction right now.

22 So I'm just really, really proud of our progress
23 and optimistic for what this future holds. And when we
24 get through the budget and we have clarity on all that, the
25 Governor's Office and Damien in our shop. (phonetic) Just

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1 so many issues are, if not being resolved, definitely being
2 advanced and discussed and sort of so we can get clarity on
3 really what the best thing to do actually is, so I really
4 appreciate the whole team effort. That's it for me.

5 CHAIR HOCHSCHILD: Well thank you, Commissioner,
6 for those comments. And congratulations again to your
7 daughter for her award.

8 And speaking of awards we started in 2020, the
9 California Clean Energy Hall of Fame Awards. I want to
10 invite everyone to consider making a nomination if you have
11 someone you think might be deserving of one of these
12 awards, the deadline is July 1st.

13 We will be doing a Lifetime Achievement Award to
14 honor someone who's retired who dedicated their career to
15 clean energy. There's a Youth Game Changer Award to honor
16 someone who's influencing younger generations to advance
17 clean energy future. There's a Tribal Champion Award for a
18 tribal leader working on clean energy in Tribal
19 Territories. And we have three Clean Energy Champion
20 Awards to honor leaders doing innovative work that starts
21 in their communities and ripple throughout the state.

22 So please consider making a nomination if you
23 have someone in mind. My Chief of Staff, Noemi Gallardo,
24 sitting in the back there, is quarterbacking this. And
25 it's a wonderful event, which we'll be doing, I believe, in

1 December. So thank you, Noemi, for all your hard work on
2 that.

3 Today we're going to be considering just over \$19
4 million of grants for approvals, and I appreciate the team
5 for all the work to set us up for that today.

6 And with that let's go ahead and move now to Item
7 2. This is an informational item, non-voting item, the
8 information item is on the Infrastructure Investment and
9 Jobs Act. Let me welcome my advisor, Jennifer Martin-
10 Gallardo, to present.

11 MS. MARTIN-GALLARDO: Good morning, Chair and
12 Commissioners, my name is Jennifer Martin-Gallardo and I'm
13 here this morning to share an update on the status of the
14 Energy Commission's activities related to the federal
15 Infrastructure Investment and Jobs Act, which I'll refer to
16 as the IIJA or the Act for the remainder of this
17 presentation.

18 The funding opportunities within the Act will
19 bring important benefits -- oh, next slide, please.

20 The funding opportunities within the Act will
21 bring important benefits to California. Not only will the
22 funding support important clean energy projects, but it
23 does so with a strong focus on bringing these projects to
24 communities that have been disproportionately impacted by
25 pollution and other environmental harms and emphasizes

1 workforce development and bringing high wage jobs to
2 California. Next slide.

3 As a bit of background, the IIJA was signed into
4 law in November of last year. And within the Act Congress
5 set aside about \$75 billion related to clean energy and
6 power, and about \$7.5 billion for electric vehicle charging
7 infrastructure.

8 Energy Commission staff reviewed the IIJA to
9 determine which program opportunities might be relevant to
10 the agency's work and then analyzed, which of those
11 opportunities the Energy Commission is best suited to
12 either apply for directly or actively support an
13 application by others for projects to be sited within
14 California. The CEC will be focusing its efforts on 11
15 important opportunities, 9 of which we expect to receive
16 funding for. Today I will share with you the status of
17 these opportunities.

18 I want to note that each of these opportunities
19 is designated as either "formula" or "competitive".
20 Formula opportunities are those where the money is set to
21 come to California per a specific formula, and as long as
22 we put together a program that meets the Act's
23 requirements, we will receive those funds. For competitive
24 opportunities the state will have to submit an application
25 which will be scored against other applications, with no

1 certainty that the funds will be awarded. Next slide.

2 CHAIR HOCHSCHILD: Can I ask, Jen, on the formula
3 ones is it just directly apportioned by population?

4 MS. MARTIN-GALLARDO: No. Each -- you know, not
5 all of them have the same formula that's applied. The
6 legislation or any of the acts that are relevant to this,
7 they set a formula within it, and it can take population
8 into account, but there may be other factors.

9 CHAIR HOCHSCHILD: There may be other factors,
10 okay.

11 MS. MARTIN-GALLARDO: Yeah.

12 I'll start with our -- first, we have our
13 Preventing Outages and Enhancing the Resilience of the
14 Electric Grid. This is a formula opportunity for states
15 territories and tribes. California is currently expected
16 to receive \$34 million per year for five years. The Energy
17 Commission is leading this opportunity for the state and
18 has been in close collaboration with the CPUC and has also
19 engaged with CAISO.

20 The formal release of the program requirements is
21 expected in early July, and the CEC will have two months to
22 turn in its plan to DOE.

23 The CEC currently anticipates using the funding
24 for projects that will improve grid resiliency for
25 disadvantaged, low-income, and vulnerable communities,

1 including critical infrastructure and first responders.

2 The team is engaging with relevant stakeholders
3 for feedback on the proposed approach and working on tasks
4 required for the application. A public workshop to share
5 and discuss the proposed plan will be scheduled soon after
6 DOE releases the formal program requirements. Next slide.

7 The second grid-related opportunity is the
8 program upgrading our electric grid and ensuring
9 reliability and resiliency. This is a competitive
10 opportunity, and formal application requirements have not
11 yet been released, but they are expected by DOE later this
12 year.

13 Based on our preliminary discussions one
14 potential approach could be to apply for funds for grid-
15 scale long duration and seasonal storage deployment to
16 support grid reliability and resilience. Staff is
17 continuing its discussions both internally and with sister
18 agencies on the most impactful use of the funds to enhance
19 regional and state grid resilience. Next slide.

20 I will next discuss three opportunities related
21 to electric vehicle charging infrastructure.

22 First, we have the National Electric Vehicle
23 Infrastructure Program. This is another formula funding
24 opportunity, and California is expected to receive \$384
25 million over five years. Caltrans will receive these funds

1 but will flow the money through the Energy Commission and
2 we will distribute the funding through our solicitation
3 process.

4 The planning for this opportunity is well
5 underway, and Caltrans and CEC staff will be holding a
6 fourth public workshop on June 14th to discuss preliminary
7 elements of the California State Electric Vehicle
8 Infrastructure Deployment Plan, which is due to the federal
9 government on August 1st. Next slide.

10 The next two EV-related opportunities are for
11 charging and fueling infrastructure: one for community
12 charging, and the other for corridor charging. These are
13 competitive opportunities, and the detailed application
14 requirements have yet to be released.

15 When the time comes, the CEC will again be
16 working in coordination with the California State
17 Transportation Agency and Caltrans to bring more funding to
18 California. Next slide.

19 Our next four opportunities relate generally to
20 Energy Efficiency and are being handled by both our
21 Efficiency and Renewable Energy Divisions.

22 First is additional formula funding for the
23 state's energy program, for which we currently receive
24 annual funding from DOE. We expect to receive an
25 additional \$34 million that can be spent over five years.

1 These IIJA funds will be an additional infusion to support
2 Energy Commission operations currently supported through
3 our annual SEP program. We expect the formal details for
4 this opportunity to be released this summer. Next slide.

5 Next, we have another formula funding opportunity
6 for an Energy Efficiency Revolving Loan Fund Capitalization
7 Grant Program. We expect to receive a capitalization grant
8 this year for approximately \$6.8 million. We anticipate
9 these funds will be used to fund energy efficiency audits
10 and upgrades based on those audits. We should have more
11 information on this opportunity this coming fall. Next
12 slide.

13 Next, we have another formula funding opportunity
14 for an Energy Efficiency Conservation Block Grant. We
15 expect to receive a block grant this year for approximately
16 \$10 million. We anticipate these funds will be used
17 together with another \$6 million dollars in ARRA funding
18 for tribal and local government planning and deployment
19 grants. We expect more information on this opportunity
20 this fall as well. Next slide.

21 Finally, we have a competitive opportunity titled
22 Building Codes Implementation for Efficiency and
23 Resilience. We anticipate putting forward an application
24 that would request funding for local building department
25 tech support, innovative tools for local building

1 departments, and modeling software. We expect details on
2 this opportunity will be released at the end of this year.

3 Those are all of the opportunities that the
4 Energy Commission expects it will directly apply for or
5 receive funding under.

6 For the next two opportunities, hydrogen hubs and
7 direct air capture hubs the Energy Commission does not
8 anticipate directly applying or receiving funding but will
9 be providing direct support for California-based
10 applications. Next slide.

11 For the state-supported hydrogen hub, GO-Biz is
12 leading the effort with support from CEC, ARB, and the
13 CPUC. The goal is for California to establish an
14 environmentally and economically sustainable and expanding
15 renewable hydrogen hub.

16 The team is working with public and private
17 stakeholders, including California's legislature and
18 leading municipalities such as Los Angeles, to submit one
19 state co-funded application.

20 There has been broad outreach by GO-Biz, and they
21 have established a California Hydrogen Hub Collaborator
22 Form for any additional stakeholders interested in engaging
23 in the effort.

24 Energy Commission staff will be participating on
25 working groups to be established by GO-Biz in the near

1 future.

2 The current expected release of this opportunity
3 will be September or October of this year. Next slide.

4 And finally, we have the direct air capture hub
5 opportunity. Another competitive opportunity this one is
6 to fund four regional DAC hubs to demonstrate durable CO2
7 removal.

8 CEC Staff is meeting with relevant stakeholders
9 to get an understanding of the current California
10 activities related to DAC projects and how the CEC can
11 support the development of a DAC hub in California.

12 Staff anticipates holding a public workshop to
13 discuss the results of stakeholder conversations, share
14 CEC's proposed strategy for a DAC hub in California, and to
15 provide an opportunity for interested parties to form
16 collaborative partnerships.

17 We expect this opportunity will be released the
18 fourth quarter of this year. Next slide.

19 These are the IIJA funding opportunities the CEC
20 staff are actively engaged on. This is a great opportunity
21 for the Energy Commission in California. And our teams are
22 developing plans to use these funds in a way that will
23 support California's climate goals and is also considerate
24 of the impact this funding will have on existing staff
25 resources. Our excellent teams are available to provide

1 more detailed briefings upon request and I'm happy to
2 answer any questions you might have.

3 CHAIR HOCHSCHILD: Well thank you so much, Jen.
4 That was terrific. And let me just compliment you on your
5 work on this project, which has been tremendous. And also
6 on your work which you've been doing over the last, gosh,
7 two years now?

8 MS. MARTIN-GALLARDO: Two years? I think so.

9 CHAIR HOCHSCHILD: Yeah, on just facilitating
10 making our process friction-free for all the people who are
11 applying for grants and making their experience positive.
12 And it's great timing because we're getting so much new
13 money.

14 And as I have said several times before, that's
15 worth saying again, in hockey you get credited with an
16 assist if you're two passes away. And it's really
17 Commissioner Vaccaro who told me you'd be great for that
18 role and recommended you. And I'm so glad you did, it's
19 been tremendous.

20 So let's open up to questions for Jen from the
21 Commissioners.

22 COMMISSIONER MCALLISTER: I just want to
23 compliment you as well. I mean, I feel pretty up-to-date
24 with these opportunities, some more than others, but in
25 general through our interaction with other states. We kind

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1 of collaborate on a number of fronts. And I will say
2 having Jen and the team interfacing with our colleagues
3 over at NASEO and just we have there's a lot of -- the
4 federal level, the federal discussion can be a little bit
5 tricky to keep track of and just lots of it can be kind of
6 opaque. And so just great job, Jen, in sort of connecting
7 the dots and making sure the right people are involved.
8 And how these initiatives apply to California, because it's
9 not always the same for all states.

10 And so I think I'm super-optimistic, particularly
11 on it's great to have those additional SEP funds and great
12 to have those just core formula funds. But I think we're
13 in a great position on these competitive grants as well,
14 particularly excited about the Building Code grant and also
15 the Building Code opportunity. And I think we're
16 incredibly well-positioned for that one just because we're
17 such a leader on building codes. And I think the federal
18 government will want to extend our leadership by supporting
19 us.

20 And then also working on getting more money to
21 local government for their work to kind of extend the local
22 government challenge and the travel challenge. I think
23 that that's also a very compelling opportunity. But
24 really, we need to be greasing all of these different sorts
25 of gears in the system and any one of them stopping stops

1 the whole system. And so we really, I think, we're getting
2 very good at finding out where the squeaky parts are,
3 figuring out where the resources need to go. So thanks,
4 thanks to you and the whole team.

5 COMMISSIONER VACCARO: And so just piling on the
6 thanks. First, Jen, I want to recognize your leadership.
7 I know this has been an effort that's required work for
8 multiple divisions and a lot of staff, but it always takes
9 a few people sort of at the top, right, to keep everything
10 organized and to keep things apace. And I think you've
11 filled that role, so I want to recognize you but also
12 recognize the Executive Office and all of the staff across
13 all of the divisions who've worked on this.

14 I've had the benefit of sitting in some of the
15 meetings where there's been a lot of planning and
16 strategizing. And I think what's not obvious in this
17 presentation is that you had to reach out to partner
18 agencies, right, and think about like what this looks like
19 and how to take advantage of this. And so there's a lot of
20 work to be able to get our heads around this great
21 opportunity, as you framed it, but also to think about what
22 does it mean when the money comes in.

23 And that's another huge part of what you all have
24 been thinking of, and I asked you about this in our
25 briefing yesterday, and would love for you to just touch

1 briefly on like how we're going to leverage some of this
2 existing experience work, projects, programs that we
3 already have in place so that we can hit the ground running
4 with this money, right? We're not going to have a steep
5 learning curve of having to figure out what you do, which
6 is really what makes this that much more of a of a bounty
7 is that it gets out of the door quickly or gets used
8 quickly.

9 So now I give you the kudos, but if you could
10 just sort of touch on that I think that's really important
11 to share as well.

12 MS. MARTIN-GALLARDO: Yeah, I think that that's
13 definitely something the Executive Office has been aware
14 of, right? When we're looking at all of these
15 opportunities how do we want to set ourselves up for
16 success? We have some history getting large sums of
17 federal funding through ARRA. We remember our lessons
18 learned about recreating the wheel for many different
19 things.

20 What I find to be very fortunate is we have such
21 excellent expertise in-house. Our folks who are our team
22 leads -- I put their names up -- they are experts in their
23 field, this is not new to any of them. We have put funding
24 out as California in many of these areas already, we know
25 how to do this. And we know where the needs are, where the

1 strongest needs are and how we can be most efficient and
2 effective with these funds.

3 So while each of the different programs that I
4 mentioned may have different teams and different focus
5 areas, I think each of the programs that we're considering
6 developing to use these funds are things that we have good
7 experience with. And we'll be able to utilize the
8 resources we have to get these implemented and in an
9 effective way.

10 CHAIR HOCHSCHILD: I've -- sorry, did you have
11 other questions? So I wanted -- obviously, we'll get the
12 formula funded, but I want to go out and win the
13 competitive funding. And I do think we're in a strong
14 position to be able to leverage that, because I know the
15 federal government is always looking to leverage state
16 investments. There's going to be a battery hub, there's
17 going to be hydrogen hub, going to be a direct air capture
18 hub, and state money for all of those in our budget this
19 year.

20 And I'm wondering just as we think about how we
21 can set ourselves up for success with the competitive bids
22 and kind of leveraging, if you could share some thoughts on
23 that. Because I really believe, at the risk of having a
24 little California hubris, I mean I think the money, the
25 federal money will go farther and be greener and have more

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1 reach and impact, because of how we're leveraging it with
2 significant state dollars here. That's actually it's the
3 concentration of these forces that actually moves markets.
4 And so I don't know if you could share a few thoughts on
5 the ability to leverage and what do you see. And also any
6 sort of particular barrier-busting that you're worried
7 about where we can support you and the rest of the team on
8 the process over the next few months with this work.

9 MS. MARTIN-GALLARDO: To the first point about us
10 leveraging available state funds, each of our teams has
11 traded a list of sources that we are hoping to utilize for
12 any match-funding requirements we have.

13 I also know that Damien Mimnaugh has been
14 tracking for us some efforts in the California state budget
15 to make sure that California is able to support with match-
16 funding any requirements that we have for either our
17 formula funds or funds that we are going for. They're very
18 much supportive of supporting us and getting this funding
19 to California, so our teams are well aware of this.

20 One specific example of providing funds to
21 California, even projects that we're not going directly
22 for, EPIC has their federal cost share solicitation that's
23 out. Any IIJA opportunities that are released that meet
24 the requirements of that EPIC solicitation are being added
25 to that, so that our state applicants can benefit from that

1 type of cost share. Those are some examples.

2 Like you said we're waiting for our budget to be
3 approved that will -- many of those BCPs I believe do have
4 language that the authority that we would be able to
5 utilize some of that funding is matched for these big
6 projects that we want to bring to California.

7 So those are just some examples of what I think
8 we're keeping our eye on as far as supporting with state
9 funds, leveraging any resources that we have. And making
10 sure California is ready to support getting these funds
11 here.

12 Your second question, can -- what was your second
13 question?

14 CHAIR HOCHSCHILD: Oh, it was just any additional
15 barrier busting --

16 MS. MARTIN-GALLARDO: Oh yes.

17 CHAIR HOCHSCHILD: -- that we can support you on
18 in the next few months, like what are the sticky points?

19 MS. MARTIN-GALLARDO: I think the most important
20 thing as our teams start getting more details from the
21 federal government, not all of these have details -- some
22 of them -- well only a couple of them do we have like real
23 details. When the time comes for these opportunities to be
24 released, we're going to have a very short turnaround time
25 to get our applications in.

1 What I see as our greatest barriers at that time
2 is just resources for our staff to get those applications,
3 shift focus from maybe any of their day-to-day work that
4 they're doing, and make this their top priority. Our teams
5 are doing a lot of groundwork, so that it's not a scramble
6 when this information comes down. We're having these
7 conversations with you. We're reading all of the
8 information that's coming in. We're very well educated on
9 the expectations.

10 But sometimes when it -- the devil's in the
11 details and we're going to need our Legal Office, who we've
12 got Matt Pinkerton on lead for us there. He's doing some
13 groundwork on what our administrative requirements are. We
14 have a whole team working as much as we can now to be
15 prepared. But yes, I think that's the thing that has me
16 and the team's most concern is, are we going to be ready to
17 be all-hands-on-deck when the time comes for these
18 opportunities.

19 CHAIR HOCHSCHILD: Well I think we should go into
20 this, recognize that this may be a once-in-a-generation
21 state budget and once-in-a-generation infrastructure
22 package. And so we want to do everything we can to
23 support, bring those resources to California.

24 What I'd suggest is that we do periodic updates
25 with you coming to kind of update the Commissioners at a

1 business meeting. And I'll leave the interval to you when
2 you think another update to the Commission might be
3 warranted. But going forward once you just, maybe later in
4 the summer, something when it makes sense, and the
5 solicitations are out.

6 Sorry, Commissioner McAllister?

7 COMMISSIONER MCALLISTER: Yeah. Thank you. I do
8 have one question, so this might be for Executive Office as
9 well, but I do remember the ARRA era. I was not at the
10 Commission, so I came in the wake when the waters receded,
11 and everything got to kind of revealed. But we did a
12 bang-up job I think overall with ARRA funds and learned a
13 lot of lessons as did the federal government, which they're
14 trying to kind of reflect in their process.

15 My question is just we know how the state budget
16 works in terms of okay, we get an allocation, then we do a
17 BCP. We try to get the staff to support that, and that
18 process is pretty clear. When we do, if and when we do win
19 competitive or just get these allocations in from the IIJA
20 resources will the process be similar?

21 I'm a little fuzzy in terms of what exactly that
22 process is when we get external. We still have to have
23 permission to spend them, we have to get staff support
24 them. So how? Sort of to expand on the Chair's question.
25 And we'll need a strategy for sort of supporting those

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1 funds, not only the application process but also when the
2 funds come in, fully staffing them and not just expecting
3 our existing staff to pull double-time.

4 MS. MARTIN-GALLARDO: What I can share on that is
5 again Damien has shared with the Executive Office and
6 myself, some information that's included in the budget
7 legislation, which will streamline California's ability to
8 receive and utilize these funds quickly without having to
9 go through like an annual appropriation. It's there is a
10 multi-unit section approach on how to make that as
11 streamlined as possible for us.

12 COMMISSIONER MCALLISTER: And whether it's hiring
13 new staff to support and/or putting money out to contracts
14 or local governments or whatever.

15 MS. MARTIN-GALLARDO: Yes, those details are
16 still yet to be worked out. But all of those options have
17 been discussed in our internal meetings at the Executive
18 Office and with Damien. I know that there's a lot of
19 planning going on for our positions needed to support all
20 of this funding.

21 COMMISSIONER MCALLISTER: Great. Okay, thank
22 you.

23 CHAIR HOCHSCHILD: Thank you so much, Jen.

24 MS. MARTIN-GALLARDO: Thank you.

25 CHAIR HOCHSCHILD: With that let's do Item 1, the

1 Consent Calendar. Commissioner Vaccaro would you be
2 willing to move Item 1?

3 COMMISSIONER VACCARO: Yes, move Item 1.

4 CHAIR HOCHSCHILD: And Commissioner McAllister,
5 would you be willing to second?

6 COMMISSIONER MCALLISTER: I second Item 1.

7 CHAIR HOCHSCHILD: Okay all in favor say aye.
8 Commissioner Vaccaro?

9 COMMISSIONER VACCARO: Aye.

10 CHAIR HOCHSCHILD: Commissioner McAllister?

11 COMMISSIONER MCALLISTER: Aye.

12 CHAIR HOCHSCHILD: And I vote aye as well. Item
13 1 passes unanimously.

14 We'll turn now to Item 3, Proposed Joint Decision
15 for the Pecho -- am I pronouncing that right -- Pecho
16 Energy Storage Center and the Gem Energy Storage Center.

17 MS. WEBSTER-HAWKINS: Good morning, Chair
18 Hochschild and Commissioners. I'm Renee Webster Hopkins
19 with the Chief Counsel's Office appearing on behalf of the
20 committees that the Energy Commission appointed to preside
21 over the applications filed for Pecho Energy Storage
22 Center, 21-AFC-01, and Gem Energy Storage Center, 21-AFC-
23 02.

24 My colleague, Ralph Lee, is the Hearing Officer
25 for Pecho, and I am the Hearing Officer for Gem. In the

1 interest of brevity I am opening this public hearing and
2 presenting on behalf of Mr. Lee and myself to address the
3 proposed decisions, which would resolve shared issues in
4 both applications. Next slide, please.

5 The shared question presented by each of the
6 Pecho and Gem applications is whether the proposed power
7 plants and related facilities, qualify for an exemption
8 from the Notice of Intention or NOI process, which is
9 typically required for the Commission to certify a site for
10 a thermal power plant. Typically, the NOI must be decided
11 before an Application for Certification unless an express
12 statutory exemption applies that permits the project to
13 proceed directly to the AFC process.

14 Several such exceptions are listed in section
15 25540.6(a) of the Public Resources Code. One of these is
16 in section 25540.6(a)(3), which exempts the thermal power
17 plant, which is only technologically or economically
18 feasible to site at or near the energy source.

19 Both Pecho and Gem proposed to employ Advanced
20 Compressed Air Energy Storage, or A-CAES technology, which
21 has not yet been considered by this Commission before in a
22 siting proceeding.

23 Additionally, the statutory exemption at Public
24 Resources Code section 25540.6(a)(3) has never been
25 applied, so therefore these applications presented a

1 question of first impression.

2 On January 26th, 2022, the Commission directed
3 the applicants and staff to provide information which might
4 support the application of the exemption and also assigned
5 committees to oversee these proceedings.

6 After careful consideration of the party's
7 arguments, the facts included in the applications submitted
8 into the respective dockets and supplemental evidence
9 submitted by the applicants, all of which have been
10 submitted into the docket for each of the projects, the
11 committees have prepared a proposed joint decision and
12 published it on May 27th, 2022.

13 In this public hearing, the committees recommend
14 that the Commission adopt the proposed joint decision
15 finding that these proposed power plants are exempt from
16 the NOI process. Next slide.

17 In considering whether this exemption exempts
18 these power plants from the NOI process, the committees
19 analyzed the common legal issues as well as specific
20 factual issues applicable to the individual sites.

21 On this slide you can see an artist's rendition
22 for Pecho. It is proposed as a 400-megawatt Advanced
23 Compressed Air Energy Storage facility, consisting of both
24 underground and above-ground components. It would be
25 located in San Luis Obispo County on a site totaling about

1 60 acres. The project would also include the construction
2 of a 3.4-mile interconnection within a nearby substation.
3 Next slide.

4 And here a rendition for Gem you can see, is
5 proposed as a 500-megawatt A-CAES facility also consisting
6 of underground and above-ground components. It would be
7 located in Kern County on a site totaling about 71 acres.
8 The project would include the construction of a 10.9-mile
9 interconnection with a nearby substation. Next slide.

10 In the notice of this hearing, the public was
11 invited to provide written comments by close of business on
12 Monday June 6th. In Pecho, a local conservation district
13 submitted a comment letter about the site's potential
14 impact in the watershed and other environmental issues.
15 And similarly in Gem, a nearby property owner submitted a
16 general comment of concern, about the site's impact on
17 specific environmental resources.

18 It should be acknowledged that there have been a
19 number of other comments submitted into the record in the
20 Pecho proceedings by interested agencies and persons since
21 the application was initially submitted in December.

22 In the notice of this hearing, the parties were
23 invited to object to the inclusion of any one or more
24 documents from the Pecho and Gem dockets into the hearing
25 records for this proceeding. No such objection was

1 received.

2 It's important to note that in recommending the
3 exemption of Pecho and Gem from the NOI process, the
4 decision is not and shall not be construed as approval of
5 the construction and operation of Pecho and Gem. Nor as a
6 determination on the acceptability of the proposed sites
7 and related facilities. Nor as a predetermination on any
8 findings necessary to certify them.

9 As noted in the proposed joint decision, in an
10 AFC proceeding the CEC conducts a comprehensive examination
11 of a project's potential economic, public health, and
12 safety, reliability, engineering, and environmental
13 ramifications. The CEC will conduct an independent
14 assessment of a reasonable range of alternatives to the
15 project that could lessen or avoid any adverse effect of
16 each power plant as required under the CEC's certified
17 regulatory program.

18 The AFC process allows for and encourages public
19 participation so that members of the public may become
20 involved, either informally through public comments or on a
21 formal level as intervenor parties who may present evidence
22 and cross-examine witnesses. The AFC process will also
23 engage trustee and responsible agencies.

24 In sum, during the evaluation of these projects
25 as AFCs the CEC will consider the comments and concerns,

1 such as those that have been submitted so far.

2 After consideration of the relevant legal issues,
3 the evidence and the applicants' applications and
4 supplemental information and the relevant comments from the
5 public and other agencies in the records, thus far, the
6 committees for Pecho and Gem recommend the following
7 findings:

8 That the purpose-built public storage caverns --
9 excuse me, just lost my tab -- that the purpose-built
10 underground storage caverns and the grid electrical energy
11 are collectively the energy source, within the meaning of
12 section 25540.6(a)(3). And that Pecho and Gem are only
13 technologically or economically feasible to site at or near
14 the energy source due to the totality of combined features
15 and requirements of the technology employed by Pecho and
16 Gem, including the energy sources necessary for the
17 technology to successfully and reliably generate
18 electricity. Last slide, please.

19 So the committees therefore recommend that the
20 Commission admit Dockets Numbers 21-AFC-01 and 21-AFC-02 as
21 the hearing records for the Commission decision in each
22 proceeding respectively.

23 That you adopt the proposed joint decision and
24 adoption orders recommended by the Committee for Pecho,
25 including findings and recommendations and conclusions that

1 Pecho qualifies for an exemption from the Notice of
2 Intention process pursuant to Public Resources Code section
3 25540.3(a)(3).

4 That you also adopt the proposed joint decision
5 and adoption order recommended by the Committee for Gem
6 including findings and conclusions that gem qualifies for
7 an exemption from the Notice of Intention process.

8 And finally, that you direct staff to proceed
9 with evaluating each of the applications for Pecho and Gem
10 as an AFC and review the filings for data adequacy pursuant
11 to CEC Regulation section 1704 and Appendix B.

12 Additionally, I know that the Commission has the
13 discretion to enter into closed session to deliberate on
14 this matter. So at this point I invite any comments by the
15 parties and public comments. And then after that, Hearing
16 Officer Lee and myself are available to answer any
17 questions that you as a Commission may have.

18 So may I ask the Public Advisor to assist with
19 comments from the parties and the public?

20 MS. MURIMI: Thank you. Do the parties want to
21 speak at this time?

22 MR. HARRIS: Yeah, briefly, thank you. Jeff
23 Harris of Ellison, Schneider, Harris & Donlan. On behalf
24 of both projects thank you for the opportunity to be here
25 today.

1 This technology, A-CAES, of first impressions I
2 do want to say I'm impressed with the new strength in your
3 Hearing Office. I think that's a good thing for the
4 Commission. And I'm really excited to be part of this sort
5 of carbon-free fossil theory fuel, fossil-fuel free storage
6 facility, which is going to do all the things that we've
7 talked about in terms of making California's grid more
8 resilient. So let me turn it over to Curt Hildebrand on
9 behalf of Hydrostor to say a few words too.

10 MR. HILDEBRAND: Good afternoon, Curt Hildebrand
11 with Hydrostor. I appreciate the opportunity to be before
12 you today considering the NOI process for both our Pecho
13 and Gem projects.

14 As Jeff mentioned, we're very proud to be
15 advancing our compressed air technology into the
16 development cycle here at the Energy Commission. We look
17 forward to working very closely with our committee, with
18 all the Commissioners, and with staff to thoroughly review
19 these projects and ideally get them approved in a timely
20 manner to help California with urgently needed storage and,
21 in our case, long duration energy storage. And again, we
22 thank you for the opportunity to be here today.

23 MS. MURIMI: For any participants that are on
24 Zoom who are members of the parties who would like to
25 comment go ahead and use the raised-hand feature, looks

1 like a high-five or an open palm at the bottom of your
2 screen or device. And for those calling in press *9 to
3 indicate that you'd like to make a comment and *6 to
4 unmute.

5 We have one commenter. Please state and spell
6 your name, give your affiliation if any. Go ahead and
7 speak.

8 MR. LUCERO: Hello Commission, thank you for
9 having me today. My name is Dominic Lucero. I represent
10 Boilermakers Local Lodge 549 in Pittsburg, California. I
11 am a full-time apprenticeship instructor, Executive Board
12 member and Committee Chair on the New Endeavors Research
13 and Development, also known as the NERD Committee.

14 I can say that we are extremely happy for these
15 sorts of technologies. Our craft has been waiting for our
16 time to shine. I don't know if the public is aware of
17 this, but solar and battery storage does not serve all
18 Californians. It does not serve pipefitters, boilermakers,
19 and ironworkers. So we are here to work with you and
20 trying to transition into this new form of energy, and we
21 are here to support a greener California. Thank you.

22 MS. MURIMI: Thank you, Dominic.

23 Seeing no other comments I'll hand the mic back
24 to you, Renee.

25 CHAIR HOCHSCHILD: Sorry, just before we do that,

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1 Item 2 was a nonvoting item, so we didn't take public
2 comment on that, but I neglected to offer an opportunity
3 for public comment on Item 1, the Consent Calendar. So
4 Dorothy if you could just call for public comment on that
5 while we have it open.

6 MS. MURIMI: Thank you, Chair.

7 So we will be taking public comment for Item 1.
8 The instructions again for individuals that are in the
9 room, go ahead and use the blue cards that are located in
10 the back of the room with the Public Advisor. Fill those
11 out and those will be handed to the dais. For those that
12 are on Zoom again use the raised-hand feature, looks like
13 an open palm or a high-five at the bottom of your screen or
14 device. And for those calling in press *9 to indicate that
15 you'd like to make a comment and *6 to unmute on your end.

16 We'll give that one moment. Seeing no comments
17 Chair, back to you.

18 CHAIR HOCHSCHILD: Thank you, please proceed.

19 MS. WEBSTER-HAWKINS: The floor is open for you.

20 CHAIR HOCHSCHILD: Oh yeah, great. All right.

21 So with that let's go to Commissioner discussion starting
22 with Commissioner McAllister.

23 COMMISSIONER MCALLISTER: Well great. Well thank
24 you, Renee, thanks to you and to Ralph and the whole team
25 for helping us work through this. I'm just speaking on

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1 Pecho as the Lead Commissioner on that project. And, of
2 course, our roles are flipped with Commissioner Vaccaro on
3 Gem.

4 So I'll be brief, I just want to express
5 appreciation for the whole team, also CCO, Kristen and
6 Linda who have just done great work, and staff as well.
7 The staff team, I think, has done thoughtful work and I
8 think they've shown flexibility in their analysis and
9 assessment of both of these projects.

10 And I also really appreciate the awareness and
11 understanding that these projects are relatively new and
12 that we're, in a sense, charting new territory. I mean, I
13 think the statutory framework is clear, but the
14 technologies are different and so they're new and I think
15 in some sense exciting and kind of fit where we're trying
16 to go as a state. I really appreciate it.

17 Dominic, I did not catch your last name, but it's
18 like a perfect forum for the NERD Committee and appreciate
19 that for those comments.

20 The two sites, they are the two sites similar
21 technology but some differences in terms of size and also
22 transmission length, but in particular that the Pecho was
23 in the coastal zone and Gem is not, so those kinds of
24 details, they're not just carbon copies, one of the other.

25 I really appreciate the clarification that you

1 made just now and it's in the joint decision, Renee, that
2 is that this is not a decision on the projects themselves.
3 The application process that we would then move on to, if
4 this joint proposed decision is approved today, will ensure
5 that these projects get full vetting and that, really,
6 they're held to the standard that's necessary and required
7 to ensure that they are -- that the up or down, the thumbs-
8 up or thumbs-down, these projects is done appropriately and
9 with all the checks, balances, and full process that that
10 requires. So the NOI in some sense I think a slightly
11 esoteric sort of process question, and I think all of us is
12 to have treat it as such.

13 And I really appreciate the Applicant as well
14 just for providing all the information that you've given
15 the Commission and staff, and the thoughtfulness with which
16 you've approached this process as well.

17 Storage, it's unique and the fact that it's sort
18 of purpose-built and that it's not producing energy sort of
19 from an original fuel, but really providing services to
20 the grid. And I think we all appreciate the need for that,
21 and the fact that it is a little bit different from a
22 traditional generation plant. And the definition of
23 source, I think, is where that kind of uniqueness sort of
24 is service most directly. And so I really appreciate all
25 the back and forth we've had on that.

1 And let's see, I guess, well, Mr. Harris -- and I
2 did not catch your last name, sir, I'm sorry, the
3 representative for Hyrdostor.

4 MR. HILDEBRAND: Curt Hildebrand.

5 COMMISSIONER MCALLISTER: Hildebrand, okay.
6 Thank you, Mr. Hildebrand, for being here as well.

7 And with that I think I just want to express sort
8 of positivity about the path forward, and I think we're
9 making a good decision today if we vote it out in the
10 affirmative and that essentially starts the clock for the
11 AFC process. And obviously we take those timelines very
12 seriously, so looking forward to (indiscernible) Thank
13 you.

14 CHAIR HOCHSCHILD: Let's go to Commissioner
15 Vaccaro.

16 COMMISSIONER VACCARO: Thank you. So on just a
17 few brief comments, first Renee thank you. That was really
18 well done. I appreciate the very balanced way in which you
19 made the presentation, because I think it reflects the very
20 balanced approach that we took in the decision as well.
21 This is a matter of first impression, its interpretation of
22 law. What does this exemption mean? And, as you pointed
23 out, we haven't looked at that before and we explain that
24 in the decision as well.

25 I think what we came to is that looking at the

1 totality of each of these different projects and applying
2 them to the legal standard we could find that it was
3 appropriate to move forward with the Application for
4 Certification process. We didn't get very deep in this
5 presentation on the distinction between the Notice process
6 and the Application for Certification process, but what you
7 did emphasize is that the AFC process is robust, and we're
8 just at the beginning. I think we still have data adequacy
9 to get through should this decision be approved. After
10 that, truly the clock starts ticking.

11 And one of the things that we would all be
12 looking forward to, and something we haven't done for some
13 years now, which is going into the locations, and having
14 the site visit, and being in the communities. And that
15 provides an opportunity for local residents and anyone
16 within the region who has interest to really show up in
17 person as well and to engage with us.

18 And so I do appreciate as well, Renee, that you'd
19 commented, sort of recognize the commenters. And that
20 we've had many so far, not just on the proposed decision,
21 but in the two dockets we've seen that there's a level of
22 interest and concern and support for these projects. And
23 those are things that the committees take seriously and
24 will be looking at throughout the duration of the AFC
25 process should this decision be approved. So I really

1 appreciate all of the points that you made. I think it's
2 important we're not prejudging anything.

3 And while these are unique and interesting
4 technologies. And while it's true long duration energy
5 storage is important in California, we have to take the
6 projects, as they stand, through the permitting process
7 going through all of the requirements before us. So I
8 think I'll just end there.

9 And again, thanks to you, Ralph, sitting back
10 there as well as Kristen and Linda for being part of our
11 support team, helping Commissioner McAllister and I work
12 through this and think this through. I really appreciate
13 that.

14 CHAIR HOCHSCHILD: Great. And thanks again to
15 both of you for being willing to team up on the committees
16 for these projects.

17 I did have a just a high-level question. We have
18 a pretty broad variety of storage chemistries and
19 technologies that are coming to market here. Everything
20 from lithium-ion which has been the dominant one to heat
21 pump storage to iron chromium, vanadium and others, iron
22 air. And I'm just curious about the roundtrip efficiency
23 ballpark of compressed air because I'm not familiar with
24 how much you lose in that round trip?

25 MR. HILDEBRAND: Good question. Our roundtrip

1 efficiency is currently designed as approximately 60
2 percent and we hope and expect to increase that into the
3 low to mid 60s.

4 CHAIR HOCHSCHILD: Excellent. Okay, that's
5 really helpful to bear in mind.

6 Okay, with that I don't have any further
7 questions, unless either of you do.

8 Commissioner McAllister, would you be willing to
9 move the item?

10 COMMISSIONER MCALLISTER: Yes, I'll move Item 3.

11 CHAIR HOCHSCHILD: Okay. Commissioner Vaccaro
12 would you like to second?

13 COMMISSIONER VACCARO: Yes, second.

14 CHAIR HOCHSCHILD: All in favor say aye.
15 Commission McAllister?

16 COMMISSIONER MCALLISTER: Aye.

17 CHAIR HOCHSCHILD: Commissioner Vaccaro?

18 COMMISSIONER VACCARO: Aye.

19 CHAIR HOCHSCHILD: And I vote aye as well. Item
20 3 passes unanimously. Thank you all.

21 We'll turn now to Item 4, Mojave Solar Project
22 Petition to Amend.

23 MS. HUBER: Good afternoon, Chair and
24 Commissioners. My name is Elizabeth Huber and I over the
25 Safety and Reliability Office in the Siting, Transmission,

1 and Environmental Protection Division. With me today is
2 Lead Compliance Project Manager Keith Winstead; our
3 Engineering Office AQ Manager Joseph Hughes; and our Lead
4 Counsel Jennifer Baldwin.

5 Speaking of hydrogen, we're here to present on
6 the Mojave Solar Project petition to install a hydrogen
7 generation system, including an electrolyzer that uses
8 electricity from the power plant to decompose demineralized
9 water into oxygen and hydrogen, and the latter being used
10 for cooling the generators. Next slide, please.

11 We are asking for your consideration of the
12 proposed change that could otherwise be approved by staff,
13 because the electrolyzer technologies have been gaining
14 more attention as they serve as a potential hydrogen
15 production method that is capable of producing high-purity
16 hydrogen from water and able to meet hydrogen demands at
17 existing power plants.

18 The aim of this project modification is to
19 minimize costs for the hydrogen supply and to avoid
20 reliance on third parties for it.

21 The change will also have a positive
22 environmental impact generating hydrogen onsite using solar
23 energy and reducing greenhouse gas emissions from the
24 offsite production and long-distance transportation
25 currently required. Next slide, please.

1 The Mojave Solar Project is a 250-megawatt
2 concentrated solar power facility in the Mojave Desert,
3 about 20 miles northwest of Barstow in San Bernardino
4 County. It was certified by the CEC in September of 2010
5 and began commercial operation in December of 2014.

6 Using the desert's solar thermal energy the
7 facility generates steam in solar steam generators by using
8 parabolic trough technology to solar heat the heat transfer
9 fluid, HTF, system. This hot HTF system generates steam in
10 the solar steam generators, which expands through a solar
11 turbine generator to produce electrical power from two
12 independent solar fields, each feeding a 125-megawatt power
13 island.

14 The sun provides 100 percent of the power
15 supplied to this project through solar-thermal collectors;
16 no supplementary fossil-based fueled energy sources like
17 natural gas will be used.

18 On January 13th, 2022, the Mojave Solar Project
19 submitted their project change petition. And the CEC staff
20 mailed the Notice of Receipt of the Petition for Post
21 Certification Project Change to the facility's mail list of
22 interested parties and property owners adjacent to the
23 existing facility.

24 On May 16, 2022, staff analysis of the proposed
25 change, addressing potential impacts from the hydrogen

1 generation system was published, and the cover letter
2 summary was again mailed to those same recipients. Next
3 slide, please.

4 The CEC staff recommends your approval of the
5 Order to install a hydrogen generation system in compliance
6 with all applicable laws, ordinances, regulations, and
7 standards. And we are here to answer any questions if you
8 have them, thank you.

9 CHAIR HOCHSCHILD: Thank you, Elizabeth.

10 We'll go to public comment now on Item 4.

11 MS. MURIMI: Thank you. For individuals that are
12 in the room go ahead and use the QR code -- sorry, go ahead
13 and use the blue cards located in the back of the room.
14 For those on Zoom go ahead and use a raised-hand feature,
15 it looks like an open palm or high-five at the bottom of
16 your screen or device. And for those calling in go ahead
17 and press *9 to indicate that you'd like to make a comment
18 and *6 to unmute on your end.

19 Going to give that one moment. Seeing no
20 comments in the room, or on -- oh, we do have one commenter
21 on Zoom, Z. Bradford. Go ahead and state and spell your
22 name, give you your affiliation if any, and you may begin
23 your comment.

24 MR. BRADFORD: Zack Bradford, CEC. Actually I
25 just had a clarifying question on the source of the water

1 at the solar facility.

2 MS. MURIMI: Okay, thank you for your comment.
3 No other comments, Chair, sending it right back to you.

4 CHAIR HOCHSCHILD: Okay, thank you.

5 We'll turn to Commissioner discussion starting
6 with Commissioner Vaccaro.

7 COMMISSIONER VACCARO: Thank you. Thank you,
8 Elizabeth, for the presentation. I think your presentation
9 and the back of materials are pretty straightforward for
10 this item, so I don't have any questions. Thank you.

11 CHAIR HOCHSCHILD: Any comments Commissioner
12 McAllister?

13 COMMISSIONER MCALLISTER: No, I think I'm
14 (indiscernible) with that report.

15 CHAIR HOCHSCHILD: Okay. With that, Commissioner
16 Vaccaro would you be willing to move the item?

17 COMMISSIONER VACCARO: Yes, I move approval of
18 this item.

19 COMMISSIONER MCALLISTER: I'll second.

20 CHAIR HOCHSCHILD: All in favor say aye.
21 Commissioner Vaccaro?

22 COMMISSIONER VACCARO: Aye.

23 CHAIR HOCHSCHILD: Commissioner McAllister?

24 COMMISSIONER MCALLISTER: Aye.

25 CHAIR HOCHSCHILD: And I vote aye as well. Item

1 4 passes unanimously.

2 We'll turn now to Item 5, California Schools
3 Healthy Air, Plumbing and Efficiency Program, CalSHAPE.

4 MR. VELAZQUEZ: Good afternoon, Chair,
5 Commissioners. My name is David Velazquez and I work in
6 the School Stimulus Office in the Renewable Energy
7 Division. With me today from the Chief Counsel's office is
8 Matt Pinkerton. I will be providing a brief background on
9 the California Schools Healthy Air, Plumbing and Efficiency
10 Program or commonly known by its acronym CalSHAPE. I will
11 also be describing the changes involved in the Second
12 Edition Guidelines and concluding with a recommendation for
13 your approval. Next slide, please.

14 CalSHAPE is comprised of two grant programs: the
15 Ventilation and Plumbing Programs. CalSHAPE was enacted
16 with the passage of Assembly Bill 841 in September of 2020.
17 The Ventilation Program provides grants to assess,
18 maintain, and repair or replace ventilation systems. And
19 the Plumbing Program provides grants to replace aging and
20 inefficient plumbing fixtures and appliances. Program
21 objectives include improving indoor air quality in
22 classrooms, the reduction of water usage at schools, and
23 create high paying jobs that assist in California's
24 economic recovery.

25 Guidelines for both programs were adopted by the

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1 Commission in August 2021. The Ventilation and Plumbing
2 programs are separate with their own guidelines and Local
3 Education Agencies, or LEAs for short, can apply for either
4 or both. For the initial phase of the program, grants are
5 awarded to LEAs. And we began accepting applications from
6 LEAs last fall. Next slide, please.

7 Eligibility to apply for the Ventilation and
8 Plumbing programs has been prioritized to schools located
9 in an area with a designation as an underserved community.
10 To qualify the area must have met at least one of five
11 criteria as defined in statute, which are listed here on
12 this slide. The determination of these is based on several
13 data sources which include the U.S. Census, the California
14 Department of Education, CalEnviroScreen, and others.

15 The CalSHAPE GIS web map includes data layer
16 filters that help assist LEAs in determining if their
17 schools meet any of these criteria.

18 Staff estimates that nearly 60 percent of schools
19 in the state met at least one of the five criteria. This
20 accounts for nearly 6,000 schools in the state.

21 Prioritizing underserved schools in the first two funding
22 rounds has allowed as of to date 100 percent of the program
23 funding to go to schools that are in the most need of
24 support.

25 The second edition guidelines will expand school

1 eligibility to open up statewide so that the remaining 40
2 percent of schools will be able to apply to the programs in
3 upcoming funding rounds. Next slide, please.

4 Although there were limits on school eligibility
5 in the first two funding rounds, over 340 LEAs have applied
6 to the Ventilation and Plumbing programs. This results in
7 over 30 percent of the schools in the state that have been
8 included in applications. We're excited to report that 43
9 of 58 counties, which is approximately 75 percent, include
10 a school with at least one CalSHAPE application. Next
11 slide, please.

12 Program funding comes from the large gas and
13 electric utilities' energy efficiency rolling portfolio
14 funds and is based on their annual budget advice letter
15 filings which are submitted to and approved by the
16 California Public Utilities Commission. The overall
17 program budget is estimated to be approximately \$760
18 million, with the potential to be higher. Although the
19 funds are collected for three years, the statute allows the
20 CEC to administer the program through December 2026.
21 Approximately \$230 million were requested in applications
22 in the first two funding rounds, leaving approximately \$600
23 million for more applications. We want to highlight this
24 amount to encourage districts to continue to apply to both
25 programs. Next slide, please.

1 For the CalSHAPE Ventilation program, the initial
2 phase of program awards is limited to HVAC assessment and
3 maintenance grants and is available for planned projects or
4 reimbursement for projects that were contracted for and
5 performed August 1st, 2020.

6 The grant award is equal to the amount requested
7 by the LEA and verified by a contractor's estimate for the
8 reasonable cost to perform the work. Applicants for the
9 HVAC Assessment and Maintenance Pathway also receive 20
10 percent of the requested amount for repairs, upgrades, or
11 replacements to make the system functional or more energy
12 efficient.

13 The initial grant awards do not include
14 additional funding for repairs, upgrades or replacements
15 above the 20 percent contingency threshold. Grants for
16 larger system repair or replacement projects may be
17 available in a future phase of program awards.

18 Since the ventilation program began, we've
19 received about 350 applications requesting about \$200
20 million. The information received was reviewed by staff,
21 who worked closely with applicants to ensure the data
22 provided was complete and accurate. Next slide, please.

23 The CalSHAPE plumbing program provides grants to
24 replace aging and inefficient plumbing fixtures and
25 appliances with water-conserving units. The items eligible

1 for replacement are listed on this slide.

2 The plumbing program grant award is based on a
3 contractor's estimate for costs directly related to the
4 replacement of eligible plumbing fixtures and appliances.
5 Since the plumbing program began, we've received
6 approximately 100 applications requesting approximately \$30
7 million. Just like the ventilation program, the
8 information we received was reviewed by staff who worked
9 closely with the Applicant for complete and accurate data.
10 Next slide, please.

11 Notices of Proposed Award, or NOPAs, were issued
12 for complete applications. For the ventilation program
13 this resulted in about 300 NOPAs issued for approximately
14 \$160 million in grant awards.

15 For the plumbing program approximately 80 NOPAs
16 have been issued for \$15 million dollars in grant awards.
17 A list of LEAs and schools that have received NOPAs for
18 each program is maintained and made available to the public
19 on the CalSHAPE Program webpage. Next slide, please.

20 The Second Edition Ventilation and Plumbing
21 Program Guidelines incorporate minor updates to their
22 application and reporting processes. The most substantial
23 update is that school eligibility will be opened statewide
24 and no longer limited to schools in underserved
25 communities. This will increase the number of schools

1 eligible to apply for the Ventilation and Plumbing programs
2 in upcoming funding rounds to approximately 10,000 schools.
3 Staff will release a notice of funding availability prior
4 to the next application period. The notices will be posted
5 to our webpage prior to a funding round opening.

6 The changes proposed are a result of staff's
7 collaboration with stakeholders and our goal was to make
8 changes that help maximize the impact of CalSHAPE and
9 continues to make both programs as simple as possible.
10 Next slide, please.

11 Other updates in the second edition guidelines
12 for both programs includes an increase to the correction
13 period to allow districts to respond to any corrections.
14 The information provided on the types of documents that are
15 acceptable for application and final reporting documents
16 was also clarified.

17 In the Plumbing Program guidelines, clarification
18 to the application process and site eligibility was
19 changed. The invoicing process for applicants to request
20 reimbursement during the project term was also added. Next
21 slide, please.

22 I'd like to thank Division staff, staff from the
23 Chief Counsel's Office, and the advisors from Commissioner
24 McAllister's and Vaccaro's Offices for their continued
25 support and guidance.

1 Finally, I'd like to recognize and thank all of
2 the stakeholders who have participated in this process and
3 provided feedback that we used in forming these guidelines.

4 Staff is recommending the Energy Commission
5 approve both the Ventilation and Plumbing Second Edition
6 CalSHAPE Program Guidelines. Staff is also recommending
7 the CEC approve the determination that adoption of these
8 guidelines is exempt from CEQA. This concludes staff's
9 presentation, and I am available to answer any questions
10 you may have.

11 CHAIR HOCHSCHILD: Thank you, terrific overview.

12 Let's go to public comment on Item 5.

13 MS. MURIMI: Thank you, Chair.

14 So for individuals that are in the room go ahead
15 and use the blue cards located in the back of the room with
16 the Public Advisor. For those that are on Zoom go ahead
17 and use the raised-hand feature, looks like a high-five or
18 open palm at the bottom of your screen or device. For
19 those joining by phone press *9 to raise your hand and then
20 press *6 to mute or unmute on your end.

21 Giving that one moment. We have Chris Walker on
22 Zoom. Go ahead and state and spell your name, give your
23 affiliation if any. You may give your comment.

24 MR. WALKER: Good afternoon. My name is Chris
25 Walker, C-H-R-I-S W-A-L-K-E-R, on behalf of the California

1 Sheet Metal and Air Conditioning Contractors Association.

2 I would just like to commend the staff and let you that CAL
3 SMACNA supports the motion for the approval.

4 We do want to continue to acknowledge that there
5 are some applicants that may not be following the qualified
6 personnel requirements and that additional attention and
7 policing of the program's guidelines is warranted. We want
8 to make sure that the qualified personnel required in the
9 program are actually being used by the districts receiving
10 the money.

11 With that I'll conclude my comment and again
12 thank the staff and the Commission.

13 MS. MURIMI: Thank you, Chris.

14 Seeing no other comments, Chair, I will hand the
15 mic back to you.

16 CHAIR HOCHSCHILD: Okay thanks. Let's go
17 Commissioner discussion starting with Commissioner
18 McAllister.

19 COMMISSIONER MCALLISTER: Well great, David,
20 thank you very much. That was a super clear presentation
21 and a great update.

22 I am incredibly proud of this program, just the
23 staff we have on it and the intentionality throughout the
24 process. And through multiple iterations of the guidelines
25 and multiple rounds of funding I think it's just been very

1 exemplary, just good program design and very conscientious
2 hewing to the requirements of statute and to the requests
3 and the desires of the stakeholders that are involved, and
4 so I really appreciate that.

5 I want to thank Mr. Walker for his comment and
6 CAL SMACNA for all the support along the way. I mean,
7 SMACNA has been the kind of driving force for this process,
8 the legislation and sort of conceiving the need and
9 figuring out how to satisfy that need so I want to
10 appreciate, just thank you and the SMACNA members.

11 So I also just want to thank staff who has been
12 involved along the way. Jonathan Fong who's really sort of
13 led the charge throughout this, and Deana Carrillo as well,
14 the deputy Armand Angulo, and then on legal Matt Pinkerton
15 and Allan Ward been involved heavily throughout, so I want
16 to just thank the whole team. And I think -- oh, and then
17 Fritz also, Fritz Foo my advisor, Eli Harland, Commissioner
18 Vaccaro's advisor who have been supporting and sort of
19 keeping in tune and keeping us informed along the way. So
20 just lots of good things to say about this program.

21 It is time to open it up. We've had several
22 rounds, focusing on the original, kind of the highest and
23 best use of these funds, which is in disadvantaged
24 communities, school districts in need in these communities
25 and sort of the places where I think the deficit is

1 greatest for these needs, greatest for these upgrades. And
2 those school districts have had many, many opportunities
3 along the way to ask for funds and I'm satisfied that
4 they've gotten what they need from the program along the
5 way. And it's time to open it up to a broader pool of
6 schools.

7 So again, I think with each new tranche, with
8 each bucket funding that the rules are very clear on where
9 that funding should go and how it should be administered
10 and we're being very efficient and getting it out there, so
11 I want to just again thank the team and David, great
12 presentation and I fully support it.

13 COMMISSIONER VACCARO: So I agree and underscore
14 every everything that you just said, from the thanks for
15 the presentation to the staff and CCO teams who supported
16 this. I'm excited about this program. I've been working
17 on it since I was an advisor in former Commissioner
18 Douglas's office from the launch, like everything before
19 this went live.

20 And I know like the diligence, the dedication,
21 like how the team has come together to strategize how to
22 make sense of this, how to be responsive. And more
23 importantly, how to make sure there was access for all of
24 the schools to be able to take advantage of this. This has
25 been methodical, and it's required a lot of responsiveness

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1 and working with stakeholders.

2 And so I also want to acknowledge Mr. Walker's
3 comment, because I read your written comments. I
4 understand the points that you're making about sort of
5 accountability in the system and how we can build that in.
6 And while we didn't move forward with putting that into a
7 guideline change, I know that my office has met with staff
8 to discuss that and what opportunities we have to address,
9 I think, a very real topic that you've raised. And so I
10 think, moving forward, that is something that we're going
11 to keep our eye on, and we'll be looking for more input
12 from you and other stakeholders in that regard. So thank
13 you, thank you for the partnership as we continue to move
14 forward with this program.

15 CHAIR HOCHSCHILD: Well, thank you both for those
16 comments.

17 I'm really encouraged by the presentation, thank
18 you. It was a great overview. And I just want to note I
19 love the nexus of the Energy Commission and the schools in
20 California. And it really began with Prop 39 in a big way
21 with your leadership. And projects that we supported
22 through Prop 39 saved the schools in California over \$100
23 million a year on their energy bills and that's money that
24 goes back in the classroom.

25 And this, with AB 841 authored by Assemblyman

1 Ting and signed by the Governor created this program that
2 will continue in making the schools healthier as well. And
3 of course it extends now into the work around electric
4 school buses which we're engaging, are going to be ramping
5 up, so it's a great relationship. I think it's good for
6 the students, good to the state, good for the climate and
7 really encouraged by this progress.

8 So with that I would welcome a motion from
9 Commissioner McAllister on Item 5.

10 COMMISSIONER MCALLISTER: I move Item 5.

11 CHAIR HOCHSCHILD: Is there a second?

12 COMMISSIONER VACCARO: Second.

13 CHAIR HOCHSCHILD: All in favor say aye.

14 Commission McAllister?

15 COMMISSIONER MCALLISTER: Aye.

16 CHAIR HOCHSCHILD: Commissioner Vaccaro?

17 COMMISSIONER VACCARO: Aye.

18 CHAIR HOCHSCHILD: And I vote aye as well. Item
19 5 passes unanimously. Thank you, David.

20 Colleagues it's now 10 of 1:00. I would suggest
21 we recess for lunch and maybe reconvene at 1:30, would that
22 work for everyone? Is that all right? Okay we'll
23 reconvene here in 40 minutes at 1:30.

24 (Off the Record at 12:49 p.m.)

25 (On the Record at 1:44 p.m.)

1 CHAIR HOCHSCHILD: Moving to Item 6, Energy
2 Conservation Manual for the 2022 Building Energy Efficiency
3 Standards.

4 MR. GEISER: Good afternoon, Chair and
5 Commissioners. My name is Che Geiser, and I am the
6 Supervisor of the Standards Tools Development Unit. I am
7 here today with Haile Bucaneg, a senior mechanical engineer
8 with the Building Standards Office, and Matt Chalmers and
9 Josey Crosby from the Chief Counsel's Office.

10 We are here today requesting certification of
11 three portions of the Energy Conservation Manual to support
12 the implementation of the 2022 Energy Code: The Energy Code
13 Compliance Documents, the Data Registry Requirements
14 Manual, and the Single-Family and Nonresidential and
15 Multifamily Alternative Calculation Method Reference
16 Manuals. The fourth part of the Energy Conservation
17 Manual, the Compliance Manuals, were certified at the May
18 2022 Business Meeting. Next slide, please.

19 The purpose of the Energy Conservation Manual is
20 to help designers, builders, contractors, and local
21 agencies demonstrate compliance with the updated 2022
22 Energy Code. Since the 1970's the Energy Code, together
23 with the appliance standards, have saved California
24 consumers more than \$100 billion in utility bills. Next
25 slide, please.

1 In August 2021 the Energy Commission adopted the
2 2022 Energy Code, and in December 2021, the California
3 Building Standards Commission approved the 2022 Energy Code
4 as part of the California Building Standards Code. Public
5 Resources Code section 25402.1(e) authorizes and directs
6 the Commission to certify an energy conservation manual no
7 later than 180 days after the CBSC approval. Next slide,
8 please.

9 The compliance documents are used by designers
10 and installers to demonstrate compliance of designs
11 submitted to building department for building permits.
12 Third-party raters use compliance documents to verify
13 equipment is installed according to the Energy Code.
14 Because the 2022 Energy Code added sections specific to
15 low-rise multifamily buildings, new compliance documents
16 were added to create a pathway for demonstrating compliance
17 with the new multifamily sections.

18 In developing these new compliance documents
19 staff sought and received public input, including by making
20 documents available to industry stakeholders, and
21 discussions at a public workshop. Next slide, please.

22 The 2022 Data Registry Requirements Manual is
23 intended as a resource for the Data Registry Providers to
24 aid in the design and implementation of software procedures
25 and user interface features for their Data Registries. The

1 DRRM has been posted for public review, and the CEC has
2 been in regular communication with the Data Registry
3 Providers to address their comments. CEC staff will
4 continue to work with the Data Registry Providers to
5 provide and clarify and to improve the DRRM.

6 I will now hand off to Haile Bucaneg who will
7 present the Alternative Calculation Method Reference
8 Manuals. Next slide, please.

9 MR. BUCANEG: Good afternoon, Chair and
10 Commissioners. My name is Haile Bucaneg, and I am a senior
11 mechanical engineer in the Building Standards Office. The
12 Alternative Calculation Method, or ACM Reference Manuals
13 provide the rules for building modeling software used to
14 demonstrate compliance with the Energy Code through the
15 performance pathway. This includes public domain software
16 provided by the Energy Commission and third-party software
17 certified by the CEC.

18 The ACM Reference Manuals were posted on the CEC
19 docket for public comments. Staff received comments from
20 industry stakeholders and worked to update the information
21 and to incorporate suggestions where appropriate. Next
22 slide, please.

23 Staff recommends that you certify three portions
24 of the Energy Conservation Manual to implement the 2022
25 Energy Code and adopt staff's findings that they are exempt

1 from CEQA. Upon your certification of the Energy
2 Conservation Manual the building industry will have the
3 tools needed to demonstrate compliance with the 2022 Energy
4 Code in advance of the effective date of January 1, 2023.
5 Next slide, please.

6 Thank you to the whole team involved in
7 developing the Energy Conservation Manual, especially the
8 staff in the Efficiency Division, Office of the Chief
9 Council, and in the Media and Public Communications Office.
10 The development of the Energy Conservation Manual was a
11 large lift under tight deadlines and this team provided an
12 amazing amount of support in the development of these
13 documents. Thank you and we are available for any
14 questions.

15 CHAIR HOCHSCHILD: Thank you.

16 We'll go to public comment on Item 6.

17 MS. MURIMI: Thank you, Chair.

18 So for individuals that are in the room, go ahead
19 and use the blue cards located in the back of the room.
20 For individuals on Zoom use the raised-hand feature, it
21 looks like a high-five or an open palm at the bottom of
22 your screen device or device. And for those on the phone
23 go ahead and press *9 to raise your hand and *6 to unmute
24 on your end.

25 We'll give that one moment. We have Heidi Werner

1 on Zoom. Go ahead and state and spell your name, give your
2 affiliation, if any, and you may begin your comment.

3 MS. WERNER: Hello, this is Heidi Werner, H-E-I-
4 D-I W-E-R-N-E-R, with Energy Solutions, on behalf of the
5 statewide Utility Codes and Standards Enhancement Team.
6 And the CASE team is supported by PG&E, SDG&E, SCE, LADWP
7 and SMUD.

8 The statewide CASE team supports the approval of
9 the compliance documents, the Data Registry Requirements
10 Manual and the ECM reference manuals for the 2022 Energy
11 Code. Doing so will be a significant step in supporting
12 compliance with the 2022 Energy Code and it will also help
13 the Energy Commission gather data to inform their ongoing
14 efforts to improve code compliance.

15 The Energy Code is a really powerful policy
16 mechanism to decarbonize the existing building stock and
17 new construction, but the code will only result in actual
18 emissions reductions and actual energy savings if code
19 compliance is high. So today's approval is an essential
20 step to support code compliance.

21 Thank you to the Energy Commission staff for your
22 dedication during the 2022 Code cycle, including all of
23 your efforts to establish the appropriate foundation for
24 improved compliance. And, in particular, we wanted to say
25 thank you to Che and Haile for working collaboratively with

1 us to consider our suggestions for each of the documents
2 that is under consideration for approval today.

3 And then, finally, as a reminder, the statewide
4 Codes and Standards program offers no-cost tools, trainings
5 and resources to support code compliance through Energy
6 Code Ace and we are committed to supporting all our market
7 actors in improving code compliance.

8 So with that, thank you for your time today and
9 throughout this entire code cycle and we support the
10 approval of these documents.

11 MS. MURIMI: Thank you.

12 Seeing no more hands and no blue cards, Chair,
13 back to you.

14 CHAIR HOCHSCHILD: Thank you, Dorothy.

15 All right we will go now to Commissioner
16 discussion, starting with Commissioner McAllister.

17 COMMISSIONER MCALLISTER: Well, Haile, Che, thank
18 you very much for the presentation. It's kind of hard to
19 overstate how important this is. We have a huge team, you
20 saw the list, the page full of names in small print of all
21 the folks who have been working on this. I mean, I have to
22 really credit Division leadership: Mike Sokol, Christine
23 Collopy. Christine's here in the audience. Thank you,
24 Christine, just for keeping all of these parallel trains
25 that kind of end up at the station that we're looking at in

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1 its entirety today. Just keeping all of those trains on
2 time and running and coordinated and not crashing into one
3 another, it really is a monumental task. The Building Code
4 is such a profoundly foundational resource for the state
5 and has produced so much good for Californians over the
6 last decades.

7 And we are asking it to do evermore each update.
8 And it can't be more important as we sort of leverage our
9 authority in that realm to go to building decarbonization
10 for the state. And so not the only tool we have for
11 building decarbonization, but arguably the most important
12 one.

13 And so I'll just point out also these are the
14 resources that allow the implementation of the 2022 Code,
15 which goes into effect of January of next year. At the
16 same time all this detailed work is happening where staff
17 is cranking up the process for developing the 2025 Code,
18 which will sort of be the next step in many of these --
19 along many of these same lines to go down to stations
20 further along the line. So I think these resources are
21 incredibly important.

22 I want to just acknowledge how big the lift has
23 been this time because we did a lot. We did some important
24 things in the building code, and so having all the
25 resources: the LACM, the CBECC, and the ACM, then all the

1 resources, the DRRM is almost whole cloth new product.

2 And also the multifamily piece, which was, I
3 think, very necessary and I'm glad, very glad, we've done
4 that. I think we're responding to stakeholders in the
5 multifamily and affordable housing realm that needed a code
6 to be more navigable for them. But that reorg of the Code
7 and the production of the support resources that are
8 necessary for that has been a huge lift for staff and I
9 just want to acknowledge that as well.

10 I think we'll be better off in the long run, but
11 sometimes to get that foundation built for the long run, it
12 takes a lot of effort in the near term and just
13 coordinating all that is a big job. And so we have
14 incredible technical expertise, managerial expertise, and
15 legal expertise on this, and I just want to acknowledge the
16 Chief Counsel's Office, the entire Efficiency Division
17 really. And then all the team in media that helps kind of
18 produce the final documents.

19 And media generally, I think, has been incredibly
20 helpful in helping us frame the messaging to the public
21 about all this. When we adopted the update back in August,
22 we really made kind of the splash, it moved the needle in
23 the way that it did, because it showed our kind of
24 competence and the fact that it's all robust and very
25 buttoned up and well done. And I think we were able to

1 communicate that effectively and efficiently because the
2 help of our media team.

3 So let's see, I don't want to go on too long
4 here. But I just want to also thank Heidi from Energy
5 Solutions who called in and acknowledging that she was
6 speaking for a lot of folks with utilities and contractors
7 and experts across state who fed into this process as well.
8 The CASE resources are really a key for developing the
9 technical propositions and the technical measures that go
10 into the building code and then the support of those
11 measures. And so I want to acknowledge that and really
12 looking forward to working with all of those stakeholders
13 and entities going forward.

14 And yeah and again, Haile and Che, thank you very
15 much it's actually -- just realized that I met Che for the
16 first time in person just earlier, a little bit earlier, so
17 I feel like blood brothers kind of but it's really, really
18 great to be in a moment where we can embrace the whole
19 experience sort of in all its dimensions. So thanks,
20 thanks again and I -- well Josey and Matt I want to thank
21 you as well, so appreciate that.

22 CHAIR HOCHSCHILD: Anything, Commissioner
23 Vaccaro?

24 COMMISSIONER VACCARO: Yeah. it's very hard to
25 follow that. But I'm going to just for a couple of brief

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1 comments, because I was able to get really great briefings
2 yesterday on the Efficiency Division items that are on the
3 agenda today. And there are a couple things I said in that
4 briefing that I just thought I'd rather say out loud too.

5 I mean, this is obviously very important work but
6 what came through for me is just in doing this heavy lift
7 like the strength of the leadership and the strength of the
8 team. You know, you go through employee transitions, you
9 get new work, and through it all a responsiveness. I mean
10 it took a village, both of these items, it takes a lot of
11 people, it takes commitment, dedication. I mean, I called
12 out Christine and Mike by name in that briefing. But it
13 takes a lot on the part of leadership and management,
14 though, to pick the teams and then to have your teams be so
15 dedicated to getting this work done.

16 And I know it also includes Chief Counsel's
17 Office as well, really impressed by this work. This is an
18 area where I haven't spent a lot of my time except for when
19 I was Chief Counsel focusing on the Efficiency Division
20 work and the nuts and bolts, so I appreciated the
21 briefings. But I really appreciated the opportunity to see
22 how hard working this team is and what you've been able to
23 accomplish. So I want to kind of say that out loud and not
24 just keep that in a Zoom call. So thank you.

25 CHAIR HOCHSCHILD: Yeah, I would second all those

1 comments and the hard work of the team.

2 And I just would highlight with the code the
3 further along we get, over time, there are diminishing
4 returns, right? I mean we're getting more and more
5 efficient, the envelope is sufficient, windows, the
6 lighting, and all the rest. I think the importance of
7 compliance and focusing on compliance grows with every
8 passing year and that's something we'll get into here a
9 little bit in the next item.

10 But I did want to just highlight that
11 directionally I know I think one consequence of doing a
12 really good job on the code is that it actually means the
13 compliance is more important than ever, because there are
14 diminishing returns with the code over time as we get to
15 this level of hyper-efficiency.

16 And there's still a lot of noncompliance and
17 there's still -- and I always just think about it from the
18 perspective of a building inspector walking into a
19 building, they are looking at seismic, fire, disability
20 access, electrical safety, okay, so energy efficiency is at
21 the bottom of an already very long list and they get to our
22 code it's like this, right, it's a phone book. So I think
23 that's part of our challenge is directionally over time
24 making it really easy to comply, making sure we're helping
25 people to comply with the most important things first. And

1 then just having the same level of excellence and diligence
2 and vigilance that we have on code development with code
3 compliance, I think that's a big goal for us. And I just
4 want to say I think that's one of the consequences to do a
5 great job on the code is it actually highlights the
6 compliance more.

7 So I am thrilled to join Commissioner McAllister
8 and Commissioner Vaccaro in supporting this item, and I'd
9 welcome a motion on Item 6 from Commissioner McAllister.

10 COMMISSIONER MCALLISTER: I'd actually make just
11 in response to your comment, I couldn't agree more.

12 And I think the track record of compliance in
13 the straight new construction is actually pretty good. But
14 although I agree with you directionally, it is kind of the
15 newer technology that is at the frontier that we're
16 incorporating into the code. The more we have to pay
17 attention to industry's ability to do quality installs and
18 do it right and actually avoid confusion about what the
19 code actually is asking them to do, right, and because the
20 code can get pretty complicated.

21 And so one of the big efforts that we are, that
22 I'm working with staff on is to figure out pathways to make
23 and to kind of automate and digitize the process so that
24 kind of sort of a subset of some of our data work really.
25 But it's really just pulling this process into the digital

1 age and trying, making sure that the design of a building
2 and the sort of working it through the compliance process
3 and code is a simple, tablet-driven sort of generates
4 uniform data.

5 That data actually does come to the Energy
6 Commission, it goes through the HERS providers or others
7 and makes it into a comprehensive kind of resource that the
8 Energy Commission would own and oversee. And now that, the
9 idea that gives us then a very comprehensive view of the
10 stock of buildings that's being constructed. And we know
11 what measures are going in and we really know sort of the
12 lay of the land in much more granular detail going forward.

13 And it would also -- these resources, it's going
14 to take a couple of cycles to sort of get it done but also
15 will help with the compliance process. So it'll help the
16 builders, it'll help the inspectors, and the raters, and
17 the building departments know what's what in a much more
18 concise and transparent and actionable way. And so that's
19 in these implementation documents and processes and
20 resources. That's kind of the direction that the
21 enterprise is going.

22 And so I think we can have a different
23 conversation about existing buildings and how we can do
24 better there because I think that's a little more wild-west
25 still and needs -- we live in a huge state with lots of

1 buildings and lots of different local jurisdictions and
2 there's just many, many different elements of that and our
3 diversity, right. But that's also a very important
4 activity going forward, is especially with our
5 decarbonization work and actually getting into buildings,
6 figuring out how to help the contractors do good work in
7 those existing buildings is also a big task.

8 CHAIR HOCHSCHILD: Just to add to that, too I
9 mean I just would point out this is also a grid reliability
10 issue.

11 COMMISSIONER MCALLISTER: Absolutely.

12 CHAIR HOCHSCHILD: The amount of energy that we
13 save from both doing the codes right and being really bold
14 and aggressive on code compliance, that can make the
15 difference. And we are putting a huge amount of effort
16 into deploying the resources right. We put five-and-a-half
17 gigawatts of new clean preferred resources on the grid last
18 year, we're doing another four gigs by July. All this
19 stuff really adds up, that we should -- because this is
20 megawatts, right?

21 COMMISSIONER MCALLISTER: Also flexiwatts.

22 CHAIR HOCHSCHILD: Flexiwatts, exactly. So
23 anyways, but thunderous approval and applause for all your
24 work.

25 And with that I'd welcome a motion on Item 6

1 from Commissioner McAllister.

2 COMMISSIONER MCALLISTER: I will move Item 6.

3 CHAIR HOCHSCHILD: Is there a second?

4 COMMISSIONER VACCARO: I second.

5 CHAIR HOCHSCHILD: All in favor say aye.

6 Commission McAllister?

7 COMMISSIONER MCALLISTER: Aye.

8 CHAIR HOCHSCHILD: Commissioner Vaccaro?

9 COMMISSIONER VACCARO: Aye.

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

12 We'll turn now to Item 7, California Building
13 Energy Code Compliance Software Feedback.

14 COMMISSIONER MCALLISTER: Thanks, team.

15 MR. WICHERT: Hi. Good afternoon, Chair and
16 Commissioners. My name is RJ Wichert and I'm a mechanical
17 engineer in the Building Standards Office in the Efficiency
18 Division. I'm here to ask for your approval of the 2022
19 public domain residential, nonresidential, and multifamily
20 software CBECC and CBECC-Res version 2022 1.0. With me
21 today is Matt Chalmers from the Chief Counsel's Office to
22 answer any questions you might have. Next slide, please.

23 If approved, this CBECC update will benefit
24 California by providing the building industry with the
25 tools necessary to demonstrate performance compliance for

1 the 2022 Energy Code and expanding the list of available
2 efficiency measures in the software, including more energy-
3 saving options that also promote decarbonization.

4 This update also simplifies compliance for
5 multifamily buildings by restructuring the low and high-
6 rise multifamily compliance into a single tool, CBECC.

7 Next slide, please.

8 For both CBECC and CBECC-Res this version
9 contains the updated 2022 Energy Code modeling rules as
10 described in the Alternative Calculation Method, or ACM,
11 Reference Manuals.

12 Additionally, both low and high-rise multifamily
13 compliance have been incorporated into CBECC, formally
14 CBECC-Com, to match the multifamily restructuring contained
15 in the 2022 Energy Code update. This change will simplify
16 multifamily compliance which previously used CBECC-Res for
17 low-rise and CBECC-Com for high-rise compliance. Next
18 slide, please.

19 Staff has thoroughly tested CBECC and CBECC-Res
20 2022 1.0 to ensure they meet the requirements,
21 specifications, and criteria for building energy models in
22 the ACM Approval Manual and is recommending approval of the
23 resolution on this item to ensure that the building
24 industry has performance compliance tools well in advance
25 of the January 1st, 2023, effective date of the 2022 Energy

1 Code.

2 Additionally, staff recommends that you adopt
3 findings that the CBECC and CBECC-Res compliance software
4 are exempt from CEQA. Thank you and I'm available to
5 answer any questions you may have.

6 CHAIR HOCHSCHILD: Thank you.

7 We'll go to public comment on Item 7.

8 MS. MURIMI: Thank you, Chair.

9 For individuals that are in the room, go ahead
10 and use the blue cards located in the back of the room or
11 take them to the Public Advisor. For individuals that are
12 on Zoom go ahead and use the raised-hand feature, looks
13 like a high-five or open palm at the bottom of your screen
14 or device. And for those of you joining by phone go ahead
15 and press *9 to indicate that you'd like to make a comment
16 and *6 to unmute on your end.

17 Giving that one moment. Seeing no raised hands
18 or blue cards, Chair, back to you.

19 CHAIR HOCHSCHILD: Okay, thanks.

20 We'll go to Commissioner discussion starting with
21 Commissioner McAllister.

22 COMMISSIONER MCALLISTER: Well, thank you very
23 much. And RJ, thanks so much, Matt, team. Again, this is
24 -- I think that that one slide covered both of these items,
25 all the people that are involved behind it just on the

1 teams and working on the various components of this. And
2 also, we have a couple large technical support contracts
3 that are also doing much of the heavy lifting here. And so
4 I want to just acknowledge those teams.

5 Some meetings ago, you all approved those
6 contracts. And to Bruce Wilcox and NORESCO that have been,
7 I think, year after year really helping us shape and update
8 CBECC-Com and Res. So, again lots of work behind this
9 update. I do have complete confidence in the staff work
10 and the contractor work to do this.

11 It's sort of a bit of a permanent revolution.
12 You'll notice from the version numbers here that we always
13 sort of do better than the measures that come in.
14 Technically those have to be incorporated into the
15 software. But this update is a really, really critical one
16 for putting out there to the public so they can really see,
17 so practitioners can see it and use it and really get ready
18 to apply the 2022 Code. So great.

19 And so I think that's sort of the top-level
20 comments on my part, but again it's reflected in the huge
21 amount of work in the RJ, team, Mike, Christine, just for
22 keeping all the trains running again. This is several
23 other parallel tracks. So thanks a lot.

24 CHAIR HOCHSCHILD: Unless there are further
25 comments from Commissioner Vaccaro?

1 COMMISSIONER VACCARO: So just everything I said
2 on the last item applies here as well, because I got both
3 briefings at the same time. And said the same things to
4 the entire group, just it's important work and good job.

5 CHAIR HOCHSCHILD: Good. I'd welcome a motion
6 from Commissioner McAllister on Item 7.

7 COMMISSIONER MCALLISTER: I move Item 7.

8 CHAIR HOCHSCHILD: Is there a second?

9 COMMISSIONER VACCARO: Second.

10 CHAIR HOCHSCHILD: All in favor say aye.

11 Commission McAllister?

12 COMMISSIONER MCALLISTER: Aye.

13 CHAIR HOCHSCHILD: Commissioner Vaccaro?

14 COMMISSIONER VACCARO: Aye.

15 CHAIR HOCHSCHILD: And I vote aye as well. Item
16 7 passes unanimously. Thank you.

17 We'll turn now to Item 8, Bringing Rapid
18 Innovation Development to Green Energy. Misa Werner. Hi
19 Misa.

20 MS. WERNER: Hi. Good afternoon, Chair and
21 Commissioners. My name is Misa Werner and I work in the
22 Energy Research and Development Division. With me today is
23 Anthony Ng, Manager of the Energy Deployment and Market
24 Facilitation Office. I am here today seeking approval of
25 five new grant agreements that resulted from our BRIDGE

1 2020 solicitation. BRIDGE, short for "Bringing Rapid
2 Innovation Development to Green Energy," is --

3 CHAIR HOCHSCHILD: Misa, you can pull that mic
4 down a little bit, it's blocking us. There you go, okay.
5 (Laughter.)

6 MS. WERNER: Short, yeah. So like I said, it's
7 short for "Bringing Rapid Innovation Development to Green
8 Energy," is one of a series of programs we've established
9 to help clean energy startups. This funding program has
10 the specific purpose of bridging the gap between public and
11 private funding opportunities. Unlike other specific
12 technology-focused solicitations BRIDGE is unique in that
13 we get all sorts of projects, applications for high-impact
14 clean energy solutions, since the primary requirements are
15 a prior CEC or federal award and demonstrated success.
16 Next slide, please.

17 One overall benefit of BRIDGE is advancing
18 innovative technologies that can enable the transition to a
19 clean energy economy. Some of the specific benefits of
20 the agreements being discussed today include supporting
21 clean energy entrepreneurs; a quicker transition to
22 renewables; cheaper, safer and long-lasting high-
23 performance batteries; and water and cost savings. Next
24 slide, please.

25 The winning projects proposed for BRIDGE funding

1 are shown in this table, along with their individual
2 proposed award amounts. The total funding recommended is
3 nearly \$8.4 million. And I'll now describe each project,
4 starting with three innovative battery technology projects.
5 Next slide, please.

6 The first project is with Solid Energies, who
7 will design a new class of highly manufacturable solid-
8 state lithium-ion battery. Their battery achieves
9 excellent safety and high energy and power density, with a
10 wider operating temperature range, longer cycling life, and
11 low manufacturing costs. They will use a novel polymer-
12 based composite solid-state electrolyte with high ionic
13 conductivity and a wide operating temperature range.

14 Their process uses roll-to-roll manufacturing and
15 silicon-based anodes. Next slide, please.

16 The next project is with Enzinc, who has
17 developed a novel zinc metal sponge for use in batteries
18 and shown on this slide.

19 Enzinc's anode eliminates the growth of dendrites
20 within the battery which can extend the life of the battery
21 to thousands of cycles.

22 Their battery also uses a water-based
23 electrolyte, which minimizes the risk of thermal runaway.
24 Zinc-based batteries offer an alternative to lithium-based
25 batteries and when used in stationary storage applications

1 Enzinc's battery offers similar performance to lithium-
2 based batteries at a price comparable to lead-acid
3 batteries.

4 For this project, Enzinc will scale development
5 of the zinc sponge anode and integrate the anode into
6 battery cells and packs as well as test the batteries for
7 discharge times from 2 to 12 hours. Next slide, please.

8 Next up is LookIn. They're working to develop a
9 high throughput terahertz scanner for in-line quality
10 control of lithium-ion batteries to automatically detect
11 defective electrodes. This will improve the manufacturing
12 capability to deliver high power batteries with better
13 shelf life, increase safety, lower costs, and decrease
14 production lead-times. In turn, this non-destructive
15 evaluation process reduces scrap rates and waste early in
16 the process.

17 Terahertz waves offer unique functionalities for
18 the QC of battery components. They can penetrate through
19 coatings and provide 3D images of the battery electrodes.
20 And this will ultimately lead to reduced battery prices.
21 However, deployment has been hindered by low sensitivity
22 and scanning speed of existing terahertz scanners.

23 Lookin's technology addresses the limitations of
24 these scanners by providing a 1000-times higher sensitivity
25 and speed through a patented terahertz transceiver. The

1 image here shows views of the scanner and a schematic of a
2 testing that occurred during roll-to-roll production. Next
3 slide, please.

4 Switching gears, Element 16 Technologies is
5 working to enable the electrification of industrial
6 processes with Sulfur Electric Thermal Energy Storage or
7 SETS for short.

8 The goal of this project is to enable the
9 electrification of industrial processes using renewable
10 energy such as solar PV-assisted electrotechnology
11 integrated with low-cost SETS.

12 The proposed R&D activities and pilot testing
13 will validate the capability of molten sulfur thermal
14 energy storage to store electricity and discharge heat for
15 various industrial applications including process heating,
16 cooling, and electricity generation.

17 The proposed SETS concept shown here, minus the
18 solar component, will increase system resiliency to provide
19 on-demand and flexible heat supply to meet the individual
20 requirements of industrial processes. It will also achieve
21 a lower levelized cost of electricity from solar PV thus
22 increasing the share of renewable energy and reducing the
23 CO2 footprint of industrial processes.

24 The integrated system will be pilot-tested in a
25 high-fidelity simulated operational environment,

1 demonstrating its value to industrial end users and
2 ratepayers. Next slide, please.

3 And the final project is with Pyro E. They will
4 deploy a novel Auto-Modulating Power Source, or AMPS for
5 short, to the device that will be used to retrofit and
6 demonstrate water and cost savings across approximately 150
7 affordable housing units in a disadvantaged community.

8 The AMPS technology powers wireless data sensors
9 indefinitely by harnessing energy from water pressure via
10 the piezoelectric effect.

11 The AMPS device, shown on top here installed on a
12 toilet fitting, avoids the need for lithium batteries and
13 their replacement costs in smart water metering. The
14 bottom shows a cutaway illustration of the inside of the
15 device. And as you can see it's pretty noninvasive,
16 installed here.

17 For municipal utilities, multi-family housing,
18 and corporate buildings AMPS reduces maintenance and manual
19 processes. These include water meter readings, service
20 connection and disconnection, water-use identification,
21 leakage notification, and emergency shutoffs.

22 The project aims to demonstrate up to a 34
23 percent bill savings from reduced water waste and avoidance
24 of battery replacements. And the savings will be scalable
25 to over two-thirds of California households to meet state

1 home energy mandates and other municipal green initiatives.
2 Next slide, please.

3 With that, staff recommends approval of these
4 grant agreements and adopting our findings that these
5 projects are exempt from CEQA. This concludes our
6 presentation, and we are available for questions. Thank
7 you.

8 CHAIR HOCHSCHILD: Thank you so much, Misa.

9 MS. WERNER: Sure.

10 CHAIR HOCHSCHILD: With that we'll go to public
11 comment on Item 8.

12 MS. MURIMI: Thank you, Chair.

13 So for individuals that are in the room go ahead
14 and use the blue cards located in the back of the room,
15 hand them to the Public Advisor. For the individuals that
16 are in on Zoom go ahead and use the raised-hand feature,
17 looks like an open palm or high-five at the bottom of your
18 screen or device. And for those calling in go ahead and
19 press *9 to indicate that you'd like to make a comment and
20 *6 to unmute on your end.

21 I see some commenters on Zoom. We'll start with
22 Nezh Tolga Yardimci. Apologies if I've misstated your
23 name. Go ahead and state and spell your name, give your
24 affiliation if any, and you may begin your comment.

25 MR. YARDIMCI: Good afternoon, Chair and

1 Commissioners. My name is Nezh Tolga Yardimci, N-E-Z-I-H
2 T-O-L-G-A Y-A-R-D-I-M-C-I. I am the CEO, Chief Executive
3 Officer, of Lookin. I would like to thank the Commissioners
4 and the Deputy Director Jonah Steinbuck for this
5 opportunity.

6 We are very excited to work with California
7 Energy Commission on the realization of this powerful
8 quality control unit that can help (indiscernible) to
9 reduce their manufacturing costs significantly and produce
10 more reliable and safer batteries.

11 We believe, with our technology we can contribute
12 to the pursuit of making lithium-on batteries more
13 affordable, available, and safer for everybody. Once
14 again, thank you.

15 MS. MURIMI: Thank you, Nezh.

16 Next, we have Kevin Zanjani. Please state and
17 spell your name, give your affiliation if any. You may
18 begin your comment.

19 MR. ZANJANI: Hi. This Kevin Zanjani with Solid
20 Energies, Incorporated, here in Anaheim California. We'd
21 like to appreciate the opportunity to work on this project
22 for the CEC.

23 Our company is developing this solid-state
24 lithium battery that's going to offer higher power density
25 as well as better manufacturing techniques for use of these

1 batteries for various electric vehicle and electric storage
2 applications. And so we really appreciate the opportunity
3 to work on this project, and thanks again.

4 MS. MURIMI: Thank you, Kevin.

5 Chair, seeing no more public comments I'll give
6 the mic back to you.

7 CHAIR HOCHSCHILD: Well, thank you.

8 So I love this program. I also want to
9 compliment the name of the program. We've had a lot of
10 terrible acronyms over the history of the CEC and we're
11 getting better. This is a wonderful one. And really what
12 is this a bridge to? It's a bridge to market, and I just
13 want to highlight California is the largest market in the
14 world for energy storage. We are going all in on this and
15 so these improvements, and some of them are minor and
16 incremental but they matter a lot. I mean, we're talking
17 about improved efficiency, improved safety, improved
18 reliability.

19 My view is that lithium is really equivalent to
20 silicon and what we saw in the solar industry, it really is
21 the workhorse technology. And it's in everything. It's in
22 our phones, our laptops, our cars, now backup energy
23 storage for homes, for utility scale. And so these
24 improvements for the processing the manufacturing and the
25 operation are very, very consequential and this program is

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1 doing a terrific job, as well as with other technology
2 categories, because there certainly are other promising
3 chemistries out there.

4 But I just wanted to highlight how important I
5 think this is. We have not traditionally viewed energy
6 storage as a significant part of our portfolio, a lot of
7 talk about other resource, but it really is now and it is
8 a, I'd say, a fundamental building block. So going
9 upstream like this and then helping these companies get to
10 scale is exactly what's needed.

11 Just a huge, huge gratitude to the whole team who
12 worked on this and all the stakeholders and companies that
13 are participating. I'm really pleased to be supporting
14 this.

15 I'd open it up to other comments, Commissioner
16 McAllister?

17 COMMISSIONER MCALLISTER: Yes, just I totally
18 agree with all that. And I'm so proud of our -- we can go
19 out in the world. We can just talk about our innovation or
20 see our EPIC program overall and our R&D investments in the
21 context of we're doing just the overall innovation process.
22 The innovation curve, each technology moves along and has
23 stages of innovation and then commercialization and then
24 scale. And we have such a wonderful, intentional and
25 effective ecosystem to sort of really, really, really have

1 an impact at every critical juncture in that innovation
2 chain.

3 And BRIDGE is one of those key elements. And so
4 I just think not only are we have sort of a large R&D, for
5 the largest state level certainly and rivaling the federal
6 government in some ways and some areas, but we also just
7 happen to have a system that works. And it really responds
8 to the realities and needs on the ground of actual
9 companies doing actual innovation. And so I just really
10 love this. This is a great group projects, totally agree
11 with the Chair.

12 And that the EPIC 4 finally through the through
13 the PUC and so now that's ready to go, no holds barred, so
14 all systems are go here and really appreciate your
15 highlighting one of these big kinds of wins and effective
16 programs. So thanks, fully, fully in support.

17 CHAIR HOCHSCHILD: No comments from Commissioner
18 Vaccaro? Okay, I'd welcome a motion on Item 8 from
19 Commissioner McAllister.

20 COMMISSIONER MCALLISTER: I move Item 8.

21 CHAIR HOCHSCHILD: Is there a second?

22 COMMISSIONER VACCARO: Second.

23 CHAIR HOCHSCHILD: All in favor say aye.

24 Commission McAllister?

25 COMMISSIONER MCALLISTER: Aye.

1 CHAIR HOCHSCHILD: Commissioner Vaccaro?

2 COMMISSIONER VACCARO: Aye.

3 CHAIR HOCHSCHILD: And I vote aye as well. Item
4 8 passes unanimously.

5 We'll turn now to Item 9, Research to Support a
6 Climate Resilience Transition to a Clean Electricity
7 System.

8 MS. KOVALICK: Good afternoon, Chair, Vice Chair,
9 and Commissioners. My name is Alex Kovalick, and I am an
10 Energy Commission Specialist in the Energy Research and
11 Development Division. Today staff is requesting approval
12 of three agreements intended to improve planning processes
13 for the electricity sector. Next slide, please.

14 As the California ISO, CPUC and CEC found in
15 their root cause analysis of the August 2020 power outages,
16 planning processes for the electricity sector must be
17 revamped to cope with a changing climate. EPIC-funded
18 Grant Funding Opportunity-21-302 aims to help address this
19 challenge by quantifying the emerging relationships between
20 electricity supply, demand, and climate as we transition
21 our electricity grid to meet SB 100 goals.

22 This research will support integrating these
23 impacts into current energy system modeling and planning
24 processes, while also contributing to advancements beyond
25 current our practice. This research is intended to

1 identify and incorporate climate-related risks that are not
2 captured by current approaches to energy system modeling in
3 order to advance our analytical capabilities, which will
4 result in improved electricity reliability and lower energy
5 costs and will make this information available to a broad
6 range of energy-sector stakeholders. Next slide, please.

7 Today we are requesting \$3.6 million in funding
8 for three projects. Additional funding for "Assessing and
9 improving the climate resilience of an electricity system
10 in transition", which was proposed in a revised NOPA that
11 was posted on May 6th, will be requested at a future
12 business meeting. Next slide, please.

13 The first grant agreement with Eagle Rock
14 Analytics, who is a California small business, will
15 generate hourly resource availability projections for
16 solar, wind, and hydroelectric generation. This is going
17 to help us understand how a changing climate affects
18 geographical distribution of zero-carbon generation as well
19 as seasonal, diurnal, and inter-annual changes in the
20 timing of these resources.

21 Additionally, the research team intends to work
22 with stakeholders to develop data products that harmonize
23 with current planning and regulatory practice while
24 remaining flexible to support future advances in climate
25 science and energy generation modeling frameworks. Next

1 slide, please.

2 The second grant agreement, also with Eagle Rock
3 Analytics, will focus on the interactive web application
4 available at Cal-Adapt.org. This agreement will rebuild the
5 Cal-Adapt architecture and will provide new stakeholder-
6 informed and scientifically rigorous climate visualizations
7 and tools to support California's energy sector regulators,
8 planners, and IOUs in making climate-informed decisions.

9 Next slide, please.

10 The third grant agreement with Energy and
11 Environmental Economics Incorporated, or E3 as commonly
12 known, will enhance load forecasting and capacity expansion
13 models to incorporate climate impacts and uncertainties.
14 This will include bringing Western Electricity Coordinating
15 Council, or a WECC-wide perspective and stochastic
16 functionality into models that are already used to support
17 planning processes by a variety of stakeholders.

18 Additionally, this project will identify climate-
19 related events that stress the grid, including extreme,
20 compound, and cascading events. This involves expertise
21 regarding both the electricity system and climate science.

22 Next slide, please.

23 Staff recommends approval of these agreements and
24 adoption of staff's determination that these projects are
25 exempt from CEQA. Staff, including myself, are available

1 for any questions you may have. This concludes my
2 presentation and thank you for your consideration.

3 CHAIR HOCHSCHILD: Thank you, Alex.

4 We'll go to public comment.

5 MS. MURIMI: Thank you, Chair.

6 So for individuals in the room please use the
7 blue cards located in the back of the room, hand them to
8 the Public Advisor. For individuals that are on Zoom go
9 ahead and use the raised-hand feature, it looks like an
10 open palm or high-five at the bottom of your screen or
11 device. For individuals calling in go ahead and use the
12 raised-hand feature by pressing *9 and press *6 to unmute
13 on your end.

14 Seeing no comments on Zoom and no comments in the
15 room, Chair back to you.

16 CHAIR HOCHSCHILD: Okay, thank you. Well
17 obviously, this is an important tool. Think it's pretty
18 self-evident we got to get smarter and more sophisticated
19 on the modeling, so happy to support this. Commissioner
20 McAllister any comments?

21 COMMISSIONER MCALLISTER: Just really quickly, I
22 mean part of this is we need to anticipate the climate
23 change, that we're all feeling the effects. And it's very
24 clear that future conditions are going to vary from where
25 we've been in the past. And so kind of getting our heads

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1 around that, that kind of predictive capacity that what we
2 need here at the Energy Commission to do that.

3 But also the risk is greater and less known and
4 really the sort of error bars get bigger as we go forward,
5 right? And so understanding the extent of the risk and
6 uncertainty, just even quantifying uncertainty is really
7 important because that is growing. And the more we can
8 kind of keep those bars narrowing it'll help our
9 forecasting and our investment. But really just knowing
10 the level of risk, even if it's high quantifying that is
11 worth a lot just in and of itself. So I think these
12 projects that really do help us get smarter like you said
13 Chair, and I'm very much in support.

14 CHAIR HOCHSCHILD: You want to make any comments?
15 Okay, hearing none would you move Item 9?

16 COMMISSIONER MCALLISTER: Yep, I move Item 9.

17 CHAIR HOCHSCHILD: Is there a second for Item 9?

18 COMMISSIONER VACCARO: I second.

19 CHAIR HOCHSCHILD: All in favor say aye.

20 Commission McAllister?

21 COMMISSIONER MCALLISTER: Aye.

22 CHAIR HOCHSCHILD: Commissioner Vaccaro?

23 COMMISSIONER VACCARO: Aye.

24 CHAIR HOCHSCHILD: And I vote aye as well. Item
25 9 passes unanimously.

1 We'll turn now to Item 10, Advancing Cost and
2 Efficiency Improvements for Low Carbon Hydrogen Production.

3 MR. LASAM: I don't see the slides well. There
4 you go. Good afternoon, Chair and Commissioners, my name
5 is Baldomero Lasam --.

6 MS. MURIMI: Baldo, could you turn on your video?

7 MR. LASAM: It's turned on. Could you see me?

8 CHAIR HOCHSCHILD: There you go, we got it.

9 (Overlapping colloquy.)

10 MS. MURIMI: Yes, we do. Thanks.

11 CHAIR HOCHSCHILD: There we go. Now we can see
12 it, okay.

13 MR. LASAM: Good afternoon, Chair, Vice Chair
14 Commissioners. My name is Baldomero Lasam, and I am a
15 mechanical engineer in the Energy Research and Development
16 Division. Staff is requesting approval for two additional
17 agreements from the solicitation in addition to two
18 agreements approved at the May business meeting. The goal
19 of this solicitation and the projects recommended today is
20 to advance emerging hydrogen production technologies to
21 produce low-carbon hydrogen that achieves cost-
22 competitiveness with fossil-based steam methane reforming
23 pathways.

24 Low-carbon hydrogen displaces the use of fossil
25 gas, and instead relies on biomass feedstock such as

1 biogas, and provide significantly lower carbon intensity
2 compared to conventional fossil-derived hydrogen. Next
3 slide, please.

4 As shown in the graph the vast majority of
5 hydrogen in the United States comes from steam methane
6 reforming processes using fossil fuels, mostly fossil gas.

7 The conventional steam methane reforming process
8 produces greenhouse gas emissions that do not align with
9 the decarbonization goals of California. However, emerging
10 renewable hydrogen production technologies could provide a
11 solution that meets California's clean energy goals and
12 complements other technologies such as electrolysis.

13 These recommended projects will reduce greenhouse
14 gas emissions in the state by developing and deploying
15 novel pathways or processes that displace the use of
16 conventional fossil-based steam methane reforming.
17 Instead, these projects utilize 100 percent renewable
18 feedstock to produce low carbon hydrogen.

19 The research and development efforts will advance
20 approaches that will reduce costs and increase adoption of
21 low carbon hydrogen production technologies.

22 Lastly, these projects will inform future
23 deployment strategies to support upscaling and
24 commercialization and to identify areas for further
25 technology improvement. Next slide, please.

1 The project with Southern California Gas Company
2 will advance a catalytic nonthermal plasma reactor to a
3 modular bench-scale system powered by renewable
4 electricity, such as wind, solar or hydro power. The
5 catalytic nonthermal plasma reactor technology will
6 facilitate the use of the dielectric-barrier discharge
7 plasma at relatively low temperatures of approximately 400
8 to 500 degrees Celsius to convert biogas, primarily carbon
9 dioxide and methane in steam, into low carbon hydrogen.

10 The project's novel approach simplifies the
11 biogas-to-hydrogen-conversion process and enables the
12 reforming processes to occur at significantly lower
13 temperatures of 400 to 500 degrees Celsius compared to
14 steam methane reforming, which requires temperatures of 800
15 to 1,000 degrees Celsius.

16 This scalable approach reduces carbon dioxide
17 emissions, enables greater conversion efficiency, and is
18 cost-competitive with conventional systems.

19 The demonstration project site will be at the
20 SoCalGas Engineering Analysis Center located in Pico
21 Rivera, which is a disadvantaged community in southern
22 California. Next slide, please.

23 The project with Electro-Active Technologies will
24 develop in advance a bench-scale microbial electrolysis
25 cell system that will utilize microbes and renewable

1 electricity, such as wind or solar power to convert 100
2 percent organic waste into low carbon hydrogen.

3 The microbial electrolysis cell system contains a
4 biocatalytic anode that breaks down the waste stream and
5 cathode that separates the hydrogen from the organic
6 compounds.

7 This process will result in the production of
8 high-priority low carbon hydrogen and provide significant
9 reduction of greenhouse gas emissions.

10 In addition, the advancement of this system will
11 reduce electricity consumption for hydrogen production
12 compared to water electrolysis process, divert food waste
13 from landfills and produce hydrogen for onsite or near-site
14 applications.

15 The system will be deployed at the food waste
16 processing facility in a disadvantaged community in Madera,
17 California. Next slide, please.

18 Both recommended projects aim to provide cost
19 parity with fossil-based steam methane reforming,
20 benefiting California's gas ratepayers.

21 Staff recommends approval of these grant awards
22 and adapting of staff's determination that these projects
23 are exempt from CEQA. Thank you and I'm available for any
24 questions.

25 CHAIR HOCHSCHILD: Thank you.

1 We'll go to public comment on Item 10.

2 MS. MURIMI: Thank you, Chair.

3 So for individuals in the room who would like to
4 make a comment go ahead and use the blue cards located in
5 the back of the room, hand them to the Public Advisor. For
6 individuals that are on Zoom who would like to make a
7 comment go ahead and use the raised-hand feature, looks
8 like an open palm or high-five at the bottom of your screen
9 or device. And for those calling in go ahead and press *9
10 to raise your hand and *6 to unmute your line.

11 We have Sean from SoCalGas on Zoom. Please state
12 and spell your name, give your affiliation if any. You may
13 begin your comment.

14 MR. SONI: Good afternoon, CEC Commissioners and
15 staff. My name is Sean Soni and that's spelled S-E-A-N and
16 S-O-N-I, and today I'm speaking on behalf of SoCalGas. We
17 want to offer thanks and sincere gratitude to the CEC for
18 their vision for this grant opportunity to advance a low
19 carbon hydrogen production system that is both cost-
20 effective and scalable. We are excited to partner with the
21 CEC, Susteon, Momentum and others to develop a system that
22 has the potential to produce low carbon hydrogen powered by
23 renewable electricity.

24 ARB's draft scoping plan recognizes the critical
25 role of clean fuels like renewable hydrogen in meeting the

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1 state's decarbonization of sectors such as electricity
2 generation, heavy-duty transportation, and the high-heat
3 industrial sector. Projects like these could help move the
4 needle towards scalable renewable hydrogen production,
5 which will be necessary to decarbonize much of the energy
6 system.

7 Thank you again for the opportunity and we
8 commend the CEC's leadership in climate policy and
9 recognizing the need for clean fuel projects like these.
10 Thank you and those are my comments.

11 MS. MURIMI: Thank you.

12 We have Alex Lewis on Zoom. Go ahead and state
13 and spell your name, give your affiliation if any. You may
14 begin your comment.

15 MR. LEWIS: Great, thanks. Hello everyone, my
16 name is Alex Lewis and that's L-E-W-I-S. I'm the CEO of
17 Electro-Active Technologies.

18 I just want to say we are really excited for the
19 opportunity to advance our modular system for converting
20 100 percent organic waste into hydrogen. This onsite
21 system can have an important implication for greenhouse gas
22 reduction for California, preventing methane emissions from
23 landfills while producing carbon-negative hydrogen to
24 offset fossil fuel use.

25 This local distributed solution for waste

1 management and hydrogen and can be deployed in
2 disadvantaged communities. And the project will seek to
3 recruit interns and staff from these areas that will allow
4 training opportunities for members of those communities.

5 We look forward to working with the Energy
6 Commission and our partners on this very important project.
7 Thank you.

8 MS. MURIMI: Thank you.

9 We have no more comments, Chair, back to you.

10 CHAIR HOCHSCHILD: Okay. Let's go to
11 Commissioner discussion. Commissioner McAllister.

12 COMMISSIONER MCALLISTER: Great yeah, I think
13 these are both really valuable projects. I want to thank,
14 on all these projects we're looking at now, the EPIC and
15 R&D teams for bringing them forward.

16 Just one tidbit on hydrogen is it does seem for
17 years that the practice has been to refer to hydrogen by
18 color: you know, green, blue, brown, whatever. And happily
19 I think there's getting to be some consensus that that
20 doesn't really say a whole lot. And the best option is to
21 kind of just really focus on the numbers and the carbon
22 content of any given source of hydrogen.

23 And I think as we fund more projects, we'll get a
24 better sense of sort of what that really looks like in
25 practice and different sources of hydrogen and really

1 tracing back to the origins and looking at the process and
2 unpacking everything and getting a number, so that we can
3 begin to create some transparency and tracking and
4 accountability for the various sources of hydrogen.

5 And I think our efforts, both now and to come in
6 this area are going to help sort of develop and flesh out
7 that whole ecosystem, so I'm happy to support these
8 projects.

9 CHAIR HOCHSCHILD: Yeah, I would just add that we
10 have invested more money in hydrogen refueling
11 infrastructure than any nation in the world, with the
12 exception of Japan. And on a per capita basis we've
13 invested more than every nation, including Japan. But
14 hydrogen doesn't start providing an environmental benefit
15 until you make it cleanly, and so this is really to help
16 address that need. And we do have a long way to go, we're
17 at 95 percent of the world's hydrogen today is from fossil
18 fuel and so this is exactly the kind of work we want to
19 support.

20 I want to thank all the stakeholders for their
21 support and staff for putting this together and happy to
22 move this forward.

23 So with that I'd welcome a motion on Item 10 from
24 Commission McAllister.

25 COMMISSIONER MCALLISTER: Oh great, I'll move

1 Item 10.

2 CHAIR HOCHSCHILD: Is there a second?

3 COMMISSIONER VACCARO: Second.

4 CHAIR HOCHSCHILD: All in favor say aye.

5 Commission McAllister?

6 COMMISSIONER MCALLISTER: Aye.

7 CHAIR HOCHSCHILD: Commissioner Vaccaro?

8 COMMISSIONER VACCARO: Aye.

9 CHAIR HOCHSCHILD: And I vote aye as well. Item
10 10 passes unanimously.

11 We'll turn now to Item 11, The Regents of UC
12 California on behalf of the Los Angeles Campus.

13 MR. SUNQUIST: Hello, Chair and Commissioners.

14 My name is Jeffrey Sunquist, and I am a mechanical engineer
15 with the R&D Division. And I am here today to request your
16 approval of the agreement to develop a toolkit to address
17 gas infrastructure corrosion issues.

18 Corrosion was among the leading factors that
19 resulted in two major leaks in California within the last
20 decade, including the Aliso Canyon storage facility leak in
21 2015 and the Southern California transmission line rupture
22 in 2017. These incidents constrained gas supplies and
23 interrupted gas market with higher energy prices. This
24 project will have economic, health, and safety benefits to
25 Californians.

1 Firstly, the toolkit will help gas operators to
2 predict corrosion risks more accurately, which will reduce
3 the frequency of costly repairs.

4 The project will help to reduce the likelihood of
5 unexpected leaks and ruptures, and the associated health
6 and safety impacts to communities.

7 And the project will also bring together
8 researchers, technology innovators, and pipeline operators
9 for a new partnership and a concerted effort to advance
10 corrosion research. Next slide, please.

11 Corrosion is challenging because it largely
12 depends on environmental conditions like soil chemistry,
13 moisture, and microbiology. The incidence and growth rate
14 of corrosion can vary greatly even with small changes in
15 environmental conditions. Current corrosion growth
16 prediction models rely on probabilistic approaches to
17 overcome gaps and uncertainties in the available data, with
18 results that are challenging to validate. Therefore,
19 further research is needed to develop accurate and reliable
20 forecast of corrosion growth in the gas system. The
21 purpose of this agreement is to address the risks and
22 challenges associated with corrosion in California's gas
23 pipelines. Next slide, please.

24 This project will create a toolkit to assess the
25 corrosion risks to pipelines using the best tools and

1 methods currently available. The toolkit will be composed
2 of state-of-the-art detection and monitoring technologies,
3 optimized data collection procedures, and a comprehensive
4 corrosion growth model, a corrosion model which combines
5 multiple corrosion mechanisms.

6 By combining the development of these areas into
7 a single project, better compatibility between the areas
8 will be achieved. For instance, the sensors will be
9 selected to provide the types of data that the models
10 require. And the models can, in turn, inform a more
11 strategic deployment of the sensors.

12 A pilot test of the toolkit will be conducted
13 with utility support and training guidelines will be
14 developed to help utilities integrate the toolkit into
15 their current practices. Next slide, please.

16 This project is led by The Regents of the
17 University of California, on behalf of the Los Angeles
18 Campus. This team brings experience with developing models
19 for pipeline integrity management, optimization of sensor
20 placement, and knowledge of the mechanisms of corrosion.

21 The subrecipient, DNV GL, Incorporated, brings
22 more experience in studying pipeline integrity and
23 corrosion, as well as experience with technology deployment
24 in the gas system.

25 Two of California's gas IOUs, PG&E and SoCalGas,

1 are providing support for data collection and toolkit pilot
2 testing. Next slide, please.

3 Staff recommends approval of this award as well
4 as staff's determination that this action is exempt from
5 CEQA. I am available to answer any questions you may have.
6 Thank you.

7 CHAIR HOCHSCHILD: Thank you. We'll go to public
8 comment.

9 MS. MURIMI: Thank you, Chair.

10 So for individuals that are in the room, once
11 again use the blue cards located in the back of the room,
12 hand them to the Public Advisor. For the individuals that
13 are on Zoom go ahead and use the raised-hand feature, it
14 looks like an open palm or high-five at the bottom of your
15 screen or device. And for those calling in press *9 to
16 indicate that you'd like to make a comment and *6 to unmute
17 on your end.

18 Give that one moment. Seeing no comments on Zoom
19 or in person, Chair, back to you.

20 CHAIR HOCHSCHILD: Okay. We'll go to
21 Commissioner discussion, Commissioner McAllister.

22 COMMISSIONER MCALLISTER: Well, thanks a lot,
23 Jeffrey. This seems pretty straightforward. I mean we
24 can't have our gas system corroding into the ground and
25 still carrying gas and so obviously we have to keep the

1 house attended, now and going forward. I mean, safety and
2 security of our gas system is it requires ongoing
3 investment and that's just not something we can skimp on.
4 But we need to know how to do that best and help it happen
5 in the most effective way possible. So these are
6 obviously, clearly relevant and needed.

7 CHAIR HOCHSCHILD: I just had a basic question.
8 I'm sort of ignorant but well-meaning about the materials
9 involved in the pipeline system and whether there's been
10 improvements to the metals and coatings and so forth to
11 extend the life of the pipeline? Just I would love -- I
12 don't know if we have any insights on that. And also what
13 is the expected lifecycle of natural gas pipeline
14 infrastructure?

15 MR. SUNQUIST: I'm not sure. I didn't research
16 that directly, but I did come across that subject matter in
17 development of this solicitation or in the development of
18 this agreement and there are a lot of options for
19 protecting pipelines. The challenge is knowing where and
20 when to deploy those options. I mean, that's what this
21 project is helping to work out is trying to find what are
22 the high-risk areas? Because there are thousands of miles
23 of pipelines in the states, and you can't protect all of
24 it. You've got to know where the priorities are.

25 And I'm sorry, can you repeat the second part of

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1 your question?

2 CHAIR HOCHSCHILD: Well, I'm just curious, what
3 is the actual life cycle of gas pipeline infrastructure?

4 MR. SUNQUIST: I don't have the figures but
5 ballpark around 50 years or so for steel pipelines, for
6 transmission lines.

7 CHAIR HOCHSCHILD: Yeah, I'm curious, to know
8 the actual (overlapping colloquy.)

9 MR. SUNQUIST: -- we have a lot of pipelines that
10 are real old now.

11 CHAIR HOCHSCHILD: Yeah right, we must have
12 pipelines that are in excess of that age. Well great.
13 That is yet more reason to approve this, so happy to
14 support. Thank you for the work on this.

15 I'd welcome a motion from Commission McAllister
16 on this item.

17 COMMISSIONER MCALLISTER: I move Item 11.

18 COMMISSIONER VACCARO: Second.

19 CHAIR HOCHSCHILD: All in favor say aye.
20 Commission McAllister?

21 COMMISSIONER MCALLISTER: Aye.

22 CHAIR HOCHSCHILD: Commissioner Vaccaro?

23 COMMISSIONER VACCARO: Aye.

24 CHAIR HOCHSCHILD: And I vote aye as well. Item
25 11 passes unanimously.

1 We'll turn now to Item 12, The Regents of the
2 University of California as Management and Operating
3 Contractor for the Ernest Orlando Lawrence Berkeley
4 National Laboratory.

5 MR. THIND: Good afternoon, Chair, Vice Chair,
6 and Commissioners. My name is Maninder Thind, and I'm an
7 air resources engineer in the Energy Research and
8 Development Division. Today I am requesting approval of a
9 research agreement intended to improve the characterization
10 of residential methane emissions associated with California
11 homes. Next slide, please.

12 The proposed agreement, California Residential
13 Methane Emissions Characterization, with Lawrence Berkeley
14 National Laboratory, will collect field data and conduct
15 analyses to characterize the sources of methane emissions
16 from gas infrastructure and appliances within California
17 homes. You may have heard these emissions referred to as
18 "post-meter", since they occur inside of homes, downstream
19 of residential gas meters.

20 With \$2 million CEC funding and \$200k cash-match
21 commitment from US DOE, this research will benefit
22 Californians by providing the data and analysis needed to
23 improve California's residential methane emission
24 inventory; quantify the benefits of decarbonization in
25 buildings; and inform the development of cost-effective

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1 programs to reduce methane emissions from the residential
2 building sector.

3 Because of methane's high global-warming
4 potential and short atmospheric lifetime, the climate
5 benefits of methane emissions reductions are substantial
6 and impactful on a relatively short time frame. Next
7 slide, please.

8 The proposed study involves a field sampling
9 campaign in a large and diverse sample of homes that
10 include owner- and renter-occupied houses and multifamily
11 units in the Los Angeles Basin and San Francisco Bay Area
12 as well as areas in and around Fresno, Stockton,
13 Sacramento, and Chico. At least 50 percent of sampling
14 will occur in disadvantaged communities.

15 The team will perform a synthesis of existing
16 residential methane emissions data that will help the team
17 prioritize data and analysis needed to improve quantitative
18 understanding of post-meter methane emissions from the
19 residential sector. The research team will design and
20 implement a recruitment and measurement plan to include
21 variations in building, appliance and household
22 characteristics.

23 In-home measurements will include quantification
24 of appliance emissions in steady state as well as transient
25 modes; monitoring and recording burner operating patterns

1 from the most common appliances to capture geographic,
2 seasonal, building and household variations in gas
3 consumption patterns. And finally, analyzing data to
4 estimate aggregate emissions as well as identify factors
5 that can be used to develop and track benefits of efficient
6 decarbonization programs. Next slide, please.

7 Staff recommends approval of this agreement and
8 adoption of staff's determination that this project is
9 exempt from CEQA. Staff, including myself, are available
10 for any questions you may have. This concludes the
11 presentation and thank you for your consideration.

12 CHAIR HOCHSCHILD: Thank you.

13 We'll go to public comment on Item 12.

14 MS. MURIMI: Thank you, Chair.

15 So for individuals that are in the room go ahead
16 and use the blue cards located in the back of the room,
17 hand them to the Public Advisor. For individuals that are
18 on Zoom go ahead and use the raised-hand feature, it looks
19 like a high-five or open palm at the bottom of your screen
20 or device. And for individuals that are on the phone go
21 ahead and press *9 to indicate that you'd like to make a
22 comment and *6 to unmute on your line.

23 We'll give that one moment. Seeing no comments
24 on Zoom and no comments in-person, Chair. I'll hand the
25 mic back to you.

1 CHAIR HOCHSCHILD: Okay. Thank you.

2 We'll go to Commissioner discussion, Commissioner
3 McAllister.

4 COMMISSIONER MCALLISTER: I'm in full support of
5 this, thank you very, Maninder. And I just want to thank
6 the whole group from R&D, Misa and Alex, Baldonero and
7 Jeffrey and you, Maninder, for they're really great suite
8 of activities and projects you've presented today.

9 This is, I think, pretty straightforward at some
10 level. I think this is an issue that kind of has gone up
11 an urgency recently, just as we talk about sort of impacts
12 of gas with the recent Stanford study that came out looking
13 at cooktops and the leakage of methane in homes from
14 cooktops. And there's a small literature in this area. We
15 really need to understand it better, and I think this is a
16 big step in the right direction, so thanks for bringing
17 this to us. And I'm in full support.

18 CHAIR HOCHSCHILD: Commissioner Vaccaro?

19 COMMISSIONER VACCARO: Yeah, thank you for the
20 presentation. So I'm kind of curious about the selection
21 of the homes, because it's essentially like a survey of
22 sorts. So is that a certainty that there are going to be
23 folks who are willing to participate and that there will be
24 a diversity of homes for this study? Or is that -- does
25 the diversity of types of homes matter? But I'm just

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1 wondering whenever I see things that are based on sort of a
2 voluntary participation of third parties, especially when
3 we're going into their homes, I'm just wondering can you
4 talk about that just a little bit or what the expectations
5 are around that?

6 MR. THIND: Right, right. So the sample would
7 cover a majority of the multifamily units because there
8 have been prior efforts in this space, especially the Marc
9 Fischer study, which was also funded by CEC, the 2018 study
10 that also sampled 75 single-family homes. So there has
11 been effort in this space that we've funded before.

12 But, of course, there were some limitations with
13 that. And this study would have a good amount of effort on
14 sampling the household so that it's a representative of
15 California's housing stock, diverse households, including
16 multifamily homes. And that was also one of the
17 requirements of the solicitation when we posted. So that
18 the teams that put forward their research methods should
19 have thoughts on other sampling households to be conducted,
20 and an inclusion of multifamily homes was a must.

21 So the LBNL team will be expected to put a good
22 amount of thought on that aspect to have a diverse housing
23 stock, since it will directly inform and provide data and
24 analysis to inform California's greenhouse gas inventory,
25 which is supported by CARB.

1 CHAIR HOCHSCHILD: So one comment and one
2 question. Directionally where we're going on the Building
3 Code with new code development is tighter and tighter
4 envelope, which is good from an energy efficiency
5 perspective, but also you get less natural ventilation in
6 homes. And it used to be with there's actually a fair bit
7 of natural ventilation from air leaks and so forth, and so
8 this makes reducing indoor air pollution even more
9 important.

10 But I'm always very interested in the delta on
11 these emissions by income bracket. Because I think there's
12 a lot of evidence to show, it already has been shown to
13 some degree, some significant degree that low-income
14 households bear a heavier burden, because today either the
15 oven hoods that they use for ventilation are smaller,
16 cheaper. They're more recessed, or they're poorly made so
17 they're very loud. And so people don't operate them when
18 they're cooking. And so there's some research showing the
19 NOx levels are like seven times higher in low-income
20 households than other middle- or upper-income households.
21 And that's a significant issue.

22 And it's on top of all of the outdoor air
23 pollution we're dealing with, particularly environmental
24 justice communities are confronted with, on top of wildfire
25 smoke so this is a high-stakes stand. I wonder if you had

1 any thoughts or comments on that, looking at delta by
2 income bracket for indoor air pollution?

3 MR. THIND: Right. And that's a good question.

4 I would like to add the proposal that was
5 presented by SCNO. (phonetic) It will include a sample of
6 households in under-resourced communities. Particularly
7 about more than 50 percent of the sample will be in low-
8 income and disadvantaged communities. So it will try to
9 capture that diverse set of households by income level as
10 well as it's a field-sampling study.

11 But I do agree that there's more recent studies
12 that needs to be done in this space where we characterize
13 the exposures by the income levels and see all health
14 impacts and exposures are by the residents in multifamily
15 homes.

16 CHAIR HOCHSCHILD: Yeah, I would just say that
17 going forward that'd be a request I would have, is to
18 really prioritize a close examination of the difference by
19 income bracket of indoor air pollution, so we're tracking
20 that closely.

21 I think our strategy, generally speaking, going
22 forward in the building decarbonization space that
23 Commissioner McAllister and I are working on so closely and
24 the governor has highlighted in the budget with this nearly
25 \$1 billion we're going to be investing here, this is an

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1 equity-first strategy and that's the right approach. And I
2 think to the extent we can illuminate the issues and the
3 delta that I was talking about there more clearly with
4 future research that's really helpful.

5 Obviously, we want clean air for everybody, of
6 all income brackets, but the need is greater in the
7 environmental justice communities because of the ambient
8 pollution outside in so many of these communities that are
9 right near big freeways and other areas that have more
10 severe air pollution. So this is just a very high priority
11 to make sure the air people are breathing inside is clean.

12 So thank you for all your work and all your team.
13 I appreciate very much, your matching outfits. You look
14 great.

15 MR. THIND: Thank you.

16 CHAIR HOCHSCHILD: You're the best-dressed person
17 in here today. And thank you for all your diligence, happy
18 to support this. And with that I'd welcome a motion on
19 Item 12 from Commission McAllister.

20 COMMISSIONER MCALLISTER: I move Item 12.

21 CHAIR HOCHSCHILD: Is there a second?

22 COMMISSIONER VACCARO: I second.

23 CHAIR HOCHSCHILD: All in favor say aye.

24 Commission McAllister?

25 COMMISSIONER MCALLISTER: Aye.

1 CHAIR HOCHSCHILD: Commissioner Vaccaro?

2 COMMISSIONER VACCARO: Aye.

3 CHAIR HOCHSCHILD: And I vote aye as well. Item
4 12 passes unanimously. Thank you, Maninder, appreciate it.

5 MR. THIND: Thank you.

6 CHAIR HOCHSCHILD: Yeah. With that we'll turn to
7 Item 13, Arup.

8 MS. THOMSEN: Good afternoon, Chair and
9 Commissioners. My name is Elizabeth Thomsen, and I am the
10 Contract and Grant Analyst for the Efficiency Division.
11 Today I will be presenting Item 13. This is a request to
12 approve a \$1.8 million three-year agreement with Arup US,
13 Incorporated, to provide the Efficiency Division with
14 Building Decarbonization and Energy Efficiency Compliance
15 Strategies Development. Next slide, please.

16 This three-year Arup agreement will provide the
17 highly specialized technical support essential for
18 evaluating and implementing strategies to advance
19 decarbonization of residential and nonresidential buildings
20 and to increase Energy Code compliance. Next slide,
21 please.

22 Work on this three-year Architectural and
23 Engineering Agreement will focus on three core tasks:
24 strategies to expand, enhance, and maintain the Commission
25 Compliance Document Repository, or CCDR, which will support

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1 the collection of buildings compliance data to increase
2 program oversight and for staff to learn about changes to
3 the built environment.

4 The data will also inform policies and programs
5 to advance building decarbonization; existing Buildings
6 Decarbonization Technical Support to inform, develop, and
7 support strategies, programs, policies, and pathways to
8 reduce greenhouse gas emissions in existing buildings;
9 technical support for increased compliance and improved
10 installation of energy efficiency measures by evaluating
11 innovative software tools and other tools essential for
12 increasing and demonstrating compliance with the Energy
13 Code.

14 These tools will help staff better understand the
15 quality of the measure installation. These tasks together
16 are essential for optimizing the use and operations of
17 existing buildings to reduce greenhouse gas emissions and
18 improve Energy Code compliance.

19 Funding for this agreement is from the Cost of
20 Implementation Account, or COIA funds. Next slide, please.

21 I recommend approval of the Arup agreement to
22 provide the Efficiency Division with Building
23 Decarbonization and Energy Efficiency Compliance Strategies
24 Development. Thank you for your consideration. I am
25 available for questions.

1 CHAIR HOCHSCHILD: Thank you.

2 We'll go to public comment.

3 MS. MURIMI: Thank you, Chair.

4 For individuals wishing to make a comment that
5 are in the room go ahead and use the blue cards located in
6 the back of the room, hand them to the Public Advisor. For
7 individuals that are on Zoom go ahead and use the raised-
8 hand feature, it looks like an open palm or high-five at
9 the bottom of your screen or device. And for those calling
10 in press *9 to indicate that you'd like to make a comment
11 and *6 to unmute on your line.

12 We'll give that one moment. Once again, for
13 those on Zoom use the raised-hand feature. Seeing no
14 comments on Zoom or in-person, Chair, back to you.

15 CHAIR HOCHSCHILD: Thanks, Dorothy.

16 We'll go to Commissioner discussion, starting
17 with Commissioner McAllister.

18 COMMISSIONER MCALLISTER: Well thanks Chair, and
19 thanks Elizabeth, for presenting this great presentation.
20 Chair, you brought up the compliance issue earlier, and
21 there is just a lot of issues to unpack and some technical
22 questions and just kind of a need for ongoing support to
23 sort of continue to make the code better and certainly
24 include increased code compliance.

25 And I want to just acknowledge Christine and Mike

1 again and the team in the Efficiency Division for kind of
2 conceiving this and bringing it forward, very worthwhile
3 project and in what is a highly technical area. And just
4 to help us make the code better over time, so very much in
5 support. I don't know if, Christine, you wanted to add any
6 comments or anything? No? Okay great. So anyway, fully
7 support this item.

8 CHAIR HOCHSCHILD: Thank you.

9 Commissioner Vaccaro, any comments? (No audible
10 response.) Okay.

11 Well, thank you again. I'm very grateful to Arup
12 over the years. They're a really terrific partner with the
13 state and a lot of talent in that company, so happy to move
14 this. Commissioner McAllister would you be willing to
15 move Item 13?

16 COMMISSIONER MCALLISTER: I'll move Item 13.

17 CHAIR HOCHSCHILD: Is there a second?

18 COMMISSIONER VACCARO: Second.

19 CHAIR HOCHSCHILD: All in favor say aye.

20 Commission McAllister?

21 COMMISSIONER MCALLISTER: Aye.

22 CHAIR HOCHSCHILD: Commissioner Vaccaro?

23 COMMISSIONER VACCARO: Aye.

24 CHAIR HOCHSCHILD: And I vote aye as well. Item
25 13 passes unanimously.

1 We'll turn now to Item 14, IDEAL ZEV Workforce
2 Pilot. Welcome to Larry Rillera.

3 MR. RILLERA: Great. Good afternoon, Chair and
4 Commissioners. My name is Larry Rillera. I am staff with
5 the Energy Commission's Fuels and Transportation Division.
6 I will be presenting Item Number 14, which seeks approval
7 of three agreements. Next slide, please.

8 The IDEAL ZEV Workforce Pilot solicitation was
9 released in October of 2021. Fourteen projects are
10 proposed for award for a total of \$6.5 million in funding.
11 The 3 agreements today are the last of the 14 project
12 agreements for consideration.

13 The solicitation is a partnership with the
14 California Air Resources Board. CARB contributed \$1
15 million to project work and is building staff capacity for
16 clean transportation the workforce training and
17 development.

18 Benefits of the solicitation include the
19 development of ZEV and ZEV infrastructure career pathways;
20 the creation of high roads and high-quality jobs; support
21 for the ZEV industry and supply chain businesses; and
22 support for priority community solutions and skills
23 development. Next slide.

24 The first project is a proposed agreement with
25 the Municipal Equipment Maintenance Association for

1 \$500,000. The project will establish the "Building a ZEV
2 Workforce for Fleets" in southern California. The purpose
3 of the project is to provide in-depth ZEV maintenance and
4 service to public and private early adopter fleets.

5 There are many important partnerships and
6 employers in this project including the Long Beach Clean
7 Cities, numerous public agencies, local dealerships, and
8 community colleges.

9 I would also note that this project will continue
10 past the project agreement period. Next slide, please.

11 The second project for consideration today is a
12 proposed agreement with the Latino Equity, Advocacy, and
13 Policy Institute. The Electric Vehicle and Electric
14 Vehicle Supply Equipment Training Project will provide
15 introductory training for participants from non-urban areas
16 for ZEV careers.

17 The project will be in both English and Spanish
18 and will be replicated in five similar demographic areas as
19 the city of Huron in the Central Valley of California.

20 The second important project component is with
21 ChargerHelp! ChargerHelp! will conduct a survey and field
22 assessment of Electric Vehicle Supply Equipment operations
23 in the Greater Fresno Region and in the city of Huron.

24 ChargerHelp! will also provide Electric Vehicle
25 Supply Equipment service and repair training through their

1 standardized certification process that will be used to
2 validate the training. And, more importantly, to help
3 trainees accrue jobs.

4 Equally important is the continuation of this
5 initiative in critical areas of the state. Next slide.

6 The final project is with the SunLine Transit
7 Agency. This project will provide approximately 48
8 technical and non-technical ZEV Transit Training Workshops
9 in the state to transit agencies. The project will also
10 establish and conduct introductory courses on ZEV and ZEV
11 infrastructure technologies to non-technical staff and to
12 high schools as well. Next slide.

13 Staff recommends approval of all three
14 agreements. Staff also recommends the adoption of staff's
15 determination these actions are exempt from CEQA. Thank
16 you for your consideration of these items. And
17 representatives from the LEAP Institute are on the line as
18 well. Thank you.

19 CHAIR HOCHSCHILD: Great. Thank you, Larry.

20 We'll go to public comment on Item 14.

21 MS. MURIMI: Thank you, Chair.

22 So for individuals that are in the room go ahead
23 and use the blue cards located in the back of the room,
24 hand them to the Public Advisor. For the individuals that
25 are on Zoom go ahead and use the raised-hand feature, it

1 looks like an open palm or a high-five at the bottom of
2 your screen or device. And for those calling in press *9
3 to indicate that you'd like to make a comment and *6 to
4 unmute on your end.

5 We'll start with folks on Zoom. I see Evette
6 Ellis.

7 Go ahead state and spell your name, give your
8 affiliation if any. And you may begin your comment.

9 MS. ELLIS: Evette Ellis, E-V-E-T-T-E E-L-L-I-S.
10 Chief Workforce Officer for ChargerHelp! Good afternoon,
11 Commissioners. My name is Evette Ellis and I'm Co-Founder
12 and Chief Workforce Officer at ChargerHelp! ChargerHelp!
13 is a woman, minority-owned clean tech company based here in
14 California, dedicated to the diagnostics, maintenance,
15 repair and replacement of Electric Vehicle charging
16 stations, of the most problematic issues with Electric
17 Vehicle charging stations, the software and hardware of
18 Level 2 in EV fast chargers.

19 In 2020 we officially filed the EVSE technician,
20 maintenance technician as a new occupational classification
21 with the U.S. Department of Labor. And with the
22 partnership of network providers and manufacturers we have
23 been able to build a curriculum to support 30-plus of
24 unique assets for the electric vehicle, the electric
25 charging of passenger vehicles and all-size fleets.

1 We are here today to express our full support of
2 the proposed program for the LEAP Institute to conduct the
3 EV and EVSE assessment training and outreach. The LEAP
4 Institute as an organization, which is dedicated to the
5 economic and environmental justice in rural and
6 disadvantaged communities.

7 There has been progress in the EV charging
8 market, especially in the last five years. But as
9 California continues to move forward with strong
10 electrification goals and amasses deployment of EV charging
11 stations training will be needed to support the inevitable
12 challenges that we will face with the new technologies.
13 Unfortunately technology does not solve all things, we
14 still need human interaction.

15 Charging stations are IoT assets, essentially
16 computers. This program will help people understand the EV
17 and the EVSE charging market and will support people
18 interested in transitioning from all types of occupations
19 to the maintenance of these IoT assets. The program will
20 help people understand the landscape of the charging
21 station, safety and operability in those regions. And as
22 we progress with the deployment to support small businesses
23 and residential property owners keep charging stations
24 operable for their patrons.

25 Lastly, we support workforce development

1 initiatives that are inclusive and understand the
2 importance of not creating additional and unnecessary
3 barriers. A commitment to a high rate of safety and
4 reliability is a commitment to building the workforce.

5 California needs programs like this, so we don't
6 wait year after year to see if we included or did not
7 include people who are in disadvantaged areas. We are
8 taking the lead now. We are thrilled to see that the
9 Commission is taking measurable steps to consider inclusion
10 in the electrification of this state. Thank you.

11 MS. MURIMI: Thank you.

12 Seeing no more comments, Chair, back to you.

13 CHAIR HOCHSCHILD: Thank you. Well I appreciate
14 those comments. Technology is not everything, we still
15 need people. That wisdom is very well-taken.

16 And so with that we'll go to Commissioner
17 discussion. We'll try to channel our colleague
18 Commissioner Monahan who's out of the country at the moment
19 on this.

20 And I will just say I really appreciate the
21 workforce focus. I think it's essential and I just want to
22 highlight again what we're doing on zero-emission
23 transportation is unprecedented. The State of California
24 through the Energy Commission and the Air Resources Board,
25 last year's budget and this year's budget combined is \$10

1 billion. In a normal year we would be investing \$250 to
2 \$300 million in this space, so this is unprecedented. And
3 it does create a lot of opportunities for employment, for
4 workforce, and I'm just really pleased to see the focus on
5 this. I'd welcome any comments from any of my colleagues.
6 Commissioner Vaccaro.

7 COMMISSIONER VACCARO: Thanks, Larry. You're the
8 last one to bat, but this is a really great way to end
9 today's - the substantive portion of the meeting.

10 Earlier Commissioner McAllister you talked about
11 just being proud right of the projects and programs that we
12 have. But I can only assume that Commissioner Monahan is
13 very proud of this suite of projects, because they reflect
14 the values that I know she's been espousing over the years.
15 And that we are adhering to in California: diversity,
16 inclusion and really making sure that this transition is
17 inclusive and benefits. And so really this investment and
18 workforce opportunity and training, I mean it's so
19 important and really getting into the communities that
20 could easily not be included.

21 And so this is a great suite of projects and just
22 really I loved the briefing when enthusiasm comes through
23 then, but I just really appreciate hearing about these
24 types of projects.

25 COMMISSIONER MCALLISTER: I just wanted to say so

1 great to see you, Larry. Thanks a lot.

2 And I just feel that Commissioner Monahan would
3 definitely agree with this. And I think she would be the
4 first to say how proud she is of FTD. And just the
5 Division just seems to be sort of firing on all cylinders
6 these days, and just from Hannon on down. And just really,
7 really kudos to all the great things that you all are
8 doing. And the CTP is just such a jewel and opens up
9 opportunities like this that are so necessary and allow us
10 to walk the walk, really, or walk the talk. And so in full
11 support.

12 CHAIR HOCHSCHILD: Yeah, just as an example, I
13 left the last Commission meeting early and we had to go
14 dedicate a new factory in Newark for FreeWire, which is
15 making EV chargers that are coupled with a 150-kilowatt-
16 hour battery bank. So that you can deploy EV charging for
17 fleets or individual (indiscernible) without having to do
18 expensive distribution system upgrades, because the storage
19 really facilitates that. And they're manufacturing here in
20 California and they're hiring and growing, and they need to
21 work for us.

22 And so it's just great to see this stuff actually
23 happen and we are on the cutting edge on this, and the
24 workforce strategy is so central. So thank you and the
25 team for all the great work.

1 I'd welcome a motion from Commissioner Vaccaro on
2 Item 14.

3 COMMISSIONER VACCARO: I move approval of Item
4 14.

5 COMMISSIONER MCALLISTER: Second.

6 CHAIR HOCHSCHILD: Commissioner McAllister is
7 second.

8 All in favor say aye, Commissioner Vaccaro?

9 COMMISSIONER VACCARO: Aye

10 CHAIR HOCHSCHILD: Commission McAllister?

11 COMMISSIONER MCALLISTER: Aye.

12 CHAIR HOCHSCHILD: And I vote aye as well. Item
13 14 passes unanimously.

14 We'll turn now to Item 15. What I'd like to ask
15 colleagues, since neither of you were able to join the May
16 11th meeting that we move forward with -- I don't think I
17 can approve with one vote that --

18 MS. BARRERA: That's correct.

19 CHAIR HOCHSCHILD: -- that we move forward with
20 just approval of the May 24th Business Meeting Minutes, and
21 we'll take up the May 11th Business Meeting Minutes at the
22 next Commission meeting.

23 So if there's a motion to approve the May 24th
24 Business Meeting Minutes. Commissioner Vaccaro would you
25 be willing to move that?

1 COMMISSIONER VACCARO: Yes, I move approval of
2 the May 24th Business Meeting Minutes.

3 COMMISSIONER MCALLISTER: Second.

4 CHAIR HOCHSCHILD: Thank you. All in favor say
5 aye.

6 Commissioner Vaccaro?

7 COMMISSIONER VACCARO: Aye.

8 CHAIR HOCHSCHILD: Commission McAllister?

9 COMMISSIONER MCALLISTER: Aye.

10 CHAIR HOCHSCHILD: And I vote aye as well. Thank
11 you, that item passes unanimously.

12 We did already Item 16, Lead Commissioner and
13 Presiding Member Reports; however, I would like to just
14 provide an opportunity. Commissioner McAllister, before
15 you arrived Commissioner Vaccaro and I just created some
16 time to reflect on the epidemic of gun violence that's been
17 happening in our country. And you had raised this with me
18 earlier this week. I just would love to give you an
19 opportunity to share any thoughts.

20 COMMISSIONER MCALLISTER: Great. Well, I really
21 appreciate the opportunity. And so Dorothy asked me to
22 recite the Pledge of Allegiance. Of course I immediately
23 just said, "Of course, yeah, I'd love to." And then I just
24 -- a little a little flag went up in my head and I just
25 thought not that I don't want to honor our country, but

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1 that the words, if you look at the words of the Pledge,
2 it's "One Nation." And it's indivisible, right, and it's
3 with liberty and justice for all. And I just like, if you
4 read the sort of plain meaning of those words, it just
5 seems like we're not doing all that great right now and
6 living up to those expectations.

7 And I'm an extremely patriotic person. I don't
8 know if any of you remember, I hope you don't actually, but
9 I did actually sing the Star-Spangled Banner at a business
10 or at a picnic, at a CEC picnic a few years ago. And I was
11 really happy to do that, because I felt that with all of
12 the divisiveness around sort of the early days of the Trump
13 presidency, I wanted to just make a statement that, "You
14 know what? We, this country has a lot of good in it,"
15 right?

16 And that's obviously still true and I still
17 deeply believe that. I just wish we could figure out how
18 to elevate human life above this kind of fetishistic focus
19 on just unfettered access to guns. And just it seems so
20 antithetical to those words in the Pledge of Allegiance
21 that we face the flag and put our hands of our heart and
22 say at every business meeting.

23 And so I just wanted to kind of just have a
24 conversation and say, "Look, we can rededicate ourselves."
25 We should rededicate ourselves to those ideals and kind of

1 try to focus on the human side of this equation, or the
2 sort of the human elements here. And try to figure out how
3 to chart a path forward that leverages each person's
4 humanity to get to a real conversation instead of just a
5 formulaic kind of knee-jerk tribal kind of conversation,
6 which is where we are now as a country.

7 So anyway, California is doing better than most
8 places, and we were sort of taking some steps to rein in
9 this epidemic of gun violence. But we can do better.

10 And I look back on Senator Feinstein's career and
11 her sponsorship and promotion of the Assault Weapons Ban,
12 back in the day. And then it expired and ever since then
13 we just haven't been able to do much on this as a country.
14 And I really hope that somehow that can change in the near
15 future, and we can sort of get more in alignment with the
16 aspirations of the Pledge. And I mean, I know we all
17 really mean it. And it's just when we get down into
18 reading the doc, sort of reciting together in unison, words
19 like that it becomes rote after a while. It runs the risk
20 of becoming rote. And I just think our country is not
21 about that. It's about something that's more profound.

22 And so yeah, I know I'm sort of preaching to the
23 choir here. I know we all agree with this. But it's not
24 that guns are horrible and nobody should have them, and
25 hunting shouldn't be able to be done, and all that. I mean

1 it's just there's a reasonableness and a respect for human
2 life that I think we just kind of need to be more explicit
3 about and hopefully that can be a stimulus to action.

4 So thanks for the opportunity to make some
5 comments.

6 CHAIR HOCHSCHILD: All right, I really appreciate
7 you bringing so much heart to this discussion. And it is
8 true that other than countries where there's a war going
9 on, like we see in Ukraine, this is not happening anywhere
10 else in the world. I mean, there's no level of gun
11 violence like this anywhere else in the world and it's not
12 acceptable.

13 And I know for me the Pledge and the
14 Constitution, these things are aspirational. And sometimes
15 that gap between where we know we can be and where we are
16 seems very far. And I think that's what we're called to do
17 is close that gap in every way we can. So we all have a
18 role to play as citizens and voters and as conscientious
19 members of the public in every way to try and make things
20 better.

21 And I do believe what happens here in California
22 affects the whole country. And so I'm proud to be in a
23 state that cares so much about this. And I think we have
24 to just never give up. I just feel like there's a level of
25 relentlessness that's needed with this stuff. And the

1 harder it is, the more relentless you need to be. But
2 that's how progress and all the hard-fought victories, if
3 you look back, I mean including things we thought would
4 probably not happen in our life, marriage equality being a
5 great example.

6 I grew up in San Francisco, you know, a large gay
7 population. I did not think marriage equality would happen
8 for decades, and now it's the law of the land in all 50
9 states. And not only that it's accepted as a new standard,
10 we're not going to go backwards on that. It was very hard
11 fought, and I think it's a tribute to the advocates who are
12 relentless. And this issue of gun violence, we have got to
13 fix it. So I just really appreciate you calling me this
14 week and having that conversation and making time for that.

15 So with that we'll turn to -- I'm sorry, any
16 other comments on that. Okay.

17 With that we'll turn to Item 17, Executive
18 Director's Report.

19 MR. BOHAN: Thank you Chair and Commissioners.
20 Nothing to report this afternoon.

21 CHAIR HOCHSCHILD: Thank you. We'll turn to Item
22 18, Public Advisor's Report.

23 MS. MURIMI: Nothing to report Chair.

24 CHAIR HOCHSCHILD: Okay. Item 19, Public
25 Comment.

1 MS. MURIMI: Thank you, Chair.

2 This is the period for any person wishing to
3 comment on information items or reports of the meeting
4 agenda, or any other item. Each person has up to three
5 minutes to comment and comments are limited to one
6 representative per organization. We may reduce the comment
7 time depending on the number of commenters. If you are
8 called on, please restate and spell your first and last
9 names. State your affiliation, if any.

10 If you're in-person fill out a blue card, which
11 you can find at the back table. If you're joining
12 remotely, use the raised-hand icon to indicate your
13 interest in making public comment. And if you are calling
14 in press *9 to indicate that you'd like to make a comment.

15 We'll give that one moment. Seeing no comment on
16 Zoom or in-person, Chair, I'll hand the mic back to you.

17 CHAIR HOCHSCHILD: Thank you. We'll turn now to
18 Item 20, Chief Counsel's Report.

19 MS. BARRERA: Good afternoon, Chair, thank you.
20 I have nothing to report.

21 However, I would like to recommend that the
22 Commission go into closed session as specified in the
23 Agenda Item 20i, which provides notice that the Commission
24 will adjourn to a closed session with legal counsel
25 pursuant to Government Code 11126(e) to discuss the

1 following litigation to which the Energy Commission is a
2 party. And that case is Interlink Products International,
3 vs. Drew Bohan. And that is in the United States District
4 Court of the Eastern District of California. And the case
5 is 2:20-cv-02283.

6 I anticipate we may return within the next 30
7 minutes.

8 CHAIR HOCHSCHILD: Okay. Thank you so much,
9 Linda.

10 With that we'll adjourn to closed session and
11 return when that's over. Thank you.

12 (Off the Record at 3:25 p.m.)

13 (On the Record at 4:14 p.m.)

14 Okay, we are back from closed session, and we are
15 adjourned. Thank you everyone.

16 COMMISSIONER MCALLISTER: Thanks everyone.

17 (The Business Meeting adjourned at 4:14 p.m.)

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CERTIFICATE OF REPORTER

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

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

IN WITNESS WHEREOF, I have hereunto set my hand this 17th day of June, 2022.



MARTHA L. NELSON, CERT**367

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IN WITNESS WHEREOF, I have hereunto set my hand this 17th day of June, 2022.



Myra Severtson
Certified Transcriber
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