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CALIFORNIA ENERGY COMMISSION

STAFF WORKSHOP

In the Matter of:) Docket No.
) 15-BSTD-04
2016 Building Energy)
Efficiency Standards) Staff Workshop RE:
Residential ACM Reference Manual) 2016 Draft ACM Reference
and Compliance Software) Manual and Compliance
_____) Software

CALIFORNIA ENERGY COMMISSION

THE WARREN-ALQUIST STATE ENERGY BUILDING

ART ROSENFELD HEARING ROOM

(HEARING ROOM A)

1516 9TH STREET

SACRAMENTO, CALIFORNIA

MONDAY, SEPTEMBER 28, 2015

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Public Comment (* Via telephone and/or WebEx)

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 record by R.J. Wichert)

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

2 SEPTEMBER 28, 2015

10:02 a.m.

3 MR. FERRIS: Good morning. Welcome to the Staff
4 Workshop on the Draft 2016 Residential ACM Calculation
5 Method Manuals and Software. Today we're going to be
6 focusing on additions and alterations.

7 Before we start I want to go over a few
8 housekeeping items. If there's an emergency, we'll need to
9 evacuate the building and please follow staff to Roosevelt
10 Park, which is across 9th and P Streets diagonal to the
11 building. Restrooms are in the Atrium to the left when you
12 go out the door. And if you need something to eat or
13 drink, we have the On the Edge Cafe on the second floor.

14 Today we're going to go over a review of the
15 Draft PV Trade-off/Compliance Credit. We're also going to
16 go over a detailed ACM Reference Manual and software
17 updates for additions and alternations. We're going to
18 share again, the phases and anticipated timelines for the
19 CBECC-Res Software approval and development. We're going
20 to have a period for public comments and we'll go over the
21 Next Steps.

22 At the end of today's Panel discussion there will
23 be an opportunity for public comment. We are asking
24 parties to limit their public comments to three minutes, so
25 that the maximum number of participants have an opportunity

1 to speak.

2 Today's workshop is going to be broadcasted
3 through WebEx Conferencing System and all parties should be
4 aware that they're going to be recorded.

5 For those of you who are participating in person
6 we ask that you sign in. You can either do it with pen or
7 staple your business card to the sign-in sheets that are in
8 the Atrium. There are also copies of today's presentations
9 all available out there.

10 And then during the public comment period we're
11 going to take in-person participants first. And then we'll
12 move to the people participating online and we're going to
13 take them in alphabetical order.

14 Let's see, for WebEx participants you'll be muted
15 throughout the presentations and if you'll use the "raise
16 your hand" function when it's the public comment period
17 that'll notify the WebEx Coordinator that you want to make
18 a statement. And as I said we'll take the online comments
19 after the in-person comments.

20 With that I'll turn it over to Larry Froess.
21 He's our Senior Mechanical Engineer with the Software Tool
22 Unit and he's going to review the Draft PV Credit.

23 MR. FROESS: Good morning. My name is Larry
24 Froess. And I'm the Senior Mechanical Engineer and the
25 Project Manager of the Alternative Calculation Method

1 Manuals and the Software Tools Group. I'm going to present
2 the Draft PV Trade-off/Compliance Credit and where it
3 stands as of today. Next slide.

4 So I will quickly go over the Draft PV Compliance
5 Credit that was presented at the August 10 workshop.

6 During the development of the 2016 Standards, the
7 CEC staff met with the building industry, insulation
8 industry and PV industry and other interested parties to
9 come up with a way to help the building industry integrate
10 high-performance attics and high-performance walls into
11 their construction practices.

12 And it was determined that providing a PV Credit
13 was the best way to give the builders enough time during
14 the 2016 Code cycle to incorporate high-performance attics
15 and high-performance walls into their buildings.

16 Essentially, the PV Credit is a compliance option
17 available through the performance method that trades off
18 the TDV energy value of high-performance attics and high-
19 performance walls, based on their climate zone.

20 The minimum amount of PV panels required to be
21 installed for the PV Credit is 2 kW. And slowly increases
22 as the size of the house increases past 2,000 square feet.
23 And it also depends on the climate zone.

24 The credit is only available in climate zones
25 where high-performance attics and high-performance walls

1 are prescriptively required. The PV Credit is a flexible
2 credit, meaning it can be used towards its PV compliance by
3 offsetting other building features such as windows, water
4 heating, HVAC etc. And even though a small portion of the
5 PV panels that are required to be installed is applied
6 towards this PV Credit, the reality is that the actual home
7 will be more energy efficient than the 2013 compliant home
8 by utilizing the actual electrical benefit of the installed
9 PV panels. Next slide.

10 So since the August 10th workshop we received
11 public comments and they have all been docketed. All of
12 the comments were reviewed in depth by the CEC staff and
13 presented to the Efficiency Lead Commissioner,
14 Commissioner McAllister.

15 The staff then met with the Commissioner and the
16 executives to discuss all of the public comments and
17 pointed out the major concerns that were documented. The
18 Commissioner listened to the concerns of the public and
19 then made his decision and gave staff direction on how to
20 proceed. Next slide.

21 The preliminary decision that the Commissioner
22 made was as follows. He agreed that the PV Trade-
23 off/Compliance Credit as an aid to help builders get up to
24 speed with the high-performance attics and the high-
25 performance wall, and inform the PV staff to proceed

1 forward with the PV Credit as proposed.

2 The Commissioner did not agree with sunseting
3 the PV Credit early as he felt it would be too disruptive
4 to the design community, the builders and especially the
5 building departments. However, the Commissioner did agree
6 with the concerns presented by the public to help and
7 encourage the integration of high-performance attics and
8 high-performance walls such as providing statewide forms
9 for the builders to provide training and education.

10 The training could be in large cities for a large
11 number of participants maybe twice a year to provide local
12 training directly to the builders focused on construction
13 practices of installing high-performance attics and high-
14 performance walls, maybe several times a year. But also
15 maybe rebates provided by the utilities to the builders to
16 encourage the integration of high-performance attics and
17 high-performance walls. And that CEC staff will also
18 monitor the progress of the high-performance attics and
19 high-performance walls through the HERS Registry's
20 providers database such as CalCERTS.

21 The insulation industry can also help by
22 developing more new cost and effective ways to help the
23 builders incorporate the high-performance attics and the
24 high-performance walls into their buildings. Next slide.

25 And that's basically where we're at today with

1 the PV Credit. Next, will be Dee Anne

2 MS. ROSS: All right. Good morning, I'm
3 Dee Anne Ross and I work in the Building Standards Office.
4 My primary responsibilities are on the Residential ACM and
5 the Residential Software. Next slide.

6 This portion of the workshop is to cover the 2016
7 Residential Alternative Calculation Method or ACM Reference
8 Manual as it relates to additions and alterations. But
9 first, are a few other minor changes, just so you don't
10 have to look through the entire ACM for what changed since
11 the last workshop.

12 We were asked to consider allowing in zones that
13 have an NR or No Requirement for SHGC to set the standard
14 design to the same value as the proposed design. And that
15 proposal did not survive, so we are maintaining 0.50 SHGC
16 in those climate zones.

17 The characteristics of a concrete raised floor
18 were changed to four inches of lightweight concrete -- I'm
19 sorry, changed from four inches of lightweight concrete to
20 six inches of normal weight concrete. And we eliminated
21 the use of the term "conditioned attics" since the term
22 implemented in the program is "unventilated."

23 So this portion is to cover additions and
24 alterations. First, I will cover how Section 150.2 of the
25 Energy Efficiency Standards applies to performance

1 compliance. And then how Section 150.2 changed for 2016.

2 So the ACM Reference Manual documents how the
3 software models and additional alone -- an alternation in
4 the performance compliance approach. After a great deal of
5 reading I can say with certainty that an addition alone
6 meets the requirements of the Standards applicable to new
7 buildings. That's why it's so difficult to get an addition
8 alone to comply. And an existing plus addition plus
9 alteration is compared to a standard design where the
10 addition is allowed to meet the prescriptive requirements
11 for additions and the prescriptive requirements for
12 alterations.

13 And two of the exceptions that apply to all
14 additions -- both addition alone and existing plus addition
15 -- is a cool roof is only required where Package A
16 specifies it in certain climate zones, if the addition is
17 over 300 square feet or -- I'm sorry 300 square feet or
18 greater. And ventilation cooling or whole house fan is
19 again if it's required in Package A and if the addition is
20 over 1,000 square feet.

21 Moving specifically to existing plus addition
22 plus alteration requirements, any alterations meeting the
23 energy budget are applicable to prescriptive alterations.
24 And the additions energy budget is based on prescriptive
25 addition requirements with all of its more lenient

1 provisions. In this section here, if you want to read how
2 I came to that conclusion it's that section of the code.
3 And the reason people model additions is to get credit for
4 making improvements, so get ready for a long and winding
5 road here. It's a little bit confusing. Next slide.

6 For the walls previously smaller additions were
7 allowed to comply using R13 insulation. That language was
8 eliminated. All additions have an energy budget based on
9 prescriptive wall insulation requirements. There is a
10 prescriptive allowance that's not been implemented in the
11 software. The language says that extensions of existing
12 wood-framed walls may retain the dimensions of the existing
13 walls and install cavity insulation of R15 in two-by-four
14 and R19 in two-by-six. That's to allow a wall where it's
15 connected to the existing building to maintain the same
16 size. So you would not have a wall with one-inch
17 continuous insulation meeting a wall with no continuous
18 insulation.

19 But thinking ahead, we think that people -- (cell
20 phone rings) okay, so you're supposed to turn your cell
21 phone off. I guess we forgot to make that announcement --
22 so thinking ahead, we think that people will be able to
23 build the building that way, that'll be up to the Building
24 Department and the Applicant to argue over. But we're not
25 going to create a loophole in the software, where you

1 actually will say this connects to the existing building
2 and it changes the standard design. So it's just going to
3 be an implementation issue, but the standard design will
4 not change.

5 And for roofs and ceilings the 2016 Standards, of
6 course, call for something called a high-performance attic.
7 That attic is included in the Standard Design Energy Budget
8 when the addition is larger than 700 square feet and
9 smaller additions only meet mandatory insulation
10 requirements.

11 Moving to the ACM Reference Manual itself, to
12 explain why the document is so different from 2013 is
13 because Section 150.2 is very complex. And the ACM
14 document was originally written in a way that didn't
15 capture all the ins and outs of Section 150.2. And we
16 added the exception that applies to cool roofs and whole
17 house fans beginning in Section 2.10.2. That's for the
18 additional loan as well as in existing plus addition. Next
19 slide.

20 So let's see, we removed the words that describe
21 things such as "for example." There was lots of example
22 wording in the document itself, which seemed more
23 appropriate for a user manual or the compliance manual, but
24 not in the ACM. So I removed all that language.

25 We revised all the tables to accommodate the

1 variables and remove the column for existing, because the
2 existing is always modeled the same for standard and
3 proposed. So this is the table for roof/ceiling for
4 existing plus addition plus alteration. The current
5 language -- well, the 2016 current language -- requires
6 mandatory ceiling insulation for up to 700 square feet.

7 And then for a quick summary of additions and
8 roofs Package A includes what's called Options A, B and C.
9 Option A has above-deck insulation, Option B has below-deck
10 insulation and is the basis for new construction and for
11 additions larger than 700 square feet. Both of these
12 options assume ducts in the attic and then Option C is a
13 typical attic with insulation only on the ceiling.

14 And Package A does not allow the ducts to be
15 installed in the attic. It requires the ducts in the
16 condition space. And I probably lost you on that, but
17 basically the standard design is Option B. The ducts can
18 be in the attic, but it's a high-performance attic.

19 Then moving on to additions, for the smaller size
20 additions the radiant barrier requirement, why it's
21 different here for the first two columns and then the third
22 column is because the requirement for attic Option B with
23 roof/deck insulation has a different requirement for
24 radiant barrier. Whereas we went with Option C for the
25 less than 700 square foot addition for the radiant barrier.

1 So that's the reason for the difference and I don't know
2 how to explain that any better except radiant barrier row
3 is Option B -- I'm sorry Option C -- Option C then Option
4 B.

5 And then a change that's been caught since we
6 published the latest ACM is that if the roof slope is
7 steep, it's a tile roof. And if the roof slope is low
8 slope it's an asphalt roof.

9 This is like so technical, I'm so sorry.

10 Walls in an addition using existing plus
11 addition, match Package A. And for alterations they meet
12 only mandatory requirements, which is R-13 or R-19 if it's
13 a two-by-six wall.

14 And mass walls, in the addition the standard
15 design is based on Package A. That includes interior and
16 exterior insulation for an above-grade mass wall. And
17 below-grade mass wall it's interior insulation only. And
18 alterations, there is no mandatory requirement for mass
19 walls, so they don't have an insulation requirement.

20 The moving on to fenestration or glazing, this is
21 an excerpt from Table 2-25 in the ACM. The smaller the
22 addition, the greater the percentage allowed. The west-
23 facing limits are only in certain climate zones and the U-
24 Factor and SHGC are based on Package A. And again, that's
25 Table 2-25 if you want to refer to that later.

1 And then lastly is HVAC. Whole house fans, when
2 and where required, is only Zones 8 through 14 and only
3 over 1,000 square feet. When that's required, we changed
4 the requirements to match Package A for the fan criteria
5 and the venting. And duct insulation R value is based on
6 the requirements in Section 150.2 and not in Package A. So
7 when you're reviewing the software just consider that is a
8 different duct insulation requirement.

9 So then I would just ask that when you review the
10 ACM software itself and you're testing out additions and
11 alternations -- and the software is now available -- that
12 you consider the actual documentation in the ACM when you
13 consider what is a reasonable expectation for the your
14 compliance results.

15 And that's it.

16 MR. FROESS: Hi, my name is Larry Froess and I
17 will discuss the proposed timeline of the CBECC-Res 2016
18 software.

19 This is a quick summary of the five anticipated
20 software releases. Alpha 1 was already made available to
21 the public prior to our August 10th workshop. Alpha 2 is
22 now currently available for research purposes to go along
23 with this, our second residential ACM workshop.

24 Version V1 will be the version presented for
25 approval at the November business meeting and would be able

1 to be used for compliance. Version V2 Alpha is scheduled
2 for public release next year, probably in March, to present
3 some new updates and new features. And V2 will be
4 presented for approval at the June 2016 Business Meeting to
5 be used for compliance going forward. Next slide.

6 These next few slides will go into a little more
7 detail of each of the releases. CBECC-Res 2016 and Alpha 1
8 was available for research and was essentially CBECC-Res
9 2013 Version 4 with the updated Time Dependent Values to
10 match the 2016 values. And also updated the baseline
11 values to reflect the 2016 Standards for the envelope, duct
12 insulation and domestic hot water equipment and it also
13 included a draft version of the PV Credit.

14 For the second workshop we released CBECC-Res
15 2016 Alpha 2. This includes a few minor fixes and also
16 implements the existing plus addition plus alternation
17 modeling option.

18 CBECC-Res 2016 Version 1 will take this Alpha 2
19 Version and incorporate any changes as directed by the
20 Commissioner based on comments made by the public. This
21 version will be presented for approval at the November
22 business meeting. And if approved will be able to be used
23 for compliance with the 2016 Standards, for early adopters,
24 and for builders and designers who want to see how their
25 projects will comply under the new 2016 Standards.

1 Next year we are planning on releasing -- or
2 we're planning on having another workshop in March and
3 present a few new features in CBECC-Res 2016. And we will
4 call this release CBECC-Res 2016 Version 2 Alpha. Again,
5 this will be a research version that will include updated
6 hot water calculations that contain the updated hot water
7 draw schedules. It'll have enhanced heat pump water
8 heating simulation. It'll have an integrated thermal solar
9 calculator and if available at the time it will incorporate
10 the new water heating efficiency rating system that is
11 currently being proposed by the federal government.

12 It should also include a draft version of the
13 energy design ratings for buildings to show a score for use
14 with CalGreen's ZNE. And it should include an integrated
15 PV Calculator, so that a separate PV Calculator would not
16 be necessary.

17 And then finally in June of 2016 we are proposing
18 to present, for approval, CBECC-Res 2016 Version 2. And
19 that would be the version that could be used going forward
20 for 2016 compliance.

21 MR. FERRIS: Well, we don't have a slide for
22 public comments, but we'll open the floor up to public
23 comments. And as I said we'll take in-person comments
24 first and then anybody that wants to comment from online
25 just please raise your hand and the administrator will take

1 you when it's your turn.

2 MR. RAYMER: Thank you. I'm Bob Raymer with the
3 California Building Industry Association. And as indicated
4 in our August 20th letter, CBIA strongly supports
5 maintaining the proposed compliance credit for rooftop
6 solar energy systems. And we feel the proposed compliance
7 credit should remain in place through the entire three-year
8 2016 tri-annual code cycle. We're pleased that the
9 Commissioner felt the same way.

10 I don't want to get into the individual requests
11 by a number of the commenters who provided -- who wanted to
12 put some restrictions on this other than to say that we
13 understand their concern with the allowance of the PV
14 compliance credit. But in looking at each of those
15 proposed what I would say restrictions or whatever, it was
16 not only it would provide a huge burden in terms of
17 implementation at the local level with the building
18 officials and the building industry, it was also going to
19 require a great deal of administrative time and resources
20 on the part of the CEC staff to get each and every one of
21 these in place, so that it could be judged at the local
22 level.

23 One thing's very clear, we do strongly support
24 training of industry and Mike Hodgson of ConSol will be
25 speaking to this during his presentation.

1 And on a very positive note, over the last 30
2 days we've had several discussions and one meeting with the
3 CEC staff to discuss the potential for conducting an
4 additional forum similar to those we cosponsored with the
5 CEC in 2014 as we were developing the 2016 Standards. I'm
6 pleased to announce today that CBI is committed to
7 conducting two of these forums each year for the
8 foreseeable future. This will probably, given what we've
9 got coming at us, it's easy to envision doing this twice a
10 year for at least the next four years well into the 2020
11 Regulations.

12 The focus of these initial forums will be
13 primarily on compliance issues related to high-performance
14 attics and high-performance walls with the 2016 Regs.
15 That's where the lion's share of instruction really needs
16 to focus, particularly on the attics. And we're looking at
17 doing the first one of these in February or March.

18 If you're wondering why we're pushing it off,
19 these things take a lot of work and Mike will attest to
20 that as he does most of the work with his staff. And but
21 they're well worth it and so with that we're pleased to
22 announce that we're doing this.

23 And lastly, a few comments on CALGreen. For
24 those of you that don't follow -- here in California, of
25 course, we've got our Part 6, the Energy Regs, but we also

1 have the Green Building Standards in Part 11 of Title 24.
2 And while there aren't any mandatory energy efficiency
3 provisions in CALGreen, there are most certainly energy
4 efficiency measures in the voluntary portions known as Tier
5 1 and Tier 2 and now the ZNE Tier.

6 And the fact of the matter is it's very easy for
7 local jurisdictions to adopt Tier 1 or Tier 2 as stated in
8 the regs. They simply have to do the cost-effective
9 analysis, file the proper paperwork with the CEC, get those
10 sort of anointed and then file the paperwork with the
11 Building Standards Commission. Administratively, that's
12 not that heavy of a burden and I'd like to note at the
13 present time I think we have five or six dozen
14 jurisdictions that in one form or another go above minimum
15 code for the CALGreen Regulations.

16 In looking at Tier 1 and Tier 2 for the 2016 Regs
17 that take effect in January of 2017, if a jurisdiction
18 adopts Tier 1 or Tier 2, a builder is going to have to use
19 high-performance attic, high-performance walls and solar --
20 all of them -- in order to get compliance with them whether
21 or not they're ready for it or not. And so it behooves all
22 of us to work together and get the training and the design
23 work done well ahead of time, because jurisdictions will
24 adopt these. Very rarely do they look at the actual impact
25 until after the Standards take effect. And so we'd like to

1 be ready and make transition as smooth as possible.

2 So with that, that concludes my comments. Thank
3 you.

4 MR. RICH: Good morning. My name is Curt Rich.
5 I'm the President of the North American Insulation
6 Manufacturers Association.

7 Throughout the public process for the update of
8 the Title 24 Building Energy Codes stakeholders including
9 manufacturers, utilities and public interest advocates have
10 raised concerns about the size, operation and duration of
11 the PVCC. These concerns have not been addressed by the
12 Commission staff in the final proposed structure of this
13 trade-off.

14 The key ask of stakeholders has been to impose a
15 firmly established sunset on this trade-off. Stakeholders
16 believe that the Commission needs to send a strong, clear
17 message to the marketplace that this trade-off is of
18 limited duration. And that new energy efficiency measures
19 that are in the 2016 Code and have been determined to be
20 cost-effective, will be industry practice by a date
21 certain.

22 The presenter at last month's workshop summed it
23 up perfectly when he supported the PVCC and said that the
24 production of energy is more cost effective than some
25 energy efficiency measures.

1 California Energy Policy and this Commission have
2 consistently preached a message of energy efficiency first.
3 A sunset on this trade-off ensures that the Title 24
4 returns to this mission. A provision that simply allows
5 home builders to shift costs from the mortgage to the
6 utility bill should not be a permanent feature of this
7 State's Building Energy Code. Thank you.

8 MR. FAY: Good morning. I'm William Fay. I'm
9 the Executive Director of the Energy Efficient Codes
10 Coalition and I'm here to apologize once again. I know
11 that the issue of PVCC was brought up in March. We did not
12 see it until -- well we saw the language released in the
13 summer. And so I was at the last workshop and I appreciate
14 the...

15 But my group is really interesting. It's very
16 concerned about the longevity and performance of
17 improvements and has been working very hard to make the
18 IECC much more of a whole house solution to energy
19 efficiency. We strongly emphasize we aren't involved in
20 renewables, but we are working wholly on the envelope.

21 And what's interesting about our group is just
22 the diversity of it. We not only have manufacturers and
23 utility supporters, we have environmental groups and
24 consumer groups. And one group that I hadn't seen
25 commenting on this was low-income housing advocates. And

1 we have six of those national organizations as part of
2 EECC.

3 And I just come here now to just pose a couple of
4 questions that I haven't seen answered yet. You know, but
5 one of the questions is will the low-income housing
6 community have to bear a greater share of the Grid costs?
7 They're not the ones that'd be likely to have PV on their
8 homes. And I hate to put it this way, I don't want to be
9 excessive in it, but is this income redistribution in
10 reverse in a way? Because what we're going to have is a
11 Grid that basically is going to be sustained in a greater
12 percentage by those that are less able to pay for that.

13 We have real questions about system integrity.
14 And that's mostly -- maybe you don't, I don't know -- but I
15 don't know whether or not it's going to deliver over the
16 25-year life or whatever it is. I know that if I put
17 insulation, and it is, it's going to deliver throughout the
18 100 year life of the home. And so that degradation issue I
19 don't think has been addressed, but if it has I'm just not
20 aware of it.

21 And then lastly, the question comes about with
22 regard to the people that own the home over the 100-year
23 life of the home. And that really gets down to an issue of
24 disinterest. It gets down to an issue of subsequent
25 owners. I mean, one of my questions is I know that an

1 owner of a home throughout the 100 years is not going to
2 remove the insulation.

3 I know that on the other hand, I keep wondering
4 whether or not a leasee of PV system or an owner decides to
5 drop the lease, well what happens then? Do they -- are the
6 -- what happens if the panels are removed? And yet the
7 owners are living in a less-efficient home, because they've
8 been able to trade off the envelope improvements. What if
9 the leasee loses a job or the owner loses their job or just
10 simply decides that they don't want to repair or maintain
11 the panels? You don't have to repair and maintain most
12 insulation.

13 So the biggest issue that we have is just that
14 the idea of trading off an envelope improvement with PV --
15 we love PV, but we focus almost wholly on the envelope,
16 because we know that's really the centerpiece of the plan.
17 And then add PV after that.

18 So I just -- just a lot of questions that I still
19 have about this and I wanted to pose those today. I
20 understand that the decision may be made, I don't know, but
21 it's our hope that you -- we will submit some things.

22 The low-income community has just become aware of
23 this. They're focused on a lot of other things. They
24 don't tend to emphasize homes, but 35 percent of most low-
25 income families budget is their energy cost. And so this

1 is a very important issue, it's just not one that's at the
2 top of their agenda. I brought it to them and we will be
3 submitting comments, but I just wanted to make sure that
4 you knew that.

5 So thank you for having me today.

6 MR. FISCHER: Good morning, I'm Mike Fischer with
7 the Kellen Company. I'll give you my card.

8 I just have a couple of points to make. First of
9 all, I think it's unfortunate that the Lead Commissioner
10 hasn't attended the two stakeholder workshops that we've
11 had. It'd be great to be able to have that one-on-one
12 dialogue in a public forum. But we're getting the
13 translation that Larry's provided and I just have a couple
14 of remarks on that.

15 The first thing is on the slide where you talk
16 about the summary of the PV Credit -- and I believe I heard
17 you say in your Bullet Point Number 6 a building that takes
18 full advantage of the proposed PV trade-off will still be
19 more energy efficiency than a 2013 Standards compliant
20 building. And then you added, which not in the slide, if
21 you consider the electrical generation.

22 So what I hear when I heard that statement was
23 that basically we could end up with a building or a home
24 that the envelope and the actual building notwithstanding
25 the PV equipment, is going to be less efficient under the

1 2016 Standards than the 2013 Standards. And I cannot
2 imagine how we got the point where this could be done
3 without full public process and including the PV Credit as
4 part of the Standards.

5 To me, this is like the IRS saying that they're
6 going to adopt some additional requirement for how you pay
7 or force you to pay with a different currency or something,
8 because that's their compliance path. No, the federal
9 government Legislature didn't vote on it, it wasn't
10 reviewed, but that's our interpretation of it.

11 So maybe that's a little over the top, but we
12 believe that the PV Credit should have been part of the
13 Standards development, not part of this post-process.

14 The other comment is -- actually I have two more
15 -- the other comment on the Standards is the insulation
16 industry needs to develop more -- again slightly different
17 than is in the slide -- the insulation industry needs to
18 develop more, new and cost-effective ways for builders to
19 incorporate HPA and HPW. The way I looked at the Standards
20 there are several options available, particularly on the
21 attics. The CEC staff and Commission have already
22 determined those to be cost-effective.

23 I think what's ironically missing from this is
24 the analysis of the PV trade-off and it's cost effectivity.
25 (sic) How much of the cost analysis on that was done? How

1 much of it is relying on rebates and other programs that
2 provide additional financial incentive? That's not part of
3 the process, because it's not part of the Standard, which I
4 think is the irony.

5 Now, it's not all bad news. Bob mentioned that
6 CBIA is going to take forward some forums over the next --
7 you didn't put a limit on that, no sunset on that.

8 Basically you said all the way through 2020. So I guess
9 Delta's going to be liking me even more, because obviously
10 our groups are going to be very interested in helping and
11 participating to make sure that what we believe is the
12 effective market transformation in California is to take
13 best available control technology for the envelope, put
14 that first. And then use the PV Credit, not to meet the
15 energy requirements for the building and structure, but to
16 help meet the Zero Net Energy goals that the CEC and State
17 of California have in place.

18 So we look forward to continuing to work with you
19 and we'll be back for the Commission hearing. Thank you.

20 (Colloquy off mic)

21 MR. HODGSON: Mike Hodgson, ConSol, representing
22 CBIA.

23 First I want to correct Bob Raymer promising
24 forums to the end of the sun. We'll have a few and we'll
25 go from there.

1 MR. FISCHER: I heard (indiscernible)

2 MR. HODGSON: I know you heard it, Mike. That's
3 why I wanted to reiterate it.

4 I think we need to kind of have some big picture
5 discussion here then talk about some opportunities. The
6 building industry is fully in support of the 2016 Standards
7 and the flexibility that the PV Credit allows. The 2016
8 Standards, with the change in walls and attics, are the
9 most significant change we've had in construction I don't
10 know since when. They're as significant, if more
11 significant, when it went from single-pane to dual-pane
12 windows, all right?

13 We're changing how we put in our attic. How we
14 put in our insulation. What the moisture content is in our
15 attic. How we vent them. How our roof shingles will work,
16 etc.

17 On the walls, I mean we have tremendous amount of
18 loads that we're going to have to be concerned about.
19 We're going to be trying to take out 30 percent of the
20 lumber, going 24-inch on centers. There's just a lot going
21 on. So for those who have been in construction for a long
22 period of time, knows that this industry does not change
23 quickly. And the reason for that is if they make a mistake
24 they have a ten-year warranty in the State of California in
25 which they get sued. So they have a tremendous amount of

1 risk, so they are risk averse.

2 So I think having flexibility in the Standards
3 that allow us to do one or two or both of these things, and
4 trade off with solar -- which oh by the way, we're going to
5 be Zero Net Energy at the next code cycle, so we need to
6 know how to do solar also -- is a very smart, flexible and
7 workable arrangement.

8 Now, to do that there also is going to have to be
9 a lot of market transformation. There's going to have to
10 be manufacturers come up with new products. There's a
11 tremendous amount of opportunity here for the building
12 industry to not only improve their product, but for
13 manufactures to sell more product into each home.

14 So I think big picture, we have to have the PV
15 Credit. The reason that we need the PV Credit is we need
16 to learn how to do attics, walls and PV by 2020. And this
17 is helping stimulate that.

18 Now, let's talk about some of the resources that
19 are available. The building industry through ConSol, has
20 been offering Builder Energy Code training since 1996.

21 The current version of the Builder Energy Code
22 Training Program is sponsored by Edison. It's in Edison
23 service territory and recently has been updated to include
24 the high-performance attics and the high-performance walls
25 information from not only the Energy Commission, but also

1 from the manufacturers who attended the last two forums
2 that were alluded to earlier.

3 Those forums also stimulated a potential funding
4 opportunity that was recently awarded that will then be
5 going and doing more training, more forums to the market.
6 So for those of you who are in the manufacturing business
7 supplying product into the market, if you're not involved I
8 strongly recommend that you contact myself or Bob Raymer
9 and become involved. Because we need products, we need
10 innovation, and we also need home builders to participate.

11 The goal is contractors -- is literally to make
12 it to approximately one-third of the market to use high-
13 performance attics and walls over the next three years. So
14 that market transformation is going to be very, very
15 significant.

16 So in transforming the market we need
17 flexibility. We need partnerships among manufacturers,
18 educators and builders. And we look forward to this
19 challenge.

20 MR. FERRIS: Okay. It looks like we've exhausted
21 everybody in the audience.

22 (Protest from audience members)

23 Oh, sorry. I didn't see you stand up.

24 MS. VISWANATHAN: My name is Kala Viswanathan and
25 I'm with the NRDC, the National Resources Defense Council.

1 In the Revised ACM Reference Manual the CEC
2 proposed to maintain that PV Compliance Credits as proposed
3 in the August Draft ACM Reference Manual. While the NRDC
4 supports the concepts of a limited PV Credit as a way to
5 achieve greater efficiency in the Code we urge the
6 Commission to include a sunset date for the PV Credit of
7 January 1st, 2020.

8 While we support a PV Credit that is limited in
9 size and duration, we are concerned that the credit will be
10 maintained or grow in future code cycles if a sunset date
11 is not set.

12 We recommend that the PV Compliance Credit for
13 high-performance walls and attics be for this code cycle
14 alone. And recommend that the performance path of the 2019
15 Standards require a home to meet the Energy Budget of the
16 2016 Standards using energy alone at an absolute minimum.

17 The rationale behind the PV Credit for 2016 Code
18 is to provide flexibility to builders as they learn how to
19 implement the high-performance walls and attics measures
20 required by the prescriptive 2016 Standards. By 2020 when
21 the 2019 Standards take effect, the industry will have had
22 substantial time to adjust to these new techniques.

23 While we support the deployment of PV on homes
24 and recognize the important role that PV will play in
25 reaching Net Zero Energy, we also note that distributed

1 generation is not the same as efficiency and the Title 24
2 Building Energy Standards are intended to improve the
3 building efficiency and reduce building loads.

4 A future PV Credit that continues to increase in
5 size could encourage buildings that are large net energy
6 producers during certain hours of the day, which is not the
7 purpose of the Building Efficiency Standards. Solar
8 credits that allow reductions in insulation or equipment
9 compared to cost-effective levels will not allow California
10 to meet its Net Energy goals over the long term.

11 We recommend that the CEC clarify that the PV
12 Credit for high-performance walls and attics is only for
13 the 2016 Standards. And that any future PV Credit will be
14 evaluated based on improvements above the 2016 Standards
15 with the 2016 Standards providing the efficiency floor.

16 Thank you for the opportunity to comment.

17 MR. MCHUGH: Hi, this is Jon McHugh with McHugh
18 Energy. I just wanted to recap a little bit where we are
19 between the 2016 and the 2013 Standards, because there's
20 been a number of comments that are indicating that somehow
21 we're -- on the efficiency side we're moving backwards from
22 the 2013 Standards. And I don't believe that's the case.

23 If you look on a statewide basis, the savings
24 from the all high-efficacy lighting requirements are
25 greater than HPA and HPW. They're roughly equivalent, so

1 even if the PV Credit was applied to all buildings in the
2 State we'd still be in a situation where we'd be --
3 approximately 50 percent of the savings from the 2016
4 Standards would still be realized.

5 So I just wanted to clear that up.

6 The other issue about how dramatically different
7 the HPA/HPW Standard is first off, the requirements for 6-
8 inch studs -- if you use 6-inch studs -- does not require
9 24-inch spacing. And, you know, even 30 years ago the UBC
10 recognized the use of 24-inch spacing of 6-inch studs, so
11 it's not like this is some kind of rocket science or
12 something that's extreme in some other states. You know,
13 we commonly use 6-inch studs, so this is not the area
14 that's very different.

15 I'd say HPA is a little bit different, but the
16 HPW is being dramatically different from historic practice
17 I don't buy. Thank you.

18 MR. ELLIOT: Good morning. I'm Gareth Elliott
19 with SEIA, the Solar Energy Industry Association. SEIA
20 strongly supports providing compliance credits for rooftop
21 solar in these guidelines and in the Building Standard
22 updates.

23 We believe the proposal provides builders with a
24 very important flexibility to use solar as part of their
25 overall compliance package. And importantly, it also

1 provides homebuyers with compliance options that meets both
2 their personal preferences and their interest in solar.

3 As the New Solar Home Partnership Program
4 continues to wind down this will also provide an important
5 incentive for builders to continue to include solar in new
6 housing construction throughout the State. And obviously,
7 it's a key part of us reaching our 2020 Zero Net Energy
8 goals. So thank you.

9 MR. RAYMER: Thank you. Bob Raymer with the
10 California Building Industry Association again. First off
11 with a comment to William Fay, on the Governor's desk right
12 now is SB 350. And while there was a lot of controversy I
13 would say, in the final weeks of the legislative session,
14 the somewhat trimmed down version of the bill very clearly
15 still addresses energy efficiency and the renewable
16 portfolio standard.

17 With regards to energy efficiency, there's no
18 less than a half dozen references to low income and
19 disadvantaged communities. Clearly the Administration and
20 the President Pro Tem are going to have the Energy
21 Commission and whoever else look into this issue and make
22 sure that these issues are addressed as not only these
23 Standards go forward, but other policies of the State. So
24 while there hasn't been a lot of publicity, most of the
25 publicity was on the petroleum portion of the bill that's

1 in the bill and it's on the Governor's desk.

2 With regards to any potential rollback in
3 response to a comment that Mike Fischer had made, I just
4 want to make sure that it's clear we have never suggested
5 that there be any rollback to the 2013 Efficiency.

6 And as Jon McHugh indicated, what I think some of
7 the members of the audience aren't realizing is that in
8 addition to high-performance attics and high-performance
9 walls, this go-round to the Standards for Residential also
10 had mandatory measures for lighting and also had
11 prescriptive updates for water heating.

12 Those two items by themselves will not be -- the
13 energy efficiency benefit of those two items will not be
14 impacted by the Solar Compliance Credit. If what I would
15 say on the rare instance someone uses solar to offset both
16 high-performance attics and walls, you're still going to be
17 ending up with a home that's significantly more energy
18 efficient than that, that would've been built under minimum
19 code compliance with 2013.

20 So I understand the give and take here, but the
21 fact here is we're not rolling back the Standards. The new
22 homes in 2017 are going to be more energy efficient no
23 matter what. Thank you.

24 MR. FERRIS: Okay. Now we will switch to those
25 participating online.

1 MR. WICHERT: George, you are unmuted if you'd
2 like to make your comment now.

3 MR. NESBITT: Can you hear me?

4 MR. WICHERT: Yep, we can hear you.

5 MR. NESBITT: Yes. George Nesbitt, HERS Rater.

6 First, I'd like to talk about a misconception
7 about the Energy Code, because most of the compliance is
8 through the performance path, what is put in the package is
9 not code, it's not required, it's not mandatory. It is the
10 basis of the Energy Budget, so yes high-performance attics
11 and whatnot lower your Energy Budget target. But the Code
12 has always allowed you to trade off building enclosure,
13 heating, cooling, water heating to meet the same.

14 So just because there's a Package A requirement
15 does not mean the industry will do it. There's other ways
16 around it. I think that like in passive house you cannot
17 trade off the Energy Budget for the building enclosure. I
18 think come 2020 if we're going to do Zero Net Energy we
19 have to think about building a building that uses very
20 little energy. That it costs too much to upgrade
21 buildings.

22 Later technology, HVAC, water heating has much
23 lower life spans, gets changed, it's easier to upgrade.
24 And so in that sense the whole PV Credit, you know, once
25 again allows you to trade off building a good building for

1 the long run for shorter-term technology. Although I think
2 it makes sense as an entryway to 2020 and Zero Net Energy.

3 A couple other things, on the additions extension
4 to existing walls, it sounds like in the performance path
5 that even though the code says you can extend a existing
6 two-by-four or two-by-six wall basically you'll be
7 penalized, because you will be compared to the higher
8 package requirement.

9 As well as, I think, not having a HERS Rater
10 verify all existing conditions, whether they're altered or
11 not, if that credit is being taken at all, is a mistake
12 because what lies you put in the computer in the first
13 place may affect whether you're actually compliant or not.

14 And honestly, the whole existing addition
15 alteration method, the change in 2013 was so last minute
16 and honestly I think we need to take a much harder look at
17 the whole existing home and how we do it. Thank you.

18 MR. FERRIS: We had one commenter that asked us
19 to read their statement into the record. And we'll have
20 R.J. do that for us.

21 MR. WICHERT: This is a comment from Andy Llorca
22 at QC Manufacturing, Incorporated.

23 "We support the changes regarding the whole house
24 fan data for proper implementation. For whole house fan
25 sizing on additions and alternations it is unclear if the

1 fan is to be sized based on the addition's added square
2 footage of 1,000 square feet or more or if the fan is to be
3 sized based on the entire structure's new total square
4 footage.

5 "Since Section 150 whole house fan sizing is
6 based on 1.5 CFM per square foot of living space. We are
7 advising that some language is inserted to clarify which
8 portion of the property is to be used for fan sizing. The
9 ACM document should specify it as 1.5 CFM per total
10 proposed living space or 1.5 CFM per addition square
11 footage only.

12 "Thank you all for your time."

13 MR. FERRIS: Yeah?

14 MR. FAY: Thank you. I just have one more thing
15 to add.

16 In Mr. Raymer's remarks -- and I appreciate those
17 -- he mentioned the fact that the trade-off can't be used
18 against lighting and water heaters and other equipment.
19 Why?

20 I mean, I think that frankly if you look at a
21 solar system it's more like equipment than it is like part
22 of the envelope. And so I actually think that if you're
23 going to find a trade-off mechanism that it probably should
24 be against appliances and equipment and lighting as opposed
25 to the envelope. Because the envelope not only lasts a lot

1 longer -- and it won't be replaced during the lifetime of
2 the house like appliances, like equipment, like hot water
3 heaters, like light bulbs -- it may be a better way to deal
4 with this is to have that kind of a trade-off. And I think
5 you'd find a lot of support for that.

6 Sorry, I'm William Fay again. Thank you.

7 MR. SAXTON: Hi, this is Pat Saxton from the
8 Commission. I think that's a misunderstanding. There's no
9 restriction that says any ACM Credit can only be used
10 against specific measures against the total Energy Budget.

11 The issue with the lighting is that that's a
12 mandatory measure, so you can't trade against those. But
13 the hot water, you most definitely could use that credit
14 against however the person complying chooses to do that.

15 MR. FAY: Appliances (indiscernible)?

16 MR. SAXTON: Appliance are fairly complicated and
17 depends on the appliance itself, but white goods and things
18 like that are not part of the Building Standards.

19 MR. FERRIS: Okay. So I want to go over our next
20 steps. So we're accepting written comments from anybody
21 that wants to submit them, until October 8th at 4:00 p.m.

22 It's the same docket that we used before.
23 There's a link to the docket on the notice or you can go to
24 our website and go to the 2016 Code and Post-Rulemaking and
25 work your way through and actually get to that same docket.

1 That's where we're going to post the materials
2 for this meeting. We hope to post an audio recording.
3 Last time it didn't happen, there was some technical
4 difficult, so we never got one. So we're hoping to post
5 the audio recording and the written transcript as soon as
6 they're available.

7 And then as we had said earlier, we're planning
8 on requesting approval for both the ACM Manual, Res and
9 Nonres, and the ACM Software at the November 10th Business
10 Meeting.

11 And we thank you all for your participation.

12 (Whereupon, at 11:00 a.m., the workshop
13 was adjourned)

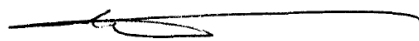
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