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CALIFORNIA ENERGY COMMISSION

In the Matter of:)	Docket No. 22-BSTD-01
)	
)	
)	2025 ENERGY CODE
)	COMPLIANCE TOOLS STAFF
)	WORKSHOP
)	
<i>Building Energy Efficiency</i>)	
<i>Standards - Compliance and</i>)	
<i>Enforcement</i>)	Re: Digitized and Online
_____)	Compliance

2025 ENERGY CODE COMPLIANCE TOOLS STAFF WORKSHOP

CALIFORNIA ENERGY COMMISSION

(REMOTE PROCEEDINGS)

TUESDAY, MARCH 22, 2022

9:00 A.M.

Reported By:
E. Hicks

APPEARANCES

COMMITTEE:

Michael Sokol, Deputy Director for the Efficiency Division
at the California Energy Commission
J. Andrew McAllister
Bill Pennington

SPEAKERS:

Daniel Wong, CEC Standards Compliance Office
Javier Perez
Lorraine White, Manager, Standards Compliance Office
Will Vicent

PANEL 1: DESIGNERS AND ENERGY CONSULTANTS

Will Vicent, Moderator
Erik Kolderup, Kolderup Consulting
Vicki Burlingham, Highland Energy Services
Maureen Guttman, Energy Solutions

PANEL 2: AUTHORITIES HAVING JURISDICTION

Lorraine White, Moderator
James Zhan, San Francisco
Greg Mahoney, Sacramento County
Oscar Diaz, Modesto
Bill Tott, Milpitas
Christopher Harris, Concord

PANEL 3: CONTRACTORS AND INSTALLERS

Charlie Opferman, Moderator
Bob Wiseman, IHACI
Tom Paine, ConSol, for CBIA
Charles Cormany, Efficiency First California
Bruce Cheney, Anchors Aweigh Energy

PUBLIC SPEAKERS:

Farnoosh Farmer

James Zhan

Adam Muliawan

Cassandra Trester

Chris Walker, CAL SMACNA

Javier Saucedo, HERS Rater, General Contractor

Jon McHugh

Jeff Stein, Taylor Engineers

Christopher Ruch, NEMI

Mike McGee

Raymond Hernandez

Nehemiah Stone

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1 P R O C E E D I N G S

2 MARCH 22, 2022

9:00 a.m.

3 MR. WONG: Good morning, everyone, again. My
4 name is Daniel Wong. I am an electrical engineer with the
5 Standards Compliance Office, in the Efficiency Division,
6 and I just wanted to welcome you to the Energy Commission's
7 virtual workshop on the 2025 Energy Code compliance tools.

8 This is the first workshop of the 2025 Energy
9 Code pre-rulemaking, with many more workshops to come as we
10 begin the 2025 Energy Code development process.

11 Today's workshop will provide some background on
12 the 2025 Energy Code and information on the measure
13 proposal templates. This workshop also focuses on Energy
14 Code compliance tools and soliciting feedback on ways that
15 these tools may be used to support Energy Code compliance.

16 Let's first start with some logistics for today's
17 workshop. We will be muting everyone, and after each
18 presentation or panel discussion that we have today, there
19 will be opportunity to ask questions or provide comments.
20 You can either raise your hand, and we will unmute you, and
21 you can submit your questions, or you can submit your
22 questions through the Q-and-A window, and we will try to
23 answer your questions as they come in.

24 Also, if you are participating by phone, you can
25 use star, nine to raise your hand, and star, six to mute

1 and unmute yourself. One important thing to remember is
2 that when we do unmute you, you also need to unmute
3 yourself from your end.

4 When you are submitting your comments, please
5 state your name and who you're affiliated with. This
6 workshop is being recorded, and it will be transcribed, and
7 by stating your name and affiliation, we can figure out who
8 we need to reach out to if we need further discussion.

9 Also, we may have to implement a three-minute
10 rule today, depending on how many attendees would like to
11 comment, to ensure that there is enough time to accommodate
12 everyone.

13 Before we start, Michael Sokol, the Deputy
14 Director for the Efficiency Division of the CEC, would like
15 to say a few words.

16 Go ahead, Michael.

17 MR. SOKOL: Thank you, Daniel, and good morning,
18 everyone. Thank you for joining us for this staff workshop
19 today, a very exciting agenda lined up, where we have the
20 opportunity to hear from some important perspectives in the
21 Energy Code compliance space.

22 So this is also the first workshop that's held at
23 the CEC by staff in relation to the 2025 Energy Code
24 proceeding, which is really going to be ramping up in the
25 coming months, but it also is a very important discussion

1 on Energy Code compliance, primarily tools, and looking at
2 a lot of the evolution and innovation that's occurred in
3 the general marketplace over the last few years, and even
4 decades, and finding opportunities to leverage those for
5 the Energy Code.

6 Again, we're here to do a lot of learning today,
7 and are interested in hearing perspectives, ideas,
8 potential solutions that the folks on the call here and the
9 public have to bring to our attention in consideration as
10 it relates to the Energy Code development process.

11 It's still early on in this process, but we
12 realize that there's a lot of details to work through, a
13 lot of perspectives to be heard when it comes to
14 compliance, and so we want to allow a lot of time and space
15 for those discussions, and I think today is going to be a
16 very good start to that conversation.

17 We will have an opportunity to hear from
18 designers and energy consultants in the morning, and have a
19 good discussion lined up there.

20 Of course, we want to hear from local building
21 departments and authorities having jurisdiction, to
22 understand some of the issues and challenges and ideas that
23 show promise, to support their needs, as well as
24 contractors and installers, later in the afternoon, to make
25 sure that we get a chance to hear more from the perspective

1 of what it takes to actually comply with Energy Code
2 requirements.

3 We really value the public participation as well,
4 and so I would encourage folks here to think about
5 providing both oral comments, if you have ideas or
6 questions -- excuse me with the yapping dog, it's part of
7 the work-from-home environment here -- but also encourage
8 folks to have written comments submitted to look at.

9 Give me one second. Sorry about that. One of
10 the road hazards for the course.

11 Really it will give us a lot of food for thought
12 to consider in this proceeding. Of course, we're not
13 starting from square one here. There's a robust compliance
14 program in place at the California Energy Commission. It
15 involves multiple different stakeholders, and already has
16 some digital tools, but we realized that the world has come
17 a long way, just in the last few years, when it comes to
18 the digital landscape that we live in.

19 Just even today, I'm participating remotely from
20 my office, with yapping dogs and everything, but able to
21 help support this workshop, where we have participants from
22 all across the state, and that's just a small example of
23 some of the new tools that have emerged in recent years,
24 and we're looking for opportunities to leverage those for
25 the state of California's Energy Code needs.

1 So we're thinking about the tools, new technology
2 developments, things that may exist in other industries
3 that could be useful here in the Energy Code equation, but,
4 also, how does that support some of the processes, making
5 sure we have all the perspectives and the needs reflected
6 throughout the compliance ecosystem?

7 There's a very good discussion that teed up a lot
8 of these issues in the context of building decarbonization
9 in this last year's integrated energy policy report that
10 the CEC published and adopted just last month. So, if
11 folks haven't had a chance to review that document, I do
12 encourage you to check it out. There's a lot of good
13 starting points for this discussion, but we're really
14 looking to flush those out today.

15 I will just wrap up by saying, again, thanks to
16 everyone for taking the time out of your busy days and
17 lives to join us here. I know that it's not always easy,
18 when you have a day job, to make time for this, but we
19 really do appreciate and value it.

20 Also, thank you to the CEC team, across the
21 board, that's put so much time and effort into developing a
22 very good and thoughtful agenda here.

23 With that, again, I'll say thank you, and turn it
24 back over to Daniel to jump into the presentation.

25 MR. WONG: Great. Thank you, Michael, for your

1 opening remarks, and yes, let's dive right in.

2 So, first up, we've got the agenda. So this is
3 the pre-lunch agenda. We'll have the CEC staff opening
4 presentation. This is from 9:15 to 10:00 o'clock. In part
5 one, Javier Perez will be presenting an introduction to the
6 2025 Energy Code proceeding, and provide information about
7 submitting measure proposals for consideration for the 2025
8 Energy Code. Lorraine White will be presenting part two,
9 discussing the purpose for today's workshop and setting the
10 stage for today's panel discussions.

11 After each part of the opening presentation --
12 actually, after the first part of the opening presentation
13 regarding the introduction to 2025 Energy Code proceeding,
14 there will be opportunity for attendees to provide comments
15 or ask questions. In addition, if you would like to submit
16 comments to our docket for us to review, I'll provide that
17 link later on in the presentation.

18 After the opening presentation, we'll move right
19 into panel one. Will Vicent, manager of the Building
20 Standards Office, will be moderating that discussion for a
21 panel of designers and energy consultants, and that's from
22 10:00 to 11:30.

23 After Panel One, we'll have a one-hour lunch
24 break, from 11:30 to 12:30, and continue the workshop at
25 12:30.

1 After lunch, for Panel Two, that will be
2 moderated by Lorraine White, who is the manager of the
3 Standards Compliance Office. In this panel, we will hear
4 from code officials and representatives from authorities
5 having jurisdiction, or AHJs, and then Panel Three will be
6 moderated by Charles Opferman, who is the supervisor of the
7 Standards Compliance Office. This panel will include
8 discussions from the perspective of contractors and
9 installers, and that's from 2:00 to 3:30.

10 For each panel, we'll include an introduction,
11 followed by panelist presentations or discussions. After,
12 there will be a structured panelist Q-and-A session, and
13 then, at the end of each panel, there will be opportunities
14 for attendees to provide public comments and ask questions.

15 Finally, we'll have a summary of today's
16 workshop, with a recap, as well as some key takeaways from
17 today's discussions, and I'll provide a few reminders, and
18 we'll try to have everything wrapped up by 4:00 p.m.

19 So these are some of the key links regarding this
20 workshop, as well as the 2025 Energy Code development
21 process. This first link here is to the e-commenting page,
22 where you can provide comments to the Docket 22-BSTD-01.

23 This docket will be used to document all the
24 preliminary rulemaking activities for the 2025 Energy Code.
25 This includes the research and gathering of information

1 necessary to develop documents required to conduct the
2 formal rulemaking proceeding for the 2025 Energy Code.

3 The second bullet point includes the link to the
4 2025 Energy Code web page, where you can find information
5 about the events and scheduled workshops, links to the
6 docket and commenting page, and other information related
7 to the 2025 code development process. This page will be
8 updated with information during the pre-rulemaking and
9 rulemaking processes.

10 All presentations and notices, recordings, this
11 recording for this workshop, will be available on the
12 Docket 22-BSTD-01, and the link shown here will take you
13 directly to that docket.

14 Again, here's the link where you can provide
15 comments to the docket. We strongly encourage people to
16 submit written comments via the e-commenting page linked
17 here -- or shown here. The link shown will take you to the
18 e-commenting page for the docket where you could type in
19 your written comment or upload your comment as a PDF or
20 Word document.

21 Written comments can also be submitted. We do
22 encourage you to email your comment to the docket, rather
23 than sending them in by mail.

24 With that said, again, this workshop is being
25 recorded. The presentation and workshop recording will be

1 available on the Energy Commission's website.

2 Before we move on, were there any questions? And
3 if you would like to ask a question, you can either raise
4 your hand using the Zoom feature, and we can announce your
5 name and unmute you. Remember, again, you must unmute
6 yourself before speaking, and if you are participating by
7 telephone, press star, nine to raise your hand and star,
8 six to mute or unmute yourself, or you can enter your
9 question in the Q-and-A box.

10 So were there any questions regarding today's
11 logistics? And I'm not seeing any raised hands or any --
12 so there was one question in the Q-and-A, asking if the
13 agenda is available. Yes, it is. It's been posted to the
14 docket. So, if you go to the 2025 Energy Code web page or
15 the docket web page, you should be able to access the
16 agenda, and it looks like yes, it was posted, or the link
17 to that was posted in the Q-and-A.

18 I'm not seeing any other questions, so we'll move
19 into the opening presentation.

20 Javier do you want to share your screen and take
21 control?

22 MR. PEREZ: Will do. Let me know when you see
23 it. It seems like there's maybe a five-second lag between
24 clicking "Share" and it going up.

25 MR. WONG: Yes, I see it.

1 MS. WHITE: I see it.

2 MR. PEREZ: Great. Thank you for the feedback.

3 Okay. Well, hi, everyone. My name is Javier
4 Perez, and I'm with the Energy Commission's Building
5 Standards Office. I'm the lead on the 2025 Energy Code,
6 and today I'll be giving an introduction on the 2025 Energy
7 Code proceeding and an overview on the 2025 measure
8 proposal template.

9 I'm looking to my right because, like Mike, you
10 know, I may have pet issues. They're zooming around. So,
11 hopefully, this goes smoothly.

12 MS. WHITE: Javier, you may want to speak up just
13 a touch.

14 MR. PEREZ: Thank you very much.

15 So let's start with the authority and process.
16 So this all started with two California assemblymen,
17 Charles Warren and Al Alquist. They authored the
18 Warren-Alquist Act. This act authorizes the Commission to
19 develop the Energy Code on a triennial basis and local
20 jurisdictions to enforce the Energy Code through the
21 building permit process.

22 The Energy Code was developed at the direction of
23 the Warren-Alquist Act to reduce wasteful and economic
24 inefficient and unnecessary consumption of energy. It was
25 signed into law in 1974 by then-Governor Ronald Reagan, and

1 the California Energy Commission was sponsored by Governor
2 Jerry Brown in 1975, with the appointment of the first five
3 Commissioners, and the Commission immediately set out to
4 meet the extensive mandates of the Warren-Alquist Act,
5 including the adoption of the first building
6 energy-efficiency standards that went into effect in 1978.

7 So what are some of the drivers that helped set
8 priorities for the California Energy Code? So, at the
9 start, we've got really large state goals, and the Energy
10 Commissioner, the Energy Code, is obligated to contribute
11 to state greenhouse gas reduction goals.

12 One of the larger bills in the recent past is
13 Senate Bill 100, or the 100 Percent Clean Energy Act of
14 2018. It requires that by 2045, 100 percent of electricity
15 retail sales must come from clean energy sources. So this
16 will make electricity significantly cleaner over time, and
17 have substantial positive impact on some of the state's
18 greenhouse gas reduction goals. Another driver is Governor
19 Jerry Brown's carbon-neutral executive order to achieve
20 carbon neutrality by 2045.

21 So the Energy Code is tasked with contributing to
22 these goals, and must do so by increasing building
23 energy-efficiency requirements, and all while proving that
24 any measure is cost-effective and technically feasible. So
25 how does the 2025 Energy Code plan to contribute to these

1 State goals?

2 You know, we're going to continue to explore, you
3 know, highly efficient heat pumps, and where they can be
4 introduced as a prescriptive baseline for space and water
5 heating systems. If you followed the 2022 Energy Code, you
6 saw that these were introduced in certain applications as a
7 prescriptive baseline, and again continue to expand and see
8 where there are opportunities to make these efficient
9 systems part of the standard design.

10 We'll continue to promote demand flexibility. In
11 2019, you know, we introduced PV system requirements for
12 low-rise residential buildings. It's the first in the
13 nation, and a really, really heavy lift in 2022. We
14 expanded that, and added PV and battery requirements to
15 some nonresidential, high-rise residential, and hotel/motel
16 buildings, and, moving forward in 2025, we'll continue to
17 include these systems, and considering where they can be
18 expanded, to continue to work towards these large long-term
19 goals.

20 Next on the list, for the purposes of the Energy
21 Code, we've got a term that's called "covered processes" or
22 "covered process loads," and a process, by definition, is
23 an activity or treatment that's not related to human
24 occupancy, and a covered process is just something that the
25 Energy Code has a requirement for.

1 So, for example, in 2022 we introduced
2 requirements for environmental horticulture buildings or
3 commercial plant growth facilities. There's different ways
4 to call this building, but processes, or these processes,
5 some can consume really large amounts of energy, and we're
6 going to continue to look at these systems, to make sure
7 that we can find efficiencies where, again, technically
8 feasible and where cost-effective. We're going to make
9 sure that our standards continue to serve as protection for
10 affordable housing.

11 You know, one of the things that that are our
12 Energy Code does is to really sets a minimum bar for
13 buildings. It sets a minimum level of efficiency for newly
14 constructed buildings, and then some for existing and
15 alterations, right? But any time that bar is raised for a
16 newly constructed building, whether it's a single-family
17 home or a multifamily home or what have you, that bar is
18 raised for all buildings, so not just your single-family
19 \$3,000 home, but there are measures that are introduced to
20 address multifamily buildings and to address affordable
21 housing.

22 You know, Bill Pennington in our office, you
23 know, strongly believes, and rightfully so, that the Energy
24 Code serves as a protection mechanism for affordable
25 housing, to make sure that they are brought up to the

1 levels that all other buildings are brought up for, and
2 that there are no short-cuttings between these buildings.
3 This is Zuma (indicating), by the way.

4 You know, we're going to be looking at affordable
5 housing tools that are used to demonstrate compliance with
6 affordable housing programs, and see if there are any
7 efficiencies that can be had with the compliance tools that
8 are used to demonstrate compliance with the Energy Code.

9 There are some complex tools that currently live
10 separately, outside of the energy compliance process, and,
11 you know, we're doing some preliminary looks into how we
12 can streamline that process to help developers really save
13 some money, but also encourage energy efficiency and be
14 able to document that in a streamlined way.

15 You know, existing buildings are going to
16 continue to be a focus, so the Energy Code, we always have
17 requirements for additions and alterations to existing
18 buildings, but we're going to focus on these a little bit
19 more heavily this is coming code cycle.

20 EV readiness is something that, you know, we're
21 going to meet again, these larger carbon emission reduction
22 goals, that transportation fleets are going to have to
23 change significantly, right? And infrastructure needs to
24 be developed to satisfy that demand, right? So Part 11 has
25 current electric vehicle readiness requirements.

1 This was kind of developed in collaboration with
2 the California Air Resources Board, the Department of
3 Housing and Community Development, and Building Standards
4 Commission, and, you know, they made really good strides to
5 try to address some of these issues, and make sure that
6 these buildings are at a place where there'll be more
7 prepared for a transition in the coming years, and we do
8 want to continue to collaborate with all of these agencies,
9 to make sure that we can do our part to help satisfy the
10 need that that's going to be coming soon.

11 So this (indicating) is a tentative schedule of
12 the 2025 cycle. Today's workshop is March 22nd, and that's
13 the first row here. The deadline to submit any measures or
14 ideas to the Codes and Standards Enhancement Team, which is
15 the utilities team, is April 15th. So they they've got a
16 stop at April 15th, so, if you have any ideas, feel free to
17 send it their way. They're very receptive, very friendly,
18 and really, really a big partner and everything that we do.

19 We're currently going through the measure
20 identification and selection process. We hope to wrap that
21 up by the end of April. We're going to have a workshop on
22 the energy metrics. That's kind of like the engine of what
23 we do, and how we demonstrate cost-effectiveness for any
24 given code cycle. The first workshop will be in May. We
25 expect that work to go through November and wrap up in

1 November, including the software research version available
2 in November 2022.

3 The utility -- or the CASE teams will have
4 workshops right around quarter three of this year, and
5 wrapping up in quarter one of next year, and hoping to have
6 draft CASE reports to us beginning in quarter two of next
7 year, and those will serve as kind of the template for the
8 stuff that we're going to try to move forward with in 2025.

9 We'll have workshops in quarter two, through
10 summer of 2023, final reports right after that, and hope to
11 have express terms ready by October of 2023, and
12 rulemaking -- if all goes well, rulemaking expected to
13 start in January 2024, and hope to wrap up in May of 2024,
14 but that's -- we're now projecting 27, 28 months out.

15 A lot of moving parts in there, and I'm starting
16 to get a grasp for how much this really entails, so
17 definitely striving to hit these goals, and maybe get them
18 through a little sooner. We'll see, and we'll keep you
19 apprised as the schedule gets updated. We'd like to update
20 and post the schedule on the website, hope to have that
21 updated and posted on the 2025 page by the end of the week.

22 So, speaking of the 2025 standards page, it's
23 live. Amber Beck in our division really did a lot of work
24 to get this page ready, and click around. There's not a
25 lot yet. You know, we've got our pre-rulemaking work, some

1 information on public participation, the same stuff we have
2 every code cycle, to make sure that we can appropriately
3 inform you on how to participate, in the event that you'd
4 like to.

5 This link will take you there. We'll post this
6 presentation to the docket after today's session, but my
7 guess is, if you get to the docket, you'll probably be able
8 to get to our 2025 page.

9 So the last thing I want to talk about before we
10 get into the measure proposal template is the CalBEM
11 workshops, and if you're not familiar with CalBEM, they're
12 the California Building Energy Modeling Group. I think I
13 may have that last word wrong, but it convenes
14 representative voices in the building energy modeling field
15 to identify and collaborate on building energy modeling
16 improvements related to Energy Codes and building
17 performance. They meet throughout the year via working
18 groups, and they have an annual event. They're sponsored
19 by Southern California Edison on behalf of the utilities.

20 So all of this is to say they've got two
21 workshops coming, and I think, if you're on today's
22 workshop, you know that the Energy Code is complicated, and
23 their first webinar is scheduled for April 26th, 11:00
24 a.m., and they're intending to discuss the complexities
25 around the Energy Code, prescriptive compliance, maybe what

1 challenges exist around application of requirements and
2 documentation of those requirements or measures, and,
3 second, webinars to see if there are any potential
4 solutions, you know, whether some jurisdictions have solved
5 this riddle, or if there are suggestions. The second one
6 is on May 17th.

7 The website is at bottom of the slide, and,
8 again, you can download this slide, hopefully, tomorrow,
9 after today's workshop. We have to get these documents
10 ADA-accessible, so maybe tomorrow is probably a false
11 promise. Soon. We'll get them as soon as possible.

12 Okay. Let's get into some background around the
13 measure proposal template, and highlight some of the key
14 changes for 2025. Some background. Historically, the
15 Commission has worked with the Codes and Standards
16 Enhancement Team, or the CASE Team, to develop new measures
17 for every code cycle. Beginning with 2026 -- I'm sorry,
18 the 2016 code cycle -- the Energy Commission made measure
19 proposal templates available to the public through our
20 website, kind of similar to the link or the page that you
21 see right here.

22 This template will be available for download on
23 the 2025 page, and, again, hopefully, by the end of this
24 week. We're dotting the last couple I's and crossing the
25 last few T's. It's in the final, final stages of routing,

1 and as soon as it's ready, I promise we will post it to our
2 website, and, again, I don't expect that to be longer than
3 the end of this week.

4 So the template helps us do a few things. You
5 know, it documents how a measure is cost-effective. It
6 documents all the research to support any requirements that
7 are proposed, and streamlines that material, and helps
8 present it. This feeds really directly into some of the
9 requirements that we have to see this pull through.

10 We've got fiscal economic impact reports that
11 have to be done. We have a nine-point criteria analysis
12 for any proposed changes to any parts of Title 24 at the
13 Building Standards Commission level, and it also addresses
14 needs for complying with the California Environmental
15 Quality Act and law on that in a few slides here.

16 So, some things to consider before jumping in to
17 proposing a new measure. Work with us. You know, I think
18 that I'm friendly. I think everyone on our team is
19 friendly, and we really want to help you see this through.
20 We have our goals, identified priorities on the third slide
21 here, and we'd love to have you be a part of that. You
22 know, we've got a list of subject matter experts on the
23 next slide that I'll get to, and collaboration is really
24 key, like anything. Like, today's session, you know,
25 requires a lot of people, and a few pets to kind of keep

1 things exciting.

2 So consider our priorities. Once our metrics are
3 established, the energy metrics, by that time, ready around
4 quarter four, that will feed into the software, and
5 determining cost-effectiveness, and how a measure will
6 impact the state at a larger scale. So keep an eye on that
7 window, for when that becomes available as well.

8 So, on the topic of subject matter experts for
9 the 2025 code cycle, you know, Charles Barkley says "only
10 God is an expert", but, you know, Payam is really, really
11 good at envelope. Between Payam and Mike, they're very
12 much an expert term in the envelope realm, for our Energy
13 Code compliance, anyway.

14 We've got a list of staff that -- I'm not going
15 to go through all of them. We don't have the time. But
16 the most important thing that I want you to take from this
17 slide is our e-mail convention at the bottom, and if you
18 don't know this, now you do. It's just first name, dot,
19 last name, at Energy, dot, CA, dot, gov. If you ever want
20 to e-mail any of our staff or anyone at the Commission, you
21 now have the secret sauce.

22 So let's get into the important updates on the
23 proposal template. We're only going to talk about the
24 major updates. We're got a lot on our plate today, and
25 this template has been around since 2016. Well, let's just

1 get to a few of the changes that were introduced.

2 For the market analysis section, we've reworked
3 some of the jobs language in response to our 2022 code
4 cycle. We added language clarifying that jobs that are
5 created or lost outside of California are not considered
6 for analysis. You can include them but they're not needed
7 to be quantified, and they don't really work into our
8 process. So we had some hiccups with that last code cycle,
9 and we're hoping to pivot from that and continue to make
10 this better.

11 For first-year statewide impacts, we updated
12 information about statewide goals and references for the
13 supporting legislation. For the energy savings sections,
14 in particular the language around prototype buildings, we
15 modified that language to more appropriately allow for any
16 proposer to use different prototypes, as long as they
17 justify, you know, why they're using the different
18 prototypes.

19 You know, I think if anyone on this call works
20 with buildings and energy, you've likely had plenty of
21 conversations around accessory dwellings, or ADUs, and,
22 like you, so have we. So we want to allow for any new
23 measure to use, you know, a different prototype, if they
24 would like, to make sure that smaller buildings, whether
25 they're AVUs or just small homes, as an example -- to

1 determine if whatever is being proposed actually is
2 appropriate for many of these smaller structures that have
3 smaller loads, and just really act and breathe a lot
4 differently than normal 21 and 2,700-square-foot prototypes
5 that we have on the residential side.

6 Generally, we tidied up a little bit. So, like,
7 every time we'd review a document, there's always stuff
8 that we thought was fine, but then we'd have to just
9 rewrite it to make a little better. So, like any document,
10 that's kind of the last event.

11 On to Appendix A and the statewide savings
12 methodology. During the last code cycle, you know, it took
13 a little extra effort to hone in on the number of building
14 starts to use for statewide impacts. We're paying a little
15 bit of a closer eye to this detail this time around. We're
16 going to be having this work done in parallel to the ADU
17 work that we're doing. So expect that to be ready, again,
18 around the same time that the software is ready, third
19 quarter for this year.

20 So I want to make sure that we're engaging with
21 the right stakeholders, and that we all have a consensus,
22 before we move forward with building starts for the next --
23 for the 2025 code cycle, and when that date is finalized,
24 we'll upload Appendix A to our docket, and you can kind of
25 just insert that into your template to move forward.

1 The last major change that we had was we added a
2 section to specifically address environmental analysis.
3 You know, the intent is that -- is to identify and document
4 additional information that we need to determine if
5 measures, and if our project as a whole, the 2025 Energy
6 Code, is in compliance with the California Environmental
7 Quality Act, or CEQA.

8 So our goal is really just to collect this
9 information earlier in the process for the cycle, and hope
10 to better streamline the cycle's rulemaking process. You
11 know, our leadership directed us to try to find some
12 efficiencies this time around, and see if we can get this
13 decision or this understanding of our project as early in
14 the process as we can to, hopefully, help the rulemaking
15 process be smoother on the back end.

16 You know, the pictures that I have here are -- on
17 the left is Exit Glacier. This is all from Alaska. So
18 Exit Glacier is kind of an iconic documentation in real
19 time of how the climate is changing, and the post on the
20 bottom left is where Exit Glacier was in 2010, and you can
21 see where Exit Glacier is now. So it's about over 1,700
22 feet recessed from this post, and as you go down, you'll
23 see the 2000 and the 1990 mark, and it really is, for me,
24 troubling, but, you know, we don't have to get into that
25 too much.

1 The other couple things, the different glaciers
2 that I have. This is all in October, which was really
3 beautiful weather, and maybe in the eyes of the beholder,
4 right? October in Alaska maybe shouldn't be so beautiful,
5 but there are other animals that be affected by the choices
6 and the things that we do, and we do need to make sure that
7 they're represented, and that we make sure that the
8 environment is considered before we move forward with any
9 measure.

10 So that's the gist of my bit here, a little bit
11 accelerated, again, only highlighting the changes, but if
12 you do have questions, whether now or if you want to submit
13 them later, again, e-mail convention is just "Javier, dot,
14 Perez, at Energy, dot, CA, dot, gov." If you want us to
15 get them formally, you're certainly welcome to. The link
16 on this slide will take you right to the comment submittal
17 page for our dockets, and you can type in your comments on
18 the website or you can submit an attachment.

19 Just make sure it's readable because, as I
20 learned through our previous rulemaking cycle, if you get
21 something in the dockets that's not readable, they'll send
22 it back to you and make you make it readable. Also, some
23 sizing limitations. Make sure it's not more than 10
24 megabytes. But, beyond that, I think we can open it up for
25 questions, and if you have any, feel free, and if you

1 don't, my e-mail is on the screen.

2 Daniel.

3 MR. WONG: Great. Thank you, Javier. Yes. So
4 we'll open it up to any questions that anyone may have. As
5 a reminder, you can raise your hand using the Zoom feature,
6 and we will unmute you, and you will need to unmute
7 yourself before speaking. If you are participating by
8 telephone, press star, nine to raise your hand or star, six
9 to mute or unmute yourself. Remember, please state your
10 name and your affiliation, or you can enter your written
11 comment in the Q-and-A box.

12 Did Farnoosh Farmer raise their hand? Okay.
13 Farnoosh, I am going to unmute you. You will need to
14 unmute yourself, and, again, please state your name and
15 your affiliation.

16 MS. FARMER: All right. Can you hear me now?

17 MR. PEREZ: Yes.

18 MR. WONG: Yes.

19 MS. FARMER: Okay. Great. Thank you for your
20 presentation. My name is Farnoosh Farmer. I'm an
21 associate partner at Boladarck Design. It's an arch firm
22 located in Pasadena, working all over California.

23 My question is mostly regarding Appendix E and
24 the environmental analysis. I just wanted to ask you to
25 elaborate on that a little bit, as to whether it is

1 something that probably is going to be applied to all of
2 the future projects, or is it going to be the same as it is
3 right now? Because right now, you know, some of the
4 projects are qualified for -- you know, they're entitled to
5 have this report. Some are not. I just wanted to know how
6 it's going to change in the future. Thank you.

7 MR. PEREZ: And this requirement is really only
8 specific to any proposed measures. So say, for example,
9 you require spray foam installation, and you want to
10 propose that to be required at the roof level. Well, okay.
11 What environmental impacts does this measure or this
12 component have on -- does it have, right?

13 So this isn't necessarily project-driven for a
14 building. We're not regulating -- what we're asking for
15 is, any measure that you're proposing we'd like to
16 understand, and want to make sure we can document any
17 environmental impacts that it has.

18 Does that answer your question, Farnoosh?

19 MS. FARMER: Yes. I have a follow-up question as
20 well. So is it something that we might be able to, you
21 know, send our suggestions about, to hear the confines that
22 you mentioned in the beginning of the presentation?

23 MR. PEREZ: Certainly. Send me an e-mail
24 whenever you have time, and I'll give you a call. We can
25 talk about it.

1 MS. FARMER: Yes, that would be great, because I
2 think my concern is mostly about the criteria of the -- you
3 know, the situations where the CEQA will be applicable,
4 because some of them, to me, sound arbitrary. So, I just
5 wanted to ask for more clarification, maybe, if it's
6 possible. I will contact you, Javier. Thank you so much.

7 MR. WONG: Perfect.

8 MR. PEREZ: Yes. And I think, you know, during
9 the previous cycle, we found that our code did not have
10 significant impacts on the environment. So, I'm going to
11 think your point to it possibly being arbitrary -- it may
12 be that we find that, you know, but the point is that we
13 have to document it. So, this is our effort to capture
14 that information.

15 And, Farnoosh, if you also wouldn't mind, any
16 comment that you have, if you could put it on the docket, I
17 think that would help, just because, you know, I think, in
18 our experience, any time one person has a question, I think
19 a lot of people have it, and that will help give it a
20 little bit of light.

21 MS. FARMER: Of course. Thank you so much.

22 MR. PEREZ: Thank you.

23 And I think James Zhan has a question.

24 MR. WONG: Yes. Let's see. James Zhan has his
25 hand raised. I'm going to unmute you, James. Please

1 unmute yourself and state your name and affiliation.

2 MR. ZHAN: Yes. Thank you. Thank you for taking
3 my question. James Zhan, Building Department, San
4 Francisco.

5 Javier, you mentioned the heat pump baseline for
6 2025, and I'm just wondering, did you compare the 2025
7 versus the previous code cycle? What is the improvement
8 regarding heat pump?

9 MR. PEREZ: You know, James, I'm asking the same
10 question. We're going to see, you know. We're going to
11 see what systems can be affected, you know, where it's
12 technically feasible, where it's cost-effective, and I
13 think we're starting to ask those questions.

14 I think we're also finding it's a little bit
15 early to try to -- there's a lot of work that has to be
16 done, including getting our software ready, to get it to a
17 point where we can run analysis and determine what effects
18 those changes might have, but, you know, for example, in
19 some -- the heat pump requirements are only applicable to
20 some types of buildings, some types of systems, in
21 residential, only one or the other, whether water or for
22 space conditioning, right?

23 MR. ZHAN: Yes.

24 MR. PEREZ: So yes, I think we'll continue to
25 explore, and where it is more efficient, and where it does

1 save energy -- and often it does -- I think we'll continue
2 to explore those avenues.

3 MR. ZHAN: Okay. Fair enough. Please keep us
4 updated, because heat pump is a very hot topic.

5 MR. PEREZ: You're telling --

6 MR. ZHAN: Yes, right.

7 MR. PEREZ: You're telling me. Certainly, James.

8 MR. ZHAN: Thank you.

9 MR. PEREZ: Yes, of course.

10 MR. WONG: Thank you, James. Thank you, Javier.

11 I don't see any more raised hands, and I don't
12 see any questions in the Q-and-A.

13 MS. WHITE: Daniel, we do have one. It's from
14 Natasha Elliott: "What, if any, changes will affect
15 commercial industrial greenhouse growing?"

16 MR. PEREZ: Yes. We're not in the position to
17 discuss what changes will happen. This is really just a
18 conversation about the template and what needs to be
19 documented when submitting a measure proposal.

20 You know, I encourage you to keep an eye on our
21 docket, subscribe to our list-serv, and also check out
22 "Title24Stakeholders.com." This is a website that's put on
23 by the Codes and Standards Enhancement Team. They're going
24 to be moving forward with a number of measures, or measure
25 proposals, beginning research, conducting workshops on a

1 variety of topics, including what you just asked about.
2 It's "Title24Stakeholders.com," and also maybe subscribe to
3 our list-serv, so you can keep on eye on our docket. Yes.

4 MS. WHITE: If I may, Javier?

5 MR. PEREZ: Please.

6 MS. WHITE: So, Natasha, also, if you have
7 evidence or information or analysis or studies that
8 indicate certain measures would have an impact one way or
9 the other, you are also welcome to submit that information
10 to the docket to help inform decisions. Thank you.

11 MR. WONG: Okay. Thank you.

12 It looks like we do have another raised hand,
13 from Adam Muliawan. Adam, I'm going to unmute you. You
14 need to unmute yourself. Please state your name and your
15 affiliation.

16 MR. MULIAWAN: My name is Adam Muliawan. I'm a
17 regulator and compliance manager for Jacuzzi, Incorporated.
18 We manufacture a spa, which is considered as an appliance.
19 As Lorraine mentioned earlier, there is an opportunity to
20 submit such data. We have been having a lot of test data
21 in order to comply with CEC requirements, so, in the
22 future, I would like to be able to share such data, so we
23 can discuss further as far as improving the requirements
24 moving forward. So, yes.

25 MS. WHITE: Thank you.

1 MR. PEREZ: And I think, Lorraine would love to
2 hear your input.

3 MR. WONG: Yes, yes.

4 MS. WHITE: I do.

5 MR. MULIAWAN: Thank you.

6 MR. WONG: Let's see. I don't see any other
7 hands raised, and there are no more -- we answered all the
8 Q-and-A.

9 So, Adam, you still have your hand raised? Did
10 you have another comment? Okay. So it looks like he
11 lowered his hand.

12 So, yes, it looks like we've covered all the
13 questions, and thank you, Javier, for your presentation,
14 and let's move on to the next presentation.

15 So I will take control and share my screen.
16 Okay. Can you see my screen?

17 MR. PEREZ: Yes.

18 MS. WHITE: Yes.

19 MR. WONG: Perfect. Okay. Great. So next up is
20 part two of the CEC's opening presentation. This
21 presentation will be provided by Lorraine White, who is the
22 manager of the Standards Compliance Office.

23 Go ahead, Lorraine.

24 MS. WHITE: Thank you very much, and welcome
25 again, everyone. I truly appreciate your participation in

1 this meeting, and I'm so happy to see as many participants
2 as we do have.

3 I am pleased to say that it's nearly 160
4 participants, which, for me, is a testament to the new
5 technologies that we've been able to utilize and make
6 available to people who may have not otherwise been able to
7 participate in person. So, again, thank you for taking the
8 time out of your day to hear our presentations, and the
9 panelists who will be coming next.

10 So the purpose of today, the rest of the day, is
11 to focus on opportunities that we have before us to improve
12 compliance with the Energy Code, and I'm hoping that my
13 presentation will be able -- sorry about that.

14 So we want to learn. We want to gather
15 information. We want to be able to hear from a variety of
16 the stakeholders, all of our stakeholders, regarding the
17 ways in which we can actually improve the Energy Code
18 compliance through either new and innovative methods, many
19 things that we have seen emerge, especially during the
20 pandemic, things that are being used at the local level to
21 make permitting more efficient or less costly.

22 We want to know what's working and what's not
23 working when it comes to compliance, and why that may be
24 the case. We are looking for information that helps us
25 identify the changes that the Energy Commission can make in

1 in order to support local agencies and participants in the
2 industry, ensure that we have affordable, well-built, and
3 compliant structures in the state, and that we can verify
4 that through compliance measures.

5 We're looking for ways that we can identify or
6 remove the different barriers that exist to improving
7 compliance with the Energy Code. We also are very
8 interested in gathering information related to the costs of
9 permitting, of compliance, and the economic impacts
10 associated with the process that exists, and how those
11 economic impacts can be lessened and become more positive
12 effects, rather than negative.

13 What we're hoping is that, in the 2025
14 proceeding, we can renovate the compliance process, so that
15 we can be more efficient, more effective, utilizing tools
16 and techniques, and essentially create a system that
17 leverages these tools and the views of our Commissioner,
18 you know, really help to digitize the way that we do
19 business, and create an interconnected digital ecosystem
20 for compliance that allows us to inform our policies and
21 our proceedings, provide information to participants in the
22 market, and verify true compliance.

23 I'm working here to see what I can do.

24 So what do we mean by "compliance"? Well,
25 there's a lot of definitions out there, but the one that

1 we're going by is "when a business or an organization
2 follows state, federal, and international laws and
3 regulations relevant to its operation, and for individuals,
4 to their activities," and when individuals are in
5 compliance, then we are, hopefully, achieving those goals
6 and objectives that the regulations and all other laws are
7 intended to achieve.

8 My apologies, here.

9 So why are we concerned about compliance? We are
10 concerned about compliance because we want to make sure
11 that our code is properly installed, and that people
12 construct the buildings consistent with what we have laid
13 out, in order to provide for the energy efficiency that
14 we're seeking. We want to make sure that industry has a
15 level playing field in the construction market and amongst
16 all of the other stakeholders. We want to protect
17 consumers from shoddy workmanship and the risks associated
18 with that.

19 We're also hoping to push the markets to a higher
20 degree of standard and performance. We're hoping that all
21 regulations and the compliance with them allows us to
22 achieve social, economic, environmental, and energy goals,
23 and we want to avoid the issues that can occur for
24 unpermitted work in regards to insurance and selling
25 properties.

1 In the compliance process, there's five major
2 steps. You come up with a project idea and design, and in
3 that step, you work on developing the plans and identify
4 the code requirements. Then you move on to the next step.
5 Once you've figured out what you want to do, you apply for
6 that permit, and in that, you submit your documents, and it
7 begins the permit process, starting with plan checks.

8 Once those are all approved, then you can start
9 your construction and installation. Once that's finished,
10 and as part of that process, there is field verification
11 and diagnostic testing, or acceptance testing, that's
12 required in the Energy Code, to validate, verify, and
13 authenticate your compliance or the compliance with the
14 code.

15 Subsequent to that is inspections, and they be
16 one or more, depending on the project and its complexity.
17 When all of that is done and everything is approved, then
18 the permit can be closed.

19 So that's the entire process, when we're talking
20 about compliance, that we're looking at, and we know that a
21 lot of permits are pulled. There's documentation from CIRB
22 related to the annual housing permits, shows that in the
23 major markets throughout the state, we're seeing a lot of
24 permits that are being pulled over the course of the years.
25 You can see how different issues with the economy affect

1 the construction industry, but we do know that that
2 activity is occurring.

3 What we also know is that, just by pulling
4 permits, when you consider those five steps, just by
5 pulling a permit, that isn't necessarily compliance. We
6 know that not all permitted projects go through the field
7 testing. We also know that not all jurisdictions enforce
8 the Energy Code the same.

9 Some don't require projects comply with the code.
10 Others have varying expertise, so they may not know how to
11 interpret the code, and some don't necessarily enforce the
12 HERS or the ATTCP requirements, and not all permits that
13 are pulled are closed. I know that may be a small
14 fraction, but that is kind of an interesting issue for us
15 to be aware of and understand.

16 We also know that there's a lot of work that is
17 unpermitted. The exact number of that is not really known.
18 Estimates range from 50 to 80 or even more percent,
19 depending upon the jurisdiction. We do know that that
20 causes issues within the market, and destabilizes that
21 level playing field.

22 We know that this is a sizeable issue, and that
23 people are concerned about it, and some of the reasons that
24 could be associated with this is the costs of the permit
25 process, or the process itself, and its complexities, the

1 time and possible delays that may occur with people's
2 projects when things are not done properly and have to be
3 redone, the lack of knowledge of the participants in a
4 construction project, in not necessarily complying with
5 what is required, and know when a permit needs to be
6 pulled, and consumers, quite frankly, are becoming more and
7 more concerned about the effects of any kind of permitted
8 work on their property taxes, and they avoid that permit,
9 so that increases in property tax aren't triggered.

10 So what are we in the Commission doing? Well,
11 first of all, we're convening this workshop. We want to
12 hear what's going on. We want to understand what's
13 happening in the market, and find ways of improving the
14 overall process and the rate of compliance in the state,
15 and we are looking for this input throughout the entire
16 2025 proceeding.

17 We are also in the process of developing the
18 Commission's Compliance Document Repository, in effect --
19 we call it the "CCDR." This is where we are pulling
20 together all of the HERS and the ATTCP data, and other data
21 sources related to the rate of compliance, so that we can
22 use that data to help support our analysis of where
23 solutions to the lack of compliance can be found.

24 We are hoping to work with all of the
25 stakeholders as partners, including local agencies,

1 consumers, and members of the industry, utilities, and
2 advocates, so that we can improve this process effectively,
3 move it towards being more efficient and effective, and
4 ensure that costs are reasonable.

5 We want to innovate. We want to use new tools.
6 I mean, there's been so many advances in permitting
7 software, and devices that can be used for testing and data
8 gathering. We want to be able to understand and learn more
9 about this, and we want to be able to enhance the
10 compliance programs so that all your third-party programs
11 are more effective and don't cause issues with the local
12 permitting process, but enhance them, augment them, and can
13 be relied on in the future more effectively.

14 So, when I think of the regulatory compliance
15 life cycle, as the manager of the Compliance Office, I
16 think first about the regulation itself. Is compliance an
17 issue related to regulations? And if it is, how can we use
18 the data and information that we have to feed back into
19 that process? Can we gather additional information during
20 the compliance efforts themselves, the permitting process,
21 the field verification and diagnostic testing, the
22 acceptance testing, the experiences of contractors, the
23 local agencies themselves?

24 Then we want to take all that information and
25 evaluate it, within this proceeding and others, so that we

1 can actually make recommendations that have meaningful and
2 effective improvements to the process, and we'll be vetting
3 those through this 2025 proceeding.

4 So we also, in the process, want to be able to
5 recognize that, with the fixes, we're going to be striking
6 some balances. We want to invest in new regulations, but
7 we also want to make sure that people can comply with them.
8 We want to be able to rapidly deploy innovations, and make
9 sure that they're available to consumers, but we also want
10 to make sure that consumers have the protection they need.
11 We want to minimize the construction delays, but we want to
12 maximize the quality of the work that's being done, for the
13 benefit of the consumer.

14 We want to remove barriers and inefficiencies,
15 but, at the same time, also reduce the risks associated
16 with the construction that may be done under these permits
17 and oversight. We want to keep the cost reasonable, and
18 provide targeted incentives, where appropriate, and, in
19 addition to estimating the energy savings, we want to be
20 able to verify them, that we're actually getting them for
21 the benefit of people.

22 So today's format is all about us listening and
23 learning, and we want to be able to do that through the
24 three panels, and we are very appreciative and grateful for
25 the panelists that have joined us today.

1 Our first panel is going to be designers and
2 energy consultants, led by Will Vicent. I'll lead the
3 Panel Two, discussing potential improvements that we can
4 make with the authorities having jurisdictions and local
5 representatives. Panel Three, which will be moderated by
6 Charles Opferman, is going to be discussing those
7 opportunities with contractors and installers.

8 We will have opportunities for people to ask
9 questions throughout this process, and at the end, we'll
10 have a summary and close.

11 So let's move into these panels. I'm going to
12 pass it back to Daniel, and I do apologize for the
13 technical difficulties with this presentation, and thank
14 you for your patience.

15 It's all yours, Daniel.

16 MR. WONG: Thank you, Lorraine.

17 MS. WHITE: You might have to speak up a touch,
18 Daniel.

19 MR. WONG: Okay. So we will now start the first
20 panel of today's workshop. Will Vicent is the manager of
21 the Building Standards Office and will be moderating this
22 panel.

23 Will, please go ahead.

24 MR. VICENT: Good morning, everyone. Hopefully,
25 you can hear me okay. Thanks for the privilege of your

1 time. I'm really excited about this panel, as we start to
2 dig into some of the public feedback and documenting some
3 of these good learnings that Lorraine teed up.

4 So we've got a very rich Panel One for you today,
5 consisting of building designers and consultants, so these
6 are largely, you know, the experts. These are the Sherpas
7 as we climb the "compliance Everest" that really help the
8 industry comply with the Energy Code.

9 If I didn't mention already, apologies. My name
10 is Will Vicent. I'm the manager of the Building Standards
11 Office.

12 With our panel, we have a very distinguished
13 group, including Erik Kolderup. Erik Kolderup is a
14 consulting engineer and educator who uses energy modeling
15 to support building design. He has provided energy
16 consulting services since 1990, serving as vice president
17 of Eli Associates and associate principal at Architectural
18 Energy Corporation before starting in Kolderup Consulting
19 in 2007. He's an adjunct lecturer at Stanford University,
20 where he teaches a course on energy-efficient building
21 systems. He holds degrees in electrical engineering and
22 industrial engineering from Stanford.

23 Thank you, Erik, for joining.

24 Additionally, we have Vicki Burlingham, who
25 joined Capital Energy Consultants, a HERS rating company,

1 in 2009, and in 2015 became president and principal owner.
2 Her unique background in construction and project
3 management allows her to provide navigating the permit
4 process for Title 24, Part 6, in a language that
5 contractors can understand. She specializes in working
6 with energy consultants and contractors to meet project
7 compliance.

8 Thank you for joining us, Vicki.

9 Our two other panelists include Maureen Guttman.
10 Maureen is a licensed architect, with over 30 years of
11 experience in energy-efficient building design and related
12 public policy. Prior to joining Energy Solutions, she
13 served as president of the Building Codes Assistance
14 Project and executive director of the governor's Green
15 Government Council, the state's sustainability office for
16 the Commonwealth of Pennsylvania. Maureen is an active
17 member of the American Institute of Architects and of the
18 International Code Council, having served in leadership
19 capacities with both organizations.

20 Lastly, but certainly not least, is Gina Rodda,
21 currently the owner of Gable Energy out of Castro Valley,
22 California. She has been in the energy modeling field
23 since 1991. Gina is the instructor of several dozen
24 full-day Energy Code Ace trainings on the residential and
25 nonresidential Title 24 building energy-efficiency

1 standards for Building Department staff, energy
2 consultants, engineers, and architects.

3 She is also the Title 24 energy analyst,
4 performing a wide range of responsibilities in both
5 residential and nonresidential construction pertaining to
6 compliance standards and energy modeling, and is a
7 respected subject-matter expert in forming the statewide
8 code development process.

9 Sorry. That was a mouthful, but very well worth
10 the time with our distinguished panelists. Thank you so
11 much for joining us.

12 Erik, if that's okay with you, we're now going to
13 do quick introductions by each of the panelists, followed
14 by some interactive discussion, and then open up to
15 Q-and-A. So Erik would be up next.

16 Daniel, do you mind cueing up Erik's slides,
17 please?

18 MR. WONG: Sure. We'll do that.

19 MR. KOLDERUP: Well, and thank you for the
20 introduction as well, and I appreciate the opportunity to
21 be part of this panel. I'm going to kind of try and tell a
22 quick story when the first slide comes up. It's just a
23 little bit more about the kind of work that I do, just to
24 give you a little bit of an idea what my perspective is, so
25 where I'm coming from.

1 So, I do compliance work. It's all
2 nonresidential compliance, but prescriptive and
3 performance. On the prescriptive side, sometimes it's just
4 mechanical, and sometimes just lighting, and sometimes
5 both, and on the performance side, sometimes it's whole
6 building performance, and then, other times, it's
7 performance for just mechanical and envelope, and sometimes
8 just mechanical only, depending on the needs of the
9 project, and then I also have done other Energy Code work.

10 I do training. This is most recently in the
11 state of Hawaii. So I do training, compliance evaluations.
12 So I've gone into building apartments, reviewed plans to
13 check the level of compliance with the Hawaii codes, and in
14 the past, I've worked on code development, both in Hawaii
15 and, further back, Title 24 and ASHRAE 90.1, and then, on
16 other work, more of my work is done energy modeling for
17 design assistance, and sometimes lead modeling teaching and
18 training, that sort of thing.

19 So I have -- from the compliance perspective, I
20 kind of have two conflicting sets of feelings. One is from
21 the side of the energy-efficiency advocate, where I want to
22 see compliance broadly improved, of course, and better
23 savings, and, on being part of the design team, want to
24 minimize the amount of time I have to spend doing
25 documentation, and have maximum flexibility. So probably

1 lots of us on this call face sort of similar feelings about
2 needing to strike that balance.

3 Next slide, please.

4 So the quick story I wanted to tell was the case
5 for automation, and this is kind of the conclusion, and
6 then I'll talk for a minute about how I got here, just
7 based on some recent work.

8 So the code is complicated. It changes every
9 three years. We've heard that already today, and, I mean,
10 my opinion is it cannot really be fully enforced except by
11 experts. You really need to know the details of the code
12 to be able to take the information in the compliance forms
13 and the plans and then, both in terms of plan review and
14 inspection, do a good job of that.

15 The third point. I think that, based on that,
16 it's really unrealistic to expect all jurisdictions to
17 maintain expertise at reasonable cost. There's a lot of
18 training involved. There are a lot of other
19 responsibilities. There's staff turnover. The code is
20 always changing.

21 So it's probably unrealistic to really scale up
22 compliance relying on the expertise of everybody.
23 Similarly, for that fourth point, there's a challenge for
24 designers to keep up to date on the code. You know, it's
25 always changing.

1 So one observation is that some level of
2 automation is needed to scale up enforcement from the
3 current condition. You know, we've been struggling with
4 this for 40 years now, and we know that it's a challenge to
5 enforce this fairly complicated code.

6 Next slide, please.

7 So, kind of how I came to this point. I was
8 recently asked by the organization CodeCycle.org to do an
9 evaluation of two lighting compliance systems. So
10 CodeCycle.org has this tool for documenting and enforcing
11 compliance, and this work was performed for CodeCycle.org,
12 so I just want to make that clear.

13 I looked at two projects that I had previously
14 worked on, a medical clinic and a two-story classroom
15 building, to run through the process of documenting
16 lighting compliance. I had not used either before, so my
17 previous experience with prescriptive lighting compliance
18 was using the dynamic Adobe Acrobat lighting forms that
19 are, you know, available currently from Energy Code Ace.

20 So, next slide, please.

21 Just to give an idea, probably not everybody is
22 familiar with what CodeCycle does, but it's an online tool
23 that is for both compliance documentation and enforcement.
24 What you're seeing here is one of the screens for the
25 compliance documentation side.

1 The way it works is you enter a fixture schedule,
2 like you would in the normal forms. You import a PDF of
3 your floor plan. You trace over the rooms. It's a fairly
4 easy tool, to just kind of trace the outline of the rooms,
5 identify whether they're offices or conference rooms or
6 whatever.

7 Then, point five there, you identify window
8 locations, too. So, at the bottom of the screen, you can
9 see those little lines indicating where the windows are,
10 which can be used for identifying valent areas, and then
11 define the groups of luminaires, so, in each space, you
12 know, how many luminaires are there of each type, and then
13 also define the controls for those luminaires in each
14 space, and with that information, because it knows how many
15 luminaires there are in each space, and what type of
16 controls are assigned to them, it can actually
17 automatically check all the lighting requirements,
18 including controls.

19 So it can do, of course, lighting power
20 compliance, but it can also check that the controls comply,
21 which is pretty complicated, and when I first looked at
22 this tool, I thought, "Well, this is going to take me more
23 time than normal," but what I found was actually -- and I
24 could talk more about this later, if you want -- it
25 actually took me less time to enter my design information

1 this way than I did using the traditional method of, you
2 know, doing takeoffs of my plans, of the different areas,
3 of the different space types, counting up the fixtures, and
4 so on, and with the traditional method, the forms don't
5 have all of the signature information that you have in this
6 case.

7 It also taught me some things. So, it
8 automatically checks compliance, so there were a few cases
9 where it identified noncompliance where I hadn't realized
10 that the controls were noncompliant, because of the various
11 exceptions in the lighting controls requirements.

12 Next slide, please.

13 The really kind of interesting thing about
14 CodeCycle that got me thinking more about the enforcement
15 side, because I don't really think too much about that in
16 my day-to-day work, was that it has this interface that
17 allows a plan reviewer or field inspector to quickly sample
18 spaces to check compliance.

19 So that left-hand box is where you just say you
20 want to start the inspection, and you can say how many
21 minutes you want to spend on it. Based on that time, it
22 shows you the floor plan, and it shows you a certain sample
23 of spaces that it prioritizes for you to check. Then you
24 can click on the space, and it says, you know, "Are there
25 22 fixtures in here? Are they a fixture of this type?,"

1 and so on.

2 So, really quickly, you can take a sample to
3 verify that the plans match this documentation, and then
4 you know that the tool has already checked that that
5 complies, so really all you need to do is verify that, you
6 know, the plans match what was input into the tool, and the
7 same thing could be used for inspection.

8 So what I realized here is that using the current
9 forms, say, for prescriptive lighting compliance, there
10 isn't really enough information on there for a plan
11 reviewer to be able to check the plans or check that, say,
12 the controls comply, without really being intimately
13 familiar with what the requirements are. The forms just
14 document the controls that the designer says are there.

15 So step one of the plan review would be checking
16 that that's what's on the plans, and then the next step
17 would be understanding, "Well, does that actually comply?,"
18 because it's not automating the checking. So that really
19 made me realize that this automated checking can really
20 help scale up compliance.

21 So our next slide, please, and this is my last
22 point, here.

23 So kind of what I learned through going through
24 this evaluation was that, under the current process,
25 current compliance forms, it doesn't really collect enough

1 data to allow for automatic checking. You know, it doesn't
2 know, in length, for example, how many fixtures are in each
3 space. It just knows that there are, you know, so many
4 fixtures of type one in the whole building, and then, two,
5 it places a burden on designers and reviewers to be code
6 experts, if they really want to make sure that they comply,
7 and, number three, it doesn't really support quick plan
8 review and inspection, because, again, there's not enough
9 information on the forms to really, say, link specific
10 spaces to what's in those spaces.

11 What I learned about this code cycle automation
12 approach -- again, this is one example of automation. It
13 took less time for documentation compliance. That
14 surprised me. It didn't rely -- or does not rely on
15 designer or reviewer detailed code knowledge, and, as I
16 noted, it identified something that I had missed, in that
17 it allows for sampling for much quicker plan review and
18 inspection.

19 So I know automation of code compliance checking
20 is going to be a really complicated thing, and this is
21 interior lighting. This is just one set of the
22 requirements, prescriptive interior lighting, but it just
23 made me think that, you know, automated checking will
24 really be necessary to help scale up the level of
25 enforcement.

1 So that's kind of my quick story, and so I'll
2 pass it back to you, Will.

3 MR. VICENT: Thank you so much, Erik. Really
4 appreciate the intro. We will go through the other three
5 intros quickly, and then have lots of time for dynamic
6 discussion.

7 Vicki, I believe you are on, and were going to
8 provide some opening remarks. I don't think you have any
9 slides, which is totally fine, but we'll give you the
10 opportunity to take the stage. You may still be muted.

11 MS. WHITE: Vicki, you need to unmute. There it
12 goes.

13 MS. BURLINGHAM: Good picture (indiscernible).

14 So I'm Vicki Burlingham. Honestly, this is the
15 first time that I have done this, so I was totally
16 unprepared for what was going to happen and what we would
17 discuss.

18 We, as a HERS rating company, deal a lot with the
19 compliance, as far as field verification and documentation
20 verification. Right now I'm working on probably, I don't
21 know, 40 new construction remodel projects that we are
22 basically interpreting and training builders and homeowner
23 builders, as well as installers. I don't know how much --
24 as an energy consultant -- Gina knows, because I call her,
25 I think, constantly, the poor thing, about trying to help

1 me out with dealing with different aspects of the code, and
2 trying to translate that over to a builder.

3 I received a call this morning from a builder who
4 missed the QII insulation inspection, didn't know anything
5 about it, not an uncommon mistake from them. As far as
6 compliance goes, from that perspective, they look at all of
7 the hard work that the energy consultant does by
8 translating the plans into the current Energy Code, and
9 they think that that CF1R, which they fondly call the
10 "Title 24" -- not -- they see it as part of the permit
11 application, and that's it. Once the permit is issued,
12 they throw it away and don't look at it again.

13 Then, partway into the project, we get a phone
14 call saying, "Help," or, like this morning, "Bigtime help,"
15 because they missed the QII, the project is done,
16 drywalled, and this is in Placer County, which, in my
17 opinion, is the only jurisdiction from San Francisco to
18 Nevada -- in the Northern California area that we work in,
19 they're the only ones that are in compliance. They will
20 run down a project and make sure that all of the HERS
21 verifications are complete, all the certificates are
22 complete, the 140, 50 pages that are printed for every job,
23 you know, is done.

24 So, from my aspect, it would be nice if there was
25 some way to streamline that process. Once it goes through

1 permitting, how do we convey to the builder, "This is what
2 you still have to do. That CF1R that took hours to
3 generate and make comply is not trash. You need to look at
4 it. You need to read it. You need to understand it, and
5 if you don't, you hire someone who can"?

6 That's kind of where we've come in that last four
7 or five years, by accident, to try and just navigate and
8 talk to the builder and installing contractors in a
9 language they can understand. Honestly, when you read the
10 mechanical code, it's like reading Shakespeare. It makes
11 very little sense, and there's no outreach programs for
12 those contractors, either. They have no idea what's
13 coming. They don't pay attention to e-mails from the
14 Energy Commission.

15 There's just seemingly nothing out there that
16 slaps them upside the head and says, "Look. This is what's
17 coming, and this is what you guys need to do." They
18 constantly blame the Building Department because they don't
19 know what current code is, you know, they're supposed to be
20 working under. It's not the Building Department's fault.
21 Other things are, but not that.

22 The Building Departments have a lot on their
23 plate. If you were to talk to Placer County, they do a
24 really, really good job, the only Building Department that
25 does a really good job in managing the HERS verifications

1 and the terms of documentation that are presented at the
2 final project.

3 So I would like to see some way for us to
4 communicate from the energy consultant to the builders to
5 that they don't just toss it in the trash. When we get to
6 a project, I'd like to be able to know that that builder
7 has already done his due diligence, and he's made sure the
8 insulation inspections are done, the kitchen hood that they
9 installed is in compliance -- yes, that's another new one
10 for me -- and that they don't have to tear it out.

11 Like, I just told a guy this morning, before you
12 guys called, that the one they installed, just because you
13 can buy it in California doesn't mean you're allowed to
14 install it. So there's all of these things that are not
15 being communicated to the builder. There has to be another
16 way to handle that. So, if we could come up with some
17 simple ideas or, you know, anything that could move that
18 along, it would be really great.

19 Right now, I have a few energy consultants that
20 do a good job of listing what I call the "cheat sheet," and
21 I won't throw a name out there, but I wish she was on this
22 panel, and she does a really great job of making a cheat
23 sheet, and it says, "Call a HERS rater right now, or hire a
24 HERS rater at the beginning of the project, before you
25 start building."

1 Then she goes through with that sheet and just
2 highlights all the important Title 24 compliance items that
3 are on that project, and the HERS verifications. So, when
4 she does that, the builders send that to me. They don't
5 send me the 1R. They just send me that page. I know who
6 that gal is, and, a quick phone call, I've got access to
7 the job. That is such a fantastic little item. Just that
8 one-page cheat sheet really helps move a project forward in
9 the right way.

10 So whatever ideas you guys have as energy
11 consultants that can help with that, this is what I see.
12 These are the issues that I have on a daily, hourly,
13 half-hourly basis, from builders that are totally clueless,
14 and the older the builder, the more clueless they are.
15 Sorry.

16 I don't know. I wish I had made up some really
17 cool slides. I used to be really good at that. So I'll
18 put it back to you, Will, and then I'm here to bounce ideas
19 off of, and just input wherever I can. I'd like to see
20 this be a success, and anything to streamline and simplify
21 this process, because, trust me, 148 pages for every job is
22 a little joke. Okay? Thanks.

23 MR. VICENT: Thank you, Vicki. Hearing some
24 things already, between you and Erik already. So thank you
25 again.

1 Maureen, I think you have some slides prepared,
2 but, Daniel, I'll ask you to cue them up, if you don't
3 mind.

4 MS. GUTTMAN: Thank you. Yes, I would prefer
5 that you guys run the slides. Thanks.

6 MR. WONG: Sorry. I'm getting them cued up.
7 It's just taking me a little bit of time.

8 MS. GUTTMAN: I can talk in the meantime.

9 So, good morning. My name is Maureen Guttman. I
10 am an architect, and I've been working in the world of
11 building codes for several decades, after a pretty good
12 career practicing architecture in private practice and with
13 government. If you want to go to the next slide, I've got,
14 you know, a little bit of background here on what I've done
15 and where I've been.

16 As I think it was mentioned in the intro that
17 Will read, I ran a program called the Building Codes
18 Assistance Project, which some of you might be familiar
19 with. We were a nonprofit program focused on code adoption
20 and code compliance in all the states, using the I-Codes
21 and ASHRAE 90.1, which is not California, obviously, but I
22 certainly know a lot of folks in California, both
23 architects and code enforcement personnel, because of my
24 involvement for many, many years with AIA and with ICC,
25 primarily on all issues having to do with energy

1 sustainability, high-performance buildings, definitely code
2 compliance, code enforcement, code development.

3 So that leads me to where I am today -- next
4 slide -- working for Energy Solutions, which is part of the
5 California CASE team developing the code change proposals
6 on behalf of the utilities for the CEC. I'm not
7 representing the CASE team or the utilities. I'm
8 representing myself and Energy Solutions in this
9 presentation, but I just wanted to let you know where I am
10 and what I'm doing right now, which is working on these
11 code change proposals that will become the next iteration
12 of Title 24, and, you know, we focus on these highlighted
13 terms here in terms of feasibility, cost-effectiveness,
14 enforceability, and nonproprietary, and the enforceability
15 kind of has the flip side of being, you know,
16 compliance-ready.

17 Certainly, there is a lot of collaboration with
18 other aspects of the teams on looking at, before we even
19 get something put into the code, we want to make sure that
20 it's been really carefully vetted by the public, by other
21 experts on the team, to say, "Yes, this is going to be fine
22 in terms of compliance and enforcement" or "This might be a
23 problem."

24 I'm going to have a cat walk in front of my
25 screen here, so I apologize for that. Next slide, please.

1 So this is kind of information from the CEC's own
2 documentation, anticipated benefits of what we're going to
3 get from the 2022 cycle, which will go into effect at the
4 beginning of next year, and you can see that we have pretty
5 aggressive hopes for emissions savings and cost savings to
6 consumers with this next cycle -- next slide, please -- but
7 it's really important to note that 45 percent here of these
8 projected savings are from residential and nonresidential
9 alterations, which traditionally have a far more difficult
10 time getting into compliance. Some of them don't even pull
11 permits, as we know.

12 So this is this is going to be a huge challenge
13 for us going into the 2022 cycle, to make sure we do
14 everything we can do to get these actual savings that we've
15 projected. So my point here is that yes, we've got, you
16 know, 10,000,000 metric tons of carbon emissions that we
17 hope to save through the use of the 2022 cycle, over a
18 30-year period, but that's only if we have 100 percent
19 compliance, and what I what I really want to talk about,
20 because I have done a lot of work in all the other
21 states -- next slide, please -- is some of the work that
22 the Department of Energy has done in terms of trying to get
23 a grip on "Where are we with code compliance?"

24 Many of you will remember that the American
25 Recovery Act in 2009 put out incentives for states to get

1 additional funding if they would agree to adopt and show 90
2 percent compliance with what was at the time the most
3 currently adopted Energy Code, and so, you know, all the
4 states said, "Yes, we'll do that," and took the money.

5 But then, you know, a couple years later, the
6 Department of Energy said, "Well, let's see how we're doing
7 with code compliance," and it was interesting, and it was
8 not bad news, frankly, but it was illustrative of the fact
9 that there needs to be intervention, obviously, which is
10 what this whole program today is about. I think that the
11 program was specifically not designed to measure
12 compliance, but its goal was to see "Does training and
13 intervention change compliance?"

14 So they did a study. They did the first analysis
15 going in, and evaluated compliance metrics for a certain
16 number of buildings in each of these jurisdictions, and
17 then they did training or other intervention -- primarily
18 it was all training -- and then went back and measured
19 things again to see what kind of an improvement would occur
20 in those jurisdictions, and, in fact, I think the general
21 conclusion was yes, obviously, training is a big part of
22 what's needed in order to be able to improve compliance,
23 but still we find that there is a lot of savings left on
24 the table, and, you know, we know we need to -- we know we
25 need to work on it.

1 The next slide shows a little bit on the
2 residential as well. It was surprising to, I think, a lot
3 of us that, generally speaking, in the states where they
4 did some analysis, builders were doing pretty well with
5 home construction, but still we know that there are a lot
6 of little things that are important energy features that
7 are not being addressed up to the standard that the code
8 anticipates will be the case.

9 So it's really critical that we keep fine-tuning
10 these processes so that we are able to get these savings,
11 reduce these greenhouse gas reductions (sic), save the
12 planet. I'm all about that, and I've spent a lot of
13 time -- next slide, please. In my personal life, in my
14 professional life, I sort of focus on dealing with design
15 professionals, because I am an architect, and I work with
16 architects and engineers, and what I believe is that, you
17 know, the design community is a high-potential place for us
18 to focus on compliance improvement.

19 I have been in this world of doing compliance,
20 and enforcement and building codes and energy, for a long
21 time, and it always strikes me as interesting that a lot of
22 the focus is on building code officials. Well, those guys
23 are kind of the end of the train. They're the enforcers.
24 They're not responsible for the design, and they're not
25 responsible for what gets built.

1 Right at the very beginning, if we're not doing a
2 good design with the building owner, making decisions on
3 building performance right at the very beginning, we're
4 definitely not going to succeed in meeting all of our
5 Energy Code criteria. So, you know, my suggestions, as
6 asked, "What can we do better?," I think, thinking about
7 the design professions, and where help can occur there, is
8 probably where I would push for additional resources.

9 Although I know there's a lot of that that goes
10 on right now, it can never be enough. I think that
11 focusing on integrated project delivery, where we, you
12 know, get the design professionals, the engineers, even the
13 builder and the client together at the very beginning, and
14 start to define what the parameters of the project success
15 are going to be, certainly, in terms of energy performance,
16 I think that's important

17 All you fellow architects and engineers who are
18 on the call, forgive me for this, but I have to point out
19 that, hey, we are licensed by the state, and that's a
20 lever, you know, for pulling on regulation. I note that
21 you in California have continuing education requirements.
22 Architects have continuing education for accessibility
23 provisions. Great. Let's get provision added to that law
24 where you have to have continuing education on energy,
25 energy modeling, Energy Code, and something to show that

1 there are additional qualifications that we possess to help
2 when it gets to enforcement, so that it's not all on code
3 compliance officers.

4 Same thing with builders. I'm not certain of
5 what the building - I know that builders are licensed,
6 registered, in California. I'm not sure - are they
7 required to have continuing education? I think that's
8 critical to make sure that people are up to date. I know,
9 where I am in Pennsylvania, we've had builders who put
10 their fist down and say, you know, "I'm building houses the
11 same way my father built them, and the same way my
12 grandfather built them," and, you know, you just want to
13 say, "Well, that's the problem."

14 But, you know, we really need to think about the
15 fact that building technology has progressed, that we all
16 need to learn and keep learning, and so I think it's
17 critical that builders also be in that realm of having to
18 learn, and I put third-party verifications specifically
19 because you know we've got this dichotomy of having a HERS
20 rater being retained by the builder, and I don't think
21 there's enough separation, their incentive to get, you
22 know, the right kind of impartial analysis as to whether or
23 not, you know, the work is being done appropriately.

24 So that's my pitch. I can go to the last slide.
25 It's just got my e-mail address and my phone number on

1 there, and thank you so much for including me. I
2 appreciate it, and I'm looking forward to the rest of the
3 presentation today.

4 Back to you, Will.

5 MR. VICENT: Thank you so much, Maureen.

6 Again, last but certainly not least, we have Gina
7 Rodda to give us some thoughts before we jump into some
8 discussion. Thanks, Gina.

9 MS. RODDA: Okay. Can you hear me?

10 MR. VICENT: Yes.

11 MS. RODDA: And can you see my slides?

12 MR. VICENT: Yes.

13 MS. RODDA: Because, of course, everyone here who
14 knows me knows Gina is not going to come without slides.

15 It is pretty exciting to be able to represent my
16 company in its entirety, and how we support the Energy
17 Code, and the struggles in supporting the Energy Code. So
18 we are an energy consulting firm here in the Bay Area,
19 pretty much started right when the Energy Code started, and
20 we have evolved over the years, but one of the things I'm
21 most proud of is that we've numbered our clients, client
22 number one, two, three, four, five, and our first hundred
23 clients are still our clients.

24 We keep our clientele for a very long time,
25 because we help them understand the code. Every single

1 (sic) there's a code cycle, we do training with our
2 clientele, and our clientele consists of architects,
3 consists of contractors, design/build contractors, consists
4 of engineers. It consists of so many people along the way,
5 and we're working more and more closely with contractors,
6 and taking over projects during construction
7 administration, and giving them the support they need to be
8 able to navigate our code.

9 So there are - I saw how Lorraine had, you know,
10 the five steps to compliance, and I always look at the five
11 steps to construction, and it starts at schematic design,
12 and we need to get involved at schematic design, and this
13 also speaks to what Maureen was talking about, and also
14 Vicki, talking about we need to make sure that the design
15 teams, from the very beginning, understand their role in
16 the compliance chain, and how we need to support the
17 building owners' needs with what is the options and the
18 flexibility of the Energy Code.

19 I hear a lot, "The Energy Code is so complex,"
20 and I always say to that, "For good reasons." The
21 cost-effectiveness analysis of the code makes it so that
22 there aren't the same requirements in all 16 climate zones.
23 We don't have the same requirements for alterations versus
24 new construction, and we don't build all our buildings the
25 same way.

1 That is part of the challenge we have in the
2 construction industry, is nothing is done the same way.
3 It's part of what makes it so flexible, and why we have to
4 make sure building owners are finding the right team,
5 including the contractor, to make their vision and dream
6 come to life.

7 Throughout design development construction
8 documents, we have to support the design teams in making
9 sure that designs fully support not only what is in their
10 scope of work, but sometimes also reminding them, "What's
11 in your scope of work is, how will energy efficiency be
12 integrated into the building design?" And we spend a lot
13 of time with our clients for this.

14 We are blessed to have almost all our clients use
15 an integrated design approach, and we are working with
16 these projects, and this is very much how Erik works with
17 his clients, also, from the beginning, and we do iterative
18 modeling and support, and "Hey. Let's check in every now
19 and then and make sure everyone is feeling comfortable with
20 what it is that they need to be aware of for this code,"
21 because that's what we are. We're experts, brought to the
22 table to help support a complex code.

23 I challenge all of you to even think that the
24 Mechanical or Electrical Code isn't as complex as the
25 Energy Code. What's different about the Energy Code and

1 the Mechanical and Electrical Code is, the Energy Code goes
2 through robust changes every three years in support of the
3 Warren-Alquist Act and also state legislation that is
4 helping push along what we're trying to do with energy
5 efficiency and decarbonization.

6 During construction, I find that's where there's
7 a lot of confusion, and I think that you've heard that from
8 the previous speakers, and I have found that contractors
9 don't want to -- honestly, most of the time, there's only
10 those few, but they want to do subpar work. They want to
11 do exactly what they're required to do to keep their
12 license active and be on top of things, but they need help.
13 They can't do it in a vacuum, and they can't do it without
14 guidance and without support, and we do a lot of work
15 during construction administration, submittal review, and
16 also helping them understand what that final compliance
17 paperwork needs to be regarding testing and verification,
18 so that everything is moving along smoothly.

19 All projects are unique, so, really, speaking to
20 the building owners at the beginning, going, "What are your
21 dreams, and then what are the dreams of the city you're
22 building in?," because we're not just talking about state
23 code here. There are cities and counties that want to
24 aggressively go faster towards a goal, and we call these
25 "reach codes" or "local ordinances," and I do work here in

1 the Bay Area where I'm surrounded by cities that have
2 different flavors, in addition to the Energy Code.

3 That's why I'm the expert at the table, because I
4 am helping them navigate their budgets, how they have to
5 support their financing. Banks have very specific
6 requirements about how these jobs need to progress, and how
7 they need to show cost-effectiveness on their own end,
8 especially if you're doing low-income multifamily housing,
9 incentive work.

10 There's so much to what we do. I don't want
11 people to think there's a way of simplifying it so much so
12 that we can go back in time to when -- and this is my joke.
13 I'm sure everyone here in the room has heard this one. We
14 used to have clients that would come to us 24 hours before
15 they went for permit, and went, "Okay. I want my energy
16 counts now, my forms."

17 All they see is the forms. They don't understand
18 we're actually doing calculations. They just want the
19 forms saying, "My design is beautiful," but there's no way
20 we can do that. The Energy Code needs to be integrated
21 from day one in schematic design, and we need the design
22 community to make sure that that is integrated as a place
23 at the table.

24 I find different team members have different
25 depths of understanding in code, and I apologize to all of

1 you who, potentially, are new to California, but we have,
2 sometimes, team members that are brought in from other
3 states, and we all look at each other and go, "A newbie.
4 We'll get you up to speed on what's going to be going on
5 here in California," because we are unique, and we are
6 trailblazers.

7 Some of the work I've done at Gabel is helping
8 other countries look at what we're doing here in California
9 and wanting to replicate it. So, we're doing amazing
10 things, and I wish we can -- I'm hoping we can always
11 recognize that, and how the buildings are going to be used
12 is so invariably important after the fact.

13 Then this next question was asked, is "What other
14 tools do you think we need?" What I want to be able to
15 emphasize, and this is usually what I'm doing a lot of
16 educating to my clients, to the other design professionals
17 on the team, "What do we have already?" Of course, I have
18 to say Energy Code Ace, because I think there's amazing
19 things that we're doing there.

20 The case study work at Title24Stakeholders.com, I
21 love, love reading the case reports, and getting the
22 science and the intent behind the code language. Sometimes
23 what most people -- why they're so confused is they don't
24 know the "why." They don't know the intent. And I find,
25 as soon as I explain to them, "Well, these controls are in

1 place for this to capture this, and this is how it was
2 studied," they go, "Oh," and now that they understand,
3 there is definitely an increase of compliance and
4 understanding and integration of those features.

5 The reach code web sites, just to keep up on the
6 progressive cities that want more. I think it's invaluable
7 to understand the tools I'm provided by the state already,
8 by the Energy Commission, everything to do with my
9 compliance software that I'm using, many things that they
10 have supported on the online resource center, and the
11 numerous documents that are provided with the intent of
12 helping all of us understand not only the code requirement,
13 but the application of the code requirement and the
14 in-the-field verification processes of the code.

15 "Do you frequently get plan checks, and what
16 happens during construction?" We at the office do a happy
17 dance every time we get a plan check comment on energy
18 because, for us, it means they're looking, and we take
19 pride in the fact that they are then comfortable enough to
20 be able to provide commentary on what needs to be improved
21 for that project to meet the Energy Code. It's an exciting
22 moment for us when we get plan check comments.

23 "Confusion of the building departments in knowing
24 or not knowing when the compliance pathway is broken." So
25 this sometimes happens. I get these questions a lot from

1 building departments, "Gina, I'm being told by this
2 applicant that they can't model this, so we shouldn't even
3 ask them that -- they said they can't give us any forms
4 that say, 'Building complies.'" And that's difficult.
5 It's extremely difficult for our building departments,
6 because of that equal playing field I feel all of us should
7 be on, and I feel workarounds should not be a thing that's
8 supported in our industry, because it's not fair to the
9 entirety. It's not fair for the equal enforcement
10 throughout the state of California.

11 "Lack of understanding of what needs to be built
12 and installed to support the compliance documentation." So
13 we've heard a little bit from the other speakers about the
14 compliance forms can be a help or they can be a hindrance,
15 and there's a lot of information on the compliance forms,
16 and I want to make sure that we're making sure that those
17 compliance forms are speaking to the audience they're meant
18 to support, and that, potentially, like this nice little
19 summary checklist that Vicki was talking about, are tools
20 that we could be telling the industry, "Hey. This is
21 really going to help your projects and your design be
22 understood, but, honestly, integrated into the design."
23 Integrate, integrate, integrate. Don't rely on compliance
24 documentation, when it should be within that design
25 documentation.

1 I find that there's a challenge for many in
2 enforcement regarding Title 20. We don't have -- we have
3 the joint JA8 lighting, and there's a nice little marking
4 on that piece of equipment that tells me what's going on
5 with Title 20 certification. We don't have that for
6 anything else, and it causes complexity. It causes
7 hesitation on "Well, what really is expected of me?" And
8 there is that perception out there that compliance is
9 difficult, and that there is no clear guidance on what
10 needs to be provided to get that final occupancy permit.

11 I feel that's my job. It's my job to help people
12 understand what's in play, and what is expected of them,
13 and that if I am retained on the project to help all of
14 those professionals be up to speed on their requirements,
15 we're in a good place, and I want us to continue to be
16 looking at the compliance forms, and what can we do to help
17 improve them for the players of which we intend them?

18 The last question that was asked, "Is there any
19 other suggestions or favorites that you would like to bring
20 to the table?" We need more people involved in the code
21 development process, and this is a battle cry I've said
22 clearly over the last couple of years. This work is
23 challenging for everyone, and the more people we get
24 involved, the more what is out there is real to
25 construction and construction practices. Thank you.

1 MR. VICENT: Thank you, Gina, very, very much.

2 At this time, I'd like to request all the
3 panelist to turn on your cameras, if that's okay, so we can
4 start to engage in some dialogue. I heard quite a few
5 themes there, and it probably feels like, with the
6 introductory presentations and then the opening remarks
7 here by our panelists, that the suspense is sort of
8 building, with "What's the punchline?"

9 I think we are all eager for solutions, and are
10 all pretty aware. It seems that the vital pillar of the
11 state's climate action plan is very complex, so that was a
12 theme that's coming out in all the presentations, and there
13 were some proposed solutions in there. I hope you heard
14 some of them.

15 We heard about web tools for building
16 departments, the need for a directory summary, reducing the
17 onus away from building departments and more on designers,
18 and then, of course, the need for just sheer -- more people
19 in this space, and I'm glad we got a range of those
20 perspectives. Even within the designers' and consultants'
21 area, we got a range of opinions here from res and non-res,
22 architects, engineers, educators, and so I really
23 appreciate those opening remarks.

24 With that, then, I'd like to start some of the
25 discussion with our panelists, and the first question here

1 being, you know, now that we've heard a little bit about
2 some of the issues -- you know, I guess the question is, do
3 the panelists have -- and we're going a little bit off the
4 cuff here.

5 Do the panelists have any examples -- because we
6 have a range of experience here -- have any examples within
7 or outside of California that might address some of the
8 problems that we've all just discussed? Are there any
9 cities, states, local jurisdictions, or even industries
10 outside of the building world, that are successfully
11 implementing solutions to these types of problems?

12 Maybe we'll start with Maureen, if that's okay.

13 MS. GUTTMAN: Great, as though I could think
14 quick on my feet. Okay. Thanks, Will.

15 The first thing that comes to my mind is actually
16 not in the United States but the EU, and there, of course,
17 it's a very top-down regulated situation, but they've got
18 building standards that certainly are influencing the
19 upgrading of existing buildings to better standards, and
20 that is so critical for our climate goals.

21 I think that, you know, I'm not exactly sure how
22 code enforcement works throughout the EU. I'm sure it's
23 different in every country. But I do think that, generally
24 speaking, you know, as we start to tackle existing
25 buildings, we probably need to start thinking about what

1 are the tools that we can use, what are the regulatory
2 mechanisms that we need to put in place in order to really
3 get into buildings that are not otherwise doing
4 construction, but thinking about other compliant clients,
5 places where it's going well.

6 There definitely are places where they're doing a
7 great job. Even within California, we know there are
8 jurisdictions that are putting a lot more effort into it
9 than others, and it is always a question of resources,
10 which is why I'm a big advocate of the development and
11 growth of an independent third-party Energy Code
12 enforcement industry, because I just don't think municipal
13 government is ever going to have the resources to be able
14 to focus on this.

15 As Eric pointed out, you really need smart
16 professional people doing this. It's complicated, and it's
17 important. And I'm not slamming the code officials that
18 are out there who are smart and professional, but their
19 focus is life safety issues, and I don't think that that's
20 going to change to incorporate a broader scope.

21 MR. VICENT: Thanks, Maureen. That ties into
22 what Gina was just saying.

23 Gina, I wonder if you want to expand on some of
24 your thoughts about what this potential expanded workforce
25 looks like, because it seems like you're all rallying

1 around this idea that it is a very complex job, and that
2 building departments may not have the resources, or will
3 ever have the resources, to do that job. And then, of
4 course, Vicki, I'm sure you have some thoughts, and Erik as
5 well.

6 MS. RODDA: Thank you, Will, because I was just
7 sitting here going, "Oh, no. I forgot to say this," and
8 you're bringing up that moment for me. It's like I almost
9 slipped you the messaging to get me back up here.

10 There are a lot of cities, through the REACH
11 codes, and we're also seeing it with the incentive
12 programs, that are requiring that a certified energy
13 analyst be used to do the work associated with documenting
14 compliance and helping the design team on compliance to the
15 Energy Code, and there's a lot of studies going on right
16 now in the CEA program to CABEC, California Association --
17 I can do this -- I can do this -- California Association of
18 Building Energy Consultants.

19 Right now it's a voluntary program, but it's one
20 that I believe strongly in, because I do see that it's
21 helping support and test and verify that those who are
22 doing that work and are getting the CEA certification
23 really do know what they're doing, and it's demonstrative.
24 We can actually show where that rubber hits the road, and I
25 enjoy the fact that we have cities who are taking advantage

1 of that.

2 There are some cities that have done where you
3 have to have the energy portion of the project reviewed by
4 a third party, like Maureen is saying, but that third-party
5 person is a CEA, before then the plans go into the building
6 department. So I think it ties back to having someone who
7 really, truly understands this code section.

8 MR. VICENT: Yes.

9 Vicki, do you have anything to add to that,
10 particularly on the res side?

11 MS. BURLINGHAM: Yes. I think that that's
12 actually a great idea. We had quite a few. So, I use
13 Placer County as my biggest example, because the CBO, the
14 chief building official there, Tim, has done a great job in
15 making sure that almost all of his building inspectors know
16 enough about the code to -- the Title 24, Part 6 -- to
17 enforce it, and to say, "Hey, stop. That's not right."

18 We can't continually blame the building
19 departments. They have their own issues, and they're a
20 constant thorn in any builder's side. If we bring some
21 stuff back, their focus, they will tell you their focus is
22 health and safety. They don't care if the insulation is
23 installed correctly, or if it's installed at all. That's
24 not health and safety. They don't care, and it's not
25 really their job. They have their portion of the pie.

1 If you look at a building in the construction
2 phase as a pie, there's all these little pieces, and they
3 have just one slice of that pie. The HERS rater, we come
4 in, and we have our little detailed slices of the pie, and
5 then you have bare inspectors, you have sewer inspectors,
6 and you have all of these other -- fire departments -- that
7 come in, and we all have that piece of the pie.

8 So, if we take some of that responsibility away
9 from the building department and say, "Look. When it comes
10 to plan check, we need this type of person here. We need
11 somebody with expertise in -- I can't do Title 20. It
12 gives me a headache. You know, somebody that knows Title
13 20, somebody did that knows the Title 24, Part 6, someone
14 that can detail out that and then move on down the road,"
15 it would probably relieve a lot of stress from them, and
16 they'd probably be more likely to work with us as well,
17 especially as a HERS rater. A lot of times, you know,
18 we're just an annoyance, and not looked upon very nicely.

19 So, you know, if we move some of that and say,
20 "Okay. You don't have to worry about this piece of the
21 pie. We're going to take care of the insulation, and the
22 HVAC, and this and that," maybe there's some things that we
23 can split out that would help them, or give them the
24 expertise to just do what they need to do, and we take our
25 piece of the pie and go somewhere else.

1 Most of the building departments are somewhat
2 receptive. There are those like Sac County and Sac City
3 that just throw their hands up in the air and don't care.
4 You're not going to get them to comply. But look at Davis.
5 I mean, Gina talks about reach codes. Davis is 30 percent
6 over minimal compliance.

7 So, I mean, you have to throw everything in the
8 books when a designer does the energy counts for those.
9 Literally everything that you can find, they have to throw
10 at those jobs to make them comply, and then who's looking
11 at it? I mean we, as the HERS rater, are the ones they get
12 called in to make sure, because the building inspector, all
13 he wants to do is see that project status at the end, and
14 he wants to see all those green lights saying all the
15 certificates are done, the 140, 200 pages are done. He
16 doesn't care what's on them. That wasn't his job or her
17 job. That was the HERS rater's responsibility.

18 So maybe that's part of the solution, is to pull
19 that back a little bit and say, "Okay. You do your health
20 and safety, the HERS rater is going to do this, the fire
21 department is going to do this, the bare inspector is going
22 to do this, and right on down the line. Maybe that would
23 be part of the solution to bring that better in line and
24 keep it in compliance.

25 MR. VICENT: Yes. To build on that, I'm going to

1 ask Erik to try to take a stab at answering a difficult
2 question, because, you know, we're all rallying around this
3 idea that we would benefit from having a larger educated
4 workforce here to help mediate these discussions and reduce
5 the onus on building departments.

6 So the question, Eric, is, you know, your
7 presentation was largely about tools, web tools, and things
8 we can use to automate some of this stuff. To what extent
9 do you think tools can be used to help ameliorate some of
10 this need for workforce, and, you know, what can't be done
11 with tools? You know, I'm trying to trying to find a line
12 with how much can be done with automation and tools versus
13 a need for workforce.

14 MR. KOLDERUP: Right. I don't think I have the
15 answer. I think that, you know, the tool that I talked
16 about in the introduction was to get you through plan
17 review and provide inspection for some things, and I think,
18 you know, what Vicki is talking about was a whole other
19 part of trying to make sure people are aware of the
20 acceptance testing and inspections, and all those other
21 requirements that require a very large trained workforce.

22 So, I don't have -- I mean, I know that there's
23 efforts going on, a lot of work going on in training those
24 people, and I don't have enough knowledge about that to say
25 what different we need to do there. All I can say is that

1 that's a very large group of people to train, and it's not
2 easy.

3 I think, on the sort of design side, there's the
4 automated tools that we can produce to help designers
5 understand what the requirements are and get them into
6 their plans, and then there's also the automated tools. We
7 can help to speed up the plan review process. Not having
8 thought through those other pieces, like the testing and
9 such, there may be additional automation available there,
10 but I'm not sure.

11 I mean, if I could talk just real briefly to your
12 sort of previous question about other systems that are out
13 there, again, I don't really have a broad view of what, you
14 know, all the states and all jurisdictions are doing around
15 the world. One sort of analogous thing I'll bring up is
16 the LEED green building rating system that most people are
17 familiar with. The energy calculations for that require
18 energy modeling, and they require review.

19 So there's a central group, the Green Building
20 Certification Institute, that does reviews on those energy
21 models, and so, if you are a lead energy modeler, you know
22 that somebody's going to look at it, and they're probably
23 going to ask you questions. They may not always be good
24 questions, but someone is going to ask you questions about
25 how why you modeled this and why this doesn't match up with

1 your plans, and they retain a centralized group of
2 reviewers.

3 It's an expensive process, I think, but that's
4 one approach, you know, for some of these types of
5 compliance things, especially the modeling. Maybe, you
6 know, you don't rely on every individual jurisdiction
7 having that expertise, because that's unrealistic, but that
8 there's some statewide kind of centralized resource for
9 those departments.

10 Otherwise, you know, I'll just say that
11 California is unique. We have Gina, we have Vicki, and we
12 have people like them who help improve compliance, and, you
13 know, there's just -- I don't think there's anything like
14 that in most other parts of the country, where, you know,
15 there's an industry that exists to help support the
16 builders and designers. So, you know, keep doing more of
17 that. Keep producing more Ginas and Vickis.

18 MR. VICENT: Yes, yes. You know, maybe a good
19 data point here to capture -- we want to cement this with a
20 question to you all, is do we believe, at least within this
21 panel, that there is consensus that it is unfair to expect
22 all the building departments and building officials to
23 understand and comply with all the regulations and the
24 complexity of the code, that there needs to be a separate
25 party there to be able to facilitate the process?

1 MS. RODDA: This is Gina. I am never comfortable
2 in speaking for our building departments. Each are unique.
3 Each have passions. I have some building departments that
4 ask me questions every single day, and I have other
5 building departments that have other in-house experts, and
6 yes, there are some building departments where energy
7 efficiency is not high on their list, and that's part of us
8 being, dare I say, a democracy, is that local enforcement
9 gets to be local enforcement, and I'm looking forward to
10 the panel in which we're going to be hearing from the
11 building departments and get their feedback on what they
12 need, instead of us forcing them to use our solutions,
13 which I feel has happened more often than not.

14 MR. VICENT: Perfect, because that will pivot us
15 to the next sort of spicy question that I have that is more
16 focused on designers and consultants, which is sort of a
17 question of liability. So, we've got, you know, an AIA
18 here, some engineers and CEAs. You know, all of you do
19 absorb some level of liability with your profession. To
20 what extent do you think that we need to grow that, or put
21 more focus on the concept of liability for these rules?

22 MS. GUTTMAN: I'll jump in there, since I opened
23 that door talking about licensure as a leverage point. I
24 don't want to scare anybody, but I have spent a lot of time
25 working with a bunch of programs that we're developing at

1 AIA to really get architects educated as to how this whole
2 design process has got to evolve and be more focused on
3 performance, and, frankly, the fact of the matter is we're
4 licensed architects and engineers and other building
5 professionals to protect health, safety, and welfare of the
6 public, and that includes -- and it's a long, separate
7 soapbox -- and that includes energy efficiency and energy
8 conservation.

9 I think that there are a lot of design
10 professionals who sort of forget that obligation, and think
11 about their primary obligation as being simply to their
12 client and their client's wishes, and forget that there is
13 a higher power, and that is the government that regulates
14 us. And so I do think there's an opportunity to regulate
15 us a little more, to dig a little more out of us. I think
16 more should be expected of us, is I guess what I'm saying.

17 MR. KOLDERUP: I guess I have two responses.
18 I guess I have two responses. One is no comment. The
19 other is that, you know, anecdotally, speaking with
20 designers, at least on the non-res side, many of them view
21 compliance as just kind of a necessary evil. They'll fill
22 out some forms, throw them over to the billing department,
23 and just hope that nothing comes back. So, they clearly
24 are not scared of liability related to energy consulting --
25 or energy compliance.

1 So, I'm sure that, you know, a few lawsuits would
2 change that. I don't like to, you know, talk about that as
3 a pathway. There's probably other ways to increase -- I
4 think -- I guess that's it. I think there's lots of
5 designers who do a very good job, and want to comply with
6 the code, and do their best to comply with the code.
7 They know that there's not enforcement in some cases, so
8 they're very frustrated that they're not playing on a level
9 playing field with maybe the designers and contractors who
10 aren't paying a close attention, and so I think just
11 improving enforcement would be one -- well, I don't know.
12 There's a balance between improving enforcement and somehow
13 creating liability.

14 MR. VICENT: Yes. So, in my experience in the
15 past working in commercial building design, you know, you
16 see all these architecture and engineering stamps. They're
17 saying, "Hey. You know, we absorb liability for these
18 projects." That's, you know, one of the main objectives
19 there with construction documents. You know, I guess my
20 question is, is there a distinction here between
21 nonresidential and residential?

22 Vicki, do you feel like it's a different type of
23 environment? Is it even more hesitant to commit to
24 liability on the residential side?

25 MS. BURLINGHAM: I'm not sure if I'm in a

1 position to really answer the question. As far as
2 compliance, I see more energy efficiency when we look at
3 the CF1R, more on the residential side. Usually, on the
4 commercial side, it's kind of a, you know, "Who cares?"
5 They did the forms, you know, the MOCU (phonetic) or the
6 NRCA -- no, NRCCs (phonetic). I get confused.

7 You know, you go into a commercial job. You look
8 at those, and, again, it's one of those things where the
9 builder looks at those forms. They were completed. The
10 county or the city, the building department jurisdiction,
11 they stamped them and said, "Yes, that looks good," and
12 then it just kind of gets hidden in the plan sheets, and
13 nobody every looks at it again.

14 Residential seems to get more attention when it
15 comes to the Title 24 compliance side than the building --
16 than the commercial side. We do very few commercial
17 projects, very little call for a HERS rater to do duct
18 leakage testing. They bypass that real quick.

19 As far as the ATTs, I mean, you can't even -- I
20 think there's three of them here in Sacramento that are
21 certified, and the building departments around here don't
22 even know what that is. I didn't know what it was, until
23 three years ago. I'd never heard of the program.

24 But I think, when it comes to that, the building
25 departments, especially, are more focused on residential

1 than they are commercial. Commercial seems to just -- you
2 know, I mean it's eventually going to generate revenue, so
3 they kind of just ignore it, and I've seen where they
4 really push, though, the residential. They'll call out on
5 that, but not on commercial. Yes.

6 MR. VICENT: Yes. I'm noticing that we've got a
7 pretty active Q-and-A happening, so I'll give a last call
8 here to the four of you. Any sort of closing thoughts or
9 additions to what has already been discussed in the
10 questions before we go over to the Q-and-A?

11 MS. RODDA: Well, I would like to speak a little
12 bit to liability. I find, with the nonresidential
13 buildings, the liability concerns are very, very high,
14 especially for building owners, especially for large
15 companies that have buildings throughout not only just
16 California, but the entire United States, because their
17 buildings are open to the public, and they're going to take
18 that liability very seriously, and I do see it follow
19 through to, then, energy. I find that most of those
20 companies, especially that are owning their own buildings
21 100 percent, see the value of the Energy Code, because
22 they're realizing net savings with their operational costs,
23 and there is kismet there.

24 MR. VICENT: Any others before we go over to
25 attendee questions? Well, thank you. I just want to say

1 quickly that I have three or four more questions. I have
2 lots of questions to ask, and wanted to continue to learn
3 from you four, but thank you for the exchange so far.

4 Daniel, it looks like we've got some questions.
5 Can you help me facilitate?

6 MR. WONG: Sure. So let's see. If you're going
7 to be -- if you're -- if you'd like to submit any questions
8 or comments, please use the "Raise Your Hand" feature, so
9 that we can unmute you. Remember, you must unmute yourself
10 before speaking, and if you're participating by telephone,
11 press star, nine to raise your hand, and star, six to mute
12 or unmute yourself, or you can enter your written comments
13 in the Q-and-A.

14 So, it looks like we have a number of comments in
15 the Q-and-A. I'll start with -- there's a number from --

16 MR. VICENT: We should probably go to hands
17 first, Daniel. They've been waiting. So, I see Cassandra
18 is cued up there.

19 MR. WONG: Sure. Go ahead, Cass. I've unmuted
20 you. You need to unmute yourself. Please state your name
21 and your affiliation.

22 MS. TRESTER: I think that I'm unmuted.

23 MR. WONG: Yes.

24 MS. TRESTER: It is not showing my face, but
25 that's okay. You'll see my headshot there.

1 My name is Cassandra Trester. I shorten it for
2 "Cass" in some of the talks, just because it's a long name.
3 I am with Energy Inspectors, also known as EI Companies,
4 and now more recently branded as ARCXIS, as we went
5 national. A few of my largest points are, I do believe
6 that we need more charrettes. I think LEED is a very good
7 space to see.

8 We early on, probably in 2013, started putting
9 energy design in the middle of the Venn diagram, and
10 telling our architects, our construction folks, that
11 everybody needs to be plugged into that, but that's still
12 been a slow-growing process, and I do believe that if
13 there's some way to get a benefit that way, whether it be
14 through the jurisdictions being able to turn in proof of a
15 charrettes (sic) where we have connected those dots from
16 design through construction or before constructions start,
17 that that could lend to the path of getting everybody on
18 the same page, and that's the toughest thing.

19 We continue to get more and more experts in one
20 vein of the complete process, but not so many that say, "My
21 needs over here are going to domino-effect into your needs
22 over there," and more of a totality view and participation
23 and collaboration, which is really where we all want to see
24 and go, and what I also know that the CEC is driving for,
25 if we continue to stay siloed.

1 So that's one of the things that I very much
2 wanted to point out, that I think that that would help us,
3 because we can paint it by numbers. We can get the design
4 side as dialed in. I have worked on step-by-step for QII.
5 I have gone out there and done the work to teach some of
6 our bigger ones, all the way down to our smaller
7 contractors, the construction staff, construction managers,
8 but there still seems to be a little bit of -- you know,
9 you have to work really hard to get all of those connected,
10 and as soon as somebody goes away -- so I think more times
11 to connect the dots, and not being incentivized, would be a
12 very good focus in these coming code cycles.

13 My second one, going to the litigious side of
14 things, is that I do believe that we need more
15 specialized -- we do a turnkey solution, so we do from
16 design all the way through construction, as well as
17 consulting on the job site and risk management QA
18 inspection, so not only HERS but also risk management
19 inspections, both for insurance and just for support of
20 builders.

21 I think one of our most defining moments was
22 connecting energy with our mechanical design, ensuring that
23 that was pitch perfect, and I do think that there is some
24 room to grow, by ensuring that the mechanical designers or
25 ACCA manual, JDS -- I'd love to see full mechanical go,

1 because it is probably one of our number-one areas that
2 still is homeowner unhappiness, or stems to a homeowner
3 unhappiness later in life, is that marry of the HVAC
4 design, installation --

5 MR. VICENT: Cass, we've got a number of people
6 waiting. Is there a question for our panelists or another
7 point that you'd like to make?

8 MS. TRESTER: I'm sorry? Say again?

9 MR. VICENT: Is there a final question here for
10 the panelists?

11 MS. TRESTER: These are just comments of things
12 that -- following up on what they said and what I believe
13 that the CEC should be working with in this next cycle, to
14 see more success in where we're targeting. And so I agree
15 with, I believe it was -- sorry, there's been so many
16 names. I think it was Vicki that said, you know,
17 mechanical alignment and collaboration is very difficult,
18 and we still see that, and we work on it very much. So, I
19 also agree with that, and I think that that's a really big
20 item, and those are my two big comments on what the
21 panelists have stated.

22 MR. VICENT: Thank you, Cassandra.

23 Any replies, panelists?

24 (No response.)

25 MR. VICENT: Okay. I thought I saw another hand

1 there, Daniel. Maybe it's since gone away.

2 MR. WONG: Yes. It looks like Chris Walker. I'm
3 going to unmute you. Please unmute yourself, and state
4 your name and affiliation.

5 MR. WALKER: You got it. Thank you. Can you
6 hear me?

7 MR. WONG: Yes. Yes, sir.

8 MR. WALKER: All right. This is Chris Walker.
9 I'm the executive vice president of CAL SMACNA, which is
10 the Sheet Metal and Air Conditioning Contractors' National
11 Association, and our involvement in California.

12 I want to start by thanking the CEC for
13 organizing this workshop. It's incredibly important to us,
14 and I would like to thank all the panelists so far.
15 They've done a terrific job.

16 Our frustration -- and you'll see in the myriad
17 of comments and questions I threw up on the Q-and-A port
18 is, I represent about 300 contractors statewide, largely
19 involved in larger commercial -- midsize and larger
20 commercial projects. We have a union workforce. We spend
21 a tremendous amount of money and resources making sure that
22 our apprenticeship programs are training to the industry
23 standards and to code, and we've gone out of our way over
24 the last six, seven years to really focus on the Title 24
25 mechanical acceptance testing requirements.

1 Just recently, the Commission has implemented the
2 program, beginning on October 1, for -- all permits pulled
3 for projects need to comply with the requirements of
4 mechanical acceptance testing. We're seeing a very slow
5 start to that. We're not getting a lot of calls and
6 interest on compliance, and we're not seeing certified
7 technicians being employed to do the work. We know it's
8 still at the front end, but we're looking at a lot of light
9 commercial and TI work.

10 What we're saying, and my question to the to the
11 panel really is, what we're seeing is a lot of frustration
12 amongst our contractors that we went and spent tens of
13 thousands of man-hours, millions of dollars, lots of
14 resources to do the right thing, and we also are seeing
15 building officials at the local level that are unevenly
16 funded, boom-to-bust building cycles. You know, some
17 building departments are sophisticated. Some are less
18 sophisticated.

19 They all have their hands full, ensuring that
20 construction in their local area is happening at a
21 reasonable rate and projects are being closed out, and we
22 have an increasingly complex Energy Code every year that
23 they need to stay abreast of. It's just virtually
24 impossible for them to provide both reliable and consistent
25 enforcement of the code throughout the state of California.

1 I just -- I don't see it happening in my lifetime, under
2 the current dynamics.

3 Should we be looking at a new -- respecting local
4 jurisdiction, but should we be looking at having some
5 broader state authority to oversee permitting of the Energy
6 Code, to assist and help out these local jurisdictions to
7 make sure they're getting it right? That's my question.

8 MS. RODDA: Will, I'm going to, like, be asking
9 you here. I do believe that over-arching authority, that's
10 already in place, the Energy Commission, to, you know, help
11 make sure that the local building departments are enforcing
12 the code as it is written, and to come in and provide
13 training if it's found that they haven't, and I'm always
14 really nervous when we want to start with a whole new
15 structure, and not always consider the fact that local
16 government does have value.

17 MR. WALKER: Am I muted? Can I just -- I agree
18 with you, and I do want to respect the local jurisdiction,
19 but, under the current model, it's not working, and I have
20 a lot of contractors that are feeling foolish for going
21 through the processes and the investment that they did to
22 do things right, and they're being outcompeted in a
23 marketplace that is governed on price. There is no demand
24 for an outcome unless we have a local building official
25 saying, "No, this doesn't cut it." That's where the rubber

1 hits the road.

2 MR. KOLDERUP: Yes. So I --

3 MS. GUTTMAN: So I mentioned -- I'm sorry. Go
4 ahead, Erik.

5 MR. KOLDERUP: Well, I was just going to say, I
6 mean, I hear what Chris is saying, and I think we've heard
7 in a few different areas there are breakdowns like that,
8 and that there's some good work done, and some nonwork
9 done, in local jurisdictions, and that if we want to
10 really -- kind of to Gina's point about -- well, if we
11 really want to scale up enforcement, and we want to create
12 a level playing field, I don't see any way that we can get
13 away without some level of central resources, whether it's
14 not necessarily requiring local jurisdictions to engage
15 with it, but that it's an opportunity or a resource for
16 local jurisdictions, perhaps.

17 That's kind of above my pay grade, how that all
18 would work, but I just -- I don't see how, without some
19 kind of centralized and partially automated, at least,
20 systems that we scale to -- given the massive training
21 requirements that Chris mentioned, and, you know, we've
22 heard about already.

23 MR. VICENT: So, I --

24 MS. GUTTMAN: I was going to --

25 MR. VICENT: I'm sorry. Go ahead. Excuse me.

1 Go ahead. Go ahead, Maureen.

2 MS. GUTTMAN: I'm sorry. A quick point about,
3 you know, third-party. I don't think there should be
4 somebody else doing permitting, as Chris mentioned, but I
5 think that that's, you know, "Local Authority 101." But in
6 Pennsylvania, where I live, when we put a statewide
7 building code in place, the legislature gave local
8 government the authority to either administer the codes
9 themselves, or jointly with another jurisdiction, or to
10 hire third-party enforcement personnel, independent
11 contractors who are, you know, certified, have got the code
12 certifications, and have got, you know, liability
13 insurance, et cetera. They're typically all engineers.

14 Most of the third parties, I think, in
15 Pennsylvania have been mechanical and electrical code
16 people, but why wouldn't there be the opportunity for that
17 to be an entire third-party energy industry, not retained
18 by the building owner or the design professional or the
19 construction team, but retained by the municipality to be
20 an independent resource and extension of staff?

21 MR. VICENT: Yes. I have a feeling that this
22 topic will continue in one of the other panels that we
23 have, Panel Two or Three, but, to be fair to time, we've
24 got three more questions, comments in the attendee list.
25 Let's, if that's okay, keep the comments or questions to

1 less than a minute, so we don't interrupt people's lunch,
2 which I know is a big no-no.

3 So I think Javier is next.

4 MR. WONG: Yes. Javier, go ahead. Unmute
5 yourself, state your name and affiliation.

6 MR. SAUCEDO: Good morning. My name is Javier
7 Saucedo. I'm an energy consultant. I'm a general
8 contractor and HERS rater, and I would like to know -- I
9 know I've taken some training from Gina in the last few --
10 a few years ago. I like her model. I wish I could talk a
11 little bit more about it, or where can I maybe join or take
12 some of your training? I'm experiencing the same problems
13 that -- I've become a HERS rater, but I'm also -- these
14 people need education. So, I'm kind of like their
15 educator, as well as their rater, so I need -- I'd love to
16 get some more of that training that your model seems to be
17 providing to a lot of the clients. Thank you.

18 MS. RODDA: Well, if I could answer that, Will?
19 As many of you know, I do all my training through Energy
20 Code Ace, and Energy Code Ace has a -- teaches to the user.
21 So we have classes for building inspectors, we have classes
22 for plant examiners, we have classes for architects, and we
23 have classes for energy consultants, and we are a robust
24 array of classes that then also help support the California
25 Energy Analyst, the CEA, program through CABEC, and we have

1 a great mentoring program that helps people walk through
2 this amazing training in becoming CEAs, and I would love to
3 see more of you join us.

4 MR. SAUCEDO: Thank you.

5 MR. WONG: Next up we have Jon McHugh. I'm going
6 to unmute you. Please state your name and affiliation, and
7 if you could please keep it to one minute. Go ahead.

8 MR. MCHUGH: Can you hear me?

9 MR. WONG: Yes.

10 MR. MCHUGH: All right. Yes. This is Jon McHugh
11 at McHugh Energy. I've been involved with the acceptance
12 testing and training back from its introduction in 2005 and
13 2008, and we just heard, you know, comments about, you
14 know, people offering their services and competing against
15 folks that aren't necessarily complying with acceptance
16 testing.

17 My recommendation, at least to think about, is
18 that we actually help develop the market by making sure
19 that all of the new construction over 10,000 square feet is
20 truly -- that acceptance testing is being specified, is
21 being witnessed, and that someone is actually looking at
22 the test reports to actually make sure that the work was
23 done.

24 How this can be done is changing the requirements
25 for -- the commissioning requirements in the standard, that

1 the commissioning agent actually has clear descriptions of
2 what they need to do, and the primary thing is that they
3 identify from the plans all of the equipment that needs to
4 have an acceptance test, and that is filled out by the
5 commissioning agent, to make sure that it's really clear
6 what is required, that they witness a fraction of the
7 acceptance tests.

8 About a couple years ago, I heard from the
9 mechanical acceptance testing providers that they really
10 did not have a way to validate, in terms of a challenge
11 test, of the projects that were occurring, because of the
12 cost, and accessibility to the buildings, et cetera. So,
13 witnessing at the time for some fraction, you have sampling
14 of the acceptance tests, and it helps validate that, and
15 then that they also review to make sure that the acceptance
16 testing forms weren't pencil-whipped, like, for instance,
17 that all the identical information is being entered, rather
18 than the results from the test.

19 The acceptance test is a huge amount of
20 documentation, and it's unreasonable to expect that the
21 building official is going to do this, but if they actually
22 had, basically, three pages, "These are the acceptance
23 tests. I certified that I've witnessed the tests, and I've
24 reviewed, you know, these hundreds of pages of acceptance
25 tests by the commissioning agent," to me, that would create

1 a reasonable expectation that this gets done with minimal
2 effort by the building department, and, actually, you know,
3 we already require that they meet a commissioning agent for
4 this new construction over 10,000 square feet.

5 Thank you. I'd be interested in the comments
6 from the panelists.

7 MS. BURLINGHAM: This is really just a comment --
8 I'm sorry, Gina. Go ahead.

9 MS. RODDA: No, Vicki. Please. I've been
10 talking too much. Go.

11 MS. BURLINGHAM: So, we're finally talking about
12 something that I get frustrated over, and, of course,
13 that's documentation, and the tons of paper that we do, and
14 killing trees every day, and the commissioning that he's
15 talking about, and the certificates, are -- my gosh. I've
16 seen them for years, and they are super detailed.

17 You know, as a HERS rater, all of the HERS
18 registries are required to QA a certain percentage of the
19 HERS raters' inspections every year. They generically go
20 out. You know, CHEERS sends somebody generically out to a
21 job. They pick and choose which ones to go to, and they
22 reinspect to make sure that the HERS rater is not lying on
23 the forms, what he just called "pencil-whipped." I love
24 it. I'm going to steal that one. Why would not the ATT
25 program have the same thing, to where a QA person goes out

1 and just shows up at a job? I mean, you might already know
2 if you've got -- okay.

3 So, like, Roseville, I can log in to Roseville's
4 permits, right? And I can see what inspections are going
5 on that day. So, if that person that's in charge of QA-ing
6 the ATTs -- they could realistically log in to the building
7 department's list of commercial projects that day and say,
8 "Okay. I'm going to go to this job and this job," call the
9 inspector and say, "I'm going to meet you there," and be
10 there, so that they can make sure that the commissioning
11 and the ATT testing that's going on is actually happening.

12 It would be just a basic QA program, "Ta-dah,
13 here I am, come to watch your back," you know, and if
14 nobody shows up, you know that's what they're doing.
15 They're just lying on the forms and running the ops away.
16 So, it seems like that would be an alternative, to make
17 sure that the program stays on track, also if they're even
18 enforcing the ATT.

19 You go out to the job and they're like, the
20 building -- "I don't know," and nobody else knows. The
21 building inspector shouldn't sign off on the job unless he
22 has that documentation, either. So that seems like the QA
23 program for the ATT should be something that, if it's not
24 already implemented, should be in place. Sorry. My phone
25 keeps going off.

1 MR. VICENT: No, no. That's okay.

2 We're already seven minutes over. So, to be
3 respectful to people, and their tummies, and the rest of
4 the agenda, Daniel, how would you like to proceed? We have
5 two more questions left. Would you like to take them at
6 another time or keep going? What do you think?

7 MR. WONG: Yes. We are going to have an
8 additional public comment period later on in the -- after
9 Panel Three, just to discuss the workshop as a whole. So
10 let's take the two attendees, Jeff Stein and Christopher
11 Ruch -- let's take them first at the -- after Panel Three,
12 and then we'll break for lunch, and return at 12:30. How
13 does that sound?

14 MR. VICENT: Thank you.

15 MS. WHITE: If I might? If the individuals who
16 are not able to ask their questions at this time could also
17 ensure that they put their questions in the Q-and-A for the
18 Zoom meeting, or, if we're not able to get to it by the end
19 of the day, you can't stay or something like that, make
20 sure to file your comments in the docket. We will be
21 working towards answers to those comments eventually.
22 We'll be holding subsequent workshops in which those
23 questions can be raised again. So please help us with the
24 documentation of what those are, as well as the recording.
25 Thank you

1 MR. VICENT: Thanks again to everybody for the
2 privilege of your time. Panelists, great input, great
3 discussion. Audience, thanks for the input as well.

4 I think that brings us to lunchtime, right,
5 Daniel?

6 MR. WONG: Yes. Like Will said, thank you to all
7 the panelists, definitely a lot of good discussion.

8 We do have a lunch break, 11:30 to 12:30, and so
9 please return by 12:30, and we'll resume the workshops and
10 move on to Panel Two. So thanks, everyone, and enjoy your
11 lunch.

12 (Off the record at 11:39 a.m.)

13 (On the record at 12:30 p.m.)

14 MR. WONG: Okay. Hopefully, everyone had a good
15 lunch, and ready for the second half of today's workshop.
16 Coming up is Panel Two, which is the Panel for authorities
17 having jurisdiction, and, again, Lorraine White -- she is
18 the manager of the Standards Compliance Office -- will be
19 facilitating this discussion.

20 So I will start the recording, and with that
21 said, Lorraine, take it away.

22 MS. WHITE: Good afternoon, everyone, and thank
23 you for your attendance again at this March 22nd workshop
24 to explore options and ways in which we can improve
25 compliance with the Energy Code.

1 Panel Two is our local jurisdiction agencies --
2 or entities having jurisdiction panel, to discuss from
3 their point of view what could be done to help. They're a
4 key enforcement element in code enforcement and code
5 implementation, so their perspectives are very important to
6 us.

7 We have five very wonderful individuals who have
8 agreed to provide us with their perspectives and points of
9 view, and if folks don't mind, I will go ahead and read
10 some bios from them. I'm hoping to see Christopher Harris
11 here. I don't yet see him on, but the rest of the
12 panelists here.

13 So, the first is James Zhan from the city of San
14 Francisco. James joined the San Francisco Department of --
15 the SF DBI in 2004 as an assistant mechanical engineer, and
16 moved up as an associate engineer in 2006, for mechanical
17 engineer, mechanical plan review supervisor in 2011, and
18 senior mechanical engineering manager in 2017, overseeing
19 mechanical, electrical, energy, green building, plan review
20 section of the plan review service with the department.

21 Before joining SF DBI, James had eight years of
22 experience working as a consultant and engineer for PG and
23 E, General Motors, and the Boeing Company. He holds an
24 MSME and an MBA degree from Texas Tech University and San
25 Francisco State University, respectively.

1 We also have Greg Mahoney with Sacramento County.
2 Greg has been involved in the construction industry for
3 over 43 years, and has been a code official for over 33.
4 He was employed by the city of Davis for 14 years, and is
5 now serving as the interim building official for the County
6 of Sacramento. He has over 15 years experience as an
7 adjunct professor at Cosumnes River College, teaching in
8 the building inspection technology program.

9 Greg has served as chair of the California
10 Building Standards Commission, Code Advisory Committee for
11 Green Plumbing, Electrical, Mechanical, and Energy Codes,
12 chair of CALBO Energy Commission Advisory Committee, and as
13 a member of the ICC Consensus Committee for Commissioning
14 Standards.

15 He's a past president of the Sacramento Valley
16 Association of Building Officials. He was selected as the
17 CALBO Building Official of the Year for his work with the
18 Energy Commission. He has also taught subjects such as
19 California Energy Code, CALGreen, Building Commission, and
20 water conservation, and he has been involved with both
21 Housing and Community Development and the California
22 Building Standards Commission in State Building Code
23 Development.

24 We also have Oscar Diaz, who is from the city of
25 Modesto. Oscar Diaz is the chief building officer for the

1 city of Modesto. He has 19 years of experience
2 administering code, and is a certified building official
3 and fire marshal. He is a certified access specialist, and
4 was an energy consultant for several years. Oscar and his
5 staff are the recipients of the 2021 Innovation in Code
6 Administration Award from the International Code Council.

7 Bill Tott comes to us from the city of Milpitas.
8 Bill Tott has over 24 years of public service, and is the
9 current building official for the city of Milpitas
10 Building, Safety, and Housing Department. Prior to his
11 current post, he held the position of assistant building
12 official, building inspector manager, senior building
13 inspector, mechanical and plumbing plans examiner for the
14 city of Santa Clara.

15 In addition, he has worked as a building
16 inspector, mechanical and plumbing plans examiner, for the
17 county of Santa Clara, and as a senior building inspector
18 for the city of Redwood. He has a BS degree in business
19 management and sociology from the University of Minnesota,
20 and is an active member of the CALBO CEC Advisory
21 Committee, ICC, IAPMOASSE, and ASHRAE, as an associate
22 member.

23 Finally, we have Christopher Harris from the city
24 of Concord. Christopher Harris is a licensed structural
25 engineer, and an ICC-certified buildings plans examiner.

1 He worked as a consulting engineer for over 10 years in the
2 Bay Area prior to becoming a plan check engineer. He has
3 worked for the city of Concord as plan check engineer for
4 the past four years.

5 So, I've asked this panel to spend a few minutes
6 each providing their views and perspectives on ways in
7 which we can improve code compliance in California with the
8 Energy Code, and I'd like to start with James first,
9 please, if you would please.

10 MR. ZHAN: Okay. Good afternoon, everyone. It's
11 quite a humbling experience spending a good part of the day
12 listening to all the field experts and Energy Commissions
13 (sic) to talk about these very important issues. I'd just
14 like to briefly tell a little bit of my team at the San
15 Francisco Department of Building Inspection.

16 We started about, well, before the turn of the
17 century. When I joined the department, we had four to five
18 mechanical engineers, and over time, the Energy Code, along
19 with the Green Building Requirement before, because the
20 city and county of San Francisco had the Green Code, or we
21 used to call it "Green Building Requirement" before we have
22 CALGreen.

23 So, over time, we have more and more requirements
24 to enforce, and the Energy Code itself progressed to a
25 point that we, as mechanical engineers, felt is pretty much

1 beyond our capability as mechanical professional engineers.
2 So, in around 2015, we added an electrical plan review
3 section, and right now, currently, we have six mechanical
4 engineers and four electrical engineers responsible for
5 reinforcing the Mechanical Code, Electrical Code, the
6 Energy Code, and the Green Code.

7 The biggest challenge, we felt, is that, unlike
8 consultants or designers, we, as plan checkers, on average,
9 spend a few hours for major projects, I mean, the Energy
10 Code aspect of it, and we felt -- lots of time, we felt
11 that it is quite a stretch for us to enforce all the Energy
12 Code requirements.

13 For instance, when we are looking at the
14 performance approach compliance report, we are --
15 obviously, we don't have the luxury of building a model,
16 especially for large commercial buildings, on our own, nor
17 do we have the software, nor do we have the time. So, it
18 is a challenge. Sometimes we really have difficult time in
19 verifying whether or not it is what it is.

20 Recently I did see some improvements, like some
21 autofill. Yesterday I spent some time looking at one of
22 the YouTube video, and if I remember correctly, it was made
23 by one of the Energy Commission's enforcement office's team
24 member. That kind of effort is very helpful. Like, it
25 really limits the -- "opportunity" is probably not the

1 right word, but it limits people of taking the numbers on
2 their reports.

3 I guess I'm referring to back on the old days,
4 where the compliance report is much more filled out in a
5 manual basis, but still I would say the biggest challenge
6 was, as the code input for us (sic), as the enforcement
7 agency, is the lack of time, and often the lack of
8 verifiable way of making sure the reports are prepared
9 properly.

10 Secondly, being at the center of the Bay Area,
11 our jurisdiction is just like our fellow jurisdictions,
12 like Berkeley. We have embarked on the all-electric
13 efforts, and at least for the current code cycle, when --
14 during the legislature's legislative process, I was
15 personally grilled by the city and county of San
16 Francisco's Board of Supervisor on various subjects.

17 For instance, effective June 1st, 2021, we have
18 the all-electric ordinance, but, at the time, the Energy
19 Commission's software, approved software, we felt, is kind
20 of lagging behind in terms of modeling, effectively
21 modeling, the newer technology, like the heat pump, water
22 heater, and heat-pump space heater.

23 So, I hope, moving forward -- that's why I asked
24 the question this morning. I hope that the Energy
25 Commission can do better, or can -- instead of lagging

1 behind, some of the local agencies' effort can, for the
2 future -- I mean, for the 2020 code and, of course, moving
3 forward for the 2025 code, can provide more support, so
4 that we don't have to, you know, at the local level,
5 struggle to justify the newer technology.

6 Having said that, I definitely, absolutely
7 understand that, state or local alike, we are not the most
8 cutting edge. In fact, we are probably the trailing edge
9 when it comes to technology and what is available on the
10 market, and so I definitely think we could -- at the local
11 and at the state level, we can definitely do a better job
12 in doing so.

13 Having said that, I really appreciate
14 consultancies like the Gabel Associates, and Gina and I
15 have been engaged in a very long time and effective
16 partnership in helping us, training the department's plan
17 reviewers and inspectors alike. I'd really like to express
18 our gratitude to Gina and her team.

19 Okay. That's pretty much it. Thank you.

20 MS. WHITE: Thank you, James.

21 And now Greg Mahoney, please.

22 MR. MAHONEY: Well, good afternoon. I'd like to
23 start by thanking Daniel and Lorraine for inviting me to
24 participate. Hopefully, they don't regret it. I'd also
25 like to thank CEC staff that I've had the opportunity to

1 work with over the years.

2 They've always been really helpful when I needed
3 assistance, or when I was trying to form an interpretation,
4 and Chris Olvera has been great. If he can't answer a
5 question, he always points me in the right direction. So,
6 I really appreciate the effort that the Commission puts out
7 to help us code enforcement folks.

8 So, I don't know. I probably should start off --
9 I wrote a letter back in April of 2016 to Commissioner
10 McAllister, kind of introducing the concerns regarding
11 California Energy Code compliance that we had. This was in
12 my capacity as the chair of the CALBO Energy Commission
13 Advisory Committee.

14 At the time, CALBO and CEC really hadn't been
15 working together, and CEC is not to blame. Building
16 officials were not really involved, and we really tried to
17 change that trajectory, and I'd say that -- or I want to
18 say that the Energy Commission did undertake a genuine
19 effort towards improvement, and we worked with them.

20 Since then, the Energy Commission, you know, has
21 provided training. They've always been available for help
22 and interpretations, and one the huge things that they've
23 done, I think, is the attendance at ICC chapters, and so
24 they've been working with us, and I just want to let you
25 know that I appreciate that.

1 So the letter that I wrote on behalf of CALBO, as
2 the chair of the Energy Commission Advisory Committee, it
3 was endorsed by 19 California ICC chapters and the AIA,
4 California Council, and that letter was then followed up by
5 another communication supporting the position of CALBO that
6 was endorsed by CBIA and California Business Properties
7 Association, California Apartment Association, BOMA,
8 Commercial Real Estate Development Corporation, and
9 International Council of Shopping Centers, so all the
10 people who are either, you know -- or a lot of the people,
11 I should say, that are responsible for verifying
12 compliance, and many of those who are responsible for
13 compliance.

14 So it really got kind of this universal support,
15 and I never imagined it would when I started drafting it,
16 but I guess the time was right for that, and the main thing
17 I was trying to address was the ever-increasing complexity
18 of the Energy Code, and the exponential increase in forms
19 that we receive to demonstrate compliance, and I identified
20 a number of areas where, really, changes were necessary to
21 improve compliance efforts, and what I would like to kind
22 of go over first is the improvements that have been made
23 since that letter.

24 So, I kind of painted a picture of what it was
25 like to fill out the forms for just even a water heater

1 alteration, and it's kind of crazy, but it was like we
2 printed out the whole packet. It was 46 pages, with 11
3 pages of instructions, but that form covered a number of
4 different alterations, and the Energy Commission heard
5 that, and then they developed the dynamic forms that kind
6 of alleviated all that. So, you just printed out the
7 forms, filled out and printed out the forms that were
8 necessary for that specific project.

9 I raised the point that, you know, when an
10 inspector goes out to do a final inspection, you know,
11 there could potentially be dozens of forms that are
12 required at final inspection, and I can just remember
13 being -- sitting in the contractor's shack, trying to
14 figure out which forms are required for, you know, the
15 finalist project. And so, HERS providers CalCERTS
16 developed this project status form, which not only told you
17 which forms were required, but let you know whether they
18 had been submitted, and whether they had been approved, and
19 so it was super helpful.

20 There had been no index in the Energy Code since
21 1996, and so CEC agreed to put in an index, include an
22 index in future publications, which is super helpful, and I
23 also talked about the difficulty in navigating the code.
24 Building standards law requires consistency in formatting
25 the codes, which the Energy Code is kind of a one-off.

1 It's nothing like any of the other codes.

2 I have talked Energy Code among other, you know,
3 Building Code kind of classes at Cosumnes College here in
4 Sacramento, and the only class that I have to spend a
5 significant amount of time teaching how to use the code,
6 how to navigate the code, is the Energy Code.

7 All the other codes are very intuitive. They
8 have a functional table of contents. You know, they have
9 an index. They were presented in kind of a linear fashion,
10 and so you didn't have to teach people how to use those
11 codes, but, in the Energy Code, it takes a lot of time just
12 to show the students how to navigate the code, and Table
13 100A is super helpful, and the folks at the Energy
14 Commission moved that to the front of the Building Code,
15 where it previously had been buried, you know, a few pages,
16 and they also created the Electronic Code that was
17 searchable, and with hyperlinks.

18 So, I just wanted to emphasize that the Energy
19 Commission has demonstrated an interest in improving, you
20 know, the things that we, as code officials, saw it as kind
21 of roadblocks to compliance, or at least a lot of them.

22 I guess my final issue with the code is the
23 increasing complexity of the code, both in language and
24 format. You know, at the time when I wrote that letter,
25 the Energy Code was only 146 pages, but there was over

1 2,000 pages of documents just to explain to people how to
2 use the code, and I just don't think that it has to be the
3 complicated. None of the other codes that we enforce have
4 thousands of pages to help you understand how to use the
5 code, and how to navigate the code, and what the code
6 means.

7 I think that the code, for the most part, is
8 written by engineers, for engineers. It's not written for
9 building inspectors, certainly not written for building
10 inspectors and contractors. Designers, you know, we have
11 some, you know, skilled and knowledgeable designers, but
12 most of them don't even try to do Energy Code compliance.
13 They send it off to the energy consultant.

14 As an example, in the letter, I identified, for a
15 simple water heater changeout, seven different code
16 sections that you had to check before you got all the
17 information, just for a water heater changeout, and you
18 would be bumped from, you know, mandatory requirements to
19 alterations to new construction.

20 So, you know, you compare that to California
21 Plumbing Code, and there's one chapter on water heaters,
22 and it tells you everything you need to know about a water
23 heater, and you may have to go the General Regulations,
24 Chapter Three, but certainly much simpler to navigate. Let
25 me see.

1 So, I kind of was a little bit passionate about
2 this for a while, and I was trying -- I thought that, you
3 know, "This is what we really need to do. We need to, you
4 know, reformat this code so that everyone can use it,
5 everyone can understand how to use it." I created a table
6 of contents that I felt was consistent with other codes in
7 Title 24 of the California Building Standards Code, and,
8 you know, for a while there, I really felt like we had some
9 momentum. BayREN was willing to commit resources to the
10 effort.

11 But then we started hitting roadblocks. I asked
12 for a copy of the Energy Code, and the Energy Commission
13 Legal Department would not provide that to me. Eventually
14 they did, but it was months later. I tried to do it
15 myself. I converted a PDF to Word, but, once you do that,
16 there's absolutely no formatting. It's just a bunch of
17 words on a page, and you've got to manipulated everything.
18 It's super time-consuming.

19 Then I began to get increasingly busy at my
20 paying gig at city of Davis, and it was more and more
21 difficult to spend the time. It was something that I
22 really believed in. I wanted to do it, but I just no
23 longer had the time that I could commit to it. CEC staff
24 communicated to me that there just wasn't funding for that
25 effort.

1 Then, really, kind of coup de grace for the
2 CALBO's effort was that someone pulled me aside and said,
3 "Hey, Greg. You know, there's a lot of people who don't
4 want the Energy Code simplified," and I was just
5 incredulous when I heard that. I guess it shows how naïve
6 I was. I had no idea that there were people who did not
7 want to see the Energy Code simplified.

8 So, I guess, in conclusion, I just think that's
9 the next step. The next logical step to promoting
10 compliance is to have the people who actually use -- who
11 are responsible for installing all these energy-efficiency
12 measures, and for the people who are verifying
13 compliance -- they need to be able to understand it.

14 They need to be able to understand it without
15 going to, you know, a bunch of classes, and really kind of,
16 rather than -- I mean, like, the compliance documents,
17 compliance manuals, they just kind of regurgitate the code,
18 and there's no other code where we have 2,000 pages to help
19 us understand it.

20 I'm sure there's handbooks and things like that,
21 but I really think that the code should be written in
22 layman's language, and it should be formatted the way all
23 the other codes are formatted. The Electrical Code is a
24 little bit of an outlier as well, but most of the other
25 codes kind of all are consistent, you know, with the way

1 that they're structured, and it's easy. You can just send
2 someone. They can pick up their code, and they can find
3 what they need, either using the table of contents or the
4 index. Anyway, I think you need to work towards the end.

5 Anyway, so that's my little rant, and, hopefully,
6 you can get to a place where the people who use the code
7 are able to understand it and use it without a lot of
8 additional explanation and training on how to use the code.

9 MS. WHITE: Thank you, Greg.

10 Next we have Oscar Diaz. Oscar.

11 MR. DIAZ: Hey. Good afternoon, everybody. I'm
12 Oscar Diaz, building official for the city of Modesto.
13 Thanks to Lorraine and Daniel for inviting me, and I think
14 Daniel has some slides here that he's going to pull up,
15 just to help me, you know, formulate my thoughts.

16 MR. WONG: Yes. I'm pulling them up right now,
17 Oscar.

18 MR. DIAZ: Thank you.

19 MR. WONG: Just bear with me one second.

20 MR. DIAZ: No problem.

21 MR. WONG: Okay.

22 MR. DIAZ: All right. Thank you. All right.
23 So, yes, next slide.

24 So, I'm pretty much going to echo a lot of what
25 the other panelists were saying, but really just want to

1 talk in general terms of what I see is a problem with
2 enforcing the Energy Code. Really it comes down to
3 resources. Most jurisdictions have a problem with
4 resources, again speaking generally, but one specific
5 example is Modesto, the city that I work for.

6 We're the 19th-largest city in California, and we
7 only have two plan checkers and five inspectors. That's
8 it, no mechanical plan checkers, no mechanical engineers,
9 or anything like that. There simply aren't enough plan
10 checkers to specialize in the Energy Code. Our inspectors
11 don't have enough time to drive to each inspection and
12 spend a substantial amount of time at each stop.

13 Next slide.

14 So, I think, as inspectors and plan checkers,
15 most of us intuitively know that there is a priority to
16 what we're looking for out in the field or on plans. Most
17 of us kind of prioritize our checklists, and, honestly
18 speaking, Energy Codes, they're going to be near the bottom
19 of the things that we're looking for, just above the Green
20 Building Code.

21 Next slide.

22 So, kind of recognizing the fact that Modesto
23 needs to be more efficient with the limited resource that
24 we have, over the last few years, we have been relying more
25 and more on technology, kind of to help us be more

1 productive with our time, as much as possible.

2 So, Modesto has been using Bluebeam Revu to
3 conduct 100 percent of our plan reviews electronically.
4 It's allowed us to -- for our plan reviews to be more,
5 like, succinct, because now we're redlining one copy of the
6 plans with corrections that we need, rather than, you know,
7 sending out paper to all departments and having them send
8 out individual plan check letters.

9 Last August, so August 2021, we implemented a new
10 permitting system called TRAKiT, so TRAKiT allows permits
11 to be applied for online, and clients can check the status
12 of their plan reviews. The system has a lot of automation
13 that eliminates simple processes like routing plans and
14 e-mailing plan checkers.

15 Also, Modesto is an early piloter, I'll call us,
16 of the SolarAPP system. SolarAPP basically eliminates the
17 need to plan check and route solar plans by using software
18 that electronically checks input based on proposed PV
19 systems. We found that it really streamlines the
20 permitting process.

21 Then, regarding energy, Modesto uses a software
22 platform called CodeCycle, so it's a system designed to
23 streamline the commercial lighting compliance process for
24 jurisdictions. CodeCycle prioritizes the inspection items
25 for our staff based on how much time they select as

1 available during inspections. So, if they only want to
2 spend five minutes, they can select five minutes, and the
3 system tells them, "Here. Look at these items to get the
4 most bang for your buck," but basically they're doing the
5 lighting compliance review for us.

6 Next slide.

7 So CodeCycle is great, but, again, it's only for
8 commercial lighting, so how can we make the other aspects
9 of the Energy Code more efficient or easier to comply with?
10 So, one possible way -- and I'm sure I'm not the first one
11 to come up with this, but to use, like, a conventional
12 construction method format, or a LEED scorecard format,
13 where points are giving for meeting certain criteria.

14 So, LEED uses categories like transportation and
15 innovation. So, for building permits, we would use
16 categories like roofing material, attic insulation, wall
17 insulation, so you would get five points or whatever for
18 having two-by-four walls with R15 insulation, but you would
19 get 10 points for having two-by-six walls with R19
20 insulation, et cetera.

21 Another idea is to use the SolarAPP model for not
22 just commercial lighting, the commercial lighting portion
23 of the energy compliance, but have the system do the
24 complete energy review.

25 Next slide.

1 So, we would make the input easy to use by a
2 layperson, so, like, an owner/builder trying to add, you
3 know, a 10-by-10 bedroom or something like that to their
4 house. So, we would make it easy for them to do the input,
5 and then submit it to, like, a clearinghouse, some sort of
6 energy clearinghouse that ensures the plans meet the Energy
7 Codes and pass the approval to the jurisdiction in an
8 easy-to-read format that even a permit tech could
9 interpret. So, this is something similar to what CodeCycle
10 does. Most importantly, the input process has to be kept
11 simple, and the output has to be easy to read.

12 Next slide.

13 So, 90 percent of buildings should be able to
14 comply with the point system or a modeling software that
15 can -- so the modeling software can be used for, like, you
16 know, special buildings that maybe they're made out of
17 glass or something, something where it's difficult to gain
18 compliance prescriptively, complex buildings, but the
19 easier the Energy Code and the energy documents are to
20 understand, the easier it will be to comply with and to
21 enforce.

22 So, you know, some possible clearinghouses, is
23 what I'm calling them, you know, maybe NREL, the National
24 Renewable Energy Laboratory. They do SolarAPP. We're
25 already working with CodeCycle. They're doing great with

1 commercial lighting compliance. I'd love to see them
2 expand it to, you know, full energy compliance for both
3 residential and commercial, or maybe the California Energy
4 Commission. You know, you would submit everything to them,
5 and they would check it, and then give the jurisdictions
6 something super simple to look at and plan check and
7 inspect off of, or maybe there's some other entity out
8 there.

9 Either way, I think technology is going to be in
10 the future of enforcement, and is going to be, like, a
11 major tool for energy compliance. That's all I have today.

12 MS. WHITE: Thank you very much.

13 Christopher Harris has joined us, but I'm going
14 to give him a minute to settle in, so we'll hear from Bill
15 Tott first.

16 MR. TOTT: Hello, everybody. How are you doing?
17 So I'm going to quickly piggyback onto what Oscar just
18 said, and also, I think, Erik from the first committee,
19 about CodeCycle, just real quickly.

20 Exploring the use of this plan review and field
21 inspection technology, I think, is kind of the next gen, if
22 you will, for jurisdictions to be helped out, and what is
23 the CEC's role in this? I think the exploration for them
24 would be, see if we can't get this to be statewide, where
25 you have this kind of a helpful resource that -- as a "for

1 instance," right now I know CodeCycle has lighting only,
2 and we've had one very large lighting project -- I think it
3 was 18,000 square feet -- done by them, and our plan check
4 engineers are very satisfied and thankful for the help on
5 that one project, for sure, so just as a comment off the
6 top here.

7 But excuse me if I'm just going to go kind of
8 by -- we all used to do paint-by-numbers. Somebody
9 mentioned that earlier. So, I'm just going to go by the
10 workshop agenda. I'm going to try to answer the questions
11 as presented by the CEC staff. So, I'll combine the first
12 two. It says, "How do you use the CEC current tools, if at
13 all?" and then "What tools do you use to support plan check
14 inspections and permitting?"

15 Well, of course, ATTCP. For, you know,
16 compliance, we have checklists, and it depends on the type
17 of project, the checklist the inspector is required to use
18 and make sure all those boxes are check, and they cannot
19 get finals -- the system they have will not allow a final
20 to be registered unless all of these are checked off. So,
21 we have at least that assurance in place for that, make
22 sure all the acceptance testing paperwork has been compiled
23 and submitted and, you know, completed.

24 HERS, of course, compliance verification,
25 everybody is using that. These are king of low-hanging

1 fruit, here, so pardon me for going down my little
2 checklist, here.

3 Reach codes, that's CodeCycle. Milpitas dipped
4 its toe into the water, reach codes, and we didn't go all
5 electric for low-rise res. That is, I think, going to
6 happen this time around. So, we're very much in alignment
7 with our climate action plan. This is an integral part of
8 it in the city of Milpitas. So, we're going to go forward
9 with kind of beefing up our reach codes in this next cycle.

10 We of course use Energy Code Ace very extensively
11 right now, very helpful for both -- well, three things. At
12 the counter, we have a stack of quick reference guides, I
13 think they call them. They're very helpful for people,
14 over the counter, not really understanding, whether it's a
15 contractor or a homeowner, and they're very well conceived,
16 little diagrams. It becomes very clear, or a lot clearer
17 than it was when they first sat down. So that's one
18 aspect, and then, of course, the inspectors use them, and
19 then the plan review people as well.

20 So, go on to the next bullet point, "How can the
21 CEC work with local agencies to integrate digitized
22 compliance tools into local online permit systems?" Again,
23 I'm going to fall back on CodeCycle, and, by the way, I
24 just want to give a shoutout to BayREN, Bay Area Regional
25 Energy Network, for funding. So, this is a Milpitas

1 jurisdiction for this code cycle, and I think the broader
2 picture, or the long term, is for a platform like this to
3 be utilized and integrated into the CEC's rollout of tools.

4 So, toward that end, that definitely is something
5 we're looking at for future, to use that kind of a system
6 to help us initially with the plan review, but then, if we
7 get it to a point where, you know, it's all-encompassing,
8 meaning it's not just lighting, then you would have,
9 probably, a certified energy specialist, if you will, doing
10 the work, the designer, using, say, CodeCycle, and then
11 submitting those documents to the city, and so, at that
12 point, it really becomes confirmed, verified for
13 inspectors, because all that work for the plan review
14 essentially has been done, and the no fee -- you know,
15 they're a nonprofit agency or company -- is very appealing,
16 of course, to any jurisdiction. I would think they would
17 want to take a look at them.

18 Next bullet, "How much education, if any, are you
19 doing on the Energy Code of folks seeking permits?" That's
20 an interesting way to put that. "What tools could help you
21 do this work more effectively?" Well, again, you know,
22 taking -- we do a lot of commercial in Milpitas, ever since
23 I've been there, which is four years, a lot of large
24 multifamily. So, on that level, it's really, you know, on
25 pre-submittal, and we walk and talk through the, you know,

1 maybe, bugs in the road, so they can get smoothed out
2 before the submittal, and usually that comes up. That's
3 one of the items on the agenda that we have that we will
4 educate them on, saying, "Be prepared to provide this,
5 that, and the other thing related to the Energy Code." I'm
6 being kind of general here, but just to kind of speed up
7 the process.

8 On a smaller scale, again, walk-ins counter. You
9 know, we do try to spend the time to bring out the
10 handouts. It's usually Energy Code Ace, and the
11 guidelines, and useful tip sheets to try to educate them,
12 whether it's a contractor or the homeowner, and so we use
13 those that way.

14 "Biggest challenges you face regarding
15 enforcement of the Building Code, and the Energy Code, in
16 particular?" Frankly, I've got to say it's lack of
17 permits, because we don't have any shot, at that point, of
18 providing any kind of oversight for code compliance.
19 Obviously, you have to have a permit to have an inspection.

20 So I don't know where I read it. It might have
21 been in the Indoor Comfort magazine to the trade. There
22 was some ridiculously low number. This is relative to the
23 amount of equipment, HVAC equipment, that was being sold
24 and what was being installed for permit, with permit. I
25 think it was like a single digit, I want to say nine

1 percent.

2 To me, that sounds outrageous, but maybe that
3 number is a little bit off. But it bears out, as we get --
4 time and time again, it comes back to us in various ways,
5 where we find out, you know, something was installed, not
6 permitted, and it's really an issue.

7 So, one of my kind of wish list things would be
8 furtherance of SB 1164, which is kind of an eye-opener in a
9 big way. There's two basic aspects to it. The one I'm
10 going to address is the -- what is it? The State Air
11 Resources Board, by July of '23, has to submit to the
12 legislature a report proposing a:

13 "Statewide heating, ventilation, air
14 conditioning equipment" -- I'm reading
15 now, obviously -- "sales registry and
16 compliance-tracking system to identify
17 the installation of heating,
18 ventilation, and air conditioning
19 equipment done without permit, or
20 testing proper performance as
21 provided."

22 I would like to see this bill get some airtime.
23 I think they have a meeting coming up, I think the 28th, I
24 heard. You know, it's proposed at this point. But that is
25 one of the things, I think, that's holding us back in terms

1 of getting a lot more compliance with Energy Code and other
2 codes, is lack of permits, and you could say, well, that's
3 a chicken and egg, because we're so onerous now with all of
4 our, you know, requirements under various and assorted
5 Title 24.

6 We did, for instance, last year -- no, it was two
7 years ago, I'm sorry -- a presentation, and we showed -- it
8 was about 18 inches' worth of code books from 1996, and
9 then you had to take a whole table to put all of the code
10 books on that we're now provided with to regulate and
11 enforce. So, no wonder sometimes you can say, "Well, no
12 wonder people don't get permits."

13 So, that's a challenge. I really don't have an
14 answer. I just know that -- I think there's a lot of you
15 out there feel the pain of that, in terms of jurisdictions,
16 and that is a barrier, obviously, to, you know, being able
17 to up the ante and get more compliance with the Energy
18 Codes, in particular, because I think, as Oscar pointed
19 out, and I agree, that most jurisdictions -- probably, if
20 you're going to do a hierarchy, the Energy Code is down,
21 you know, toward the bottom, along with the Electric Code.

22 There's another little comment I wanted to make,
23 too, with, you know, inspectors. A lot of our inspectors
24 have ICC certs for accommodation, but, you know, they don't
25 have -- they're not California certs, and they do that for

1 a reason, because they may move. They may want to work in
2 Nevada or Arizona. So, the ICC or a national code body
3 like that certification becomes more attractive. So, they
4 don't have the benefit of these certification test-outs to
5 have any questions for the Energy Code, California Energy
6 Code, or the Green Building Code, even IAPMO, you know, for
7 plumbing mechanical.

8 So, anyway, as something to just kind of mull
9 over, that becomes part of the challenge for us, as
10 building officials, to make sure that they're fully engaged
11 and aware of the California versions of these codes, and
12 provide all the training we can to assist them in this
13 endeavor to make sure that they're fully geared up to go
14 provide the best service they can in terms of regulatory
15 compliance.

16 Let's see. I also wanted to kind of align myself
17 to -- I think Gina said contractors, for the most part,
18 want to do good work, and I agree with that, but they need
19 guidance, and that's what we're trying to do here, and,
20 also, you know, it's beneficial for us as well, as people
21 that, you know, provide the codes and then also are, you
22 know, tasked with enforcing them. So, I'm not of that camp
23 which says the opposite, so we give them the benefit until
24 proven wrong. So, I just wanted to make that comment as
25 well.

1 Let's see. I had another -- I have a referral
2 back. There was a comment, I think, made in the Q-and-A.
3 I just wanted to say -- this comment had to do with
4 "Building officials need to get more involved with ensuring
5 code compliance through educating and directing inspection
6 staff." I agree, but -- you know, and, also, we have to
7 rely on contractors to pull the permits, and we have to
8 rely on end users to insist that the work is permitted.
9 Without those two components -- it's not just building
10 officials, is what my point is. It's all of us working
11 together, and to make that more attractive or easy to do.

12 My final comment is, again, touching back on what
13 Greg said, I think, you know, it's a good start to get the
14 index back in the code, but I think it needs more work. It
15 needs to be more enhanced, and then have, like, say, a
16 cross-reference aspect to it, where you have a title or a
17 subject, "Here's the main code section you have to go to,"
18 and then you typically -- in my experience, it's been --
19 that's not the beginning -- or that is the beginning. It's
20 not the end. Then you go to the other one. So, a
21 cross-referencing of "Where do I find the complete answer
22 for what it is I'm looking for?"

23 I think that's it. I appreciate the time. Thank
24 you very much.

25 MS. WHITE: Thank you.

1 Now we have Christopher Harris, please.

2 MR. HARRIS: Good afternoon, everybody. Thanks
3 for having me speak. I appreciate it. I've been with the
4 city of Concord for four years. My background is
5 structural engineering, so learning all this stuff was fun,
6 still learning, and I would like to see a couple things
7 that would, I think, potentially help people in my shoes.

8 So, Concord is a city. We're about 140,000
9 people. We have two plan check engineers, and resources is
10 one of our -- you know, probably most small and midsized
11 jurisdictions have a, you know, problem with resources. We
12 see enough projects every day that we don't have time to be
13 an expert in every field. We're required to know it, and
14 to look up stuff, but we are by no means an expert in
15 everybody else's fields. Unfortunately, that's just the
16 circumstance you have when you have an AHJ that is a mid-
17 to small-sized jurisdiction.

18 So, the things that I think would help us out for
19 the Energy Code would be, one, simplify the code. I think
20 a lot of people have talked about that. When you're tossed
21 around the code, from section to section, it makes it hard
22 to get the right answer. So having it all in one space
23 would be great. I think somebody used a reference as you
24 go to the Plumbing Code, talks about water heaters. You
25 read three pages, you know about water heaters.

1 So that's the thing. I think, when there's an
2 exception to this, and there's a "choose your own adventure
3 a little bit," it does make it difficult to enforce, and
4 that's something that I think could be definitely worked
5 on, and I know it's a very complex issue, so I don't
6 think -- you know, it's easy to say, "Make it simpler,"
7 when we have a ton of different things we're trying to put
8 together. So, it would be a goal, and it's going to be
9 probably a difficult one to achieve.

10 Something else would be to help regulate the
11 products on the market. A lot of times, you know, it's
12 easy for us to say, "You have this on your plan," but then
13 the contractors go down to the hardware stores and they
14 purchase what's on the shelf, and those things aren't
15 compliant, or we either tell them to tear it out, or we're
16 missing it, and things as simple as -- you can go down to a
17 hardware store and buy a recessed light that has a
18 screw-based socket in it, which we know is not allowed.

19 So, simple things like that, that I know, again,
20 is the hard ask, because you're regulating people to the
21 nth degree, but, when people are selling stuff in the state
22 of California, kind of like an Energy Star compliance, it
23 would be nice if it said it was rated for California,
24 because a lot of people just go and buy what they can buy
25 at the store, and that's how they build their projects.

1 As far as tools, I would like to see technology
2 help us out in our plan check, to make it simple for us to,
3 you know, check stuff, for our inspectors to look at a
4 single piece of paper or two pieces of paper to know if a
5 project is in compliance. When you've got to go through a
6 stack, we don't have time. We are very busy. Our
7 inspectors sometimes have 10 inspections, 12 inspections a
8 day.

9 We rely a lot on third-party inspectors to be
10 doing their job, to make sure stuff is in compliance, and I
11 think somebody mentioned it earlier today, is it might be a
12 good idea to have a third party hired by the owner, kind of
13 like you do for special inspection with the Building Code.
14 If they're hired by the owner, hopefully, the skin in the
15 game is for the owner, versus for the contractor.

16 Another thing that would be good to do is just to
17 educate people better. I know we all have limited time for
18 that, but education really is, you know, the backbone of
19 making this work. Whether it's simplified or not, still,
20 understanding it, making it available, making it
21 understandable is something that we can do for everyone.

22 I think somebody else mentioned, you know, most
23 contractors out there aren't trying to necessarily cheat
24 the system. They want to do it right. But if it's too
25 hard to do it right, they want to get it done, so they get

1 paid and get to their next job. They're not seeing the
2 bigger picture like we are, you know, and from the CEC's
3 perspective.

4 So, I think we want to do all those things, but
5 at the same time keep costs down. A lot of people either
6 don't pull a permit because of the cost implications, the
7 complexity. We try to keep those at a minimum here at the
8 city, and help people out the best we can, but there is
9 inherent complexities to what we do, whether that's having
10 an energy consultant fill out forms because you're not
11 qualified, or having to send the forms back two and three
12 times because they can't figure out the forms, and they're
13 HVAC installers for a living, and they can't figure out how
14 to fill out the forms. So, it would be nice to have some
15 better education to help those people, and simplifying it,
16 to help those people get those things done and in
17 compliance.

18 I like the idea of a registry that was brought
19 up. It would definitely force people to get permits, and
20 we catch a lot of stuff in our city, but we're not out
21 there actively looking for people. We don't have the
22 manpower. We are complaint-driven. So, a lot of people do
23 work without a permit, and when they caught, we have to fix
24 it, but we think, if we make the process easier and less
25 cumbersome, people will do it.

1 One thing we've done here at the city is, we have
2 teamed up with CodeCycle to help us out with the lighting
3 review for commercial projects. The benefit to having a
4 tool like that is, when the plans are correct, not just the
5 forms, when that enforces the plan to be correct, our
6 inspectors have a better job of catching everything,
7 because our inspectors look up the plans.

8 They do look at the forms, but they don't have
9 enough time out in the form to connect Room 106 on a form
10 to 106 on an electrical plan. That's one of those things
11 where time is of the essence and resources are limited, so,
12 again, third-party inspection, if you need to get to that
13 deep level, or making it integrated with the plans, and I
14 think integrating it with the plans is actually a benefit
15 to everybody. So those are the things I see could help us
16 out, and I am hoping that that helps you guys.

17 MS. WHITE: It certainly does.

18 Thank you all very much for your opening remarks.
19 I would like to ask everyone to come back on video so we
20 can have some open discussion regarding a few questions I
21 have for you before we open it up to general questions, and
22 I have seen quite a few in the Q-and-A. So, this will be
23 fun.

24 All right. A couple of you have already
25 mentioned the call in a recently introduced Senate Bill

1 1164 by Senator Stern. It directs the two agencies, the
2 California Energy Commission and the California Air
3 Resources Board, to produce reports.

4 For the CEC, the report would focus on creating a
5 comprehensive statewide central Energy Code registry and
6 associated data, a repository, the idea here being that
7 there would be one-stop-shop compliance document
8 registration and validation. The other report would
9 explore what it would take to create the product sales
10 tracking registry, and you have all described that a little
11 bit so far.

12 The question relates to one of the questions that
13 was raised for Panel One by Chris Walker, this concept of a
14 centralized system or series of interconnected systems that
15 support identifying when a project is in compliance, what
16 types of products are coming into the market. What are
17 your thoughts on a centralized system, and how that could
18 be interconnected or integrated into your local systems,
19 whether you're currently using an online platform or
20 expecting to?

21 Can we please start with -- let's start with
22 Greg.

23 MR. MAHONEY: So, an online platform. I can see
24 that there -- I'm sorry. You were talking about something
25 like SolarAPP? Is that what you're referring to?

1 MS. WHITE: No. This is more like consolidating
2 the current compliance programs into one large statewide
3 system of registries and repositories, as well as a
4 statewide tracking system for the sales of a A-track units
5 in particular.

6 MR. MAHONEY: Okay. I'd be happy to turn over
7 energy compliance to the state. No problem here at all,
8 fully supportive of that. But I think the problem with
9 that is that we're still connected. I mean, we still have
10 to final the project. And so, at some point, I don't know
11 how -- I mean, are you still thinking that the local
12 jurisdictions would do the inspections? I'm just wondering
13 how that would integrate with our system of inspections,
14 and plan review, for that matter.

15 MS. WHITE: Do you think that there's a lot of
16 evaluation and review that would have to be done as part of
17 the directive that's been given through this legislation,
18 assuming the legislation passes?

19 MR. MAHONEY: I'm sorry, but I'm not familiar
20 with the legislation.

21 MS. WHITE: The Senate Bill 1164 calls for those
22 two reports to explore what it would take to actually put
23 those systems in place, and the Commission is very aware
24 that this has been a suggestion. We've had several pieces
25 of legislation in the past that are building toward this

1 idea of a central repository and registry, and the question
2 is, how would those integrations actually occur, and who
3 would do what? So, there would still need to be something
4 that the local agencies do, I suspect. It wouldn't be as
5 though you could just hand everything off.

6 MR. MAHONEY: Yes. My opinion is that adding
7 bureaucracy to our problem is not going to solve it. It's
8 not going to make it any better. I'm going to stick strong
9 with making it more simple, so that we don't have to have
10 all these, I don't know, external attempts, you know,
11 outside of the jurisdiction and the code, because we don't
12 have to do that for any other code. This is the only code
13 that we have this, you know, huge problem with, that the
14 people who are enforcing the code don't understand it,
15 can't access it.

16 I think the problem is not quite as complicated as
17 some people think it is, and, I don't know, keeping track
18 of all the HVAC units that are sold, there is a lot of
19 opposition to that by a number of different stakeholders,
20 and I don't know if that's something that's going to
21 happen. I mean, I guess you can legislate it, but that, in
22 itself, is also challenging.

23 MS. WHITE: Anyone else like to speak to that?
24 James?

25 MR. ZHAN: Yes. I'd like to talk about the

1 third-party enforcement. You know, our jurisdiction is the
2 code cycle of 2013, because the 2013 code is the starting
3 point of mandating the installation certificate of
4 verification.

5 So, in our jurisdiction, we adopted sort of a
6 hybrid approach, meaning that we treat those verification
7 commissioning as a form of special inspection, just like a
8 special -- structural special inspection. We make each of
9 those installation verification commissioning as an item of
10 special inspection.

11 So, I see that as a kind of a hybrid approach,
12 because it is the project sponsor's responsibility to
13 obtain a third-party verification, and at the end of that
14 verification, they are responsible of providing those,
15 basically, affidavits to the department, and our department
16 won't schedule a final inspection until all those energy
17 special inspection requirements are met. So that
18 drastically reduced the burden on the department and the
19 mechanical, electrical, energy teams' workload. Yes. I
20 just want to share that.

21 MS. WHITE: Thank you.

22 Oscar, Bill, Chris, do you have anything you'd
23 like to say on the SB 1164?

24 MR. TOTT: Sure. Sure. So, I would imagine,
25 yes, like Greg mentioned, that you're certainly going to

1 get some pushback. There's people that have -- not only
2 because they don't want to create more work for themselves,
3 but because they have vested interests in not seeing this
4 done, and not to be blunt, but, also, if you consider that
5 parts of California are extreme in temperature, so you're
6 putting air conditioning units in, it's sort of drawing a
7 lot of energy. Are they installed properly? Are they
8 installed per the Energy Code?

9 So I look at those, you know, areas in our 16, is
10 it, climate zones that are probably -- I'm just surmising
11 here -- maybe more susceptible to them not getting permits,
12 that there's going to be a lot more pushback, I think, from
13 those jurisdictions, and even which kind of reinforces my
14 notion that this is something that has to be at least
15 looked at and explored, and everybody come to the table and
16 see if this is a viable path of travel to get where we want
17 to get, which is to provide more permitting so that we can
18 provide more regulatory oversight, not only for the Energy
19 Code, but Mechanical, Plumbing, and the other associated
20 codes.

21 MS. WHITE: Thank you.

22 MR. DIAZ: Yes, I would agree with Greg, in that,
23 you know, just making things more -- it would make things
24 more complicated to have to go through, like, a state
25 agency. You know, ask any architect if they'd rather apply

1 for a permit through the local jurisdiction or through, you
2 know, OSHPD or whatever they're called nowadays. You know,
3 things just get more complicated at that level.

4 But, you know, the people of California do value
5 energy efficiency, so I think the way to make things more
6 efficient is to simplify the Energy Codes, and then people
7 would be more willing to comply with something that's easy
8 to understand, instead of so complex, and people just want
9 to avoid getting a permit, so that they don't have to,
10 like, do all the forms and all the hoops that they have to
11 jump through.

12 MS. WHITE: Chris?

13 MR. HARRIS: I think I'm on the fence. I mean, I
14 think there's pluses and minuses. I definitely want to
15 stick to the "The simplified will help people to come in
16 and get a permit," and ultimately, you know, that alone is
17 going to get compliance, the more people we can get in. It
18 may have a more beneficial effect than getting the people
19 who already pull a permit to do it even more right than
20 they already are.

21 So, there's that aspect of it, but I do think
22 that having something for the equipment being registered at
23 the state level, or at least qualified at the state level
24 to be sold here, would be beneficial because, right off the
25 bat, we would be starting at, you know, a good spot. But

1 registering and tracking it, I mean, that would be, I
2 think, a tall order, and another level of complexity for
3 customers that are already deciding whether or not they
4 want to get a permit or not. So, it would be a tough one
5 to sell the public and to, you know, HVAC installers,
6 specifically.

7 MR. MAHONEY: Can I weigh in on something that
8 Chris said earlier?

9 MS. WHITE: Yes, please do.

10 MR. MAHONEY: And it's just a simple thing, but
11 it's an example. So, he had mentioned that you go into
12 Home Depot and you buy a recessed can, and it's got an
13 Edison screw base in it, and so the homeowner goes and
14 installs that, and, you know, an inspector comes and says,
15 "This is not compliant." And so, at that point, it's super
16 frustrating for the homeowner, the contractor, or whatever.

17 They make the kits where you can install an
18 LED-compliant bulb in a recess fixture. In that recessed
19 fixture, it just screws in to Edison's screw base. They're
20 good for 10,000 hours or somewhere thereabouts. Why can't
21 we just let those -- why do we have to, you know, be so
22 rigid about something like that? When they've installed
23 the correct product, there's the potential that, someday
24 down the road, someone might put an incandescent bulb in,
25 which is getting more and more difficult to find. So, I

1 think things like that, we should maybe ease up a little
2 bit, my opinion.

3 MR. HARRIS: Yes. That was just a simple
4 example. I'm not saying we're making people tear those
5 out, but my point being, is you can go into the store and
6 you can buy stuff that's not compliant, and it makes it
7 harder for individuals to know the right products to put
8 in.

9 MR. MAHONEY: I understand.

10 MR. HARRIS: Yes.

11 MR. MAHONEY: I understand completely. Yes. And
12 I wasn't trying to say you were being unkind to the
13 applicants. It's just, it's something -- I think we could
14 look at what's installed, and if it's a compliant
15 luminaire, then, whether it's screw base or not, I think we
16 can be relatively certain that we're going to see energy
17 efficiency for thousands of hours.

18 MS. WHITE: Thank you.

19 Another question I would like to pose to you all
20 is, in addition to the changes that you have recommended,
21 what kind of additional technical assistance or support
22 would you like to see either the state agency, the Energy
23 Commission, the utilities, or others help to provide to
24 make your job in enforcing the code easier, more reliable,
25 and less costly?

1 MR. DIAZ: I would like to start on that. So, I
2 mentioned earlier that we had just implemented a new
3 permitting system, and so, of course, it was something new
4 for all of our clients here in Modesto, and so we kept
5 getting the same questions over and over again.

6 So, what we did is, we started creating, like,
7 how-to videos, you know, super basic, because we don't
8 have, like, the technical expertise on creating those, but
9 they were helpful, and so I think the Energy Commission can
10 make how-to videos, or more like "why" videos, like "Why do
11 I have to install a cool roof? Why do I have to fill out
12 all these forms?," that we can, like, point our customers
13 to, so that they can, like, answer the questions that we
14 get over and over for us.

15 MR. ZHAN: Yes, certainly. I'll second that.

16 MS. WHITE: Thank you, James.

17 What about tools to help your inspectors or your
18 plan checkers? We've heard about a few software tools that
19 are available. They're private companies right now. What
20 about additional things that the state could do to help
21 support your inspectors and plan checkers?

22 Greg, I'll pick on you again.

23 MR. MAHONEY: I'm just going to go back to my
24 position that the answer isn't trying to explain how a
25 complicated code is to be enforced. The answer is to

1 simplify the code so that people understand it. That's
2 where I'm going to land on it. Make it so that everyone
3 can read it and understand it.

4 MS. WHITE: Oscar?

5 MR. DIAZ: Yes, that would definitely, you know,
6 go a long way. Yes. Simplifying things and making it
7 easier to understand would make it easier to comply with,
8 so, you know, like I was mentioning earlier, like a very
9 simple-to-read table, or, like, a point system where, you
10 know, anybody knows that they're putting walls on their
11 addition. Okay. "What kind of insulation do I need in my
12 walls?" You know, "R15," period, that's it. I don't
13 know -- it should be very simple.

14 MR. MAHONEY: I guess I should maybe clarify what
15 I mean by "simple." I don't -- my goal would not be to
16 change any of the content of the code, just to write it in
17 language that people understand, laypeople understand.

18 I've been involved in code development for years,
19 and I've written code, and we spent so much time trying to
20 write code that people will understand, and will know
21 exactly what we mean, and it just doesn't seem like that's
22 the goal of the people who are drafting the Energy Code,
23 and then, as I said before, just reformat it so it's
24 consistent, consistent with building standards law, and
25 that it is consistent with the other codes.

1 MR. DIAZ: Yes. So lately I've been hearing a
2 lot about, like, green jobs, you know, from politicians,
3 and in my mind, I hear, like, making things complex, so
4 that you have to have, like, consultants to help guide you
5 through processes.

6 MR. ZHAN: Well, I guess our jurisdiction is one
7 of the few jurisdictions that have the luxury of dedicated
8 mechanical and electrical engineers performing plan checks,
9 but I would say, even with dedicated, my 11, 12 dedicated
10 staff, it is still -- as I said in my opening remark, we
11 may have hours reviewing the compliance document, but
12 compared to -- especially for nonresidential or high-rise
13 residential compliance report, they are still -- I mean, we
14 can easily look at a compliance report 50 pages-plus.

15 So, for us it's in San Francisco, a very
16 high-volume permit is still a daunting task, and we found
17 that the compliance summary on the Title 24 report is very
18 helpful, especially for low-rise residential, and I would
19 very much appreciate it if the CEC approved compliance
20 software, and also produced a summary of the chief features
21 for the high-rise and nonresidential buildings, to make it
22 easier for us to verify. I still think it's very
23 difficult, if not impossible, for us to build a model, even
24 with the dedicated staff. It's very difficult to verify
25 the actual energy model, or whether or not they are modeled

1 correctly, especially with the new technology.

2 For instance, we are still allowing,
3 theoretically allowing, electric-resistance space heating,
4 as long as you can provide a positive compliance margin on
5 the EnergyPro software, but it's not -- when you look at
6 HVAC fixtures, most of the time, electric-resistance heater
7 is being modeled as something else. So that kind of thing
8 makes it difficult for the plan checker to verify
9 compliance.

10 And I couldn't agree with Gina Rodda more that
11 the Energy Code, from -- doesn't matter it's from the
12 design perspective or from the enforcement perspective. It
13 works best when the design team and the energy consultant
14 work as a team. Otherwise, you may see, for instance, the
15 U-factor in the compliance report as one thing, but when
16 you look at the window and door schedule, it's completely
17 different, and when questioned, the designer or the project
18 sponsor has no idea that a certain U-factor is required.
19 So, if the Energy Commission can do something to encourage
20 the partnership, the collaboration between the design
21 professional and the energy analyst, that would be great.

22 MS. WHITE: Excellent. Thank you.

23 I think we should probably -- Daniel, you want to
24 help me with going through the Q-and-A list?

25 For those of you who would like to ask questions

1 of this panel, please raise your hand, and Daniel will help
2 you unmute and ask your questions. I see several in the
3 Q-and-A exchange, and so I'm hoping that folks would like
4 to ask the questions directly.

5 MR. WONG: Sure. We have a few raised hands. I
6 know last time Jeff Stein was not able to get his comments
7 in before the lunch break, so I'll go to Jeff Stein.
8 Please unmute yourself, and state your name and
9 affiliation, please.

10 MR. STEIN: Hi. This is Jeff Stein. I'm a
11 principal at Taylor Engineers, a mechanical engineering
12 firm, and I have been jumping in and out. I'm attending to
13 some other meetings, so I may have missed some things, but
14 I appreciate the opportunity to speak.

15 I agree with a lot of the comments I heard
16 earlier from folks like, I think, Chris Walker and Erik
17 Kolderup about the need for a centralized compliance
18 entity, something like, you know, a division within the CEC
19 that does reviews of energy models and permits and the
20 testing documentation.

21 I guess my question to this panel is, how would
22 you feel if the CEC or some other centralized entity had
23 maybe, not necessarily relieved you of the entire, you
24 know, jurisdiction requirement for Energy Code compliance,
25 but assisted you, at least, by, you know, doing some amount

1 of reviews of drawings and permits, and said, you know,
2 "These ones look good. These ones don't look good. Here's
3 what we've found"?

4 It seems like we have a bit of a -- sort of
5 everyone trying to, you know -- each jurisdiction, you
6 know, having to reinvent the wheel on their own, and come
7 up with their own way of having to grapple with a very, you
8 know, complicated and documentation-intensive code, and I'm
9 starting to think that, you know, the solution is we need
10 some dedicated folks, you know, in a central office, that
11 either have full authority or at least provide assistance
12 to jurisdictions, you know, and that those centralized
13 folks would have the knowledge and the motivation, you
14 know, to really tackle the code and enforce the code,
15 whereas you're not necessarily going to have that kind of
16 knowledge and, you know, motivation at every jurisdiction.

17 So, again, to the panel, you know, how would you
18 feel if there was a central either consulting body or
19 jurisdiction body, you know, that could code enforcement
20 for the Energy Code?

21 MR. HARRIS: I could speak a little bit to that.
22 From my perspective, I would sure love somebody to take
23 that from me, but the problem is, I don't think you're ever
24 going to have somebody at the state level reviewing the
25 plans compared to the forms, or the plans fully for

1 compliance.

2 So, it's going to have to be either a hybrid or,
3 again, the code has to be in such a way that it's more
4 easily enforceable. It's not something, I think, the state
5 would ever have the capacity to fully take on. You know, I
6 just don't think that would ever happen.

7 MR. MAHONEY: So, I can give you my opinion. In
8 Sac County, we have many internal divisions that have to
9 review plans before we could issue them, and there are some
10 divisions, departments, that take longer than others, and
11 they are often the ones who hold up permits, and I could
12 see this as being the case if there was the Energy
13 Commission doing a review as part of our permitting
14 process, and I just see that that would be fraught with
15 difficulties.

16 The only way that I could see that that might
17 work is if they have to get Energy Commission approval
18 before they submit, and then we don't have to look at it at
19 all, just say, "Okay. The Energy Commission has reviewed
20 these documents. They're code-compliant," and then we just
21 accept them.

22 I think it almost has to be kind of an
23 all-or-nothing thing. They either take the Energy Code
24 compliance -- and that may be just a portion of it. That
25 may be just the plan review, and then, you know, we'd do

1 the inspections like we do, but I don't know. I think it
2 would be problematic for the Energy Commission to try to
3 keep up with the permit load or, you know, permit workload
4 throughout the state. You'd have to hire a whole lot of
5 other people.

6 MR. TOTT: Yes, I would agree, and just to
7 clarify previous comments about SB 1164, it wasn't intended
8 to promote a centralized system through the CEC. What I
9 was -- the model I had more in my head was more like we do
10 with CSLB, when we have it up on our computer screens at
11 the permit counter, and somebody comes in, and you check
12 his license and see if he's valid, does he have issues,
13 whatever, before you can issue the permit to him. So,
14 similarly, have a database like that that we can tap, and
15 it's part of the process.

16 Anyway, no, I would not be in favor of a
17 centralized system like that. You know, as we're all
18 talking here, you can see readily the issues that would
19 arise. You know, not to disparage the State Water
20 Resources Board, but that takes forever to get recycled
21 water plan approvals through, and so, you know, that wasn't
22 my focus on it, and I would not be a proponent of a
23 centralized system like that.

24 MS. WHITE: We do have a question from Chris
25 Ruch, meaning wanting to ask the panel a question, and I

1 don't know if he's still on the call, but I'll ask it for
2 him.

3 How can we -- and he's talking from the
4 standpoint of NEMI. How can they assist authorities having
5 jurisdiction enforce the mechanical systems' ATTCP new
6 requirements that the mechanical systems be tested out and
7 certified by -- or validated by a certified ATT? This new
8 requirement was mandated as of the 1st of October, and
9 we're trying to figure out -- they're trying to figure out
10 ways that local agencies can be assisted.

11 MR. MAHONEY: That's a good question. I don't
12 know the answer to that one. I mean, obviously, the
13 testing that they have to perform is far more complicated
14 than a building inspector could do, and certainly we don't
15 have the time or the equipment or the knowledge to do that
16 testing. I don't know.

17 You know, I have to admit I haven't looked at
18 that in a while, but the HERS process seems to work okay.
19 I mean, there are definitely people who game that process,
20 you know, using sampling, but I guess it's structured
21 similar to that. I'm not sure. I don't know what the -- I
22 didn't know that there was a problem with the acceptance
23 testing. Did he identify a problem specifically?

24 MS. WHITE: So, as I understand it -- Chris, if
25 you want to raise your hand and ask it more directly, I see

1 that you are still on the call.

2 Daniel, could you unmute Chris?

3 MR. WONG: Yes.

4 MS. WHITE: Thank you.

5 MR. WONG: Chris, I believe you should be able to
6 unmute yourself.

7 MR. RUCH: Okay. Great. Can you hear me now?

8 MR. WONG: Yes.

9 MS. WHITE: Yes, sir.

10 MR. RUCH: Yes. So the issue here, Greg, is
11 that, as of the 1st, the CEC is recommending that all
12 mechanical acceptance testing that's required already, and
13 has been required since 2005, be completed by a certified
14 technician, and also be updated on their database. So the
15 question there would be, is that what kinds of things can
16 we -- and by "we," meaning everyone on this call,
17 contractors, CEC, anyone -- help with?

18 You know, for instance, one thing that the
19 Division of State Architects had NEMI -- worked on with
20 NEMI was a training program for inspectors of kind of what
21 these requirements are, and what the MATT does, and to
22 clarify there, it wouldn't be the inspectors doing the
23 actual physical tests themselves. It would be that they
24 would be collecting documentations, much like a TAB report,
25 and just like you verify that a TABB report was done by a

1 certified, let's say, TABB technician, you would verify
2 that it was completed by a certified MATT technician.

3 MR. MAHONEY: I don't know. That is challenging,
4 I think, to verify that, because, unless an inspection was
5 called during the time that they were doing the acceptance
6 testing, so that we could verify, otherwise, it's really
7 kind of what we've been doing all along with Energy Code
8 compliance. You, you know, collect a bunch of paper, and
9 hope that it was completed honestly and correctly.

10 I know, way back in the day, in the '90s, when I
11 was, you know, doing inspections on homes, you know, tract
12 homes, the superintendents would literally just copy 100
13 CF6Rs and just change the lot number on each one. They
14 were all exactly the same. They were all run through a
15 copy machine, and I think there were -- I'm not sure that
16 we've moved that far on that. I don't know. It's
17 difficult to verify that these are accurate. Like you
18 said, all we can do is verify that, if we are there when
19 they're doing the testing, that, you know, an individual
20 who's qualified to do it is performing those tests, and
21 they take responsibility for it.

22 MR. RUCH: Well, this is where it ties in with
23 the previous conversation of 1164, because, just to
24 clarify, when I'm reading through 1164, it's not saying
25 that the CEC would do the inspection. It's really saying

1 that they would just have -- explore right now a
2 centralized database that, for instance, would give your
3 team the ability to look before they went out for the final
4 inspection and see, "Have the forms already been updated?
5 Have they been completed, and are they passed?"

6 MR. MAHONEY: Yes, and I don't know. This is
7 tricky, but sometimes the forms just really are worth what
8 they're written on. I mean, people will complete forms
9 when they're not accurate. I don't know. It's been a
10 problem since we started collecting forms. Sometimes, you
11 know, we're a clerical staff, just collecting paper and
12 filing it, and it seems like that may be the case. I don't
13 know how to verify. I don't know how to ensure that these
14 forms -- that the required tests have actually been
15 conducted, and they've been conducted by someone who is
16 qualified to perform those tests. I mean, we can do the
17 best we can.

18 MR. ZHAN: I'm sorry. I respectfully disagree,
19 because those affidavits, those special inspections, they
20 are legal binding. At certain time, CEC, or even the local
21 jurisdiction, can choose to audit them, and if you found
22 somebody is forging that, that would come with legal
23 consequences. So, it's not a paper tiger. It's not
24 necessary. That kind of reinforcement is not necessary
25 with our team.

1 MR. MAHONEY: You know what? I'm not going to
2 argue, but I will just give you one example of a large HVAC
3 contractor. If you watch TV in Sacramento Valley for more
4 than a half-hour, you'll see one of their commercials, and
5 I questioned an installation certificate that they had
6 provided. It was obvious that they couldn't have met the
7 leakage, duct leakage, and the supervisor admitted to me
8 that they did not have a duct tester, and they're supposed
9 to test every single installation that they do. Now, this
10 was several years ago, but --

11 MR. ZHAN: I'm sure that is indeed the case, but
12 the point I'm trying to make is that it's really a function
13 of the resources available and the political willingness to
14 enforce them. (Indiscernible) a whole -- a large --

15 MR. MAHONEY: (Indiscernible.) There's many
16 factors --

17 MR. ZHAN: It's not impossible.

18 MR. MAHONEY: Yes.

19 MR. ZHAN: For most jurisdiction, even including
20 ours, it is really -- you know, the level of enforcement is
21 really, you know, a function of the available resources.

22 MR. MAHONEY: Yes, absolutely.

23 MS. WHITE: I want to thank you all very much for
24 your participation, and sharing your views and ideas with
25 us today. It's the conclusion of our panel. I encourage,

1 as I've said before, anyone who has comments or questions
2 that they didn't have a chance to voice, please make sure
3 you put them in the Q-and-A. Please also make sure that
4 you can docket your comments and questions. We will be
5 doing follow-up workshops on this topic, so we aren't done
6 yet.

7 I would love to thank our Panel Two, Christopher
8 Harris, Oscar Dias, Greg Mahoney, Bill Tott, and James
9 Zhan. We truly appreciate the time that you've devoted to
10 our discussion today, and we look forward to future
11 involvement by you in this proceeding.

12 MR. ZHAN: Thank you for having us.

13 MS. WHITE: Thank you.

14 Daniel, I pass it back to you for Panel Three.

15 MR. WONG: Thanks, Lorraine, and ditto. Thank
16 you to all the panelists for sharing your insights and your
17 thoughts. Definitely, the more insight and experience and
18 perspective we can get, you know, the better, so,
19 definitely, again, appreciate that.

20 And yes, we are now going to move on to Panel
21 Three. We're right on time, 2:03, and with that said, I'm
22 going to pass it over to Charles Opferman, who is the
23 supervisor of the Standards Compliance Office, and he will
24 be moderating Panel Three for the contractors and
25 installers.

1 Go ahead, Charles.

2 MR. OPFERMAN: Thank you very much, and I would
3 request that my panel also get on camera, so that folks can
4 enjoy their beautiful visages.

5 I'm Charlie Opferman, O-P-F-E-R-M-A-N. As most
6 of you don't know who I am, I'm a registered architect, but
7 I've spent my career working as a builder. This is my
8 second tour of duty in California state government. I'm an
9 energy geek. I've spent the last 15 years working for an
10 Indian tribe, you know, prior to coming here, working for
11 an Indian tribe in Wisconsin, doing development management,
12 and I capped my career with them running a two-megawatt
13 code generation plant fueled by a food waste bio-digester.

14 With me today is Bob Wiseman. Bob is a
15 second-generation C20 HVAC contractor. He's located in
16 Canoga Park, and serving northern Los Angeles County area.
17 It's his family's business. He joined it in 1986, after
18 graduating from UCLA with a degree in international
19 relations, and he has an MBA from Pepperdine.

20 Bob is here representing IHACI, the Institute of
21 Heating and Air Conditioning Industries. He's been
22 involved with them over 20 years, serving as chairman of
23 the board, chairman of government affairs, and twice
24 serving as president. He has represented the HVAC industry
25 at both state and federal level on behalf of several

1 different organizations.

2 Second panelist is Tom Paine. Tom is a lead
3 consultant for ConSol. They are representing the
4 California Building Industries Association today, the CBIA.
5 ConSol has been their lead technical consultant for over 25
6 years. Tom joined ConSol in 2019. He's responsible for
7 policy and economic analysis of building energy performance
8 standards and goals in new and existing homes.

9 Tom is a profoundly qualified researcher,
10 analyst, and advisor. As a top-level advisor for
11 industries in the built environment, Tom guides industries
12 through least-cost pathways, maximum outcomes,
13 climate-oriented positions, and long-term strategy.

14 Tom has provided unbiased, in-depth support in
15 every level of constituent, from homeowner to senator,
16 small to large business, and private or publicly held
17 businesses in the fields of decarbonization,
18 electrification, energy efficiency, and renewable
19 generation.

20 Also with us is Charlie Cormany. He's the
21 executive director of Efficiency First California, or the
22 EFCA, a nonprofit trade organization representing energy
23 efficiency in clean-energy contractors. EFCA supports
24 decarbonization, and represents contractors committed to a
25 future powered by carbon-free energy.

1 His experience includes over 10 years as a home
2 performance contractor for three different companies,
3 including his own, having been involved in hundreds of
4 residential energy-efficiency retrofit projects. He
5 provides a boots-on-the-ground perspective to policy and
6 program design efforts. He is well versed in residential
7 energy-efficiency diagnosis, HVAC system design, sales,
8 marketing, and business development.

9 He currently manages a dedicated team of
10 professionals providing membership support and advocating
11 for clean-energy contractors in California. EFCA also
12 provides contractor support services for utilities, and
13 they are the program administrator for the Sacramento
14 Municipal Utility District's residential rebate programs.

15 Charlie enjoys his educator role, and regularly
16 shares information via blog posts and informational
17 meetings with contractors. You can find him at
18 "www.efficiencyfirstca.org."

19 And last, but not least, is Bruce Cheney, who is
20 the founder and CEO of Anchors Aweigh Energy and Energy
21 Efficiency Services Company. Bruce is a HERS rater,
22 Building Performance Institute building analyst, an
23 ICC-certified residential combination inspector, and is
24 active with the ICC, the International Association of
25 Plumbing and Mechanical Officials, and ASHRAE

1 Mr. Cheney has been working in the construction
2 industry since his early teens, except for a brief vacation
3 with the U.S. Navy. He has been working with the
4 California Statewide Codes and Standards Team since 2013,
5 as a subject matter expert on Title 24, Part 6, splitting
6 his time between the classroom and job sites. In his free
7 time, he experiments with building off-grid heat pumps for
8 space conditioning, using water as a refrigerant and
9 rammed-earth buildings.

10 I have an all-star panel of industry
11 heavyweights. I am really quite blessed.

12 With that, I'm going to turn it over to Bob, and
13 you need to share your screen, Bob.

14 MR. WISEMAN: Can you hear me okay?

15 MR. OPFERMAN: You bet.

16 MR. WISEMAN: Okay. So, can you see me and hear
17 me well? Can you see the screen there?

18 MR. OPFERMAN: Can do.

19 MR. WISEMAN: Okay. So, yes. I am Bob Wiseman.
20 I am a C20 contractor, as Charles said, and that is how I
21 make my living, you know, so, when I'm going to be speaking
22 today, I'll speak as a contractor representing IHACI,
23 Institute of Heating and Air Conditioning Industries.

24 I'm also going to be addressing the
25 residential/light commercial market. I'm not going to be

1 talking commercial, nothing nonresidential at all. We're
2 not talking about acceptance testing. That's, you know, a
3 different animal altogether from what I'm going to be
4 talking about. But I'm going to talking about, you know,
5 hundreds of thousands of condensing units, furnaces, duct
6 systems, you know, that are installed in the state of
7 California every year. Okay?

8 So, moving on, we've been talking about
9 compliance for a very, very, very long time now, and it's
10 as important as ever, and, you know, as a contractor, of
11 course, we are always looking for a level playing field.
12 We know that will never really happen, but as close as is
13 possible is something that we're always looking for, and,
14 you know, what I'm going to be talking to you today about
15 is contractor self-certification, and a process to do that,
16 and something that we believe at IHACI can answer not all
17 of the questions and not all of the problems, but it can
18 address a lot of the issues that we're dealing with today,
19 and really move our industry forward.

20 You know, compliance with the intent of Title 24
21 is mandatory in the state of California if the state is
22 going to meet their long-term energy goals, and Title 24
23 requires that all HVAC systems in California meet certain
24 levels of efficiency. Okay? Now, we all know that's not
25 happening today. It hasn't happened. It's never happened,

1 and, you know, it's been quite a challenge.

2 That's why we've been talking about compliance
3 for, you know, 20-plus years now, and, you know, and the
4 minority of systems are tested. There's no doubt about it.
5 In fact, studies actually show that permitted work is often
6 just as bad as unpermitted work. There's not a big
7 difference. So, you know, we're not really making a
8 change, you know, in the installed HVAC systems out there.
9 You know, HERS, back in the day, you know, when this
10 process began, was implemented as a stopgap construct to
11 ensure contractors comply with Title 24.

12 MR. WONG: I apologize. I'm no longer hearing
13 audio.

14 MS. WHITE: Bob, I think we've lost your audio.

15 MR. OPFERMAN: Yes. Bob? Well, folks, he's
16 looking very intent. Now let's see what happens. Well,
17 okay. I guess the question is, Bob -- can you hear us,
18 Bob?

19 (No response.)

20 MR. OPFERMAN: Okay. I think what we're going to
21 do, until you can get your audio back, we're going to move
22 to the second presentation, and we'll come back. Is that
23 okay?

24 MS. WHITE: And, Bob, you can also use the
25 phone-in option --

1 MR. OPFERMAN: Absolutely.

2 MS. WHITE: -- and we'll still be able to have
3 you advance your slides, because there's no problem with
4 the video.

5 MR. OPFERMAN: Okay. Yes. And I have a copy of
6 your deck, Bob. So, actually, why don't we hang -- should
7 we wait for Bob for a second?

8 MS. WHITE: Yes. He should be able to dial
9 already.

10 MR. OPFERMAN: Okay. When I get Bob -- well,
11 actually, Bob can advance his own slides if he dials in.

12 Are you dialing in? He's looking for the --
13 ain't technology great, folks?

14 Javier, can you -- what's the phone number?

15 MR. PEREZ: Yes. Just one minute.

16 MS. WHITE: He's got the number there.

17 MR. OPFERMAN: Okay.

18 MS. WHITE: We started ringing.

19 MR. OPFERMAN: Okay.

20 MS. WHITE: And thank you, everyone, for your
21 patience. Technical difficulties are always such an
22 interesting thing during a public workshop.

23 MR. OPFERMAN: Okay.

24 MR. WISEMAN: Okay. Can you hear me now?

25 MR. OPFERMAN: You bet. Fabulous.

1 MR. WISEMAN: Okay. I have no idea. I apologize
2 very much. So let me move some of this stuff right here.
3 Sorry about that. Well, anyway, I do apologize, so,
4 hopefully, you can hear me okay on my cell phone. I have
5 no idea what happened there.

6 But, you know, HERS was implemented as a stopgap,
7 and as a construct to help us comply with Title 24, and it
8 was successful. You know, today we truly understand the
9 importance of efficiency in every HVAC system. You know,
10 contractors, for many, many years, did not, you know,
11 really put an emphasis on it, but HERS helped us do that.

12 So, I don't want, in any way, shape, or form,
13 want to say that HERS has been -- you know, hasn't served
14 its purpose. I believe it has. But I think, given the
15 level of compliance that we see today, and the level of
16 trouble that we still have with HVAC systems today, I
17 think, you know, we have a problem, that HERS is just not
18 going to be able to meet all the demands of compliance with
19 Title 24.

20 So, you know, why is IHACI talking about
21 self-certification? You know, why have gone there? Number
22 one, we believe that the people doing the work -- as my
23 good friend Don Langston always used to say, you know, the
24 people doing the work are the tip of the spear. You know,
25 these are the people who -- if we can influence how the

1 people who are doing the work get the work done, in a
2 better, more effective fashion, we will have a more
3 knowledgeable workforce, we will have better-installed
4 systems, and we will finally have the compliance that we're
5 looking for, and have been looking for for a very long time
6 with Title 24.

7 You know, I just want to, you know, back up and
8 thank Greg Mahoney for, you know, some of his comments
9 about simplification. You know, this is a complicated
10 process, and the simpler we can make this for the
11 contractors, the building officials, for everybody, the
12 better off we're going to be, and, you know, an effective
13 process that's compatible with contractor job flow will
14 really improve the quality of the work directly. Okay?

15 When I say an "effective process," what I mean is
16 a process of verification that works within a contractor's
17 normal job work flow. Okay? Nothing, you know, contrived,
18 not an artificial construct put in to our daily work, but
19 something that really works on, you know, what works for
20 us, streamlining the process, you know, for that
21 contractor, and, you know, by streamlining the process --
22 you know, it's a problem, you know, to have third-party
23 HERS raters to come out to a project. If at the end of a
24 project a contractor is able to self-certify, we have a
25 situation where the homeowner doesn't have to take more

1 time off of work, and it really is just going to -- it's
2 going to streamline the process for everybody.

3 As a contractor, I'll tell you right now there is
4 a good portion of the population who does not want permits
5 pulled, for one reason or another. They will really push
6 back on it. Sometimes it's time. Sometimes it's cost.
7 Sometimes it's, you know, they have an illegal work that's
8 been done on the house, and, you know, they don't want
9 somebody seeing it. There's a variety of reasons, and
10 they're all -- you know, they're all different, and that,
11 of course, puts pressure on the contractor when you have to
12 pull a permit.

13 Sometimes there's, you know, an expectation that
14 contractors don't pull permits because, well, they're
15 trying to get around the rules, and that's really just not
16 the case. You know, I'm sure that happens. You know, I
17 think it's the 80/10/10 rule. There's probably 10 percent
18 who are less than truth about (sic), and there's 10 percent
19 of contractors who will always pull a permit, but it's the
20 80 percent in the middle that we're really trying to
21 influence, and it's where self-certification can make a
22 huge difference.

23 As I said, verification of the HVAC system
24 performance at the time of installation, you know, is
25 critical, and we know that some jurisdictions already have

1 self-certification programs. You know, generally, you
2 know, it's, you know, for health and safety, you know.
3 It's certainly a precedent that's been out there, and, you
4 know, technology innovations today allow for real-time
5 verification

6 It's been a long time coming. You know, I don't
7 believe, back in the day when the HERS process began, it
8 was designed to be the beginning and the end. I think
9 it's -- you know, I believe it has served its purpose, and
10 I don't see it going away, you know, quite honestly. I
11 think it's very valuable for what it's done, and it will
12 remain valuable for many contractors. However, additional
13 options are necessary, and, you know, there are ways to be
14 able to do that.

15 It is more convenient, you know, for the
16 homeowner, like I mentioned a little while ago. They don't
17 have to take an additional day off of work. You know, they
18 can -- you know, as soon as the job is finished, you know,
19 it can be -- you know, at least the energy part of it can
20 be verified at that point in time.

21 There's still the health and safety inspection,
22 but, you know, we really see this as a convenient use, not
23 to mention more cost-effective. We're taking, you know,
24 that separate trip, where the contractor has to go back
25 out, you know, and, you know, deal with issues that might

1 arise. You know, we don't have the cost of the third-party
2 inspectors that would be involved. So, it's a more
3 cost-effective process as well.

4 IHACI has developed and is in the process of
5 currently beta testing a product called Visual Service. It
6 was initially developed by the HVAC industry -- for the
7 HVAC industry, excuse me -- to deal with poor system
8 performance and the technician shortage, quite honestly,
9 but it became pretty clear that Visual Service has a clear
10 path to help with compliance with Title 24 as well, after
11 we got into it a little bit, and there are other products
12 similar to this. I don't want to claim this is the only
13 one. But it's time that these type of products became a
14 way to get through Title 24.

15 Basically, what happens is tools, you know,
16 wireless remote tools, get connected to a cell phone, which
17 gets sent to the cloud, and all the data is stored, and on
18 the right, you see a service manager app. That service
19 manager data is stored from all the data, from all of the
20 tools that are used, and we're talking air flow, we're
21 talking static pressure. We're talking all kinds of
22 different things, you know, that are kept. Excuse me.

23 So, all this data is stored in the cloud. Okay?
24 And it's seen over time. You can see in the lower right
25 side of the service manager app a graph, and, you know,

1 that graph shows all the data over time. So, everything is
2 geotagged for a specific location. We know exactly where
3 the job is being done, and all the data is collected.

4 One of the things that comes up -- you know,
5 we've been through so many programs where the data can be
6 rigged, and people can manipulate data, and so forth, and,
7 you know, when the tools are -- when the data is all coming
8 live, and video is being used -- I don't believe I've
9 mentioned video. We have live video within Visual Service.
10 It's, you know, very possible for a process that it's
11 virtually impossible to rig, and we have more data than we
12 ever dreamed of as to the efficiency of this equipment.

13 You know, the service manager app was originally
14 designed for an HVAC contractor, service manager, but the
15 person who's looking at that data can be almost anybody.
16 It can be a HERS rater. It can be a utility. It can be
17 the California Energy Commission. It can be anybody, you
18 know, who the contractor and the customer choose,
19 obviously, but it is all, of course, secured in the cloud.

20 Some other benefits of this process. It means,
21 for high-performing contractors, we can transparently
22 demonstrate quality in every installation. You know,
23 there's no sampling here, you know, and we have this data
24 on every single job that we do. You know, this is not
25 once. You know, this is not, you know, a few. This is

1 everything.

2 Visual Service is a way to train a more qualified
3 workforce, and to properly install and maintain HVAC
4 equipment. This type of product can work for service, for
5 maintenance, for quality installation. It can work for
6 just about anything. Technicians gain confidence through
7 successful diagnosis of, you know, HVAC equipment, and
8 customers can view reliable independent third-party data
9 showing the operational status of their system.

10 It builds trust with the customer, as a basis for
11 honest and transparent dialogue, and, you know, today we
12 are beta testing it. We have seven contractors in Southern
13 California using it, and so far, it's working out to be an
14 absolutely wonderful product, and, you know, I think our
15 time has come, for us to begin talking about, really,
16 another way to be able to make sure that systems are
17 properly installed, and happy to answer any questions.

18 MR. OPFERMAN: Okay. I'm going to ask that we
19 hold questions until we complete the presentations, if
20 that's okay.

21 MR. WISEMAN: No problem. Absolutely.

22 MR. OPFERMAN: Okay. Just so we can get through
23 the presentations. Okay. Thanks, Bob. Thank you very,
24 very, very much.

25 I'd like to -- hopefully, I clicked the right

1 screen, and, Tom, you're up.

2 MR. PAINE: All right. Thanks, Charles.

3 There's been a lot of information today from a
4 lot of different people. It's a lot to digest, process,
5 think about, and a lot of different ways to think about
6 addressing these issues.

7 If you want to go ahead with slide two.

8 For my sake, I'm speaking from the perspective --
9 for the building industry. You know, mostly thinking about
10 new construction is where CBIA comes from. You know, what
11 we see as far as compliance goes is, the building industry
12 is largely pretty comfortable with where we are in terms of
13 compliance, in terms of working with HERS raters and local
14 jurisdictions, and in that space, things are working fairly
15 smoothly, and, of course -- and you can move ahead -- you
16 know, a lot of this is going to be a little duplicative of
17 what other people have already said today.

18 So, in that space, CBIA is fairly comfortable, in
19 terms of, you know, what we're doing, what's expected of
20 us, what's expected of builders, what our standard practice
21 is, where the sort of pockets of expertise are between
22 energy consultants and HERS raters and architects and all
23 of that, but what CBIA sees as sort of a larger concept of
24 concern is that, you know, when we step back and look at
25 all this from the bigger-picture perspective, which is, you

1 know, decarbonization in the state generally, and how are
2 we moving ahead with that, and how are we addressing, you
3 know, priority areas in the building sector -- and you can
4 go to the next slide -- you know, it's clear that the
5 biggest issue is in existing homes.

6 Thinking about the opportunities, you know, just
7 imagining that there is, you know, a level of noncompliance
8 in new construction that's maybe, say, 10 percent, 15
9 percent that aren't meeting, maybe, their leakage testing
10 or their QII or something like that, if new construction
11 remained perfect in terms of compliance with new code, you
12 know, we might be talking about saving, you know, 250,
13 60,000 tons of CO2 a year, but if we are able to bring
14 existing homes in California all up to existing code, in
15 terms of new HVAC equipment and, you know, meeting your
16 duct leakage and ceiling insulation, we're talking about
17 something more like 20, 25,000,000 tons of CO2 we can
18 reduce, right? Like the scale between the opportunity in
19 terms of existing homes versus new homes, you know, is
20 orders of magnitude.

21 So that's why, you know, we put a lot of thought
22 towards, you know, well, how can we help, and where are the
23 pain points, you know, in terms of getting that permitting
24 and compliance up in existing homes? Because we feel
25 really confident that, you know, the homebuilders are doing

1 a good job, and are working with the right folks, and so,
2 you know, how can we help the rest of the state, you know,
3 in terms of meeting climate goals, in terms of reducing
4 energy bills for homeowners? there's obviously a huge
5 amount of opportunity waiting in that existing building
6 stock.

7 Go to the next slide.

8 We've heard a lot of ideas today about how to
9 change that, in terms of, you know, certain tools and, you
10 know, in terms of where resources might be lacking. You
11 know, we hear from AHJs that they're under-resourced, that
12 enforcement is something that basically none of them have
13 the appropriate resources to do, and then there's this
14 other part of the component that I haven't really heard
15 spoken much about, but it's the fact that when we're
16 looking at water heater and HVAC changeouts, is that a huge
17 portion of that is done on an emergency basis, right? It's
18 not something that's planned out well ahead of time. It's
19 done because the thing isn't working and it needs replaced
20 right now.

21 That puts a lot of pressure on permitting and
22 compliance, because you have this really condensed time
23 frame, right? You can't tell -- no contractor wants to
24 tell homeowner that they have to wait three days to get
25 their water heater fixed because they have to wait until

1 Monday to get a permit. That's a huge burden, and it's a
2 burden on the contractor, and it's a burden on the
3 homeowner, and a driving factor for why, sometimes, it's
4 basically impossible to get a permit, right, because you
5 can't do that. You know, dead of winter and the heat is
6 out, and we're just waiting because of bureaucratic rules?
7 That's a huge challenge.

8 So, you know, how do we get around that? Well,
9 when we think about permitting, you know, we want
10 everything to go through a proper process, but the fact of
11 the matter is, if we can just find out that a job has been
12 done after the fact, that's still massively better than
13 what we have, which is, you know, 90 percent of jobs going
14 without having any data on them at all, right?

15 So, if we can loosen the requirements for
16 permitting so that, you know, it doesn't have to be -- you
17 know, that the process doesn't necessarily have to follow
18 the same order of steps every time, that if the permit can
19 happen after the job is done, and whatever inspections are
20 necessary can happen after that, then I think there's a
21 place where we can free up the process a bit.

22 So, like, that's one thing, right, is in terms of
23 making sure that, you know, permitting isn't impeding
24 replacements in these really short time frame scenarios,
25 and the other thing -- and then there's resources, right,

1 so resources for the local jurisdictions is a problem,
2 right, because, if the local jurisdiction doesn't have an
3 incentive to do those permits and to do that enforcement,
4 and they don't have the resources, it's not going to
5 happen, right? It's not going to happen because they don't
6 have the resources, and it's not going to happen because
7 they don't have any other incentive that's helping them get
8 there.

9 So, you know, how do we connect that up better,
10 right? Where can we get resources, you know, to those
11 jurisdictions in order for them to, you know, get to where
12 they need to be? You know, and the challenge also comes
13 along with the fact that there's such huge variation and
14 inequity between the sizes and the wealth of varying
15 communities, so I think it's pretty clear that where
16 there's resources necessary for that, it has to be coming
17 from a state perspective, because, if it's relying on those
18 individual jurisdictions to pull those resources, you're
19 going to have just these massively unequal rates, like we
20 see already, because of how unequally distributed the
21 resources are throughout the state, anyway.

22 Then, lastly, it's incentives, when we talk about
23 contractors, and, you know, where they're at. Pulling
24 permits, doing compliance, that all costs money, right?
25 And it all costs time. It adds complexity. It makes jobs

1 harder, and you're trying to compete against other
2 contractors to get a job with a particular homeowner.

3 The homeowner is going to pick the cheaper
4 contractor, and the cheaper contractor is going to be the
5 guy that isn't doing the permits, that isn't doing the
6 compliance, which means that the incentives, as they exist
7 today, incentivize noncompliance, right? That's actually
8 how the system works, is it incentivizes noncompliance. So
9 that needs flipped, right? And how do you flip something
10 like that?

11 Well, the easy solution, or the simple -- maybe
12 not easy, simple -- solution is money, right? Can we
13 deliver incentive to contractors to be making sure that
14 they're getting their permits done in the proper order,
15 right? Is there some sort of reward or rebate we can do
16 for verified permitted jobs that are done properly? Can we
17 connect that up better?

18 I mean, we know the state has got plenty of
19 resources available to address, you know, climate change
20 and decarbonization, and if compliance in permitting in
21 existing homes is this huge portion of how we get that
22 done, then maybe we really ought to think about, how are we
23 incentivizing contractors to be thinking about -- you know,
24 how do we get this to them? How do we connect them into
25 that loop that forwards the statewide policy goals of

1 decarbonization, and get them connected to those resources?

2 So, you know, I think there's a strong position
3 to argue that if we can incentivize changeout jobs for HVAC
4 and water heating that go from permitting through
5 compliance and are completed, and there's some sort of
6 financial incentive that goes back to the contractor, I
7 think that would make a massive difference, and I would
8 argue that, you know, it really isn't for the homeowner,
9 right, because, you know, it's the contractor that's
10 delivering all this information to the homeowner, right?

11 The homeowner is again often operating from an
12 emergency perspective, where the primary concern is that
13 their appliances work and the second concern is cost. So,
14 you know, the contractor is the one who has the ability to
15 connect these things together, and I think they need more
16 support. I think, you know, where there's financing
17 available, where there's funding available, I think, you
18 know, some of it needs to go to AHJs, to make sure that
19 they have appropriate staffing to be doing the proper
20 checking and, you know, what needs to happen at their
21 level, and we've heard from, I think, pretty much all of
22 those folks today that they don't have the resources they
23 need, and I think there's a place where contractors need
24 incentives.

25 I would argue that, you know, I think a lot of

1 folks would rather go and just say, "Well, we have existing
2 enforcement mechanisms. We just need to use them," and
3 just go out and do that, and the problem, of course, doing
4 that is that dumps all the cost back to the homeowner and,
5 again, encourages perverse, you know, noncompliance
6 decisions, right, encourages them to move away from the
7 permitting process, because going without the permit is the
8 cheaper thing to do.

9 So, we do those things, right? We connect these
10 resources to these folks at a higher level, and we make
11 sure we're getting all the good data, right? We know,
12 like, CIRB collects permitting data for new construction
13 starts, but we know that they already have connections
14 through all the AHJs, so we can get data on all kinds of
15 permits that are being pulled at a state level, and so we
16 can compare that, right, to permits pulled versus
17 compliance documentation completed, and we can see sort of
18 the continuum of that, but I think, ultimately, at the end
19 of the day, the thing that we really have to have at the
20 front of our minds is, what are the incentives that drive
21 the decisions of the homeowners and the other parties that
22 are part of this process, because today the fact of the
23 matter is, the incentive is to not participate when we're
24 talking about HVAC and water heating changeout.

25 There's an added component, right, which is, when

1 we're talking about HVAC changeouts, you know, the code
2 requires more than just changing out the system. It also
3 requires additional insulation, duct sealing, and that
4 stuff, and those are all things that cost money, and,
5 again, if there's a way we can connect resources into that,
6 to make sure we're encouraging folks to get that done,
7 those are all things that feed, again, these larger
8 statewide goals of decarbonization, right, if we're making
9 sure systems are being put in properly, that the
10 appropriate efficiency upgrades are being done at the time
11 of install, the folks know that they're there, and we can
12 get the resources to them.

13 But I think, at the end of the day, right now,
14 the resources simply don't exist, and it's too expensive,
15 and I don't think anybody wants to be in a position of
16 encouraging homeowners to make this choice of, you know,
17 "Do I get the HVAC system, you know, and get all the
18 insulation and everything else done and upgraded, or do I
19 pay my electric bill?" right, because, when you're talking
20 about adding cost to an emergency job, when they don't have
21 heat, it makes a terrible choice for a homeowner, and so I
22 think we really want to avoid situations where that can
23 happen. So that's it for me.

24 MR. OPFERMAN: Thank you, sir.

25 And for those who want to contact Tom, take a

1 screenshot. Okay.

2 We've had two incredibly intriguing
3 presentations. Thank you. Hang on a second. Let's see if
4 I can get out of this one. Okay. And, Bruce, let's see if
5 I can get into presentation mode and -- I'm sorry.

6 Charlie, we've had two tough acts to follow, but
7 I know you're up to it, so here you go.

8 MR. CORMANY: Great. Thank you. You can go
9 ahead and advance to the next slide, please.

10 So, this is a very juicy topic for me. First
11 off, my name is Charlie Cormany. I'm an executive director
12 of Efficiency First California. We're a nonprofit trade
13 representing contractors, long history of educating
14 contractors and representing contractors in policy
15 discussions, so this is very familiar territory.

16 I'm also a home performance contractor. I've
17 been in the field, run crews for a number -- I've done
18 hundreds and hundreds of home performance retrofits, and I
19 produce those, mostly, so a lot of the final closing of
20 permits and obtaining of permits was under my purview, or I
21 had people working for me to do that, and I've had to pull
22 them and done them myself as well, so a really familiar
23 topic for me.

24 On a side note, we also are a program
25 implementer -- we mentioned this briefly in the

1 introduction -- for SMUD's residential rebate program. So,
2 I have a program implementer hat that I wear, and have some
3 information and knowledge from that, but today I'm going to
4 put that hat aside and stick to primarily my experience,
5 personal experience, and the contractor's perspective.

6 Next slide, please.

7 So, I know some of this is going to be
8 repetitive. You've heard a lot today. There's been a lot
9 of coverage. Permitting process, one of the things that's
10 been always frustrating for me is a contractor is -- like,
11 in preparing proposals for contractors, permitting costs
12 vary widely across region. I'm actually in the Sonoma
13 region. Like, to do jobs in Petaluma, the permit would be
14 \$75. I'd do the same exact job in Sonoma, and the permit
15 would be \$350.

16 So, there's inconsistency and challenges there,
17 to the point we couldn't estimate our permits in our
18 proposals, so we just had to make them a paid line item
19 after the fact, because they're even -- like, we work a lot
20 in Sacramento, obviously, the SMUD. There's various
21 different entities there. Permits vary widely. So, it
22 would be helpful if there was some consistency in the
23 permits.

24 Another thing, frequently, I think people forget
25 about permits. Permits are a consumer protection. Well,

1 one, they're the law, and, two, they're in the customer's
2 own interest. So, you need to make them know that it's on
3 their behalf, why they're there.

4 We see contractors, and I know contractors,
5 talking people out of permits all the time. The classic is
6 "If you get a permit, they're going to come reassess your
7 house, and your property tax will go up," which is not
8 true. So that's a challenge, and it really -- obtaining
9 the permit, the cost, the time to get it for set for
10 inspection, honestly, in my world, that added about \$1,000
11 to the project, and that's pretty significant.

12 A final thing I want to mention about permits,
13 and I didn't know this until I went until the SMUD
14 territory with the program workers. A lot of these
15 contractors don't sit for their own final inspections,
16 which, in my upbringing in the contracting world, was
17 unheard of. We always kind of closed out our own projects.
18 Instead, they'd tell the homeowner, "Here, we're done.
19 It's your job to get the permit, call inspection. It's on
20 you." I think that's really a disservice to homeowners.
21 So, I don't know if you're aware of that or not.

22 Next slide, please.

23 So that's a bit on permits. Enforcement, I'm
24 sure you've heard this all today. I know a lot of this is
25 repetitive. Enforcement, enforcement, enforcement. That's

1 probably one of my biggest peeves with the whole HERS
2 process, is it doesn't have a lot of teeth to it if we
3 can't enforce it.

4 When HERS was -- prior to HERS, roughly 80
5 percent of HVAC swap-outs were permitted. They put in the
6 regulations for duct testing as part of the HERS process.
7 You pull a permit now, it triggers duct testing. Then,
8 also, the rates of permits declined significantly, down to,
9 I've heard, as low as eight percent of projects, definitely
10 under 10 percent.

11 So that really creates an unlevel playing field,
12 and it kind of -- if this is a regulation, it's a law, and
13 people can skirt it, but it doesn't have a lot of teeth.
14 That said, I do believe in the testing protocols, and the
15 metrics that they're looking for in the HERS process are
16 really good. I think they can be a really excellent
17 determination of system performance and that kind of thing.

18 Again, I want to also tender this. Most of my
19 experience is residential retrofits. I'm not going to
20 touch a bunch on new construction. But I've seen the
21 metrics of static pressure, air flow, fan watt draw, duct
22 testing. I think all those tests are really valid and have
23 a good place in this place. We just need to enforce it.

24 Next slide, please.

25 One of the things I've learned from doing program

1 design -- this is where I'm going to take my contractor hat
2 off a little bit -- is one of the things we saw running
3 programs for SMUD over a number of years is that simple is
4 better, but simple is hard, and one of the things that's
5 hard is, it's really easy to add things on. It's really
6 hard to pare things away, and remove, and get down to the
7 bare bones.

8 I think, if we want HERS and Title 24 and all
9 this to be effective, we really need to streamline, and
10 kind of eliminate, eliminate, eliminate, and get down to
11 what we really need. We have a situation where there's
12 multiple options with duct testing. There's multiple this,
13 multiple that. The more complicated you make it, the
14 harder it is to enforce, and the less likely people are
15 going to provide good data. What we find out, if we have
16 complicated data and lots of requests, people tend to just
17 put in numbers, instead of being more rigorous.

18 Next slide, please.

19 One of the biggest things I think I see going is
20 misaligned interests. When you have a third-party
21 independent rater coming by to test the work to see if it's
22 performed accurately or in accordance to the design
23 parameters, and that person is being paid by the person who
24 did the work, that's a huge misaligned interest, in my
25 perspective, because what I've seen, and I've heard over

1 and over from HERS raters, if they do the job right, and
2 they tell this contractor, "Your jobs are failing," they're
3 like, "Hey. You keep failing all my jobs. You're not
4 working for us. We're going to find another HERS rater."
5 They get fired, and they go find somebody else who will
6 magically pass their jobs.

7 I know several HERS raters, including one on my
8 board who's incredibly frustrated by this. It feels like,
9 if he's honest and does his work to the way he was trained,
10 and is objective about it, he loses work, and feels like
11 the only way to stay in work as a HERS rater is to cheat,
12 and I think that's a really serious issues that we need to
13 look at.

14 Also, some of this pooling in the independent
15 third -- they don't -- the information isn't really
16 objective. Sometimes they fill in reports with some
17 information. They'll get another contractor who will pass.
18 They'll stay there and then magically pass. I know this
19 because, in our program, we do third-party verification,
20 and we're following up behind jobs that have passed HERS,
21 and we're doing independent testing, and finding major
22 discrepancies. So, there's definitely some misaligned
23 interests that need to be addressed.

24 Next slide, please.

25 The testing methods. This is a little bit

1 technical. Some of the equipment and testing -- one of the
2 things I've always felt was a bit awkward with this, and
3 home performance work, is you use this really sensitive
4 equipment, and you expect to get repeated results on
5 day-in, day-out. It's not easy.

6 We used to have a process where I would have
7 salespeople go do a blower door in a house. The crew would
8 show up, and the blower door would be different than what
9 the salesperson reported. So that's really common, and so
10 we got to the point where all of our crews had blower
11 doors, would test for air ceiling, specifically. They
12 would test in that day, and measure their own air, so
13 they'd work from their own numbers, because, if they worked
14 from the salesperson's numbers, they were different.

15 We see this in validating HERS work, too. If you
16 put a blower door on a different door frame in a house, you
17 go in the front door, you put it in the back door. You
18 typically get different results. So, this equipment is
19 very sensitive. I've even been on a training where we were
20 doing combustion safety training. We were doing a house we
21 rented in Sacramento. We tested it in the morning. The
22 water heater failed, which it should perform better,
23 because it was cold. We tested it in the afternoon, and it
24 passed. Same house, same conditions. Nothing changed.

25 So, I think we have to put a little bit of

1 subjective opinions on how accurate this equipment is, and
2 don't rely on it as being a definitive answer. It varies
3 widely, and the equipment is hard to use. There're
4 different manufacturers, different brands. So, it's a nice
5 attempt, but, unless you have somebody who is well trained
6 in using it effectively, it's only as good as the inputs
7 you get. So, I don't know if you hear much of that, but
8 I've seen that over and over, so question a little bit of
9 the accuracy.

10 Next slide, please.

11 Group sampling. This goes back to -- I like the
12 idea -- they're switching out concepts in there, the visual
13 stuff, but I am a little concerned about group sampling.
14 This is where you can get, basically, an out for doing your
15 HERS testing by having a portion of your projects sampled,
16 instead of each one. The problem is, we've gone into group
17 sampling to get the free pass. You don't have to do the
18 HERS, and we go in and do duct testing later, and find out
19 these new systems are being installed with new duct work,
20 and leaking 15 percent, 20 percent. So, I understand the
21 intent, but we have some issues with deliverables.

22 Also, there's a 15 percent exception if your
23 project, overall, is less than Title -- exceeds Title 24.
24 You don't have to duct test systems. I've gone into a
25 project and seen two brand-new systems were installed,

1 tested them. One leaked nine percent, and the other leaked
2 15 percent duct leakage, and these were brand-new systems,
3 and to me, that's a fail.

4 So, there should be consideration over how you
5 police that. You have to be aware that this creates a very
6 unlevel playing field, and that's one of the biggest
7 challenges you have as a contractor, is do you play by the
8 rules and do what's right, or do you do what everybody else
9 is doing?

10 Next slide, please. That may be where I'm at.

11 Here's my conclusions. I think that Title 24 and
12 the Energy Codes are a good idea. I've often said that if
13 you enforced Title 24 and duct testing with HVAC, you could
14 probably save more than all the rebate programs in
15 California combined, because it's just a good idea, and it
16 works. So, I'm not opposed to the methodology or the
17 goals. I do think it's become very complicated.

18 There were some efforts streamlining the
19 paperwork to see if CF 1R, 2R, 3R, instead of what they
20 used to give, MCH 25 (phonetic), 20, all that. That
21 helped, when the nomenclatures matches, but I think we need
22 to take it a little bit further, and really work to
23 simplify, simplify, simplify, get rid of what we don't
24 need, and really -- what are we doing with this data? Are
25 we collecting it because we've been told to, or are we

1 collecting it because it has value? And really take that
2 lens and whittle away, so we can streamline it.

3 We really need to level the field for
4 contractors. It's really unfortunate. We have people who
5 are doing really good work and are true to the cause, pull
6 permits on their projects, really work on performance
7 metrics, make great systems with low static pressure, good
8 duct designs, properly-sized equipment, and the consumer
9 gets undercut by somebody who doesn't play by the rules,
10 and that person puts in a crappy system that isn't
11 performing well. That's a disservice to all of us, and
12 this equipment is going to be in place for 15 or 20 years,
13 so I think we really need to pay attention to that.

14 Enforcement. I mean, I understand the HR
15 requirements there, and the lack of resources, but it's
16 like, if you know there's a law and nobody is enforcing it,
17 it doesn't have much merit. So, before you consider new
18 codes or standards, I think really you ought to consider,
19 "Do we have the resources to enforce it?" as part of that
20 discussion.

21 I also think we need to educate building
22 officials. I can't tell you how many times I've walked up
23 to a building inspector and handed in my HERS paperwork,
24 and it was like, "Thank you," and they don't even look at
25 it. I'm like, "Wow. I worked really hard on that." And

1 they just file away their paperwork, they're done, and move
2 on.

3 Also, I think the public needs to potentially
4 have some awareness of the value of the process, and that,
5 if you have an improperly designed system that's not
6 installed to the intent, you're not going to get the
7 performance savings, you're not going to get what you paid
8 for, and it's a consumer protection.

9 So, this is a pretty meaty subject, and I could
10 go on for a while, but I've been keeping to constraints the
11 best I can, and keeping time constraints. So that's my
12 general summation of the process.

13 The next slide is contact information for me. If
14 you have anything, and you'd like further conversation,
15 that's how you find me, and we'll go from there.

16 MR. OPFERMAN: Thank you. Thank you. Thank you.

17 Last, but not least, Bruce Cheney. I believe you
18 have some thoughts you would like to share?

19 MR. CHENEY: I do. Can everybody hear me, okay?

20 MR. OPFERMAN: I'm going to stop sharing.

21 MS. WHITE: Yes, we can.

22 MR. OPFERMAN: You're up.

23 MR. CHENEY: Okay. Good afternoon, everyone. I
24 do have all my thoughts written down. Sorry I don't have a
25 slide show. I will put my contact information in the chat

1 when I'm done, in case anybody wants to follow up with me
2 or has more questions, but I am very enthusiastic about the
3 subject, a lot like a lot of the other speakers, and I've
4 been sitting here chomping at the bit all day to speak.
5 So, forgive me if I speak too fast, and if anything isn't
6 clear, please ask questions.

7 Just to cover my intro again, I am a HERS rater.
8 I started as a HERS rater when the code first changed back
9 in 2010. I spent a bunch of money, bought equipment, and
10 started calling contractors, and they all laughed at me.
11 So, I went from there to driving around to building
12 departments and asking them, "Hey. Do you guys enforce the
13 building codes?," and finding out from them that they do,
14 but they're only focused on health and safety.

15 So, like a lot of the other people on this, and
16 some of the comments I saw in the chat as far as HERS
17 raters or ATTs, I was one of those people that started my
18 business looking at the Energy Code, saying, "This is a
19 fantastic opportunity. I know there's a lot of issues with
20 these buildings, and I'm going to go invest all the money I
21 have in buying test equipment and getting certifications,
22 because this is going to be a great business."

23 Like many of you, I found out that it really --
24 the business really didn't exist. So, from there, I was
25 able to take introducing myself to a lot of building

1 departments to finding myself working with the Codes and
2 Standards Team, teaching building departments on the
3 updates to the Energy Code, which is one of the things I've
4 been doing since 2013. I was also one of the lead trainers
5 with Energy Upgrade California back when that launched in
6 2011, where we went around the state teaching the
7 contractors the Building Performance Institute principles,
8 so they could participate in those programs properly, do
9 combustion safety before they were air-sealing, insulating
10 the buildings.

11 I still work with the Codes and Standards team,
12 training a lot of the building departments in Southern
13 California, so the comments about -- the building
14 departments are definitely understaffed. They're
15 overwhelmed. The amount of code requirements has only
16 increased over the years. Their funding and their manpower
17 has not. If anything, it's actually gone down.

18 I was at EduCode in Las Vegas just two weeks ago,
19 and that is the common thing that I heard, is that --
20 EduCode is -- probably half the inspectors and plan
21 reviewers taking classes at EduCode, which is an ICC event
22 put on in Las Vegas once a year to get the building
23 inspectors and plan reviewers their continuing education
24 units -- the common theme from all the building inspectors
25 and plan reviewers is "How am I going to possibly remember

1 all this when I go back to work on Monday?," because
2 they're overwhelmed, not just with the Energy Code, but the
3 health and safety, the structural updates, the Fire Code
4 updates, everything.

5 Also, I get a lot of forensic audits, because I
6 am a HERS rater and because of my past, almost 10 years of
7 working with the building departments. I get a lot of
8 referrals from customers that are frustrated from buying a
9 new construction home and having energy bills twice as high
10 as the 50-year-old home they just moved out of, and they
11 want to know, "Why is this possible?" Or somebody will
12 have problems with their existing homes.

13 So I do a lot of forensic audits, where I go back
14 out to the homes and I repeat the process of performing the
15 inspections, repeating the HERS testings, et cetera, to try
16 and confirm how the home was actually passed, and what I
17 find out, nine times out of 10, is the compliance documents
18 that I have in my hand, the CR2Rs, the 3Rs, say the
19 building complies, but the test results I'm getting, much
20 like Charles was mentioning, don't match what I'm seeing on
21 the certificates, or I'm seeing that the installation
22 certificates and the HERS documents I get, when I try and
23 repeat the tests to confirm how the home was finalized,
24 they're all saying they were part of sample groups, and all
25 the numbers are the same, which, again, we'll repeat the

1 test, and we're finding out they're significantly different
2 than that.

3 So, I just wanted to give a little bit more on my
4 background, and why I think I'm really good to speak about
5 this, and why it's such a passionate topic to me, is I've
6 been doing it since the HERS became a requirement, and,
7 like a lot of other people, some frustrations I've heard
8 of, we spend a lot of time getting educated and tooling up,
9 but then something else happens someplace else in the
10 industry, or it doesn't really come to fruition.

11 So, I just wanted to go through and talk to some
12 of the questions that I was sent before here, and kind of
13 speak to those. Now, I'm not going to stick exactly to
14 this list. I'm going to fork off pretty quickly, because
15 some of my solutions are going to address multiple points
16 in the questions that we were sent.

17 One of the questions I was asked is which
18 compliance tools I use most often. As a HERS rater, and
19 what we teach the building inspectors to work from, is the
20 HERS databases. We use those project status reports. We
21 use what the HERS databases say are required, because, if
22 you're out at the job site, and the contractor or the
23 homeowner doesn't agree with what's required, it shouldn't
24 really be an argument over who thinks what. It should be
25 simply referring to the required documents and saying,

1 "This is the black and white of what's required," take the
2 attitude and the opinions out of it, and say, "This is why
3 we have to do it."

4 So, I use the HERS database, the HERS provider
5 databases, a lot. As a HERS rater, I usually feel like I'm
6 herding cats when I get out to the job site. It was
7 mentioned by a couple people that the builder sees the
8 certificate of compliance, both on non-res and residential
9 projects, as a permitting document, and then they throw it
10 away, and then they dig it back up again at final and say,
11 "Why weren't all these things done?"

12 So, one of my solutions to a lot of these issues
13 is -- when I started in the business to become a HERS
14 rater, there was a certification to do alterations. There
15 was a certification for nonresidential. There was a
16 certification for a whole house, and that certification for
17 a whole house required that you took a class as a HERS
18 rater about how to create an energy model, and there was a
19 QA procedure for certifying that energy model, submitting
20 it, that you had to be within, I think, six inches of the
21 measurements and everything, and then they repeated the
22 measurements and ran your model, and your model had to come
23 out within a certain percentage of the baseline model.

24 Well, my solution to a lot of these problems
25 would be, if the HERS raters, the HERS providers, and the

1 CEC, in the compliance manual, in the ACM, already have a
2 procedure for certifying HERS raters to do Title 24
3 documents.

4 Why don't we just put the HERS rater as the one
5 that's responsible for working with the design team to
6 create the initial Title 24, if they're the ones that are
7 also going to be doing the HERS verifications, because
8 they're not going to put something on a Title 24 that goes
9 through plan review that they can't perform the inspections
10 on or can't get the contractor to build out in the field.
11 The mechanism for that already exists. The HERS databases
12 already exist. Your workforce already exists, and that's a
13 workforce that's out there begging for work right now. I'm
14 one of them.

15 Following on to that, the other thing I would
16 like to see is that -- the current process assumes that all
17 contractors understand Title 24, Part 6, that every
18 contractor owns a duct blaster, a flow hood, calibrated
19 refrigerant gauges, performs all these tests, and then
20 provides those test results to the HERS rater, and then the
21 HERS rater verifies that information.

22 For sampling to happen, that's a requirement.
23 The contractor should have tested every single one of those
24 units, documented the test results, then provided them to
25 the HERS rater. That is not happening, and for us to

1 continue to write code, and to continue the charade of
2 assuming that all the contractors know this and do it,
3 is -- it's really just a disservice. To me, it's kind of
4 comical that we keep making all these updates and making
5 new requirements, where we're not addressing the fact that
6 that doesn't happen.

7 So, one of my suggestions would be something
8 along the lines of, why don't we eliminate that CF2R? And,
9 again, if the HERS rater is the one doing the
10 documentations, going through plan review, they're going to
11 be responsible for doing the verifications. They're going
12 to be working with that design team all the way through,
13 and explain to the contractor, "You have to have duck
14 leakage I'm going to do. You have to have air flow you're
15 going to do. We're going to do refrigerant charge with you
16 on the final day of your installation."

17 Again, it takes the onus of the contractor from
18 having to do all this detailed data collection and
19 understand all this complex Energy Code, to just knowing
20 they have to work with the HERS rater on the final day of
21 their installation, to do the testing and get the
22 documentation done for the final inspection.

23 In that vein, I would also like to see apps.
24 Like, we showed some of the tools. Bob was showing that
25 Visual Service. I use, like, the field piece, the

1 job-linked data reports, and the refrigerants gauges to
2 collect all my information. There has to be some way that
3 we can take some of these commercial products, these tools
4 that allow the data collection to happen out in the field,
5 and automate it with APIs or some technology to be able to
6 put it directly into the HERS database, and make
7 user-friendly apps.

8 Contractors, installers out in the field, they
9 use two things when I'm out there doing the HERS rating.
10 They use YouTube, "How do I do this?" They look for
11 somebody else to show them how to do it on YouTube, or they
12 look on their apps that they have for their tools now, like
13 TESTCO and Fieldpiece have.

14 So, my suggestion would be, they like apps.
15 Let's give them an app that helps them, either ties to
16 those HERS databases or ties into their tools, that helps
17 them walk through the compliance process, collect the
18 information they need to know, understand when they need to
19 stop and ask for help, to call for an inspection, and
20 remove some of the stress and the complicated process of
21 currently -- and collecting this data, and entering it into
22 the HERS database. Make it something that's simple, like
23 we've already mentioned paint-by-number, as simple as
24 possible for the contractor, using the tools they already
25 use, like their phones and their computers.

1 Again, using that HERS whole-house process,
2 getting the HERS raters that are already out there, that
3 have gone through collecting those certifications and
4 paying those fees, I think that would be one of the best
5 ways, is make them, at the front end, responsible for those
6 Title 24s that are getting submitted to the building
7 department for new construction, and then all the testing,
8 all the way through to final, and, again, that QA procedure
9 already exists.

10 Things like those emergency change-outs, those
11 alterations, most jurisdictions do allow emergency
12 change-outs to happen, for instance, on a weekend, and then
13 that permit to happen sometime the next week, when the
14 contractor or homeowner has time to come in. So, there
15 shouldn't be a limitation or a fear from the contractor to
16 get a permit on an emergency change-out, but what does
17 happen on those is they don't typically go through a more
18 thorough plan review process. They're not being reviewed.
19 Usually that plan review process is happening with a
20 building inspector out in the field, explaining what the
21 requirements are and doing the inspection in the same shot.

22 If you're using HERS raters -- and we're going to
23 see many mechanical equipment change-outs in the future
24 trigger a HERS rater in some way, shape, or form, but the
25 HERS rater would be able to execute both that plan review,

1 confirming that that CF1R alt or NRCC that was filed
2 matches the job site, and the compliance requirements are
3 right, and perform the testing again, removing the burden
4 from the building department of having to worry about this
5 emergency permit and the energy calculations, just
6 confirming that the equipment meets the health and safety,
7 and then that those fees were paid.

8 On that would be using the HERS raters to do this
9 whole process. One of the things that I see myself that
10 has got me fired from a lot of jobs is, if you write up a
11 contractor, they don't call you again. So, one of my
12 suggestions would be that the other side of this is that
13 you have the builders that are overly friendly with the
14 HERS raters and the energy consultants, that nothing ever
15 fails.

16 So, my suggestion would be that we have a
17 roulette or a carousel of HERS raters for each
18 jurisdiction, that -- on the HERS databases right now, you
19 can search by zip code or county. So the HERS raters pick
20 which jurisdictions or zip codes they want to work in, and
21 any time the builder would pull a permit, they would have
22 to pull a HERS rater from that carousel. They would not be
23 able to use the same HERS rater two jobs in a row. That
24 way, they're consistently getting different HERS raters
25 from different companies, and those relationships can't get

1 too cozy.

2 The other thing I would say would be that -- I
3 have said this in my training for years, since I did energy
4 upgrade, is every contractor I've ever met wants the
5 building inspector or the homeowner to congratulate them
6 when they're done. They're craftsmen, and they want to do
7 a good job, but there's no education requirements behind
8 them. There needs to be something with the CSLB, some type
9 of education requirements that may be on a three- or
10 five-year cycle, whatever their license renewals are based
11 on, that there's some type of continuing education, that
12 they have updates on the labor laws, workman's comp, things
13 like that, Energy Code, and then trade-specific
14 requirements.

15 I know contractors, one of them that is in their
16 80s, they only had to take one exam, sometime in the early
17 '70s. They've never had to go back to school in any way,
18 shape, or form, since the '70s, and air conditioning has
19 changed significantly since the '70s, but this contractor
20 has never had to have a single day in school since they got
21 that contractor's license, saying they know Title 24, Part
22 6, or anything about the Mechanical Code.

23 Now, they certainly will argue with me, every
24 single job, about the Energy Code and the Mechanical Code,
25 but they have not had to have a single day sitting in a

1 classroom, required by their license or by the state. So,
2 technology apps are one of the things that I think we
3 should definitely add, or at least provide.

4 A couple of the other questions that were asked
5 are "Is TDV a good metric?" or "Do you use TDV to explain
6 to the customer?" And same as I teach with the building
7 departments, when I explain to the customer that TDV, that
8 time-dependent valuation, what that means in the energy
9 calculations is that's how we get that permit, that it's
10 not going to really tie to their energy bills, and, again,
11 trying at least focus the customer not to really get buried
12 too deep into Energy Code-speak, because it's just going to
13 confuse them, but more focus on the building science
14 aspects of why this is healthy or beneficial for them over
15 the long run.

16 I think that was most of what I had, and one
17 other thing I wanted a second on, that I hear from the
18 building inspectors and all the other code authorities, is
19 that our numbering of Part 6 -- that if we could align our
20 numbering with how ICC and IAPMP number their other codes,
21 how we have the matrix tables at the beginning of the code
22 that explain which tables and which portions apply, it
23 would go a long way towards getting the building inspectors
24 and the plan reviewers to be able to search and answer
25 questions from the code, so aligning with ICC and IAPMO.

1 The other thing is that yes, I would like to see
2 sampling. Every project that I've ever gone behind as a
3 forensic auditor, trying to help a homeowner figure out
4 what went wrong, every project that was sampled, the
5 numbers did not match. So, my suggestion would be to go
6 away from sampling.

7 There was also talk about the CSLB, about
8 reporting contractors, about how do we get bad players out
9 of the industry, and I second what a lot of other people
10 have said, that it's very difficult to get bad actors out
11 of the market, that in the past, the CSLB has not been a
12 big help in that, and that I understand their position, and
13 that their enforcement is towards the contractor, but they
14 do certainly need to align better with the building
15 departments, and help us when we find somebody that is not
16 playing by the rules, that there's a way to get them out of
17 the industry, so that the people that are paying these fees
18 and playing by the rules aren't having to compete against
19 them. Same thing for the acceptance testers, same thing
20 for the HERS raters. It goes across the board, but I
21 usually work with the Codes and Standards Team for most of
22 my work, because I get fired as a HERS rater for most local
23 contractors.

24 That was pretty much all I had in my comments.
25 Again, I will put my contact information in the chat below,

1 and I'll be sticking around for the rest of the Q-and-A
2 from the panel. Thank you very much, everybody, for
3 including me in this, and I hope what I said made sense and
4 contributes to the discussion.

5 MR. OPFERMAN: Thank you, Bruce. Thank you very,
6 very much.

7 Tom and Bob, if you want to light yourselves up,
8 I'd appreciate, and, again, couple questions. I'll keep it
9 short, and then I know there are some audience questions,
10 so I'll open it up for them.

11 Okay. And I promised to get this question thrown
12 out. Charlie, there's an actual cost to contractors who
13 play by the rules, using permit and HERS, versus the "skip
14 a permit" approach, and I realize there's both a financial
15 cost, just in terms of that, but there's also a cost to
16 them in terms of their business, and maybe you would like
17 to talk about that a little bit.

18 MR. CORMANY: Sure. I'll give you a perspective.
19 I worked at a company called Recurve, and we ran -- my God.
20 We'd run 10 crews at the same time, so relatively large
21 home performance company. We got to the point we had to
22 have a dedicated person to go to pull permits in San
23 Francisco. San Francisco permits are hard. We had,
24 basically, an admin, that that was their full-time job, was
25 going for permits.

1 I ran a North Bay chapter office. I actually had
2 a floater, and half of his job was running around getting
3 crews materials, and the other half of his job was sitting
4 for inspections. So, when we looked at our costs, our hard
5 costs for permitting, you know, you've got to go to the --
6 there's over-the-counter permits, which is great. I would
7 really -- I think that's a nice option.

8 In a lot of places, you can actually pull them
9 electronic or do them over the counter, which is quick, but
10 in other situations -- in San Francisco, we were taking two
11 hours, three hours, to get a permit. So that's somebody on
12 the clock, waiting around to get a permit, so that adds to
13 the cost. Then you've got the cost of the permit. Then
14 you've got the cost of the third-party rater, and a HERS
15 rater is typically around \$350.

16 Let's say a permit is \$150, so there's \$500.
17 I've got a crew for a couple hours to get there, and I've
18 got a window to sit for inspection, another three hours.
19 So, we were easily looking at side-by-side comparisons of
20 \$1,000 of additional costs for one of our projects that was
21 fully permitted and compliant, versus somebody we were
22 competing with that was not. So, it's significant.

23 MR. OPFERMAN: Okay. Thank you.

24 I don't know. Do any of the rest of the
25 panelists want to take a jump at that?

1 MR. PAINE: Well, I just wanted to say,
2 quickly -- and I'll let everybody else say what they think
3 the cost is -- I think that the amount of incentive we
4 think about giving the contractors should be about the same
5 as those costs, because that gets us that level playing
6 field, right, where the guys following the rules aren't
7 being punished for following the rules.

8 MR. OPFERMAN: Okay. Bob? Can't hear you. I
9 think he's going to dial in again. Bob? Okay.

10 MR. WISEMAN: How about now? I'm sorry, guys.

11 MS. WHITE: Yes, you can hear us, and we can hear
12 you now.

13 MR. WISEMAN: Wow. I'm sorry. This is pretty
14 crazy.

15 MS. WHITE: Yes.

16 MR. WISEMAN: But one of the things that we --
17 that I often see is -- the answer to that question is, it
18 depends. Those numbers that Charlie is talking about is
19 actually very true, but we also see a lot of projects where
20 you cannot seal this duct system. You know, you have to
21 replace that duct system, you know, because, if you seal
22 that duct system, there's not enough air flowing through
23 the system in order to have it even function.

24 So, the cost of somebody who's going to come in
25 and not change that duct system, you know, compared to a

1 truly permitted job that's actually going to work, is -- it
2 costs the \$1,000 Charlie is talking about, plus the cost of
3 the new duct system, which, at least in this market, is
4 \$2,500 to \$3,000, \$3,500, you know. So, you know, it's a
5 lot of money.

6 MR. OPFERMAN: Real cash. Thank you. Okay.

7 MR. CHENEY: I agree with Bob. I would second,
8 to say that the biggest hesitancy I see in a lot of
9 contractors -- because the contractors I do HERS testing
10 will call me and ask me about jobs, and then I don't hear
11 back from them, and I know why. It's because they're
12 afraid of "How much is this going to cost me once I start
13 pulling apart drywall or get this furnace out of here?"

14 So sometimes it's not the hard, fixed cost of
15 "What's a HERS rater going to charge me?" It's "How much
16 of this home am I going to have to include into my bid,
17 into rebuilding, that the homeowner really doesn't
18 understand that I have to do because of code compliance?"

19 MR. CORMANY: Yes. I'd like to chime in on that
20 a little bit, too.

21 When I was an HVAC contractor, it was not
22 infrequent for the duct system to cost as much, or if not
23 more, than the furnace replacement. So that's a big chunk
24 of change, and I can relate to that, but I also think we've
25 got to look bigger picture, and say these devices or

1 appliances they're putting in there are going to be in
2 there for 15, 20 years.

3 We're trying to deal with decarbonization in our
4 future, and meeting our climate goals. Yes, it might be a
5 pain point, but we have to address it, because otherwise
6 you're letting somebody get by with something that's going
7 to continue to be a negative impact for years and years,
8 and that's what we're trying to avoid.

9 MR. WISEMAN: Absolutely.

10 MR. PAINE: Yes, and I would just -- you know,
11 the state is putting, you know, all these thousands of
12 dollars in getting people to put in heat pumps. We should
13 be doing the same thing for insulation and duct sealing,
14 because we let these people go without this stuff in these
15 unpermitted jobs. That is energy lost for decades, right?
16 And that's emissions that are just going out in the
17 atmosphere for decades, and we could be doing a better job
18 today, but the incentives aren't lined up the right way,
19 and it's expensive for homeowners, and a lot of people
20 can't even afford to make that choice.

21 MR. OPFERMAN: Amen.

22 What else would you folks suggest in terms of
23 hardware or software approaches that would increase
24 transparency, accountability compliance, or how else could
25 we lower transaction costs? I mean --

1 MR. CORMANY: I'll take that one. So, I
2 mentioned a little bit about a program I work with, SMUD,
3 and I don't want -- and I'm taking my contractor hat off
4 and putting my program administrator on. One of the things
5 we found that's helpful in very complicated situations is
6 to create a construct where you have program designs and
7 features and requirements, and you create an exception
8 process.

9 So, we know -- I mean, I know there's houses you
10 go to, there's no way. They're inaccessible ducts, there's
11 all these things. HERS has some of this built in, where
12 you have your rigid requirements, but you create an
13 exception, and acknowledge that certain houses are going to
14 be outside the realm. When we try and incorporate, and get
15 some legislation and regulation that comes in that is
16 all-encompassing, it's a fool's errand.

17 You've got to look at "How can we get 85
18 percent?" And for the 85 percent -- the 15 percent that
19 are outside of that, let's create an exception process, and
20 track that. That simplifies it for all parties involved,
21 instead of trying to go into these houses that are
22 impossible.

23 I'm thinking of houses that were air sealing, or
24 couldn't meet our targets, what have you. There were
25 just -- there's times where you can't -- we have to

1 acknowledge, we're working in a built environment. I'm
2 talking residential retrofit, and it's hard. So, build
3 something that's -- and create an exception process so it
4 isn't absolute across the board. We found that to be very
5 effective, and a way to reduce costs, because you only have
6 to deal with the outliers, not all of them.

7 MR. OPFERMAN: Okay. Thank you.

8 MR. CHENEY: One other thought to reduce touches
9 on the customer, in costs, is like, the HERS providers
10 currently allow the HERS raters to put pictures into the
11 HERS databases, that the building inspectors can then log
12 in from the building department and view.

13 So, the building inspector could request, "Hey.
14 Give me a picture of the T-drip lag and the gas valve.
15 Give me pictures of the earthquake strapping," and not have
16 to go out and actually touch that customer again, and a lot
17 of that was put into place due to the pandemic, but it's
18 going to be maintained going forward because, again, it's a
19 time-saver. It's a cost-saver. We're not rolling, you
20 know, trucks from the county out to far-flung places if the
21 HERS rater already put the pictures up.

22 So, if you're not aware of those, make sure that
23 you spread that news to your contractors, HERS raters,
24 building inspectors, that those tools exist, and that's one
25 of the things that I think, going into the future, that we

1 should all be using. As a few people mentioned, the number
2 of times that customer is interrupted or has to take days
3 off from work is one of the big hindrances to the
4 contractors wanting to do this stuff.

5 MR. OPFERMAN: Thank you, Bruce.

6 Another question that -- what role -- the current
7 process may present certain roadblocks that could be making
8 the process change, and I know that you guys have been
9 talking about stuff you'd suggest. Are there other process
10 changes? And that could be hardware, software-related, or
11 we're looking bigger, programmatically, in terms of making
12 an impact?

13 MR. CORMANY: Since nobody is going to jump on
14 this, I'll take it. I agree with Bruce. Photography is
15 huge. I used to manage crews with photography. We use it
16 as part of our work-flow process with SMUD. We do
17 corrective action. We can go out and verify a job, and
18 there's something that needs to be fixed. We send the
19 contractor back, and they can meet the requirements for
20 corrective action with photography, so they don't have to
21 go back and verify them again.

22 So, I think the use of photography, and building
23 a way to import that, streamline it, is a really effective
24 tool. Everybody's got a camera, everybody's got a phone.
25 It's a pretty simple way to do it. You can save a lot of

1 time. Totally support that.

2 MR. OPFERMAN: Okay. Thanks to Tom, we have the
3 incentive issue raised, and I appreciate your, you know,
4 raising that. Are there other incentives, other than to
5 the contractor? How do we incentivize the homeowner to do
6 the right thing?

7 MR. PAINE: Well, I mean, you know, one thing is
8 it could be split incentives, right, that could benefit
9 more than one person in the chain, right? The homeowner
10 finds out that there's an incentive for hiring, you know, a
11 contractor that, I don't know, is, for one reason or
12 another known that they do the -- either way, the homeowner
13 expects the contractor to be getting -- if the homeowner
14 knows that, if it's HERS rated, that they get a credit, you
15 know, and a contractor knows that if they do the HERS
16 rating, that the homeowner gets a credit and they get a
17 credit, you know, then maybe it's something like that.

18 I would just argue that I think the contractor
19 has to be included in that benefit structure, because --

20 MR. OPFERMAN: You're freezing up, Tom. Or am I
21 freezing up?

22 UNIDENTIFIED SPEAKER: You're (indiscernible),
23 Tom.

24 MR. OPFERMAN: Okay.

25 MS. WHITE: Yes, it's Tom.

1 MR. OPFERMAN: Okay.

2 UNIDENTIFIED SPEAKER: We're losing Tom.

3 MR. OPFERMAN: Okay.

4 MS. WHITE: I'll text him.

5 MR. OPFERMAN: Okay. Thanks.

6 Another question is in terms of tools. Do you
7 see any advantage of integrating any of these compliance
8 tools with the other tools that you end up using on a -- to
9 manage your business, such as client management, sales,
10 project management?

11 MR. WISEMAN: I can take that, Charles.

12 MR. OPFERMAN: Yes.

13 MR. WISEMAN: You know, because I've often
14 thought about it, and I love the idea of having everything
15 integrated, you know, in one spot. I think it's a good
16 goal to strive for. I think the question would become
17 "Integrated to who, and to how?," you know, because, having
18 myself, as a contractor, directly connected to the HERS
19 database is not quite as helpful as if my HERS rater was,
20 you know.

21 So, I mean, that's just my -- you know, my
22 initial thought, but having, you know, some type of an
23 interface, you know, to allow software companies to be able
24 to do that type of information, I think it's very valuable.
25 You know, I'm not enough of a programmer myself, but, you

1 know, having those links there, you know, to be able to do
2 that, I think, would be helpful, whoever that person would
3 be who would take advantage of it, because it makes a lot
4 of sense.

5 MR. OPFERMAN: Okay. Great.

6 Before I invite -- there's some public questions
7 coming in. I'm going to give each of you guys an
8 opportunity, if you've got some last licks you want to get
9 in, before I invite the public.

10 MR. CHENEY: The only other thing I would mention
11 is, Tom was talking a little bit about rebates, is I would
12 say, if there's anything you can do to make the rebates --
13 when they are available to the contractor or the homeowner.
14 In previous programs, that's been a complaint, is the
15 amount of recording and documentation between the time that
16 they install the equipment and they get the rebate, kind of
17 takes the excitement out of doing the upgrades.

18 I've dealt with a lot of angry customers trying
19 to -- you know, calling me, saying, "Why am I not getting
20 this rebate?" I'm like, "I just did your inspection. It
21 passed. Everything else is administrative from there on
22 out." So, whether it's point of sale at the supply houses
23 or an instance like, "Okay. You passed your HERS
24 inspections. Here's a rebate on your inspection fee,"
25 something like that, but it certainly should be as short a

1 time frame as possible from the transaction to the reward,
2 to make those incentives work.

3 MR. OPFERMAN: Okay.

4 MR. PAINE: Yes. I would definitely -- like, if
5 there's a way -- you know, maybe it goes through the HERS
6 registries themselves, right? So, as soon as the
7 documentation is done, then it kicks back or something, you
8 know, whatever -- yes, definitely, expediency would be a
9 priority.

10 Again, yes, sorry for the -- I'm a victim of
11 rural Internet.

12 MR. OPFERMAN: Okay. Great. Okay.

13 Mike McGee, I just opened your mic. At least, I
14 thought I did.

15 MS. WHITE: Mike, you need to unmute.

16 MR. MCGEE: I'm here.

17 MS. WHITE: Thank you, Mike.

18 MR. OPFERMAN: Okay. And your question?

19 MR. MCGEE: I don't have a question. I
20 accidentally pushed something.

21 MR. OPFERMAN: Your "Hands Up." Okay.

22 Chris Ruch. Need to unmute, Chris.

23 MR. RUCH: I was up from before. I don't have a
24 question right now.

25 MR. OPFERMAN: Okay. What's hand's up? Okay.

1 MS. WHITE: That's Chris Walker, has still got
2 his hands up.

3 MR. OPFERMAN: Chris Walker. Hang on. Chris.

4 MR. WALKER: Thank you. Again, Chris Walker with
5 CAL SMACNA.

6 You know, I love hearing all the suggestions, and
7 I just -- I want to at least put the 600-ton gorilla onto
8 the table, even if it's not politically viable or
9 attractive, but, you know, when you look at the state's
10 efforts to regulate vehicle emissions, the smog check
11 program is not a voluntary program. It is a program that
12 is required to register your car every two years, as well
13 as, when you go to sell your vehicle, you have to have a
14 compliance certificate.

15 If we're going to be providing incentives to
16 homeowners or contractors, it seems to me there ought to be
17 a cojoined effort to also attach to that property a
18 requirement that, at time of sale, that all systems are
19 Title 24 compliant. Now, that is very controversial. I
20 get it. But the state has already done it with the
21 vehicles, and when we're looking at contractor malfeasance,
22 permitting or not permitting, or how we're going about
23 this, it all comes back to supply and demand.

24 What we know now, and what we've heard, is, when
25 people are replacing water heaters or HVAC units, it's in

1 time of emergency and urgency, and they're hurrying to get
2 it done. They want inexpensive comfort now. The idea of
3 lower electricity bills is not a factor that's going into
4 their purchasing decision, just like increased gas mileage
5 is not a factor that goes into people's decisions about
6 getting a smog check.

7 We need to change the demand, and you'll change
8 the supply, and, you know, I know this is controversial,
9 but I don't want to leave it off the table. I think we
10 need to have a serious discussion about it. So, I raise
11 that. Are you guys willing to change the demand in order
12 to change the supply?

13 MR. OPFERMAN: Ultimately, that's a policy issue,
14 something I know that Commissioner has advisors on call,
15 and that can be taken up with the Commissioner.

16 MR. WALKER: Well, but it is a policy, but we're
17 talking about policy in every other respect, whether it's a
18 centralized database, incentives, disincentives. I would
19 like to hear from some of the panelists, what they think
20 about the supply/demand, and the fundamental need to change
21 the demand.

22 MR. PAINE: Well, I mean, just, you know,
23 starting with the idea that -- I mean, I could see that
24 working, right? If you say, "Well, if the state puts the
25 money into making sure that this job on this house

1 happened, now the state has an interest in seeing, you
2 know, that that continues, that is has some perpetuity to
3 it," I don't think that's inherently problematic.

4 I think the concerns would ultimately be more
5 practical, just because of the complexities of selling a
6 home already, and I can't -- you know, it -- I mean, they
7 get to this kind of a -- it's a connected issue, but it has
8 its own set of challenges that you'd have to sort out as
9 well, I think.

10 MR. WISEMAN: I'll hop in real quick. Chris,
11 I've often said that, you know, if you're going to change
12 the market, it has to be done with something dramatic, you
13 know, and it's not a simple process to change this, and
14 even if something like this was required, you know, I think
15 there would be -- how it's implemented would become as
16 difficult as making the policy. Let's put it that way,
17 because, you know, the devil would be in the details. But
18 I'm with you. I think it should be on the table. You
19 know, it's something for -- it's something to be
20 considered.

21 MR. CORMANY: Yes, I --

22 MR. CHENEY: I think that should be on the table,
23 and there's -- I'm sorry, Charles.

24 MR. CORMANY: No. It's also -- you know, this
25 is -- I think it's consumer education, because consumers

1 aren't aware of the risk if they don't get a permit. I
2 mean, there's a lot of risk if you don't get a permit.
3 Somebody gets hurt on the job, I mean, that's one, the
4 workman's comp part of it.

5 The other thing we see with homeowners is they go
6 to sell their house, and they go through a title search,
7 and they find out there's all these open permits, and then
8 they go close the permit, and they go back and find out
9 that the HVAC wasn't installed right, and now they've got
10 to pay somebody \$3,000 to fix it, because the guy who put
11 it in, right, didn't do it according to code.

12 So, some of this is consumer education on what a
13 permit is for, and what the benefits are, and what the
14 potential risks are if they don't get them. We've got to
15 counter the messaging that they're hearing at the table of
16 "Permits are optional. You can do it if you want. You
17 don't have to." That's not true, and we need some -- you
18 know, that's the kind of outreach that we can't do, as
19 contractors.

20 We need a bigger entity, a state entity, somebody
21 who's got some resources, to go out there and say, "Permits
22 are a consumer interest. They're on your behalf, and
23 here's what happens if you don't pull a permit. Here's the
24 risk you're taking." I think, until consumers are aware of
25 the potential exposure there, you're going to have some

1 challenges convincing them that it makes sense for them to
2 pay for that protection.

3 MR. OPFERMAN: Bruce.

4 MR. CHENEY: Yes. I was going to bring up almost
5 the same point, Charles, is that was some of my initial
6 first HERS ratings I got called on, were from real estate
7 agents where the home inspector had noticed the date on the
8 equipment was within a year, but they didn't have permits
9 on it. So, in other words, it had been changed out as part
10 of the house flip, and they wanted me to go out there and
11 perform them a test, and, of course, nothing passed, and
12 who's the bad guy? It is the one that hooked up gauges and
13 told them nothing passed, they need to take it out and do a
14 whole bunch of things to bring it back into compliance.

15 So, I agree that a point-of-sale-type
16 requirement -- I know other states have it. I know some
17 jurisdictions have it, based on some other past things in
18 California. But to do it statewide, yes, that would be a
19 pretty heavy lift, and I just want to be careful of adding
20 anything new or creating any new legislation. So that's
21 kind of what I was careful about in my comments that I
22 made, is I wanted to paint a picture that we already have
23 processes and documentation and a way to do this, that
24 isn't going to require creating a whole new book or another
25 organization, that we can use some of the parts or the

1 stuff we already have to simplify the process, and kind of
2 follow the way things are really happening, not create
3 another new process that people don't want to follow.

4 MR. OPFERMAN: Okay. Chris, what I can tell you
5 is that it's now part of the record, and it will be part of
6 the discussion going forward. Where it goes, it will be of
7 interest to see.

8 I would like to thank my all-star panel. You
9 folks did an absolutely fabulous job. Thank you. I think
10 they had their little "Applaud" emoticons going up. But,
11 no, thanks, really. You guys did a good job. Really
12 appreciate it.

13 And, Daniel, I am only four minutes, so I'm
14 turning it back to you.

15 MR. WONG: Thank you, panelists, for providing
16 your insight. Thank you, Charlie, for moderating.

17 Now we're going to move on to open it up for
18 questions, any comments that you have overall for the
19 entire workshop. I know we covered a lot of information,
20 and so, if you do have any questions or you want to
21 comment, please raise your hand, and we will unmute you.

22 This could be for, you know, the opening
23 presentation regarding the 2025 Energy Code proceeding and
24 measure templates, or for the discussion on compliance
25 tools and all the panels. I know that some of the

1 panelists had to drop off, but we do have some of the
2 panelists that are still available to answer the questions
3 as well.

4 So, let me see if there's anyone with raised
5 hands. So, I don't see any -- okay. We've got a raised
6 hand from Javier. Go ahead and unmute yourself, Javier.

7 MR. SAUCEDO: Hi, everybody. Thank you for your
8 time. I really appreciate it, learned a lot, and
9 especially the fact that you brought everybody together.
10 It's really, really neat for me to hear all the different
11 sorts of departments that we have.

12 So, yes, I do feel really bad for contractors
13 that are doing the right thing, and having to compete with
14 contractors that do not either get a permit or do not
15 follow any of the regulations by the cities. I'm
16 constantly, as a HERS rater, looking for new contractors,
17 because they're basically my boss, and if I'm not providing
18 favorable results, eventually you're not going to be called
19 back to continue to test their equipment. So that's one
20 issue that HERS raters will have, the way that things are
21 consisted.

22 One other thing that I want you to maybe do, or
23 figure something out, is that, you know, contractors have
24 done a disservice to the industry by not having a union or
25 an apprenticeship where new contractors could come in and

1 learn the trade properly, learn the Title 24, learn the
2 things that they need to know. As it is right now, if you
3 have a pickup truck and \$5,000, you can probably become a
4 contractor, general contractor, very easy.

5 So, I see that as a huge disservice to the state
6 of California, that people that want to get into this
7 industry do not have the proper training to join the labor
8 force, and they're always competing with somebody that, you
9 know, might be outside of Home Depot offering their labor
10 services.

11 So, I think that's a huge issue, and I think the
12 state of California, if they continue to upgrade the code,
13 should at some point address that issue, that "What are
14 going to do with the people that are coming in?" Are they
15 going to continue to come in blind, or are we actually
16 going to train them for four or five years on what the code
17 and what, you know, the energy efficiency is going to be
18 for the next 50 years?

19 Thank you. I'll take your comments offline here.

20 MR. WONG: Thank you.

21 Did any of the panelists or moderators want to
22 respond?

23 MS. WHITE: I'll go ahead and respond, Daniel.

24 Thank you very much, Javier, for that comment.
25 There are contractor unions that are out there, but I do

1 appreciate your comments that it is difficult to get into
2 the industry, and there have been a lot of discussions
3 about how best to attract folks into this workforce, how to
4 entice them, and help them to understand the potential
5 career can be (sic), and invest the time and money it takes
6 to take on the courses and to complete them, and then get
7 out there and be able to compete for the jobs that are
8 there.

9 So, we are looking at workforce development.
10 This is something that is actually going to be required in
11 all of the fields, especially if we're successful in
12 increasing code compliance. Right now we're working with
13 the ATTCPs to, hopefully, increase the number of certified
14 mechanical ATTs. We're constantly working with the
15 lighting ATTCPs to make sure there's adequate ATTs for
16 lighting as well.

17 We're seeing that even the current market doesn't
18 have sufficient HERS raters, even though that program has
19 been around for quite a while. At one point, there were
20 well over 1,000. Now we're below that, in the market we're
21 hoping to increase compliance within. So, that number
22 won't be enough. This could explain why, in some cases,
23 you get a lot of pencil-whipping and falsification of the
24 forms, because a particular rater may have too many jobs on
25 their plate.

1 So, I think workforce development, and being able
2 to level the playing field, is extremely important, and is
3 going to be one of the things that we'll look at in all of
4 the proposals that go forward on improving compliance. So,
5 thank you.

6 MR. WONG: Any other questions or comments?
7 Again, please raise your hand, and we can unmute you.

8 Okay. Let's see. We've got Raymond Hernandez.
9 Go ahead and unmute yourself. Just state your name and
10 affiliation.

11 MR. HERNANDEZ: Good afternoon. Raymond
12 Hernandez, Absolute Efficiency HERS rating. We had a
13 question in regards to the new multifamily
14 compartmentalization requirement, if the system is not
15 balanced. As far as the CF2Rs, no one is doing the
16 compartmentalization testing on the contractor's side. Has
17 anybody looked into that before this requirement was done?

18 This is kind of in lieu of other contractors
19 needing to be trained on other HERS requirements. We've
20 been going to multifamily projects with this 2019 code
21 where the systems aren't balanced, and no contractor,
22 builder, on the builder's side or on the subcontracting
23 side, knows anything about running a blower door. Thank
24 you.

25 MR. WONG: Does anyone can (sic) address this

1 question? I think this might be something that we'll have
2 to follow up with you, Raymond, on, unless someone can --
3 Charlie?

4 MR. OPFERMAN: There's not a quick answer to
5 this. The issue has been raised through the help desk and
6 through the HERS providers. We'll have to provide a
7 written response to this one, because this one is --
8 there's not a simple answer based on how ventilation is
9 being provided into the multifamily units. So, yes, we
10 recognize that there's been questions regarding this, but
11 we'll have to respond offline.

12 MR. WONG: Great. Thank you, Charlie.

13 MR. OPFERMAN: Yes.

14 MR. WONG: Okay. I'm not seeing any other raised
15 hands, so I know we have a very large number of comments in
16 the Q-and-A. Again, if you would like to submit a question
17 or a public comment, raise your hand, or you can submit
18 them to the Q-and-A, but I'll start with the top of the
19 list. So, Chris Walker asks:

20 "Contractors need Contractors need
21 consistent and reliable enforcement.
22 If local building officials aren't
23 enforcing energy codes, or are
24 enforcing them unevenly from one region
25 to the next, what can be done from a

1 state perspective?"

2 Would anyone like to respond to this? Or maybe
3 this is something we'll have to follow up with Chris on.

4 MR. OPFERMAN: We'll have to --

5 MR. WONG: Okay. Let me -- Charlie?

6 MR. OPFERMAN: Another subject which we'd best
7 respond with written comment. It's been under discussion,
8 and it gets a complicated answer.

9 MR. WONG: Got it. Yes. Most likely we'll have
10 to go back and go through. I mean, we have a pretty large
11 list of Q-and-A items that we'll have to sift through and
12 follow up with folks. We do have everyone's contact
13 information, so, you know, we can follow up to, you know,
14 maybe have a further discussion regarding some of these
15 questions and comments.

16 Is there any -- let's see. So, we do have a new
17 question from Raymond Hernandez in the Q-and-A:

18 "What are we supposed to do in the
19 meantime, while this issue is being
20 addressed, for the blower door testing?

21 Thank you."

22 Again, I think, you know, like Charlie mentioned,
23 we're going to have to follow up. We're well aware of this
24 issue, and we are working to figure out a way to resolve
25 it. So, we'll have to follow up with you when offline

1 to --

2 MR. OPFERMAN: I mean, we have provided direction
3 to both HERS providers. So, if there's something that
4 they're unable to -- the issue has been raised with both of
5 them. We've given them direction. So, I would -- you
6 know, they're your first line. So that's where I would go.

7 MS. WHITE: Raymond, I'd just like to add, if you
8 would like to follow up with the Standards Compliance
9 Office about this issue, and give us more specifics, that
10 would be great. We'll make sure that our responses and
11 directions to the HERS providers are complete, and that
12 that's being disseminated. So, you can reach us through
13 the website, and contact information shared in the packages
14 that have been posted both with the notice and will be
15 subsequently posted to the docket. So, we are happy to
16 continue this dialogue.

17 MR. WONG: Thank you.

18 So, yes, again, we're going to have to, you know,
19 go through the recording and the presentation to kind of
20 collect our thoughts and, you know, collect all the ideas
21 that have come through, as well as go through the Q-and-A
22 and provide any necessary follow-up, but I did want to
23 close out the workshop by providing just a quick summary of
24 today.

25 Again, a lot of information we heard, but just to

1 give you a recap, we heard from Javier Perez and Lorraine
2 White regarding the 2025 Energy Code, and kind of the whole
3 reason why we're here is to try to solicit that feedback
4 from you folks to learn about, you know, the compliance
5 tools that are available, what's working, what could
6 potentially see some improvements, but one of the items I
7 wanted to mention was that, if you are planning to submit
8 measures to the CASE team -- these are the energy
9 efficiency proposal measures -- for consideration, they are
10 due, again, by April 15, 2022.

11 Again, if you are planning to submit proposal
12 measures, please reach out to the appropriate
13 subject-matter experts before you begin, as soon as
14 possible, as you're developing your proposals, and, again,
15 this presentation will be posted and made available on the
16 docket, so you can go back and find that contact
17 information for the CEC subject-matter experts that you
18 should get in contact with.

19 The software for determining energy savings for
20 proposed measures will be available in quarter four of
21 2022, so be on the lookout for that, and then the scheduled
22 adoption date for the 2025 Energy Code is in May of 2024.

23 We also heard a lot of good discussions and
24 feedback from the designs, the energy consultants, the
25 AHJs, the contractors, installers, on the compliance tools

1 and the processes involved with Energy Code compliance, and
2 a lot of good ideas for using these tools to increase
3 compliance with the Energy Code.

4 Some of the key takeaways -- and, you know,
5 obviously, I'm not going to be able to touch on every idea
6 that was talked about today, but I'll just provide just a
7 high-level -- some of the key takeaways that I had were,
8 you know, the software tools need to provide some level of
9 automation or validation, to help not only with the
10 designers that are completing forms, but also for building
11 departments that are verifying and evaluating these forms.

12 One of the big themes that we heard from pretty
13 much every panel today was that the Energy Code needs to be
14 simplified and made more understandable for not only the
15 people that are designing and installing, but also for
16 building departments. So, you know, being able to identify
17 or understand the code without having to go to a bunch of
18 external resources seems to be one of the more prevalent
19 ideas that we heard.

20 Also, getting energy consultants involved as
21 early as possible, preferably during the design phase, was
22 one of the takeaways that I heard. Certification and
23 licensure, and/or liability to reinforce Energy Code
24 compliance, was also a topic that came up that we heard
25 during the panel discussion with the designers and

1 consultants.

2 For the AHJs, we heard that a lack of resources
3 makes it difficult to enforce the Energy Code. Many
4 jurisdictions don't have the necessary resources to
5 thoroughly go through all of the compliance forms, and so
6 that's, again, where that simplification comes out.

7 So, some suggestions were to use some type of a
8 checklist, similar to the PSR or the project status report
9 for the residential projects, but to have something similar
10 for the nonresidential side that could provide a quick
11 summary to building departments, and potentially provide,
12 you know, some items to spot-check or verify out in the
13 field.

14 We also had discussion about SB 1164, which is
15 the senate bill related to a statewide data registry and
16 equipment registry tracking. So, definitely, I think we
17 heard some good input from not only the attendees on this
18 one, but also from the building departments, again, you
19 know, related tools that -- you know, how that could help
20 improve permit -- pulling of permits.

21 Then another major theme that we heard was
22 incentivizing the permitting and compliance process for all
23 parties, so for the installers, for the raters, for the
24 homeowners, for building departments, how can we
25 incentivize the permit process, and to, you know, get

1 people to want to comply, so, you know, through incentives,
2 and/or even just through education of -- you know, how do
3 we get to the homeowners and say, you know, there's, you
4 know, a reason for pulling permits, and, you know, the
5 consumer protection aspect of that.

6 Then we also heard about implementing software in
7 our applications to help HERS raters, help contractors with
8 regards to data collection, field verification, diagnostic
9 testing, so some innovative tools that, you know, could
10 help automate that whole process, and kind of make things
11 more streamlined and easier to comply with the code, while
12 also reducing costs.

13 So those were some of the notes that I had, you
14 know, takeaways from what I heard today, but, obviously,
15 again, you know, we heard a lot of information today, and
16 we'll need to go back and comb through that, and gather our
17 thoughts a little bit better in terms of, you know, the
18 ideas we heard, and also provide that follow-up regarding
19 some of the questions that we weren't able to get to during
20 the workshop.

21 MS. WHITE: Daniel, there's one hand raised,
22 Nehemiah Stone. I don't know if you saw that.

23 MR. WONG: I did not, but let's see.

24 Go ahead, Nehemiah. You can unmute yourself.
25 Please state your name and affiliation.

1 MR. STONE: Can you hear me okay?

2 MR. WONG: Yes.

3 MR. STONE: I put this in the chat, or the
4 Q-and-A, also, but the investor-owned utilities in
5 California, and a couple of the munis, have cooperated to
6 put an incredible set of tools on Energy Code Ace, that
7 will help people understand the requirements of the code,
8 and help them understand that -- compliance with the code,
9 also, in addition to some more general information about
10 how things work that will help both homeowners and
11 contractors.

12 So, I put the URL for that site in the Q-and-A,
13 and I would encourage anybody who said today that they
14 would like to see X, Y, or Z tool, look at that site, and
15 you're going to find that almost half of the tools that I
16 heard requested are already there. So just take a look at
17 it, and see if what you need is there. Thanks.

18 MR. WONG: Great. Thank you, Nehemiah.

19 MS. WHITE: Daniel, for some reason, you're
20 muted.

21 UNIDENTIFIED SPEAKER: Yes.

22 MR. WONG: Sorry about that. Just as a -- and
23 thank you, Nehemiah, for your comment.

24 Just as a final reminder, you can submit your
25 public comments to the docket, which is 22-BSTD-01. You

1 know, we definitely highly encourage you to submit any
2 comments regarding today's workshop to the docket, even if
3 you submitted, you know, in the Q-and-A, or if, you know,
4 we had your comment live during the workshop. We still
5 recommend, please submit any other comments to the docket.

6 So, if you go to this website here (indicating),
7 it will take you to the e-commenting page, where you can
8 submit your comment directly from the e-comment page, or
9 the Word document, or PDF, and you can also send your
10 public comments in to the docket via e-mail, so
11 "Docket@energy.ca.gov." Send it to them with -- make sure
12 you include the specific docket that your comment should be
13 going to, which is 22-BSTD-01, or you can send them in by
14 mail, if you mail it to the address shown on the slide.

15 Again, this workshop is being recorded, so it
16 will be posted to the docket. So you'll be able to go back
17 and review it and rewatch it, if you want to watch, you
18 know, from 9:00 a.m. to 4:00 p.m. today again. I know
19 definitely -- I'm sure many of us here at the Commission
20 will be going back through this. It's also going to be
21 transcribed, so we will have the transcription available as
22 well, and as well as the CEC's presentation. That will
23 also be posted on the docket, and available on the 2025
24 Energy Code web page.

25 So, with that said, I just want to again thank

1 everyone for taking the time today to participate. Thank
2 you to all of the panelists who provided their time and
3 gave us really good insight. Thank you to the CEC
4 moderators and staff that helped work on this. And with
5 that said, that's the end of this workshop, and I hope
6 everyone enjoys the rest of their day.

7 MS. WHITE: Thank you, everyone.

8 MR. PEREZ: Thanks, Daniel.

9 MR. ZHAN: Thank you. Goodbye.

10 MR. WONG: All right. Thanks, everyone.

11 MR. OPFERMAN: Thank you to my panel.

12 (The workshop was adjourned at 4:00 p.m.)

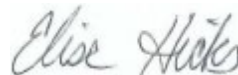
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Myra Severtson
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