

BEFORE THE  
CALIFORNIA ENERGY COMMISSION

In the Matter of: ) Docket Nos. 15-BSTD-01  
) 15-CALG-01  
Lead Commissioner Hearing for )  
45-Day Language 2016 Building )  
Energy Efficiency Standards )  
Revisions for Residential and )  
Nonresidential Buildings )

California Energy Commission <b>DOCKETED</b> <b>15-BSTD-01</b>
TN # 75603 APR 09 2015

LEAD COMMISSIONER HEARING  
NONRESIDENTIAL

CALIFORNIA ENERGY COMMISSION  
HEARING ROOM A, 1516 NINTH STREET  
SACRAMENTO, CALIFORNIA

TUESDAY, MARCH 3, 2015  
9:00 A.M.

Reported by:  
Kent Odell

## APPEARANCES

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Pat Saxton, His Advisor

### Presenters

Mazi Shirakh, Project Manager for 2016 Update of  
Building Standards, Building Standards Office  
Joe Loyer, CEC, ATTCP Program  
Mark Alatorre, CEC, Building Standards Office  
Simon Lee, CEC, Building Standards Office  
Payam Bozorgchami, CEC, Building Standards Office  
Farakh Nasim, CEC, Building Standards Office  
Ron Yasny  
Jim Benya, Benya Burnett Consultancy

### Staff Present

Peter Strait, Building Standards Office  
Pippin Brehler, Chief Counsel's Office  
Bill Pennington  
Ingrid Neumann

### Also Present

Tom Enslow, on behalf of the California State Labor  
Management Cooperation Committee for IBEW and NECA, & on  
Behalf of California Western States Sheet Metal Workers  
Richard Miller, RNM Engineering  
Jon McHugh, McHugh Energy  
Dave Dias, Sheet Metal Workers Local 104  
\*Marc Costa, the Energy Coalition; SoCal Regional Energy Network  
Matthew Hargrove, representing California Business Properties  
Association and several of its members  
Mike Hodgson, ConSol  
\*Beth Brady  
George Nesbitt, HERS Rater  
Randall Higa, Southern California Edison  
Rick Haring, Philips Lighting  
Meg Waltner, Natural Resources Defense Council (NRDC)  
John Arent, NORESO  
Darryl DeAngelis, Belimo  
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\*Tony Moffett, Ruskin Rooftop Systems

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Stuart Tartaglia, Pacific Gas and Electric Company (PG&E)  
Mark Spahn, ABI  
Jonathan Changis, Northern California Power Agency  
Pat Eilert, Pacific Gas & Electric Company (PG&E)  
Anthony Andreoni, California Municipal Utilities Association  
Bob Raymer, California Building Industry Association (CBIA)  
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\*Jeff Guild  
\*Dave Pfund  
\*Nathan \_\_\_\_\_, AES  
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P R O C E E D I N G S

MARCH 3, 2015 9:08 a.m.

MR. SHIRAKH: Good morning. We're going to start in a couple of minutes. We're waiting for some other folks to arrive. We will start at 9:10, about three minutes from now. This is the second day of the 45-Day language hearing and I'm going to turn the meeting to Commissioner McAllister for some opening remarks.

COMMISSIONER MCALLISTER: All right. Well, I will be brief. Thanks everybody for coming again, some of the same folks, others new for just the second day. But we're going to go over the Nonresidential aspect of the 2016 Title 24.

I'm Andrew McAllister, Lead Commissioner on Energy Efficiency, including Building Standards, and let's see, I'll let Peter and Mazi do some of the housekeeping stuff, but I just wanted to open it up and am looking forward to a productive day of conversations on the Nonres side, so thanks again to Mazi and the rest of the staff and we'll get moving. Thanks. Chair Weisenmiller may come at some point pretty soon to share some time with us, as he can. Also on

1 my left is Pat Saxton, my Advisor. So welcome,  
2 and thank you. Mazi.

3 MR. SHIRAKH: Thank you. As usual, we  
4 ask you, when you come in, there's a sign-in  
5 sheet to either write your name down or staple  
6 your business card so we'll know who is attending  
7 the meeting.

8 Also, today's hearing is going to be  
9 transcribed and recorded, so when you want to  
10 make a comment, and it's also being Webcasted.  
11 We ask you to come to come to the podium here,  
12 state your name and your affiliation, and it  
13 would be nice if you could hand the Reporter your  
14 business card so we can have the correct spelling  
15 of your name.

16 The commenting period for this hearing is  
17 March 30th, but we would really really  
18 appreciate if you could give your written  
19 comments to us by March 17th, that way we will  
20 have enough time to look at your comments and  
21 incorporate it into the 15-day language, which  
22 will be presented in early spring.

23 Today's format is a series of PowerPoint  
24 presentations which will have a summary of the  
25 proposed changes in the 45-Day language. We will

1 not be showing the actual Code language changes  
2 with one or two exceptions. And you know, the  
3 language has been posted on the Web for several  
4 weeks now and it will be there, and we'll be  
5 asking people to go and refer to that language  
6 for very specific requirements for the Standards.  
7 But, again, the presentations today will be the  
8 summary of those changes, except for one or two  
9 areas where there's been such a substantial  
10 change since we posted the 45-Day Language, you  
11 know, we felt we needed to present the language  
12 including the lighting alterations where we  
13 actually show the whole language.

14           So with that, I'm going to have a brief  
15 introduction, this is the same one that I  
16 presented today, most of the information on it is  
17 for Res, so I'll skip through those slides.

18           We'll talk about the authority for the  
19 Update of the Standards and the drivers for it,  
20 the 2016 Standards Updates Schedule, the Update  
21 process, Residential and Nonres, Measures, again,  
22 I'll just skip the Nonres measures, and the  
23 California Advanced Home Program, I discussed  
24 that yesterday, it's not really relevant to  
25 today's topic, so I'll skip that.

1           The original authority for adopting and  
2 updating the Standards were given to us in the  
3 Warren-Alquist Act that was signed by then  
4 Governor Reagan in 1974. Additional drivers  
5 include Governor's Clean Energy Jobs Plan, the  
6 Net Zero Energy Residential by 2020, and  
7 Nonresidential by 2030, these are the goals that  
8 are set, that residential buildings will have to  
9 meet the Net - or they don't have to, these are  
10 goals that for Residential is the year 2020, and  
11 for Nonres is 2030.

12           Other drivers include the California Air  
13 Resources Board Climate Change Scoping Plan and  
14 California's Long Term Energy Efficiency  
15 Strategic Plan.

16           COMMISSIONER MCALLISTER: Mazi, I'm going  
17 to jump in for one second and give just a tiny  
18 little bit of history here. So we know that  
19 President Reagan signed it, or then Governor  
20 Reagan signed it into law, and you know we're at  
21 our 40th anniversary now and I think many of us  
22 in the Building are very proud of the fact that,  
23 looking back, we've accomplished quite a bit at  
24 the Energy Commission in Building Standards, but  
25 our current Governor was actually the one who

1    oversaw the beginnings of the Energy Commission,  
2    Reagan signed it, but then the implementation  
3    fell to the next Governor after the following  
4    election, who was Jerry Brown, so the first  
5    promulgations of Standards actually occurred  
6    under our current Governor, and that's just to  
7    highlight the fact that Governor Brown is truly  
8    committed to this activity and takes it very  
9    personally, and I think we ought to all keep that  
10   in mind in the room as we move forward, that this  
11   is not being done in a vacuum, this is really  
12   part of Administration Policy in a very active  
13   way today, just as it was back in the late '70s.  
14   So I just wanted to chime in with a little bit of  
15   history there.

16           MR. SHIRAKH:   Thank you, Commissioner  
17   McAllister.   It is true that Governor Reagan  
18   signed the legislation in the last few months of  
19   his Administration, and when he left Governor  
20   Brown came in in 1975 and that's when things got  
21   started in earnest.

22           This graph is mostly related to  
23   Residential Zero Net Energy Goals, and so what  
24   you see here is how the energy use intensity in  
25   the buildings have improved over the years as a

1 result of various updates to the Code cycle, from  
2 very inefficient buildings with minimal  
3 insulation, leaky ducts, single pane aluminum  
4 windows, and low efficiency furnaces and air-  
5 conditioning system, to modern buildings that  
6 basically have reduced the energy intensity from  
7 about 115 KBTUs per square foot per year down to  
8 around, I would say, 18. So that's a huge  
9 reduction in the regulated load consumption of  
10 our homes where we're living today. And our goal  
11 is to basically reduce this to run 12 and then  
12 make up the difference with renewables, and that  
13 will be the goal for the ZNE.

14           The schedule update, you know, last  
15 spring we started a series of stakeholder  
16 meetings throughout the meetings as sponsored by  
17 the California IOUs. In May and June through  
18 August we held the staff workshops here in this  
19 room on many of the topics, or all of the topics  
20 that are being considered for 2016 Update.

21           In November of this last year, November  
22 3rd, we presented the Draft 2016 Language which  
23 has become the basis for the 45-Day Language that  
24 is being rolled out yesterday and today.

25           April of 2015, we'll see the release of

1 the 15-Day Language, May 2015, adoption, and  
2 January 1, 2017 will be the effective date of the  
3 Standards.

4           These are the topics and the dates of the  
5 stakeholder meetings that were held last June  
6 throughout the state.

7           The Standard process involves two phases,  
8 the pre-rulemaking which concluded last November  
9 with the staff workshop, and the formal  
10 rulemaking process which is basically what we're  
11 in now.

12           The pre-rulemaking, again, involved a  
13 series of stakeholder meetings held either in  
14 person or webcasted, and these stakeholder  
15 meetings were sponsored by California's IOUs,  
16 PG&E, Southern California Edison, Southern  
17 California Gas Company, San Diego Gas and  
18 Electric, and also SMUD and LADWP also were  
19 involved in support of the Standards.

20           Again, pre-rulemaking has concluded, so  
21 the rulemaking has again two steps, the 45-Day  
22 Language which is being released today, and the  
23 15-Day Language will be released a couple months  
24 from now. And these hearings are presided by the  
25 Lead Commissioner McAllister.

1           And these are related to Residential, so  
2 I'm going to step through them. And so for  
3 Nonresidential, our intent for this round was to  
4 basically keep up with ASHRAE, which is what  
5 we've done primarily, which included the  
6 Equipment Efficiency Envelope U-Factors, Indoor  
7 Lighting, Outdoor Lighting, we also have new  
8 requirements for elevators and escalators and  
9 also windows and doors, HVAC lock-out sensors.

10           Also, we've gone back and we've got a lot  
11 of comments related to lighting alterations and,  
12 you know, we've been working on that with the  
13 stakeholders and so that falls within that last  
14 bullet clarification and we'll have a  
15 presentation later on today for the lighting  
16 alterations.

17           And so these are all residential topics.  
18 This slide is the Cost-Effectiveness Methodology  
19 that we have to go through. The Statutes require  
20 that we demonstrate that the measures are adopted  
21 into the Standards most cost-effectively and we  
22 use the lifecycle costing methodology which is a  
23 net present value analysis, you know, we assume  
24 discount cash flow for both costs and benefits,  
25 you know, we assume a discount rate, the life of

1 the measure, and the maintenance costs and  
2 benefits over the life of the measure. And the  
3 metric that we use to evaluate the cost of the  
4 energy is the time dependent valuation, or TDV,  
5 and this is a measure that basically attributes a  
6 value to a unit of energy for every hour of the  
7 year. And it differentiates between the cost of  
8 generation and distribution of that unit of  
9 energy for every hour. You can imagine, you  
10 know, a unit of energy that is produced in the  
11 winter tends to be a lot cheaper than a unit of  
12 energy that is generated and distributed, say, in  
13 August afternoon when the temperatures in the  
14 Valley are over 100 degrees.

15           So this metric would favor measures that  
16 would save energy on peak rather than off peak.  
17 So with that, any questions on the procedures?

18           A couple of housekeeping items. If there  
19 is an emergency, which I don't anticipate, I hope  
20 not, we'll gather in front, exit through the main  
21 doors, and we'll reconvene in the park across the  
22 street, which is kitty corner from here. And the  
23 restrooms are over there, and we do have a snack  
24 bar again in the Commission if you want to get  
25 coffee, and there are food facilities all around

1 here.

2           We have an agenda here that has  
3 approximate times and, you know, it will be a  
4 miracle if we didn't deviate with these times  
5 yesterday, we were about an hour late, but we  
6 still got out of here around 4:00, so I can  
7 assure you we'll probably be out of here at about  
8 4:00 at the latest if you have flights to catch.

9           So with that, we're going to go to the  
10 first presentation, which is on Sections 10-103A  
11 and B. Peter Strait will show you, since we've  
12 posted the 45-Day Language, we've continually  
13 been receiving comments and we're changing some  
14 sections, and all of those documents, the changes  
15 have been documented in a document that Peter is  
16 highlighting. And again, so these will be the  
17 changes that are in addition to the 45-Day  
18 Language that was posted. So it basically  
19 captures all the changes after the posting of the  
20 45-Day Language. So we'll be going through some  
21 of these changes today, as well. Peter, do you  
22 want to add something to that?

23           MR. STRAIT: Sure. This document  
24 represents the fact that in order to create the  
25 45-Day Language we published, we had to kind of

1 freeze changes to a pretty far in advance, and we  
2 continue to receive comments from folks, some  
3 were late comments on the pre-rulemaking language  
4 we put out, some were just additional feedback  
5 that we got from stakeholders from conversations  
6 that we had. This document simply records and  
7 displays to the public, making transparent some  
8 of the changes that we've decided on based on  
9 that feedback. So that way, as we go through  
10 comments today, and as we receive written  
11 comments for you in the rulemaking period, check  
12 this document and see first is this an issue that  
13 we've already addressed for you, and second if  
14 there's comments that you want to make based on  
15 some of the conversations that we've had here.  
16 That way, we can move the conversation forward,  
17 we don't have to wait all the way through the 15-  
18 Day Language to talk about some of the ways in  
19 which our 45-Day Language could be further  
20 improved. So I would really encourage people to  
21 go ahead and check that out, it's on the same  
22 page as the full copy of the express terms and  
23 the notices for this rulemaking period.

24 MR. SHIRAKH: Okay, so with that, we're  
25 going to go to 10-103 A and B. And Joe Loyer

1 will be presenting.

2 MR. LOYER: Thank you; I'm Joe Loyer,  
3 California Energy Commission. I'm currently  
4 administering the ATTCP Program and that is the  
5 Acceptance Test Technician Certification Provider  
6 Program.

7 The first set of modifications we have to  
8 the ATTCP Regs, they're Sections 10-103A and 10-  
9 103B. These list out the sections that we are  
10 proposing changes to that will add clarification  
11 without materially altering the requirements.  
12 Our intention here is that the requirements do  
13 remain the same. We've had some discussions with  
14 some people concerned that we were, you know,  
15 loosening or tightening the requirements here.  
16 The intent here is that we are not changing the  
17 requirements, we're just making it more clear as  
18 to exactly what we want.

19 We do have some proposed changes that do  
20 materially affect the requirements and the first  
21 one of any consequence is the quality assurance  
22 requirements. Now, the quality assurance is  
23 going to be modified, we're proposing it in 45-  
24 Day Language to require randomly selected on-site  
25 audits of no less than one percent of each ATT's

1 forms that they do submit to their ATTCP.

2           The next one is actually a little less  
3 controversial. This actually provides process  
4 for both substantial and non-substantial changes  
5 that the ATTCP may have to make to their  
6 application, or to their process for whatever  
7 reason, including a change to the Standards such  
8 as when the 2016 Standards do become adopted.  
9 The ATTCP can submit to the Energy Commission, or  
10 actually are required to submit to the Energy  
11 Commission what they are going to do to modify  
12 their program in response to changes that may or  
13 may not have occurred in the acceptance test  
14 area.

15           MR. STRAIT: To add one point to that,  
16 that change is intended to add flexibility in  
17 that previously we required a full resubmittal of  
18 materials; this allows people to merely amend  
19 their application, to only submit materials  
20 relative to what change they're making, so it's a  
21 streamlining measure more than anything.

22           MR. LOYER: We are deleting one  
23 subsection from both Section 10-103A and 10-103B.  
24 These 10-103A and B actually mirror each other  
25 substantially, not completely. One is lighting

1 and the other is mechanical, so they can't be  
2 absolutely mirrors of each other, but in this  
3 particular instance they both have a subsection  
4 (e) that addresses the interim accrual of ACCTPs.  
5 That is only relevant during the interim period.  
6 For lighting, that interim period has ended, that  
7 ended in December. And for mechanical, that  
8 interim period will end on June 30th of this  
9 year, therefore when these standards do become  
10 effective on, right now, January 1st, 2017, there  
11 will be no need for an interim approval of an  
12 ATTCP because there will not be an interim  
13 period.

14 Further changes without Regulatory  
15 effect. These are the things that we're  
16 considering now. One of the strange things that  
17 has kind of come up is the actual naming of the  
18 section. 10-103-A, 10-103-B, often get confused  
19 with Section 10-103(a) and (b). These sections  
20 are somewhat related to each other, they do come  
21 up in conversation together, or in presentation  
22 together, so our solution is to renumber the  
23 sections to 10-103.1, 10-103.2, and hopefully  
24 this will alleviate some of that confusion.

25 The mandatory regular reports that we do

1 require of ATTCPs has been somewhat problematic,  
2 we tried to clean it up in the first go-round  
3 with 45-Day Language. We've actually added a  
4 little bit more distinctive clarity to what we  
5 are calling the Annual Report and the Update  
6 Report. Now, this is not a new requirement, both  
7 of these reports were required, we are just  
8 making some clarity that there are actually two  
9 different reports that they were before handled  
10 in the same paragraph, and it was somewhat  
11 confusing as to what was to be in either one.  
12 And we've made some clarifications as to what we  
13 expect in an annual report and what we expect in  
14 an update report. The annual report is, by its  
15 name, every year. The update report is in  
16 reference to when we actually update the  
17 Standards from, say, the 2013 Standards to the  
18 2016 Standards.

19           There are other modifications that we're  
20 considering for the Compliance Manual. They are  
21 based on several comments that we've received.  
22 We are considering them for the Compliance Manual  
23 as a method of complying with these standards,  
24 not as a mandatory requirement that the ATTCP or  
25 the ATTs, those are the technicians or the ATEs,

1 those are the employers that they comply with  
2 these requirements.

3 And I believe that is it. So, I'm here  
4 to answer any questions you may have, also able  
5 to take comments.

6 MR. SHIRAKH: Any questions or comments?

7 MR. ENSLOW: Good morning. Tom Enslow on  
8 behalf of the California State Labor Management  
9 Cooperation Committee for IBEW and NECA and on  
10 behalf of the California Western States Sheet  
11 Metal Workers. We've submitted some comments and  
12 had some productive conversations with staff and  
13 we'd like to thank them for that. You know, some  
14 of the proposals that they put out we felt were  
15 counterproductive and that the way they were  
16 written we felt didn't go the right direction  
17 that apparently they intended and I believe that  
18 they're going to look at rewriting some of those  
19 provisions.

20 In particular, one of the provisions was  
21 we wanted to ensure that the Commission, you  
22 know, had full ability to approve Acceptance Test  
23 Providers based on the quality of the program and  
24 not just based on their putting in a full  
25 application the way that they revised it and made

1 it sound like if you put in a full application  
2 you'd be approved, not that the Commission would  
3 then view the quality of that application and  
4 then decide if there would be a likelihood of  
5 having a successful program, and we think that  
6 flexibility needs to stay in there. And the  
7 staff assured us that that wasn't their intent,  
8 so we're hoping that they'll revise that  
9 language.

10           There are a number of issues that arose  
11 over the last year as this process has started  
12 and the first providers have been approved.  
13 Where a number of the requirements have been  
14 vague or haven't been interpreted, or been  
15 interpreted different by different parties, and  
16 we've provided staff a list of that and gone over  
17 those, and a lot of those I think we can resolve,  
18 but some of them I think really need to be  
19 resolved in the statutory language itself, and  
20 not just Compliance Manual.

21           And probably most critical for us is the  
22 requirement that, you know, any provider program,  
23 any certification provider program that's going  
24 to certify Acceptance Testers, and trend them and  
25 test them, that their testing has to be actually

1 professionally verified, that when you do tests  
2 you need to verify your test for validity, lack  
3 of bias, reliability, and this is a basic  
4 employment certification requirement that any of  
5 the national and international accreditation  
6 programs for certification programs require, it's  
7 required for certification of Electricians by the  
8 State of California, for Apprenticeship  
9 Standards, it's consistent with the U.S.  
10 Department of Labor, it's Guide to Good  
11 Practices, both to ensure there's no bias in  
12 tests, and also to ensure that these tests  
13 actually are good tests, that people understand  
14 the questions, you know, that you basically have  
15 to have pilot testing and then have professionals  
16 analyze those results to ensure that they're  
17 reliable and regularly do that to ensure that  
18 test questions haven't gone out, and ensure that  
19 there's multiple versions of tests. And none of  
20 that has been interpreted by staff as being  
21 required now, even though there's a quality  
22 assurance requirement in the statute. And we  
23 really think that you can't have a reliable  
24 program unless, at a bottom line, you have  
25 verification of testing. It's just a basic

1 requirement of certification programs.

2           You know, we'd also like to see the  
3 percentage of acceptance tests that are field  
4 tested go up, but we recognize there are some  
5 issues with that as far as the numbers that could  
6 happen with HVAC versus lighting controls, and  
7 we're hoping to work with staff on that as we go  
8 on and we've listed a whole bunch of other issues  
9 that are important to us that we're working with  
10 staff on. But really, you know, if we were going  
11 to pick any of this stuff that we're concerned  
12 about, the validity of tests is a key factor and  
13 really needs to be mandated for any provider,  
14 otherwise you're not going to have a reliable  
15 provider certification program. Thank you.

16           MR. SHIRAKH: Thank you, Tom.

17           MR. MILLER: Hello, I'm Rick Miller with  
18 RNM Engineering. I'm a private consulting  
19 Electrical Engineer providing services in the  
20 designing electrical and lighting power systems  
21 for buildings, as well as giving seminars on  
22 lighting control systems.

23           I've been providing electrical  
24 commissioning services for many years and I also  
25 recently acquired certification as a Certified

1 Lighting Controls Acceptance Tester. And in  
2 those two capacities I see that the language of  
3 the Code is slightly different, and I would  
4 suggest harmonizing the Commissioning process in  
5 the Code, as well as the Acceptance Testing  
6 process.

7 Commissioning the process has been in the  
8 construction industry for about 20 years, it's  
9 well established, it has proven there is cost-  
10 effectiveness and it is also interesting to note  
11 that the Commission in this employment of the  
12 Commissioning has three levels of steps to it, if  
13 the buildings are less than 10,000, it can be  
14 self-commissioned by the Design Engineer, if it's  
15 between 10 and 50,000, it requires a different  
16 engineer, but it may be in the same firm, or it  
17 could even be a C-10 or an installing contractor.  
18 And if it's over 50,000 or a complex building,  
19 then it requires a third party.

20 I think a similar approach on Acceptance  
21 Testing would benefit the industry.

22 Regarding the third party Acceptance  
23 Tester, it's a very awkward situation for an  
24 individual to be in, to have to make a decision  
25 between continued employment or committing

1 perjury. And I wouldn't want to put anybody in  
2 that position, including myself. And I would  
3 suggest for large projects that the Acceptance  
4 Testing Technician be a third party.

5           Regarding enforcement, it's also  
6 interesting, I have spoken to several what are  
7 called "cool cats" if you know what I mean,  
8 Certified Lighting Control Acceptance Testing  
9 Technicians, and it's interesting to note what  
10 they're finding as far as inspection agencies  
11 enforcement. It goes from one extreme: "Title  
12 24? What's that? Oh, that's the California  
13 Energy Code, that's too complicated!" We don't  
14 enforce it. Several jurisdictions seek that.  
15 Another jurisdiction has said, "I don't care  
16 about the forms, just show me anybody's signature  
17 at the bottom of the form." Another big  
18 jurisdiction takes the attitude of they don't  
19 want to get involved, they have created their own  
20 form assigning responsibility for the CI Forms  
21 and the CA Forms over to the Engineer of Record.  
22 They just kind of wash their hands of it and push  
23 it over to the Engineer of Record. And then  
24 there's the other one, where several  
25 municipalities are taking the strict letter of

1 the law, so there needs to be some improvement on  
2 level enforcement. Thank you.

3 MR. SHIRAKH: Thank you. Before we go to  
4 other comments, I'd like to give Joe Loyer an  
5 opportunity to respond to some of the comments by  
6 Tom and Rick.

7 MR. LOYER: Sure. We'd like to start  
8 with thanking Tom Enslow for stepping up and  
9 making the comments they did. As far as the  
10 testing requirements, at this point the Energy  
11 Commission feels that the testing requirements in  
12 statutory language are sufficient to give staff  
13 the ability to discern between a good testing  
14 program and a poor testing program. But without  
15 having strict interpretation, strictly  
16 interpreted language within the statutory  
17 language, we think that that is probably best for  
18 the Compliance Manual. That said, the Energy  
19 Commission staff that does review these  
20 applications has taken great diligence in making  
21 sure that each of the ATTCPs that we have  
22 approved do have a considerable approach, you  
23 know, serious and significant approach to  
24 providing testing not only the tests themselves  
25 that are relevant to the materials that they are

1 testing for, but also protecting those tests,  
2 ensuring that those tests are not widely known,  
3 that they have a variety of different test  
4 questions that they can use, and can rotate, and  
5 that the testing rooms and facilities are  
6 appropriately secured and proctored. So far we  
7 have seen a couple of different approaches to  
8 testing, we are satisfied with those approaches.

9           As far as Mr. Miller's comments, I also  
10 thank you for stepping up and making those  
11 comments, sir, we are actually -- commissioning  
12 is sort of a newer requirement within the Energy  
13 Commission's Regs, that obviously is not what  
14 we're talking about here today, we're talking  
15 about the ATTCP. And in truth, we're not even  
16 talking about the Acceptance Tests themselves,  
17 but we do recognize that there is this  
18 overarching connectiveness between commissioning  
19 the ATTCP and the Acceptance Tests. And we are  
20 looking into how we would better describe and tie  
21 the activities of commissioning and acceptance  
22 testing and the ATTCP together. I think at this  
23 particular point we're definitely looking into --  
24 we hear the complaints that are out there and we  
25 hear the confusion more than complaints that are

1 out there, and we are responding to it.

2           As for the inspection agencies, the  
3 Building Departments that are in California, we  
4 are well aware of the variety of approaches that  
5 many Building Departments take to enforcing the  
6 Energy Standards, and we have an outreach program  
7 that is attempting to contact them, and offer  
8 them the assistance that they need. We hope that  
9 most of the Building Departments will come into  
10 line and will accept our help, but we are out  
11 there and I think one of the things that is going  
12 to help that, at least on the Non-Residential  
13 side, is the ATTCP. I really do believe that, I  
14 think that the providers actually will help the  
15 Building Departments actually get to the point  
16 where they feel confident in enforcing the Energy  
17 Standards that we are putting forth. So with  
18 that...

19           MR. SHIRAKH: Thank you. Tom and Rick,  
20 do you have any follow-on comments or are we  
21 good?

22           MR. STRAIT: Actually, if I could jump in  
23 with two quick clarifications, 1) you had  
24 mentioned statutory language, we're referring to  
25 Regulatory language, I think you just misspoke

1 there.

2 MR. LOYER: Oh, sorry, yep.

3 MR. STRAIT: And we are making changes to  
4 the Commissioning language, it's on the books.  
5 When we say we're not talking about it today,  
6 those are mainly clarifying changes. We're  
7 trying to bring it where it's harmonized with the  
8 CALGreen language and that's in Part 11, so  
9 there's not any conflict between those, and where  
10 it's harmonized with the scoping language in  
11 Section 10, Part 1, Section 10, so we are  
12 actually making changes there and we will  
13 definitely take under consideration that we  
14 should also make sure that language is harmonious  
15 with the language for the ATTs and ATTCPs.

16 COMMISSIONER MCALLISTER: I want to  
17 actually chime in a little bit on the second  
18 comment. So big state, lots of jurisdictions,  
19 and much of the actual authority rests at the  
20 local level, so certainly Code is State Law and  
21 should be complied with. But at the same time,  
22 local jurisdictions are key intermediaries in  
23 that process, and so my interest certainly is  
24 doing everything we can to educate them about  
25 Code, and figure out ways to improve the systems

1 and tools they have to not only understand it,  
2 but also to enforce it. But that's a little bit  
3 of, you know, has to be a partnership in some  
4 ways, and there aren't Sheriffs running around,  
5 you know, making sure that everybody complies  
6 with the letter of the Code. So I think you've  
7 really stated just the basic dynamic and a  
8 recognition of that dynamic and I think  
9 particularly in retrofit projects, you know,  
10 additions and alterations, we need to put our  
11 thinking caps on to figure out how to make it in  
12 everybody's best interest to enforce Code, or to  
13 understand Code and apply it uniformly across the  
14 State, so that's an ongoing interest of mine,  
15 certainly, and the Commission's. But thanks for  
16 bringing that up.

17 MR. STRAIT: And actually I can reinforce  
18 that a little bit further. Part of the reason  
19 that we're including cleanup in this is because,  
20 by making Code cleaner, more streamlined, more  
21 readable, it makes it easier for an inspector or  
22 for an enforcement person to read, understand and  
23 apply that Code, so we're definitely committed to  
24 moving in that direction.

25 MR. SHIRAKH: Jon.

1           MR. MCHUGH: Hi. My name is Jon McHugh.  
2 These comments are my comments only and come from  
3 my experience working in the trades and also  
4 being involved in the development of the  
5 Acceptance Tests. And in terms of development,  
6 these Acceptance Tests as they were originally  
7 created, were intended to be conducted by the  
8 Installing Contractor and were simple, easy to  
9 use tests that didn't take much time, and were  
10 very cost-effective, and were primarily focused  
11 on identifying key indications of control system  
12 failure.

13           I think what Rick has brought up is that  
14 this thing has morphed into kind of a beast in  
15 terms of another large bureaucracy for the  
16 enforcement of the Code, and similar to what Rick  
17 has brought up about individuals being torn  
18 between perjury and keeping their job, the same  
19 thing is true for companies. And you know, the  
20 problem in terms of conflict of interest for both  
21 the HERS Providers and the Acceptance Testing  
22 Companies, you know, is an inherent problem with  
23 how this thing is structured, that the person who  
24 pays and selects the company to do essentially  
25 what is third party inspection, is the company

1 that's being inspected. And I think it really  
2 raises a question about whether or not who  
3 selects that company, whether it should actually  
4 be the Building Department and not the person who  
5 is being inspected.

6 So it's just an inherent conflict of  
7 interest and I think it's probably too short of a  
8 time period to take this on now, but ideally  
9 looking forward to future Codes, it should be.

10 The other thing is my experience is that  
11 the Building trades has an incredibly high level  
12 of turnover, and a lot of people are in the field  
13 for under 10 years and the idea that someone to  
14 be a cool cat is something that's based on  
15 participation in three years, that's almost the  
16 amount of duration required to get your  
17 contractor's license. To me, this should  
18 actually be a meritocracy; if you're able to take  
19 the class, take the test and pass it, there  
20 shouldn't be this artificial restraint of trade  
21 essentially to technicians in the field. So  
22 thank you very much.

23 MR. SHIRAKH: Thank you, Jon. Sir.

24 MR. DIAS: Good morning, everybody. I'm  
25 Dave Dias with the Sheet Metal Workers Local 104.

1 I kind of take exception to saying that people in  
2 the trade only last about 10 years or less. I've  
3 been in the trade for 35 years and everybody that  
4 I went through apprenticeship school back then  
5 are still there. So, I mean, it doesn't happen  
6 with our trade and our trade does the Balancing  
7 and Acceptance Testing and all the other things  
8 with that.

9           Tav asked me to talk about the one  
10 percent of the field testing and they're not 100  
11 percent sure whether they support it or not yet,  
12 so I just wanted to bring that up and we'll  
13 probably have some comments coming up soon. So  
14 that's about it. Thank you.

15           MR. SHIRAKH: Please make those comments  
16 soon, sooner than later. Joe.

17           MR. LOYER: I'm sorry, what?

18           MR. SHIRAKH: Did you have something to  
19 say?

20           MR. LOYER: No, I just said thank you.

21           COMMISSIONER MCALLISTER: So I want to  
22 just bring up, I mean, I appreciate the various  
23 comments, obviously there are differing opinions  
24 about this, but we also need to balance the level  
25 of transaction costs that this process imposes on

1 the marketplace. So, you know, we're looking for  
2 ways, I mean, if we are so explicit and so  
3 detailed that the requirements, kind of the level  
4 of requirements go up, then we're going to drive  
5 some projects underground. I mean, we see that  
6 already and we want to avoid that. So a certain  
7 amount of flexibility, I think, is warranted as  
8 we kind of figure out how the marketplace engages  
9 with this and how it affects different projects,  
10 individual projects of different sizes. So  
11 obviously we want quality and the code is there  
12 and it is the law, it's supposed to be applied.  
13 But we also have to kind of be cognizant of what  
14 the actual process on the ground looks like on a  
15 given project, so I'm not saying that I've got a  
16 perfect solution, I'd love to hear ways that  
17 those of you who are intimately familiar with the  
18 way the marketplace works can get this done at  
19 high quality, with a process that is at least  
20 somewhat certainly transparent, but also kind of  
21 makes sense in the project flow environment. So,  
22 you know, maybe all of those things aren't  
23 perfectly resolvable, but my questions to each of  
24 you are going to really be shaped by that idea,  
25 that we want to balance the various interests

1 that the marketplace has to juggle in often  
2 complex projects. So anyway, I would ask you all  
3 to kind of keep that in mind and help staff think  
4 through the processes, you know, how we're going  
5 to apply long term ATTCPs.

6 MR. SHIRAKH: When we do our lifecycle  
7 costing for these measures, we do include the  
8 cost of Acceptance Testing, and if the cost goes  
9 up too high, it could actually make some projects  
10 that would have been cost-effective not cost-  
11 effective. So it is definitely a consideration.

12 MR. PENNINGTON: Bill Pennington, Energy  
13 Commission staff. So your comments stimulate the  
14 thought here that I also wanted to add. When the  
15 ATTCP requirements were introduced, it was a goal  
16 of staff to try to keep as open a playing field  
17 as possible so that we could get engagement from  
18 potential providers who have competence and  
19 capability in the marketplace, and to try to  
20 avoid being restrictive. So the original  
21 Regulations were intended to be sort of  
22 minimalist in terms of saying how to do it and  
23 just trying to say what we're trying to do. Over  
24 time, no doubt, potentially there might be a  
25 reason for making improvements based on

1 experience to adjust that and improve on that,  
2 but one of the things that's going on here is  
3 that we have very little experience with these  
4 Regulations, just a matter of months here and it  
5 doesn't seem like we have had enough time to sort  
6 of get any strong feedback on what kind of  
7 modifications we ought to be making.

8           So I think in general the staff believes  
9 that sort of a stay the course kind of approach  
10 is best, unless there's some really major issue  
11 that we ought to be making a change about.

12           COMMISSIONER MCALLISTER: Thanks, Bill.

13           MR. SHIRAKH: Any other comments?

14 There's a comment on line, please.

15           MR. COSTA: Hi, this is Marc Costa from  
16 the Energy Coalition. Can you hear me?

17           MR. SHIRAKH: Yes.

18           MR. STRAIT: Yes, we can hear you.

19           MR. COSTA: Okay, great. All right, so  
20 I'm with the Energy Coalition and have been  
21 working with the SoCalREN under the CPUC and  
22 working closely with organizations like the LGSCC  
23 with local government. And some of the previous  
24 comments brought up some of the topics that have  
25 been going around in our circles about the role

1 of each agency in, 1) the permitting rate versus  
2 the compliance rates with jobs happening within  
3 the local jurisdiction. And you know, there's  
4 some room to advocate for tools for local  
5 government within the enforcement realm. The  
6 language is, as we are seeing today, a high  
7 emphasis on the creation of the language, and  
8 there's also a high emphasis on the creation of  
9 the software to support the compliance. But  
10 there's a pretty large void in the actual tools  
11 and software for enforcement. So it may be an  
12 idea for future pre-rulemaking and future  
13 standards making to consider making a statewide  
14 standard for permitting or online permitting work  
15 flows, processes, and free and accessible  
16 software or development kits that local  
17 governments could actually use to make the  
18 permitting work flow and process more digestible  
19 and dependable and transparent.

20 MR. SHIRAKH: Thank you for that comment.  
21 Any other comments in the room or online? I  
22 don't see any. So thank you, Joe.

23 We're going to move to the next topic,  
24 which is Subchapter 3, Sections 120.0 through  
25 120.9, these are the mandatory requirements for

1 nonresidential buildings and high rise res.

2 MR. ALATORRE: Okay, I'm going to be  
3 presenting the changes to 120.0 through 120.9.  
4 And 120.2(b)4, we deleted the term "unitary  
5 single zone." This was based on I'm going back  
6 through the rulemaking file for the 2013  
7 Standards on the basis of the Smart Thermostat  
8 Requirement, that analysis was not specific to a  
9 specific equipment type, so we deleted this term  
10 to make it applicable to all air-conditioners,  
11 you know, based on again the analysis of the 2013  
12 Rulemaking.

13 Given that the Smart Thermostat  
14 requirement and the demand shed requirements  
15 found in 120.2(b)4 are electric savings,  
16 electricity savings, we added gas furnaces to the  
17 exception, also added package terminal air-  
18 conditioners and package terminal heat pumps due  
19 to their control types. So these systems do not  
20 have to comply with the communicating thermostat  
21 or the demand shed control requirements.

22 Changes to 120.2(f), we added instances  
23 where the fan is to automatically shut down and  
24 we added for during unoccupied periods and during  
25 setback periods. There are exceptions to these

1 requirements for during the unoccupied periods,  
2 the exceptions include preoccupancy if the space  
3 or zone has an occupant sensor, and there should  
4 be an override signal that would prevent shutdown  
5 for outdoor ventilation purposes.

6 Changes to 120.2(i)1 through 8, there was  
7 a lot of cleanup. 2013 was the first round of  
8 Standards where we started to regulate FDD Fault  
9 Detection Diagnostic Devices. So with that came  
10 a lot of questions from the industry and so these  
11 changes are to include their recommendations.

12 We removed references to the system type  
13 and any reference to HRI, that was a big cause  
14 for confusion, and also we deleted refrigerant  
15 pressure sensor accuracy given that there's no  
16 refrigerant faults that are required to be  
17 detected. That was some language that needed to  
18 be deleted and so it's just some clean-up stuff.

19 Related to that we didn't mention changes  
20 to JA6 related to FDD certification yesterday, so  
21 I'm going to say it today. So after the adoption  
22 of 2013 Standards, FDD manufacturers began to ask  
23 how to become certified, how to test for the  
24 faults that we were requiring, so we developed a  
25 document withheld from the WHPA, the Western HVAC

1 Performance Alliance to come up with what we  
2 called a Guidance Document that gave test  
3 protocol. The test protocol is general  
4 applicability, so it applies to any FDD and it  
5 was important for the manufacturers, they felt  
6 they wanted something that would even the playing  
7 field and kind of benchmark a minimum  
8 requirement, or not really the minimum  
9 requirement, but a minimum capability based on  
10 the faults that we were requiring. The changes  
11 were to change this from a guidance document to a  
12 required test, so it is now incorporated into  
13 JA6.

14 Changes to 120.2(j), these are to require  
15 direct digital controls for the types of systems  
16 that are listed in Table 120.2(a). Also, the DDC  
17 has to meet certain minimum capabilities, I'm not  
18 going to read through all of them, but I guess  
19 I'll read through a few of them, they're supposed  
20 to monitor zone and system demands information  
21 transfer between zones, detect zones and systems  
22 that are driving reset logic, allow operator to  
23 remove certain zones from the algorithms of the  
24 DDC System, and trending graphically display  
25 inputs and outputs, reset heating and cooling set

1 points in all noncritical zones when the signal  
2 is received.

3 Also new to 120.2(k) is for optimum start  
4 and stop controls for these DDCs. We defined  
5 each of these terms in Section 100.1.

6 Minimal changes to 120.3, most of it was  
7 cleanup language. The one change was to increase  
8 insulation thickness from 1/2 inch to 3/4 inch  
9 for space cooling system piping between 40 and 60  
10 degrees.

11 So 120.6(f), this was an ASHRAE  
12 alignment. We're going to require lighting  
13 inside the elevator cab and the ventilation fans  
14 for elevators that have air-conditioning. We're  
15 going to regulate the lighting to be no more than  
16 0.6 W/sqft. And the ventilation watts per CFM to  
17 be no more than .33.

18 I'd like to mention that we went beyond  
19 ASHRAE in the light power density. This is  
20 another ASHRAE alignment and this is for  
21 escalators and moving walkways specific to those  
22 found in airports, hotels, and transportation  
23 function areas. The escalator moving walkways  
24 should have controls to bring it to a minimum  
25 speed when unoccupied.

1           So there are some changes in 120.7 and  
2 that was moving insulation requirements from  
3 110.8 over to 120.7, those that were specific to  
4 non-res, also clarified that buildings solely  
5 dedicated to housing computer equipment were  
6 exempt from mandatory insulation.

7           And as for 120.8, there were changes that  
8 aligned it with the changes in 10-103. And that  
9 concludes my presentation. We'll take comments  
10 and questions.

11           MR. SHIRAKH: Any questions or comments?

12           MR. HARGROVE: Commissioner McAllister,  
13 and thank you to all the CEC staff. My name is  
14 Matthew Hargrove, I'm here today representing  
15 California Business Properties Association and  
16 several of our members, including the  
17 International Council of Shopping Centers, NAOP  
18 of California, the Commercial Real Estate  
19 Developers Association, and the Building Owners  
20 and Managers Association of California.

21           Before I start, we have a few concerns  
22 that we just want to make sure that staff goes  
23 back and takes a look at in a specific area, but  
24 in general my members asked me to make comments  
25 that we're still trying to catch up with the 2013

1 Standards. Some of the cost-effectiveness  
2 assumptions that went into those Standards we're  
3 not sure are bearing out right now, and this  
4 relates to the last conversation a little bit.  
5 So we want to make sure that the cost-  
6 effectiveness of this new Code that you're  
7 looking at is really taking a critical look at.  
8 Some of the issues related recently to the  
9 Standards that came online where during these  
10 conversations several years ago the impact was  
11 projected to be \$3.00 to \$5.00 per square foot,  
12 we're seeing in actual projects impacts anywhere  
13 from \$10.00 to \$15.00 per square foot. So we  
14 would like to offer staff at the Energy  
15 Commission the opportunity to come out and ground  
16 truth what some of the impacts of the Energy Regs  
17 are and we really would like to see if the  
18 projects and costs impacts that were discussed  
19 here are actually accurate as they're playing out  
20 in the market. And we think that would be  
21 helpful and we would love to work with you to let  
22 your staff work with us through a project to see  
23 where some of the costs may have gone off the  
24 rails just a little bit.

25 COMMISSIONER MCALLISTER: Can I ask just

1 a clarifying question?

2 MR. HARGROVE: Sure.

3 COMMISSIONER MCALLISTER: So are you  
4 largely talking about additions and alterations,  
5 new construction?

6 MR. HARGROVE: TIs.

7 COMMISSIONER MCALLISTER: TIs, okay.

8 MR. HARGROVE: And right now we just have  
9 some anecdotal feedback that's come back as one  
10 of your staff said, you know, it's fairly early  
11 on in this. We're not sure exactly where the  
12 issue is happening, whether it's with the local  
13 planning desks and their interpretation of the  
14 Energy Codes, the Energy Code itself, we're still  
15 trying to work through that. And we're just not  
16 sure, but we're seeing right now some of our  
17 members are telling us that they're having to  
18 redo how they do leases with new tenants and that  
19 they're having to carve out Title 24 costs and  
20 negotiate those specifically with new tenants  
21 that are coming in because the costs are much  
22 more than they had expected or planned on.

23 MR. SHIRAKH: So could you describe what  
24 component of the TI improvements are contributing  
25 to the high costs? Is it mechanical, envelope,

1 and lighting?

2 MR. HARGROVE: It's lighting controls is  
3 the main issue we're getting back now. We've  
4 asked for some specific feedback on the exact  
5 sections and, to be truthful, we're a little  
6 confused our self, so it's something we'd like to  
7 work with you on, but I'm telling you the  
8 anecdotal feedback we're getting is that TIs,  
9 especially from some of our Southern California  
10 retail members, are seeing costs that they're  
11 attributing to Title 24 of over \$10.00 per square  
12 foot and it's a tough pill to swallow.

13 COMMISSIONER MCALLISTER: Okay, so this  
14 is exactly the kind of, I think, problem that all  
15 of us would do well to kind of roll up our  
16 sleeves and dig into and unpack because - and it  
17 goes back to, you know, the heterogeneity of the  
18 state, local building departments, and then the  
19 Code itself, and then sort of figure out what  
20 they attribute to what, right? And we heard in  
21 our initial round a year plus ago about with  
22 respect to the AB 758 Action Plan, you know, we  
23 heard from commercial property owners  
24 specifically when we went down to Southern  
25 California and the Inland Empire, and other

1 places, we heard from them that they felt that  
2 there was this same kind of view that partly it  
3 was confusion, partly it was like, wow, I'm  
4 trying to do this relatively small project and I  
5 feel that this is an impediment, but I think we  
6 really do need to get down into the specifics to  
7 unpack it and sort of see what is a problem,  
8 what's not a problem, and then if it is a problem  
9 we can work through it. So I'm very supportive  
10 of that. You know, obviously we have staff  
11 resource issues and stuff, but I certainly will  
12 support digging into that with you guys.

13 MR. HARGROVE: Well, thank you, we really  
14 appreciate it and I say this coming from an  
15 organization that has supported every single  
16 update to the Energy Code, except for the last  
17 one where there was the one that we're having  
18 issues with, where there was -- it was about a  
19 26-27 percent jump in the stringency. And you  
20 know, that was a big chasm, I think, and we're  
21 seeing the impacts of that.

22 COMMISSIONER MCALLISTER: Well, to the  
23 extent that we can clarify in this round some of  
24 the issues and the confusion, then we would  
25 definitely want to do that, and then if the cost

1 assumptions need to be looked at, then I think  
2 that's obviously our job, as well.

3 MR. HARGROVE: Thank you very much. We  
4 really appreciate that.

5 Now specifically on this, and I won't get  
6 into detail, we've submitted a letter and we have  
7 several areas. Overall, we have a few areas in  
8 the new proposed Code that we hope that the staff  
9 can go back and take a look at and I want to make  
10 sure we're not misinterpreting the Code as it's  
11 written, but the specific areas that we have  
12 issue with on this one is Section 120.2(f), it's  
13 the dampers for air supply and exhaust equipment.  
14 We think this might have the potential for  
15 triggering some very expensive building  
16 automation systems and we'd like to work with you  
17 to make sure that we're interpreting that  
18 correctly. And again, we just want to make sure  
19 that there's cost-effective analysis done on this  
20 and ground truthing.

21 Section 120.2(i), again, we have a  
22 concern that those proposed regulations may not  
23 be cost-effective for the amount of energy that  
24 will be saved. Now, it might be a great idea,  
25 but we want to make sure that there's some

1 balance there in terms of the amount of energy  
2 that will actually be saved with that cost  
3 expense for that. And then finally in this  
4 section, this 120.6(f), those are the mandatory  
5 requirements for elevators. Now, we're not  
6 elevator experts, we work very closely with  
7 elevator companies out there to make sure that  
8 what's in our building are working and maintained  
9 properly, but we are not exactly back to the  
10 napkin, but some initial estimates on this is  
11 that we're worried that this could be in the  
12 neighborhood of \$30,000 to \$50,000 per  
13 alteration, and we need to work closely with the  
14 elevator companies to make sure that that's  
15 accurate and with your staff. But with that,  
16 those are the three main areas I think overall  
17 that we have concern with, with the current 45-  
18 Day Language and with this area specifically.  
19 Thank you very much.

20 MR. SHIRAKH: So I did receive your  
21 letter this morning, I kind of scanned it, it was  
22 about 15 minutes before this started, so, yeah,  
23 we will read it and respond to it and we'll be in  
24 contact. Related to TI for lighting, there's  
25 going to be a presentation later today and we've

1 been thinking about this long and hard, we've  
2 heard the concerns, we have a proposal, it may or  
3 may not satisfy your concerns, but we'll see.

4 MR. HARGROVE: And again, we appreciate  
5 that. And again, we would love to have one of  
6 your staff work with one of our companies that's  
7 going through a major TI and see how this expense  
8 comes up, and that might be very helpful,  
9 especially for future proceedings, to see how  
10 this kind of all plays out on a specific project  
11 out there, and not theoretical. Thank you very  
12 very much.

13 MR. SHIRAKH: Thank you.

14 COMMISSIONER MCALLISTER: I would say  
15 actually maybe even in several different  
16 jurisdictions, to see and kind of get a different  
17 feel for how different jurisdictions might be  
18 making different requirements or just  
19 interpreting things differently. So maybe if we  
20 could swing that, that would be great.

21 MR. SHIRAKH: Go ahead, please.

22 MR. MILLER: Rick Miller with RNM  
23 Engineering. This comment may be out of place,  
24 but Matthew has already brought up the subject,  
25 so the cost, a couple real life experiences, I

1 had a project, I specified dimming ballasts and  
2 the project came in way over budget, I saw the  
3 purchase orders between the distributor and  
4 electrical contractor, and the dimming ballasts  
5 were specifically called out at \$210.00 apiece.  
6 My jaw hit the table, I called up the  
7 manufacturer of those ballasts, I told him about  
8 that, and he couldn't believe it either because I  
9 remember research being done by Mazi and Jim  
10 Benya a couple years ago, saying dimming ballasts  
11 should be from the manufacturer in the range of  
12 about \$25.00 and maybe there's a double 2X  
13 multiplier, maybe even a 3X multiplier, but it  
14 should not be in the range of 10X. And what I'm  
15 thinking is happening is that the middle man  
16 between the manufacturer and the owner seeing  
17 that it's now legally required, and the owner  
18 doesn't have a choice, they have to put it in,  
19 therefore the marketplace has the opportunity to  
20 put whatever price on it they want to. So, thank  
21 you.

22 MR. SHIRAKH: Well, thanks for that  
23 information. It's unfortunate. Usually when we  
24 put something in the Standards it has the  
25 consequence of driving the price down, but I

1 guess there's always the other way. Mike.

2 MR. HODGSON: Mike Hodgson, ConSol. Not  
3 representing anyone for once. As an example, on  
4 the lighting requirements in 2013, we volunteer  
5 our time to do a not-for-profit every year and we  
6 do a major rehab. And unfortunately, the one we  
7 were doing in Sacramento last year slipped the  
8 permit from June because the Board of Directors  
9 did not vote on the approval of the expenditure  
10 to August, and we had to go to rebid. When we  
11 did our lighting costs, it went from \$54,000 to  
12 \$92,000, and that canned the project. So it's  
13 about a 32,000 square foot building, we have all  
14 of the lighting designs pre and post, and it  
15 would be an excellent candidate to walk through  
16 step by step and we would volunteer that as long  
17 as our client would allow us to do so.

18 COMMISSIONER MCALLISTER: Great. I mean,  
19 I guess I think it also is necessary to figure  
20 out what part of that progression is actually due  
21 to Code and, you know, what is due to other  
22 things like the over pricing of dimming ballasts,  
23 I would not attribute that to Code, but to kind  
24 of the market not functioning properly, right?  
25 So that's out of our control and it's also

1 nothing that we should be apologizing for at the  
2 Energy Commission, it's something that really the  
3 contractor and the project team needs to work  
4 through. So I don't want to be too expansive  
5 here in our consideration of Title 24, I want to  
6 be clear where we're accountable for it, we need  
7 to unpack things, but not necessarily take up all  
8 the slack in the marketplace, right?

9 MR. HODGSON: Yeah, I would agree,  
10 Commissioner. This particular project we  
11 competitively bid with about five different  
12 electrical subcontractors who we have a working  
13 relationship with, and think we have reasonable  
14 pricing on it, so I think it would be a very good  
15 example and I'm sure with the help of Matthew's  
16 group, we could have other examples for the staff  
17 to review.

18 MR. SHIRAKH: But Jim Benya just walked  
19 back in the room, I'm going to put him on the  
20 spot. Thank you, Jim. So the comment was, I  
21 don't know if you heard it, by Rick that when  
22 they're bidding projects that involves  
23 controllable ballasts, they are getting prices in  
24 the range of \$200.00 per ballast. This is not  
25 what we had anticipated, certainly, when we were

1 working on this project, and I was wondering what  
2 is your experience with specifying these ballasts  
3 and the cost, if you have any information to  
4 share with us?

5 MR. BENYA: Jim Benya, Benya Burnett  
6 Consultancy, consulting to the Commission and  
7 through the IOUs to the process. Wow, I've heard  
8 this kind of stuff a couple times, I'll try to  
9 make this really brief. When the marketplace  
10 doesn't want to do something, it prices it in  
11 such a way to make it undesirable. And when the  
12 marketplace wants to do something, it prices it  
13 in such a way as to make it desirable. I did a  
14 lighting controls only project where we replaced  
15 nothing but the dimming ballast throughout an  
16 entire quarter million square foot for Boeing at  
17 the original Douglas Center at Long Beach Airport  
18 a couple years ago. Those ballasts cost \$22.00 a  
19 piece to the contractor.

20 One of the problems we have is the way  
21 the lighting distribution system works these days  
22 depends on where you buy it, in other words,  
23 there is no price for a ballast. We confirmed  
24 you can buy the ballast from the manufacturer if  
25 you're a fixture manufacturer, you can buy

1 dimming ballasts for \$20.00. You can buy dimming  
2 ballasts online for \$25.00 or \$30.00. Now, they  
3 may not be the exact ballast that was specified.  
4 Lutron, for example, and I'll pick on them today,  
5 they freely advertise that their digital dimming  
6 ballasts are available for the manufacturers for  
7 \$39.00, so we did our research back in the 2013  
8 Standards as to pricing and that research is  
9 still holding. The problem is that the  
10 manufacturers sell products to distributors, who  
11 sell products to contractors, and there's a mark-  
12 up every step of the way, and if someone gets  
13 greedy, or someone doesn't want to do the  
14 project, then the prices get unreal. So I think  
15 the comments that were just made are correct, the  
16 marketplace is part of the problem. We had hoped  
17 that the marketplace would standardize, frankly.  
18 I had hoped that it would. And on projects that  
19 I've done, I've had the ability to do that, but  
20 other people have had different experiences, I'm  
21 sorry to say. So that's about all I can attest  
22 to it now.

23 MR. SHIRAKH: Thank you, Jim. Any other  
24 questions?

25 MR. STRAIT: There is one thing I would

1 add just to represent staff's experience. When  
2 we get feedback from folks about these particular  
3 regulations, dimming ballasts did come up  
4 regularly as a sore point and as cost point that  
5 people were hitting, so I think that confirms  
6 that there's something going on there that seems  
7 to be market driven, that may account for some of  
8 that.

9 MR. SHIRAKH: Okay, any other questions  
10 or comments on --

11 COMMISSIONER MCALLISTER: So I mean, I  
12 think the fact that there are opportunities to do  
13 things well and right and cost-effectively in the  
14 marketplace is a key point to make here, and if  
15 we can work with stakeholders, say, with the  
16 Business Properties Association, and BOMA,  
17 membership organizations so they can like say,  
18 "Hey, don't be stiffed because you shouldn't be."  
19 That might be a way to get the message out that  
20 it's not as hard as maybe some of the folks are  
21 making it out to be.

22 MR. SHIRAKH: Go ahead, Jim.

23 MR. BENYA: I'd just like to add one  
24 other point that is very germane to Commissioner  
25 McAllister's point and others we've made. We are

1 in the middle of a massive transformation from  
2 fluorescent lighting to LED. By the time the  
3 2017 Standards are in place, 2016 Standards,  
4 2017, LED lighting will probably constitute 75 to  
5 80 percent of all new construction lighting and a  
6 large percentage of the retrofit marketplace.  
7 Virtually every LED driver is dimmable. And so  
8 the question of fluorescent dimming ballast,  
9 which has been a problem, is going to pretty much  
10 go away because we'll be dealing with a  
11 technology that is fundamentally dimmable from  
12 the start. So this is a today issue, but I don't  
13 think it's an issue in two years.

14 MR. SHIRAKH: Thank you. Any other  
15 questions or comments? Anything online?

16 MS. NEUMANN: We have four comments  
17 online.

18 MR. SHIRAKH: Okay.

19 MS. NEUMANN: So Adrienne Thomle says,  
20 "For the FDD Certification, are products that are  
21 already certified going to be grandfathered or  
22 will the suppliers need to retest and recertify?"

23 MR. ALATORRE: They would carry over, the  
24 actual fault detection requirements haven't  
25 changed. So, yeah, the ones that are already

1 certified would carry over.

2 MS. NEUMANN: Okay, so she then has a  
3 follow-up question, "So you don't need to retest  
4 and recertify, so how do you report changes  
5 and/or enhancements?"

6 MR. ALATORRE: If they're changes to the  
7 model that they submitted, then they would need  
8 to resubmit and tell us what those changes are,  
9 yeah.

10 MR. STRAIT: It might be worth specifying  
11 that if they've already been tested, but they  
12 have now made some additional change, even if  
13 it's as simple as updating a model number, they  
14 can recertify and say, "Hey, we updated this  
15 model number, please add it in your list like  
16 this and remove the old listing," without having  
17 to retest. So they can always communicate with  
18 us, they can always certify to us, but they don't  
19 need to test every time they do so.

20 MS. NEUMANN: Okay, so then we have  
21 another comment from Yoolanda Williams on Section  
22 120.2(f)2. "Exception 3 references an override  
23 signal. For clarification, can you provide the  
24 definition and the function of an override signal  
25 in the applications referenced?"

1           MR. ALATORRE: We can get back to her  
2 with an example. I can't give one right now.

3           MS. NEUMANN: Okay. Because there are  
4 some more detailed questions and so staff will  
5 get back to you on that, then.

6           MR. ALATORRE: Yeah, if they can submit  
7 their question to the docket, then we can respond  
8 to it.

9           MS. NEUMANN: Okay. And then we have a  
10 comment from Alex Boesenberg, "NEMA would like to  
11 participate in this unpacking of the Energy Code  
12 project price impacts. We agree with the  
13 observer's claims in general." So that was just  
14 a statement. Then we have another question from  
15 Michael Jouaneh, "Does the strikeout of unitary  
16 single code from Section 120.2(b)4 make all  
17 thermostats used in commercial buildings have to  
18 comply with JA5 and therefore have to have WiFi  
19 or Zigbee?"

20           MR. ALATORRE: No. If the systems are  
21 controlled with DDC, then they don't have to  
22 comply with the JA5 requirement.

23           MS. NEUMANN: That seems to be it online.  
24 We do have a call-in user, Beth Brady, but I  
25 can't identify which call-in user you are, so I'm

1 going to go ahead and unmute all call-in users.  
2 So if Beth Brady would like to ask her question,  
3 I am hoping that she'll be able to.

4 MS. BRADY: Thank you. Do you hear me?

5 MS. NEUMANN: We do.

6 MS. BRADY: Okay. I have a question  
7 regarding updated Section 120.2.f, it's related  
8 to the requirement that all dampers remain closed  
9 when unoccupied, or during setback heating and  
10 cooling. One issue that we've thought about is  
11 that, in some thermostat controlled applications,  
12 we have both exhaust and outdoor air dampers  
13 controlled independently of one another, and the  
14 exhaust damper is controlled directly related to  
15 a static pressure set point in the space, so  
16 certain applications like process applications,  
17 there may be a situation where the exhaust fan,  
18 and therefore the exhaust damper, would need to  
19 continue to operate and remain open, even when  
20 the unit is unoccupied, or not in fully occupied  
21 mode. So I don't know whether that's something  
22 that would be considered as an exception under  
23 Exception 1, but because it isn't identified or  
24 spelled out as an issue, I guess we were  
25 concerned that, you know, that's something that

1 we'd have to justify after the fact for that  
2 application and running into issues in a field  
3 application, rather than understanding up front  
4 whether that's allowed or not.

5 MR. ALATORRE: Okay, thank you. For that  
6 situation, you mentioned that would be for in  
7 your scenario a covered or a process, covered or  
8 process situations are not required to comply  
9 with 120.2, that's only for space conditioning  
10 for human comfort, not for any process  
11 activities. So that specific example would then  
12 have to comply with the fan shutdown, but I did  
13 receive an email with some additional comments  
14 from you and related to this topic that I can  
15 respond to you later.

16 MS. BRADY: Okay, that would be  
17 wonderful. Thank you.

18 MR. ALATORRE: You're welcome.

19 MR. SHIRAKH: George.

20 MR. NESBITT: George Nesbitt, HERS Rater.  
21 Did you cover elevator lighting in this section?  
22 Okay. Elevator lighting has always been one of  
23 those things, why is the light on when nobody is  
24 there? So good to see, I guess it's supposed to  
25 turn off, although 15 minutes is a long time for

1 a light to stay on after nobody is there. In  
2 general, I've always with occupancy sensors, any  
3 kind of sensor, I like short off periods rather  
4 than long, just there's no use. Escalators, why  
5 do they run when nobody is on them? I would  
6 think with technology today there's no reason  
7 they can't be off and then turn on and slowly  
8 ramp up if someone is on it. And then the  
9 section on plumbing insulation in this pretty  
10 much redundant to everything that is in 110, so  
11 it seems like it's got the same table essentially  
12 with insulation requirements. Most of those  
13 requirements are pretty redundant to what's in  
14 the mandatory sections in 110.1 and I think .3,  
15 cover plumbing.

16 MR. SHIRAKH: That's in those two  
17 sections --

18 MR. NESBITT: I believe it's 110.1 and  
19 110.3, I'd have to go dig and see exactly where  
20 that stuff is, but --

21 MR. STRAIT: And what specific section of  
22 120? I'm sorry?

23 MR. NESBITT: It's 120.7, I do have that  
24 written down here. It just in general, you know,  
25 I don't know Microsoft Word well enough to

1 whether you can actually duplicate things in  
2 multiple places without ending up having them end  
3 up differently accidentally, so it seems like  
4 there's no reason for something like that in the  
5 Code to be repeated in another section as opposed  
6 to just saying, you know, you need to meet the  
7 requirements of that other section.

8 MR. BOZORGCHAMI: Let's talk about this  
9 after lunch.

10 MR. ALATORRE: I think Danny wanted to  
11 respond to the -- so the pipe insulation used to  
12 be duplicated in 120.3 and 150; for the 2013  
13 Standards, we deleted the 150 table and only  
14 referenced it in 150 back to the Table 120.3.  
15 This changes because when we did that we lost a  
16 quarter inch of insulation for the space  
17 condition, I forgot, let me bring it back up, the  
18 residential requirement for space conditioning  
19 pipe insulation used to be three quarter inch,  
20 and by deleting the reference, or by deleting the  
21 table 150, --

22 MR. NESBITT: Yeah, it went up to one  
23 inch.

24 MR. ALATORRE: No, it actually went down  
25 a half an inch, so this is correcting that error.

1 But the table is not found in two spots, it's  
2 only in 120.3.

3 MR. NESBITT: Okay. But I believe there  
4 is a lot of insulation requirements in 110.

5 MR. ALATORRE: Not for piping. Not for  
6 piping, it's for walls and ceilings and floors.

7 MR. NESBITT: I think the same thing is  
8 true of a lot of the NFRC stuff, it's in two  
9 parts of the Code, but...

10 MR. SHIRAKH: Okay, thank you. Any other  
11 questions on 120 sections? Online, we're good?  
12 Okay, we're going to move to the next section,  
13 which is Subchapter 4, Sections 130.0 through  
14 130.5, these are the Lighting Mandatory  
15 Requirements, and Simon Lee will be presenting  
16 those.

17 MR. LEE: I'll be presenting the changes  
18 to Section 130.0 through 130.5 and start with  
19 Section 130.0. We are adding a way to determine  
20 the luminaire wattage if it has drivers. It's  
21 going to be determined by the input wattage of  
22 the rated driver. And then since 130.0 is used  
23 for nonresidential buildings, we also are adding  
24 an exception and actually to serve as a reminder  
25 to the user that if they're installing luminaires

1 in residential buildings, they should be  
2 referring to Section 150.0.

3           For multi-level lighting controls  
4 requirement, we simplified the requirements and  
5 we eliminate subsection (b)3, (a)3, because most  
6 of these subsection requirements are already  
7 existing requirements under Section 130. And  
8 then we also are adding a requirement for  
9 dimmable luminaires, they are required to have a  
10 manual control. Shutoff controls, again,  
11 clarification on the requirements, we moved a  
12 signal from another building system from the  
13 list.

14           And then for (c)5, we are watching the  
15 requirements to have either partial-on or vacancy  
16 sensor for small offices, conference rooms,  
17 multi-purpose rooms, and couch rooms. And then  
18 for (c)6 and (c)7, we corrected the sensing  
19 controls to be partial-off.

20           And then for Table 130.1-a, on one of the  
21 box we correct the control steps from 80 to 85  
22 percent to 75 to 85 percent, this is for linear  
23 and u-bent fluorescent lamps.

24           And then for automatic daylighting  
25 controls, we allow some photo sensor control

1 locations to be either in a lock box or a box  
2 that requires a tool for access. And that's all  
3 for 130.1.

4 Outdoor lighting controls, 130.2. We are  
5 adding a definition for automatic scheduling and  
6 then for the automatic control dimming and also  
7 motion sensing control dimming, we are modifying  
8 the range from 48 percent to 40 to 90 percent  
9 because of the LED light technology that they can  
10 dim down to as far as 90 percent.

11 And then in Subsection (c)3, we are  
12 moving the outdoor sales lots and outdoor sales  
13 canopies from the exception.

14 And for this 2016, we are introducing a  
15 lighting zone zero to be aligned with ASHRAE and  
16 we are adding that to Table 130.2(a) and  
17 130.2(b).

18 And then moving on to 130.4, Lighting  
19 Control Acceptance Requirements. We clarify that  
20 it applies to all nonresidential high rise  
21 residential and hotel/motel building projects.  
22 And another clarification, we removed NA7.7 and  
23 7.9 from the list. NA7.7 is more like an  
24 insulation certificate requirements and 7.9 is  
25 served for future, so we are moving that from the

1 language. And then we are also adding an  
2 acceptance requirement for the newly introduced  
3 measures of institutional training for power  
4 adjustment factor.

5           On Section 130.5, Electrical Power  
6 Distribution Systems, the changes are  
7 clarifications for surface metering we add some  
8 requirements. If utility meters are used, it  
9 meets the requirements. And then we are also  
10 adding (a)2 for tenant and some metering  
11 requirements. If there is a tenant space, it's  
12 going to be the feeder that's serving the space  
13 and by definition that's a feeder, so we modified  
14 the requirements for tenant space, it's also  
15 required to have surface metering.

16           130.5(b), this aggregation of electrical  
17 circuits for electrical energy monitoring. We  
18 clarified the requirements, it can be met by one  
19 of the three methods listed on the Powerpoints,  
20 1) dedicated equipment such as a dedicated panels  
21 serving to one load type, the other one will be  
22 using additive and subtractive measures. And the  
23 other method is to use a whole building metering.  
24 And so any of these three will meet the  
25 requirements.

1           And another change, we moved the  
2 alteration requirements to Section 141.0.

3           Voltage Drop. We simplified the  
4 requirements for that we are looking at the  
5 combination of the total voltage drop of both  
6 feeders and branch circuits not to exceed five  
7 percent.

8           And then adding an exception for voltage  
9 drop permitted by the California Electrical Code.

10          Receptacle Controls. We are clarifying  
11 the intent and eliminate the reference to the  
12 lighting control section that we can see on the  
13 next slides. Two hour override, holiday off,  
14 countdown timers are not allowed, and control  
15 receptacles are also required for open furniture  
16 system, and hotel guest rooms, at least half of  
17 the outlets need to be controlled receptacle.

18          And that's all my presentation.

19          MR. SHIRAKH: Any questions or comments?

20          MR. HARGROVE: Mr. Commissioner, Staff,  
21 Matthew Hargrove again with the California  
22 Business Properties Association. Just with  
23 lighting controls, in general, with respect to  
24 our earlier conversations on this, we would ask  
25 that the Commission move very cautiously in this

1 area.

2 MR. SHIRAKH: How do you spell your last  
3 name?

4 MR. HARGROVE: H-A-R-G-R-O-V-E. Again,  
5 we would just ask that you move cautiously in  
6 this area and make sure that we're doing the work  
7 to make sure that these are cost-effective energy  
8 savings. It sounds like there's some confusion  
9 out there in the marketplace, availability of  
10 these controls, how to put in some of these  
11 controls, so that's just an overall comment.  
12 Specifically, with Section 130.1(c)5, there's  
13 been lots of conversation with our members that  
14 this, even if other lighting controls are  
15 available, might be something very difficult to  
16 implement in some of the smaller buildings, and  
17 we question whether or not that's a cost-  
18 effective measure.

19 MR. SHIRAKH: Again, are you talking  
20 within the context of retrofits or new  
21 construction?

22 MR. HARGROVE: Mainly retrofits, tenant  
23 improvements. Section 130.5(a), that's the  
24 mandatory requirements for service electrical  
25 metering. You know, we have a concern there that

1 disaggregation of loads is rare in many types of  
2 commercial settings, and this might be a  
3 burdensome mandatory code and we also think that  
4 putting in monitoring equipment doesn't in any  
5 way impact energy efficiency, you know, it gives  
6 us information that potentially could impact  
7 energy efficiency, so that might not be a cost-  
8 effective measure. And we also would make the  
9 argument that this type of disaggregation of  
10 loads should be a function of the utilities and  
11 not the building owner in many cases. So thank  
12 you very much.

13 MR. RAIT: Could I ask you, is that a  
14 comment primarily to TIs again?

15 MR. HARGROVE: Well, the last one would  
16 be for all commercial buildings, if the Code is  
17 going to be mandatory for everything, there's so  
18 many different types of commercial buildings, a  
19 Class A Office Building with a single meter is  
20 going to be a different situation than a triple  
21 net lease retail space, and would be very  
22 difficult in that latter instance.

23 MR. SHIRAKH: Thank you, Matthew.

24 MR. HARGROVE: Thank you. And we have  
25 submitted a letter and look forward to working

1 with you on this.

2 MR. SHIRAKH: Right. Rick.

3 MR. MILLER: Rick Miller with RNM  
4 Engineering. Simon, if you could bring up a  
5 slide that has 130.1(c) regarding the daylight  
6 harvesting control adjustments?

7 MR. LEE: You said this one?

8 MR. MILLER: Yes, thank you. The  
9 reference here is that the daylight harvesting of  
10 control adjustments be in a locked box, or in a  
11 box requiring a tool for access, and though  
12 several lighting manufacturers are using a  
13 handheld wireless commissioning tool, you may use  
14 the term commissioning tool, to make the  
15 adjustments on daylight harvesting sensors, would  
16 that tool be acceptable with this kind of  
17 language? It doesn't look like a handheld would  
18 be in a locked box or a box requiring a tool to  
19 access. Maybe the handheld tool is in an office  
20 that has a lock on a door, but I think it needs  
21 -- and the other one is many advanced lighting  
22 control systems have direct digital controls and  
23 the control of the daylight harvesting is done  
24 through a software that is only accessible to the  
25 commissioning setup technician, and so I think

1 the software should be recognized as a legitimate  
2 means for adjusting daylight harvesting.

3 MR. SHIRAKH: Thank you, Rick. Jim.

4 MR. BENYA: Jim Benya, Benya Burnett  
5 Consultancy. In the 2013 Standards, I was the  
6 Case Report Author for the Disaggregation of  
7 Electric Circuits. It has been significantly  
8 improved, thanks to the work by staff in the 2016  
9 Standard, but to the commenter just a few minutes  
10 ago, I think it's really clear that everybody  
11 understands disaggregation means it's just the  
12 way you design your electrical system. That's  
13 issue number one. And I've been designing  
14 electrical systems for years in which we already  
15 disaggregated the circuits so that we could  
16 actually be able to easily monitor what's going  
17 on in the building. The cost was insignificant  
18 and that's what the Case Report said.

19 But Issue 2, which I think was what the  
20 commenter was really more concerned about, does  
21 have to do with our Section 141 work, what  
22 happens in an alteration or significant change in  
23 a building. One of the things we know is that  
24 when you modify a building for tenant purposes,  
25 generally speaking the only code section that is

1 significantly interjected here from Title 24,  
2 Part 6 purposes, is the electrical part.  
3 Generally speaking, you don't modify the envelope  
4 and you don't modify the HVAC system. So  
5 consequently, I think what the commenter was  
6 concerned about was the impact on tenant  
7 improvements. I think it's really important that  
8 we discuss this thoroughly under the Section 141  
9 discussion later because this is where it really  
10 bears to I think the brunt of his concern,  
11 otherwise the case report explains why when  
12 you're designing a new building there's not any  
13 significant cost involved in disaggregating.

14 MR. SHIRAKH: Now, I'm going to be  
15 presenting in a little while that language for  
16 the lighting alterations, and I found this  
17 discussion this morning very useful, it's given  
18 me new insights into perhaps solutions that we  
19 can pursue. Randall.

20 MR. HIGA: Hi, Randall Higa, Southern  
21 California Edison. I just want to respond to the  
22 comment about load disaggregation in Submetering.  
23 I'll speak on behalf of Southern California  
24 Edison, but I'm sure it applies to all utilities  
25 in California and maybe across the nation. And

1 that is we certainly don't feel that it is up to  
2 the utilities to do any Submetering. We have a  
3 requirement to do meeting down to a certain  
4 level, and it may be down to a tenant level, but  
5 not necessarily. So I just want to make clear  
6 that, you know, the Submetering requirements that  
7 are proposed for Title 24 is not meant, at least  
8 in my mind, as a utility function.

9           And I'll make just a personal editorial  
10 statement about load segregation and Submetering,  
11 and that is I believe that it is important for a  
12 building operator to know where energy is being  
13 used in the building and to the extent that they  
14 know that and have that information, I think it  
15 does contribute towards saving energy. Thank  
16 you.

17           MR. SHIRAKH: Thank you, Randall. Any  
18 other questions in the room? Rick.

19           MR. MILLER: Rick Miller with RNM  
20 Engineering. This time I'll talk about 130.5,  
21 Service Meters. There's a requirement of an  
22 electrical system of a certain load to have a  
23 resettable KW meter, and the word "resettable"  
24 was brought to my attention that most utility  
25 meters are not resettable, and therefore this

1 requirement forces the owner into installing a  
2 second meter essentially in series with the  
3 utility meter to get the resettable capability.

4           Second of all, the new paragraph on  
5 disaggregation of loads that allows additive and  
6 subtractive measures, also includes a portion of  
7 a sentence that allows a 10 percent aggregation  
8 of load. These are two totally different  
9 concepts, and I suggest those be in separate  
10 paragraphs.

11           MR. SHIRAKH: Thank you, Rick. Matthew.

12           MR. HARGROVE: Matthew Hargrove again  
13 with the California Business Properties  
14 Association. In regards to the Submetering  
15 conversation, I'm not an expert in this area, but  
16 I want to make sure that we look into this with  
17 the PUC. Our understanding is that there are  
18 certain circumstances where a building owner is  
19 not allowed under some of the regulations to  
20 submeter certain tenants, and I know it's a very  
21 complicated area of law, I don't know anything  
22 about it, so I can't field any questions, but  
23 it's just something that I hope the CEC staff can  
24 make sure that they talk with the Utilities  
25 about. I know this was a big issue five or six

1 years ago that we worked with PG&E to resolve  
2 some issues in terms of being able to benchmark  
3 Class A office buildings in San Francisco, but  
4 that there are some historical issues in regards  
5 to Submetering.

6 COMMISSIONER MCALLISTER: I would say not  
7 so historical, actually they still are with us,  
8 so we need to work through this.

9 MR. BENYA: Jim Benya, Benya Burnett  
10 Consulting. I just want to clarify a couple  
11 things. We are not talking about Submetering,  
12 we're talking about disaggregating, which means  
13 how you wire the building, that's issue number  
14 one. Issue number two that Rick Miller raised is  
15 about the meter itself, and one of the things  
16 I've been working with staff to determine is how  
17 in the manual we will actually describe the  
18 rapidly changing area of being able to measure  
19 the power of the surface. When the surface comes  
20 into a building, Rick is absolutely right, older  
21 meters did not have the ability to collect data,  
22 they had no way to say how many kilowatt hours,  
23 not kilowatts, but I mean kilowatt hours you used  
24 last week. But with the transformation of our  
25 electrical metering systems throughout the state

1 to Smart Meters, that data is available online,  
2 and anybody, including myself in my own house, I  
3 can look up my own kilowatt hours, kilowatts, and  
4 everything for the entire month, day by day.  
5 That ability is going to be shown to be, I hope  
6 in the manual this time around, that's fine, that  
7 meets the requirement, and so if you have any  
8 kind of meter but it's a Smart Meter, you're  
9 already meeting the requirement, it will take  
10 care of those things. And I think most of this  
11 stuff is going to go away. Sub reading is a  
12 whole separate issue and I agree with the prior  
13 commenter that there are some regulatory issues  
14 that need to be addressed there, but they're not  
15 actually part of Section 130.5.

16 MR. SHIRAKH: Thank you, Jim. Any other  
17 comments on this section? Anything online? We  
18 have one?

19 MR. HARING: Hi. This is Rick Haring  
20 from Philips. In Section 130.0(c)5, where you  
21 have the provision that luminaires and luminary  
22 manufacturing with incandescent screw based  
23 sockets shall be classified only as incandescents  
24 unless these sockets are removed, we feel that  
25 this limits the implementation of the LED

1 technology as it's coming up to speed. And also  
2 we feel that it's really not consistent with the  
3 table in 150, that Zero award, that in fact some  
4 of the comments that were made yesterday.

5 MR. LEE: Can you repeat the section one  
6 more time?

7 MR. HARING: Section 130.0(c)5.

8 MR. LEE: Yeah, unfortunately I don't  
9 have those slides, but I have that language in  
10 front of me.

11 MR. SHIRAKH: May I suggest that you  
12 communicate directly with Simon after this  
13 meeting to resolve that issue?

14 MR. LEE: Yeah, but I'll in turn, yeah,  
15 just want to add one more thing. It is not the  
16 staff's intent to change the existing language,  
17 we just want to make it more clear. But we can  
18 have a conversation later.

19 MR. HARING: Okay, thank you. And also  
20 in regard to 130.1(b)3, you've removed a lot of  
21 the exceptions, this is in regard to multi-level  
22 lighting, oh, I'm sorry, the requirement for  
23 luminaires to be controlled by a manual, dimmable  
24 luminaires. We feel this is limiting to  
25 intelligent controls and would urge that the

1 staff retain previously removed options b through  
2 d and only remove the exception for demand  
3 response.

4           And in regard to 130.1(c)5, for multi-  
5 level lighting, there is an exception added in  
6 the 45-day language where we're wondering if that  
7 can be clarified by staff, areas that are not  
8 required by Section 130.1(b) to have multi-level  
9 lighting controls may instead use occupant  
10 sensing controls that function as an occupant  
11 sensor or vacancy sensor. Again, we can take  
12 this off line if necessary, but I just wanted to  
13 get my comments on record.

14           MR. SHIRAKH: Yeah, thank you for doing  
15 that and, again, yeah, we will talk to you. You  
16 can email your comments to us and we'll docket  
17 it.

18           MR. HARING: Thank you.

19           MR. SHIRAKH: Any other comments online?

20           MS. NEUMANN: Nothing else on line.

21           MR. SHIRAKH: Okay, in the room, I don't  
22 see any hands, so we're going to move to the next  
23 section which is Subchapter 5, Sections 140.0  
24 through 140.5. These are envelope and mechanical  
25 prescriptive requirements.

1           MR. BOZORGCHAMI: This is Payam with the  
2 California Energy Commission staff. For Section  
3 140.3, we revised the prescriptive opaque  
4 envelope requirements for Nonresidential and  
5 High-Rise Residential and Relocatable Public  
6 School Buildings.

7           Last time we updated the Prescriptive  
8 Envelope Requirements, this was back in the 2008  
9 Code cycle. Our Case Team Author tried to use  
10 the ASHRAE as the benchmark for the U-Factor  
11 levels and for cost analysis we looked at the  
12 range of assemblies to determine the best  
13 performing assembly that was cost-effective.  
14 Although the methodology for the calculation is  
15 the same based on the ASHRAE Guidelines, our U-  
16 Factors are a little different. We have a  
17 different -- an example would be the ASHRAE wood  
18 frame wall assemblies assumes a 5/8" gypsum board  
19 on the exterior, and for California we don't  
20 assume that, so our U-Factors are going to be  
21 different. Our Framing R values are different,  
22 too, we assumed the most conservative value of a  
23 .99, where ASHRAE assumes a 1.28, I believe it  
24 is. So this is where we were having a little bit  
25 of an issue trying to match the ASHRAE U-Factors.

1           So when we developed the tables in  
2 140.3(b) and (c), those for Nonresidential and  
3 High-Rise Residential, at the same time we  
4 reevaluated the Table 140.3, that's the  
5 roof/ceiling insulation tradeoff for age solar  
6 reflectance, this is for the cool roof criteria  
7 if you don't want to go for the full .63, you  
8 could reduce your solar reflectance by adjusting  
9 your U-Factors for your ceilings.

10           Table 140.3-D is the criteria table used  
11 for Relocatable Public Schools. These buildings  
12 are manufactures offsite and shipped to a certain  
13 location and for that reason we try to capture  
14 the most stringent prescriptive requirements for  
15 all climate zones because we didn't know exactly  
16 where that building is going to be ending up,  
17 what climate zone.

18           In the 2016 Code Cycle we also added the  
19 3 percent skylight requirement as a prescriptive  
20 option, and that's the 3 percent based on the  
21 total floor area. And also there's a requirement  
22 for BT.

23           MR. ALATORRE: Okay, there was also  
24 changes to 140.4(e)1, 4, 5, and 140.4(m). These  
25 changes were clarification. The economizers, by

1 reducing the capacity to 54,000 Btus, it made it  
2 applicable to a lot more system types, or  
3 buildings, and we got a lot of questions about  
4 when or what was a cooling fan system, so in our  
5 attempt to clarify we said cooling air handler.

6 Also dampers should be capable of  
7 modulating to fully opened and closed instead of  
8 design supplier quantity. There was some  
9 repetitive language in 140.4(e)1 and 4 where we  
10 mentioned the capacity threshold again, so we  
11 deleted the language about capacity in 140.4(e)4.

12 There were changes -- we removed  
13 effective dates to the requiring multiple stages  
14 of cooling capacity because each trigger date  
15 would have already passed by the time the 2016  
16 standards go into effect. Also specified that  
17 economizer dampers, the damper leakage is to be  
18 certified to the Energy Commission and, again,  
19 the trigger dates for the fan speed controls,  
20 each trigger date would have already passed by  
21 the time the 2016 Standards become effective.

22 New to the Prescriptive requirements was  
23 140.4(n) and this was for the shutoff of the air-  
24 conditioner and this was done by interlock  
25 switches on operable windows and doors, only for

1 windows and doors that were operable and serve a  
2 space that had a thermostat. And then there were  
3 some other criteria of when to actually shut it  
4 off, it has to be more than five minutes, and the  
5 way it shuts off is by adjusting the temperature  
6 set points. There are exceptions and that's for  
7 doors that automatically close, or doors and  
8 windows serving spaces that do not have  
9 thermostat control, and it's not a requirement  
10 for alterations. And that concludes my  
11 presentation. Questions or comments?

12 MR. SHIRAKH: Any comments on Section  
13 140? Meg.

14 MS. WALTNER: Meg Waltner with the  
15 Natural Resources Defense Council. Thank you for  
16 the opportunity to speak today. So thank you  
17 very much to Payam and also to John Arent for all  
18 the work you've already done on this proposal and  
19 going back and forth with me on it. You know,  
20 overall we've been disappointed with the keeping  
21 up with ASHRAE approach, we think we should be  
22 doing more than that here in California, but  
23 given that that's sort of the framework we're in,  
24 you know, I agree with you, Payam, that we should  
25 be adopting the highest levels found to be cost-

1 effective in the case report. We're still  
2 concerned that in some cases the proposed levels  
3 don't keep up with ASHRAE and then also don't  
4 reflect the highest levels to be found cost-  
5 effective in the Case Report for the Nonres  
6 envelope, in particular for wood framed roofs.  
7 And we've already had some back and forth on this  
8 and looking forward to continued discussion over  
9 those levels and making sure that the levels  
10 proposed really are those that are the highest  
11 levels found to be cost-effective. So thank you.

12 MR. SHIRAKH: Do you have a response?

13 MR. BOZORGCHAMI: I'm going to let John  
14 respond to that because the construction is a  
15 little different between ASHRAE and California  
16 Title 24.

17 MR. ARENT: Yes, John Arent with NORESCO.  
18 Thanks, Meg, for your comments and we've been  
19 working with you recently, especially on the case  
20 proposal that we've put forth to the Commission.  
21 I guess first I'd like to just clarify because I  
22 know this context has been that we're trying to  
23 "keep up with ASHRAE" and that is certainly a  
24 concern, but it's not, you know, from my  
25 perspective we're looking at doing the approach

1 the same way, which is looking at a wide range of  
2 assemblies and trying to choose the assembly that  
3 is most cost-effective or reduces lifecycle costs  
4 while maintaining the most efficiency that we  
5 can, so I just wanted to put that in perspective.

6           Secondly, you know, I would kind of  
7 question that whether or not we're less or more  
8 stringent than ASHRAE be looked at carefully  
9 because there are different assumptions, as Payam  
10 pointed out in terms of how the assembly  
11 performance, the U-Factor is calculated;  
12 secondly, there are some differences in terms of  
13 the base assemblies looked at in the case of the  
14 roofs ASHRAE uses, an attic roof for their  
15 baseline, whereas we use a rafter roof in  
16 California.

17           And then thirdly, on the wood framed  
18 roofs, I would just like to work with NRDC on  
19 that, too, so that they understand our  
20 assumptions, there were some constraints we  
21 looked at in terms of the framing options  
22 considered for the wood frame roofs, but would  
23 also like to comment that we did increase the  
24 stringency in the wood frame roofs in pretty much  
25 all climate zones, so we feel comfortable that

1 this is a good place to land for the proposal.

2 Thank you.

3 MR. SHIRAKH: Thank you, John. Any other  
4 comments?

5 MR. NESBITT: George Nesbitt, HERS Rater.

6 MR. PENNINGTON: Oh, George, sorry --

7 MR. NESBITT: Sure.

8 MR. PENNINGTON: So, Meg, could you maybe  
9 identify which pieces of the ASHRAE Standard you  
10 think there's a difference in so maybe we can  
11 dial the conversation in to just that?

12 MS. WALTNER: Yeah. I don't know that  
13 it's useful to do it all right here, I have  
14 actually emailed Payam and John with the specific  
15 climate zones, Climate Zone 8 in particular for  
16 the wood framed roofs.

17 MR. BOZORGCHAMI: Actually on the Climate  
18 Zone 8, we did change it, you'll see that on the  
19 15-Day language.

20 MS. WALTNER: Okay, well, that's good.  
21 But I can share that with you, as well, and  
22 docket it for the record if that would be helpful  
23 at this point.

24 MR. PENNINGTON: So my impression is that  
25 the differences are substantially in the Mountain

1 Climate Zones, is that right? And also maybe for  
2 attic roofs for commercial buildings. So in both  
3 of those situations, there's obviously a  
4 limitation on the number of building starts in  
5 the state that apply to those situations, so that  
6 the savings there, if we are missing some, would  
7 be not as large as for, you know, other kinds of  
8 buildings in Climate Zones that are getting built  
9 in a lot. And so, you know, I just wanted to get  
10 that clarification.

11 MS. WALTNER: Yeah. I mean, I think for  
12 wood frame roofs across the board, the U-Factor  
13 is less stringent than the U-Factor proposed in  
14 ASHRAE, and I understand that part of that is the  
15 difference between rafter and attic roofs, but it  
16 would be good to sort of further dig in to that  
17 and the analysis because it looked like from the  
18 analysis that the ASHRAE U-Factor would have been  
19 cost-effective, so just understanding where those  
20 numbers are coming from.

21 MR. SHIRAKH: John, you want to make a  
22 follow-up comment? Hold on, George, we'll get to  
23 you.

24 MR. ARENT: Yeah, John Arent with NORESO  
25 again. Just a clarifying point to Bill's point

1 or question, as well as Meg, is, yeah, I think  
2 the area where our proposal showed the U-Factors  
3 as being a bit high compared to ASHRAE is the  
4 actual kind of the South Coast Climate Zones 6-8,  
5 you know, showing up as R-19, R-21 for the roof,  
6 whereas, you know, closer to R-30 for the other  
7 climate zones. So we do have a more stringent  
8 cool roof standard which will --

9 MR. SHIRAKH: Those are very mild climate  
10 zones.

11 MR. ARENT: They're mild climates. We  
12 have a more stringent cool roof requirement which  
13 will mitigate the benefits of insulation, but --

14 MR. SHIRAKH: But isn't it also true that  
15 when you have very mild climate zones, having  
16 more insulation on the building envelope might  
17 actually result in a penalty because you have to  
18 remove that heat mechanically rather than just  
19 radiating it from the envelope, I mean, was that  
20 part of the simulation?

21 MR. ARENT: Well, it is part, I mean, it  
22 is accounted for in the simulation. The only  
23 areas where we found that to be the case is when  
24 you have, say, a mass floor that's not on grade  
25 in these mild climate zones, then putting any

1 insulation definitely will increase energy use,  
2 so it's a no brainer. In most other cases, it is  
3 a benefit. There are a few outliers such as a  
4 data center that has a very high internal load,  
5 then you want to dissipate the heat to the  
6 outdoors more easily.

7 MR. SHIRAKH: Thank you.

8 MR. BOZORGCHAMI: One quick question.  
9 Actually not a question, a comment, Meg, when you  
10 do submit it, please submit it to Dockets so we  
11 can respond to it. Thank you.

12 MR. NESBITT: George Nesbitt, HERS Rater.  
13 On the Table B, so the Nonresidential,  
14 Nonresidential Building Table, for metal  
15 buildings some of the wall U-Values are like  
16 .113, yet most of the other climates are  
17 dramatically lower, and that just sort of strikes  
18 me as like that's a really bad wall. And that  
19 those values should be lower. I mean, I would  
20 say as a principle, relying on building heat loss  
21 to get rid of cooling loads is most of the time a  
22 bad practice. We're much better off reducing the  
23 loads and probably getting rid of them otherwise.

24 Then on the cool roofs, so in the Table  
25 B, Low Slope Cool Roofs are required in Climate

1 Zones 1 through 16, and then I was noticing in  
2 the Table C, which is the Residential  
3 Nonresidential Table, that Low Slope Cool Roofs  
4 are only required in Climate Zone 9, 10, 11, and  
5 then 13 through 15. Climate Zone 12 seems to  
6 really be missing, which is a pretty heavy  
7 cooling climate. And then what I don't  
8 understand is, if you have a steep slope roof on  
9 the Residential Nonresidential Buildings, cool  
10 roofs are required in Zone 2 through 15. So I  
11 would say generally a low slope roof has a lot  
12 more solar access and solar gain than even a  
13 steep roof. So there seems to be maybe a slight  
14 disconnect or what?

15 MR. BOZORGCHAMI: Okay, for the cool roof  
16 situations you're bringing up, you're bringing up  
17 the difference between Residential and a High-  
18 Rise Residential versus a Nonresidential. That  
19 was an area that we dealt with back in the 2013  
20 Standards, and I think we need to go back and  
21 revisit the case report for back then and see why  
22 those climate zones that were shown to be valid.

23 MR. NESBITT: Climate Zone 12 for a low  
24 slope for High-Rise Multi-Family or Motel/Hotel  
25 just, I mean, that's one of the bigger climate

1 zones.

2 MR. SHIRAKH: John.

3 MR. ARENT: Yeah, thanks, George for your  
4 comments. John Arent, NORESKO again. I wanted  
5 to address the two points he raised. First with  
6 regards to metal building walls, frankly it  
7 wasn't really a focus of our case study. We  
8 looked more at the metal frames walls, which is a  
9 completely different construction, and it's much  
10 more common in nonresidential building, and there  
11 we have made some minor improvements, not some  
12 drastic improvements, but based on our studies of  
13 energy savings versus costs.

14 Secondly, as Payam mentioned correctly,  
15 the cool roofs for nonresidential was covered  
16 during the last Code cycle, but I think one of  
17 the reasons why we don't have as strong a cool  
18 roof requirement for the residential or high-rise  
19 residential buildings, is because they're  
20 occupied 24 hours and the heating and cooling  
21 balance is much different because of the internal  
22 gains to low occupancy levels. So as a result  
23 you have much more heating requirements generally  
24 speaking in the High-Rise Res Building compared  
25 to an equivalent Nonres building. So I think

1 that's why you're seeing some of the differences  
2 between those two.

3 MR. SHIRAKH: Any other comments on the  
4 140 Sections? Anything online?

5 MS. NEUMANN: I have one online, Darryl  
6 DeAngelis.

7 MR. DEANGELIS: Hi, yes. Darryl  
8 DeAngelis with Belimo. We're a manufacturer of  
9 damper actuators and certified economizer  
10 controls for Title 24. I have a comment on  
11 Section 140.4(e)1 and the change that was made  
12 with respect to going from 100 percent of supply  
13 air to fully opened or 100 percent open. This  
14 change is actually a divergence from 90.1 2013  
15 where there was a requirement for 100 percent of  
16 supply air. And my concern is this change may  
17 result in less energy savings. Some  
18 manufacturers may produce a damper that perhaps  
19 only allows 25 percent of the supply air and the  
20 will comply with the certification requirements  
21 as far as leakage and the cycles, in fact, it may  
22 be easier to comply, and less costly, and you're  
23 not going to achieve the energy savings because  
24 you're not providing what's expected, especially  
25 if you compound in switching fan speeds as well

1 because you have less static available. So  
2 that's my comment.

3 MR. SHIRAKH: Thank you, Darryl.

4 MR. ALATORRE: Thank you for that  
5 comment. I'll look into that further and see if  
6 we might make a change to that language.

7 MR. DEANGELIS: Thank you.

8 MS. NEUMANN: We still have another hand  
9 raised, it might be a leftover. Richard Haring,  
10 if you have another question, please go ahead and  
11 make that.

12 MR. HARING: No, sorry, I forgot to lower  
13 my hand.

14 MS. NEUMANN: Okay, so I would request  
15 that people lower their hands when their comment  
16 has been made. Thank you.

17 MR. SHIRAKH: Anymore? Nehemiah.

18 MR. STONE: I'm curious, are the set  
19 points that you have there backwards for the door  
20 window controls? Shouldn't it be 55 for heating  
21 and 90 for cooling?

22 MR. ALATORRE: Yes.

23 MR. STONE: Thank you.

24 MS. NEUMANN: We have one more comment  
25 online, Tony Moffett. I can't identify which

1 call-in user you are, so I'm just going to go  
2 ahead and unmute everyone. Tony Moffett, if you  
3 can speak, please do so.

4 MR. MOFFETT: Hello, this is Tony Moffett  
5 with Ruskin. Can you hear me?

6 MR. SHIRAKH: Yes.

7 MR. MOFFETT: Okay, yeah, I would just  
8 like to state that I agree with Darryl on Section  
9 140.4(e)1.A in that the amount opened or closed,  
10 or the percent opened or closed doesn't appear to  
11 indicate an amount about or air that's actually  
12 going to be used for cooling. So, again, I would  
13 also like to have a second look at that language.

14 The second item was on Section 140.4(e)4C  
15 and I had a question about removing the  
16 certification requirement for dampers to have a  
17 maximum leakage rate in accordance with amp at  
18 500D. It appears at least that economizers are  
19 open to self-certification in accordance with  
20 Section 110, and if there's an opportunity to  
21 have further input on that language, I'd like to  
22 do that. Thank you.

23 MR. ALATORRE: Thank you, Tony.

24 MS. NEUMANN: That's it online.

25 MR. SHIRAKH: And I see no other comments

1 in the room. So we're going to move to the other  
2 part of the prescriptive requirement, which is  
3 the indoor and outdoor lighting requirements.  
4 And Jim Benya will be presenting those.

5 MR. STRAIT: And actually, while Jim  
6 Benya gets set up, I'll just as a follow-up on  
7 the comment we received about input, the Energy  
8 Commission is requesting that written comments be  
9 submitted preferably by March 17th. That gives  
10 our staff an ability to interact and be  
11 responsive and apply some additional  
12 consideration. The public comment period does go  
13 until March 30th, so we'll welcome comments that  
14 are submitted up to that date, but comments  
15 submitted on the 30th, we don't have as much  
16 ability to directly interact with people as we  
17 would as with something submitted earlier.

18 MR. STONE: While we're waiting for Jim,  
19 I'd like to take this opportunity to point out  
20 that the previous section on U-Factor for the  
21 envelope is a good -- this is not a criticism at  
22 all of what you've got here -- but it's a good  
23 place to point out the differences between low-  
24 rise res and high-rise res and what happens when  
25 you have essentially the exact same building,

1 even on the same project, and one of the  
2 buildings is three stories and one is four  
3 stories, and you have very different requirements  
4 that set what the baseline is. And when we took  
5 a look at this for a building in Climate Zone 12,  
6 what we found was that you get an estimate of  
7 over 100 KBTU per square foot if it's a four-  
8 story building, and an estimate of under 60 KBTU  
9 per square foot if it's a three-story building.  
10 So one of those obviously has to be wrong, and  
11 it's very confusing to design teams that are  
12 putting together projects that have multiple  
13 buildings, multi-family unit buildings in the  
14 same project. So just another piece of evidence  
15 that we need to address the Multi-Family Code.

16 MR. SHIRAKH: So we're waiting for Jim  
17 Benya. What we're going to do is go to the  
18 Section that I was going to present and then come  
19 back to Jim.

20 So this Section 141(b)2, this is the  
21 requirements for lighting alterations in non-  
22 residential buildings. Listening to the comments  
23 I heard this morning -- Jim, we switched, you're  
24 going to go after me. So the comments I heard  
25 today from Matthew and Rick and Jim kind of leads

1 me to believe that there are other solutions here  
2 that we didn't consider, so this language will  
3 certainly be subject to more updates when I have  
4 a chance to talk to everyone about it, and seek  
5 possible solution. If I understand the comments  
6 today correctly, there are two requirements here  
7 in this section, one is meeting the lighting  
8 power allowances of Section 140.6, and the other  
9 one is meeting the dimming or control  
10 requirements of Table 141.0-e. All the comments  
11 that I've heard in the previous weeks and even  
12 today, it doesn't seem like meeting the power  
13 allowances 140.6 is an issue, the problem resides  
14 with this Table. And what we have done so far  
15 is, through these exceptions, you know, we're  
16 trying to basically come up with off-ramps that  
17 will get people out of doing their requirements  
18 of these table. It seems to me, rather than  
19 basically editing this language here to do away  
20 with the table, the solution is actually fix the  
21 problems in the table. And I'm going to go  
22 through the table which is here, and I think what  
23 the problem here is that we created a table that  
24 basically requires, or only can be satisfied with  
25 only one solution, and that is dimmable ballasts,

1 controllable ballasts. And so, again, the  
2 solution is to change that so that designers, the  
3 lighting retrofitters, will have multiple options  
4 for meeting these requirements, and do not have  
5 to rely solely on controllable ballasts.

6           You know, we've heard that some ballast  
7 manufacturers are charging outrageous prices,  
8 they don't want to play ball, fine, you know, we  
9 should provide other options for meeting the  
10 requirement, you know, and one of them actually  
11 has been incorporated here, this language used to  
12 read that for each luminaire there will be a  
13 maximum of one step between 30 and 70. Now we've  
14 changed that to say for each enclosed space. So  
15 what this does, it brings back the strategy of a  
16 checker or the rows of luminaires, or other  
17 strategies that doesn't depend on a ballast or  
18 expensive rewiring and so forth. I think you'll  
19 see where I'm going with this, it's basically you  
20 know, going away from this controllable ballast  
21 as the only solution and coming up with  
22 strategies which has actually worked in the past,  
23 the 2008 Standards, 2005 Standards, you know, we  
24 had all these multi-level controlled requirements  
25 without too many problems, so going back and

1 taking advantage of some of those.

2 MR. STRAIT: Mazi, if I could jump in  
3 really quickly, just so that people that are  
4 listening at home or people in the room don't get  
5 confused by any of this, this language is  
6 language that we've been working with, with  
7 stakeholders and different parties continually  
8 since we've published the 45-Day Language. What  
9 we're presenting here is kind of our current  
10 version of the language internally, this differs  
11 a little bit from what's posted online, and we're  
12 going to be talking about the direction we're  
13 trying to take it in to be responsive to these  
14 comments that we're getting. So this language  
15 that Mazi will be presenting right now is going  
16 to be different from what's in 45-Day Language  
17 just to facilitate the discussion that we're  
18 having here.

19 MR. SHIRAKH: Yeah, and I kind of changed  
20 my presentation a little bit because of the  
21 information that I got this morning, it kind of  
22 dawned on me that, you know, this table is the  
23 problem, it's not so much the language upfront,  
24 and up to this point we've been editing that  
25 language to get out of this problem, where I

1 think in reality we need to go and take a look  
2 here and, again, some of the solutions are here  
3 presented, and we can talk about that some more.

4 MR. BREHLER: And Mazi, if I could  
5 interject for a minute? This is Pippin Brehler  
6 in the Chief Counsel's Office to elaborate a  
7 little bit on Peter's point, that any proposed  
8 changes to the 45-Day Language would then be made  
9 available for a minimum 15-Day Public Comment  
10 Period.

11 MR. STRAIT: Yeah, thank you, Pippin.

12 MR. SHIRAKH: So going back to the  
13 presentation that I was going to make, the  
14 tracked changes relative to the 45-Day Language,  
15 so what you see here in red and underlined are  
16 the changes that's different from the posted  
17 language, the 45-Day Language.

18 So one of the things that we changed was  
19 changing from the 20-10 percent requirement of  
20 lighting being altered to 20 percent to basically  
21 match the current ASHRAE requirement. Some of  
22 these are just clarification edits. So the  
23 measures that will trigger these requirements  
24 would be adding luminaires to the enclosed space,  
25 or replacing entire luminaires in an enclosed

1 space, or (iii) would be in an enclosed space  
2 reinstalling luminaires removed from the same  
3 space or elsewhere, including luminaires which  
4 have had their components altered prior to  
5 reinstallation.

6           And then we have a series of exceptions  
7 here that basically allows people to get out of  
8 these requirements, and the most important one is  
9 Exception 2, it says for one replacement where  
10 the new luminaires have at least 20 percent lower  
11 power consumption compared to the original  
12 luminaires. So under this exception, you know,  
13 if you replaced the luminaires one for one, and  
14 the new luminaires have 20 percent lower power  
15 consumption compared to the existing one, then  
16 you get out of both 146 requirements and  
17 141.0(e). Again, with the new insight today, we  
18 may want to rethink that strategy because, you  
19 know, the whole intent here is not to get out of  
20 the LPD requirements, it's to get out of the  
21 Multi-Level Controls and Controllable Ballasts.  
22 So I'm going to probably suggest further edits to  
23 this in working with you, Gene and Stan and  
24 everyone else.

25           So this is the Section (i) that has what

1 is called the Entire Luminaire Alterations.  
2 Section (j) is the Luminaire Components Approach.  
3 This is where you have basically a bunch of  
4 luminaires in a space and you go in there and you  
5 change the components, whether it's a lamp  
6 ballast combination or the luminaire optics, or I  
7 guess replacing the ballast drivers or the  
8 associated lamps in the luminaire, permanently  
9 changing light source of the luminaires, or  
10 changing the optical systems of the luminaire.

11           And the big exception here is again  
12 Exception 2 where it says if you replace the  
13 luminaire components where the modified  
14 luminaires are 20 percent lower power  
15 consumption, then you don't have to do anything  
16 else.

17           Another big difference in this section  
18 between the 2016 and 2013 is that it doesn't  
19 trigger the full-blown multi-level requirements  
20 for this section. Section 130(a) is basically  
21 the area controls, so it doesn't really get you  
22 into 131(b), that's where the multi-level trigger  
23 is, and it's not included in this section. So  
24 it's been scaled down from 2013 significantly  
25 already, and then with this exception basically

1 you even get out of the 131(a) which is the area  
2 controls. So far so good. And the last one is  
3 the lighting wire alterations. And this one goes  
4 for each enclosed space the following wiring  
5 alterations serving permanently installed,  
6 lighting shall not cause the lighting power  
7 allowance in Section 140.6 to be exceeded. And  
8 the altered circuits and luminaires served by  
9 them shall meet the applicable requirements of  
10 140(a) which is the area requirements, 140(b),  
11 which I believe is the multi-level, 140(c) is I  
12 forget, but that (d) is the daylighting controls.

13 MR. STRAIT: For those that are  
14 listening, I think you mean 130?

15 MR. SHIRAKH: Right, 130, yes. And the  
16 idea is, you know, if you are doing these kind of  
17 wiring alterations, adding a circuit, fitting  
18 luminaires, replacing, modifying, or relocating  
19 wiring within a switch on a panel board, or  
20 replacing lighting control panel boards, or  
21 branch circuits, these requirements will be  
22 triggered.

23 Then we get back to this table, and  
24 again, you know, my current thinking is that the  
25 problem actually resides here, we need to fix

1 this table. And that way we can preserve the LPD  
2 requirements and relaxing the control  
3 requirements, so you know, people don't have to  
4 rely on the control ballasts strictly. So with  
5 that, I'm open to any questions or comments.  
6 Gene?

7 MR. THOMAS: Gene Thomas with Ecology  
8 Action. Just by quick recap of the background, a  
9 short paragraph here, the 2013 Update to Title 24  
10 put in place significantly increased standards  
11 for lighting retrofits, essentially treating them  
12 much more like new construction. For Code  
13 triggering projects, the new requirements -- and  
14 this is at least from our experience and those of  
15 others -- have more than doubled job costs with  
16 little if any corresponding increase in energy  
17 savings utility rebate. And by the way, in terms  
18 of unpacking those costs, we provided, Simon Lee  
19 and Mike McNanske with three actual projects  
20 where they were spec'd under the 2010 Code, and  
21 then fully Code compliant. And it's even worse  
22 when you add in the net cost to the customer  
23 after utility rebate. In some cases, those costs  
24 have gone up seven times.

25 These changes have crippled the lighting

1 retrofit industry and resulted in a tremendous  
2 shift in the market away from Code triggering  
3 jobs. The effects of this shift include sharply  
4 reduced savings delivered by utility programs, a  
5 return to cherry picking, illogical retrofit  
6 specification, stranded energy savings, a loss of  
7 good paying jobs and an artificial shrinkage in  
8 overall market potential. The dire seriousness  
9 of current conditions in the lighting retrofit  
10 market imposed by the 2013 Code cannot be over-  
11 emphasized. And when you've got large S Cos that  
12 have either shut down or left the state, you have  
13 implementers that are supplying a large portion  
14 of the delivered savings for lighting programs  
15 for a major utility, they had their first  
16 unprofitable year in 28 years, and say they won't  
17 make it to January 1 of 2017, I mean, this is  
18 serious.

19           Now, I notice the text has changed since  
20 you and I spoke, Mazi, we think the exceptions to  
21 (i) and (j) need to remain closer to how they  
22 were in the 45-Day Language. For exception 2,  
23 you had taken out at my suggestion the one-for-  
24 one in front of the word "replacement of  
25 luminaires," I think that really is important

1 that that needs to be stricken because it's  
2 killing many of the few retrofits which often  
3 makes a lot of sense, and by keeping that one-  
4 for-one replacement in there, you're taking a lot  
5 of situations where there's 10 luminaires because  
6 it was spec'd 20 years ago and they don't need to  
7 be that many, you want to cut that back to eight,  
8 but it really just needs to be replacement of  
9 luminaires. And we don't think --

10 MR. SHIRAKH: May I ask a question  
11 related to that? So in that scenario where  
12 you're describing, I presume you're not going to  
13 have any problems meeting the power density  
14 requirements in that space?

15 MR. THOMAS: No.

16 MR. SHIRAKH: So again, that's what I'm  
17 saying, is this part of the Code is okay, the  
18 problem is here. Now, the way this is written,  
19 this section, this exception 2, without this one-  
20 for-one replacement, it's basically any space  
21 regardless of the type of alterations you do, you  
22 know, can comply using exception 2. You can  
23 entirely ignore this whole section because  
24 Exception 2 --

25 MR. THOMAS: But you can't do them "any"

1 to "few." You can't take out a luminaire and get  
2 in under that exception.

3 MR. SHIRAKH: Right. So --

4 COMMISSIONER MCALLISTER: And Mazi, maybe  
5 you can describe the requirements for a project  
6 where you are really doing a redesign to some  
7 extent and you're reducing the number of  
8 fixtures. Where does that fit in this?

9 MR. SHIRAKH: If they're reducing the  
10 number of fixtures, again, it doesn't trigger,  
11 they're not adding luminaires, they are not  
12 replacing or relocating, they're just simply just  
13 -- you want to explain?

14 MR. STRAIT: Yeah.

15 MR. SHIRAKH: Okay, go ahead.

16 MR. STRAIT: This is Peter Strait. Just  
17 to use that as an example, if let's say you have  
18 20 luminaires in a space and you're moving down  
19 to eight luminaires, our understanding of the way  
20 the exception will work is that that wouldn't be  
21 triggered because you would be replacing eight of  
22 the luminaires one-for-one, and that the  
23 remaining 12 would simply be removed. So the  
24 eight are being replaced on a one-for-one basis,  
25 12 are being removed from the space, those would

1 not trigger this Code since no new luminaires are  
2 being added beyond what was already there.

3 MR. THOMAS: When I hear that, that's  
4 reassuring, but I can tell you for a fact that  
5 won't be clear to many retrofitters and Code  
6 officials.

7 MR. STRAIT: Right, so I just want to put  
8 that out there as I think our intent is aligned,  
9 so we can definitely work to improve the  
10 language, but it is not our intent for a many to  
11 few replacement to be hampered by Code.

12 MR. THOMAS: Okay, that's good. The  
13 other thing is the addition of at least 20  
14 percent lower. Previously it was the same or  
15 lower, we could live without the "same," but  
16 really we don't think putting an arbitrary  
17 percentage in there is necessary because  
18 retrofitters are going to come in substantially  
19 below the existing wattage. There is also a  
20 potential unintended effect of discouraging  
21 certain LED upgrades based on the available  
22 product wattage differential. So it could be  
23 that you're in a CFL to LED or something and it  
24 doesn't quite have that 20 percent margin because  
25 of the kind of product that's available. We

1 think that could come and bite you. We just --  
2 it's arbitrary, we don't think it's necessary to  
3 achieve the desired effect.

4           The other thing we strongly oppose the  
5 most recent proposed changes to the wiring  
6 alterations section. Invoking 130.1(b) and (d),  
7 dimming and automatic daylighting, for really  
8 simple wiring alterations is illogical and highly  
9 counterproductive. Retrofitters will simply  
10 avoid potential jobs with a need for these type  
11 of wiring alterations, rather than turn them into  
12 unsellable proposals due to the unsupportable and  
13 unwanted cost of adding multi-level and  
14 daylighting to the project. So using the example  
15 of, okay, it's in the Code right now where you're  
16 supposed to disaggregate your display lighting  
17 from your general lighting, it's not always that  
18 way in the built environment. And let's say in a  
19 retrofit project the customer says, "Yeah, you  
20 know, it might not be a bad idea to have that  
21 separate switch for that," by doing that we would  
22 invoke dimming and daylighting for the project  
23 and the project would die, or you just wouldn't  
24 have that change be made. So it wasn't in there  
25 in the 45-Day Language, it had been taken out. I

1 know it was put in at one person's behest because  
2 it was there in the 2005 Code, why shouldn't it  
3 be there now? It shouldn't be there now because  
4 it will be a project killer and those, you know,  
5 replacing or modifying wiring between a switch  
6 and a luminaire, that is a simple wiring  
7 alteration and it should not trigger dimming and  
8 automatic daylighting. And we think if these  
9 changes that we're talking about, and the good  
10 work that you've done so far, makes it into the  
11 final language it will really save the retrofit  
12 industry. I live in that industry and even I did  
13 not know how bad it was until the past recent  
14 weeks. So thanks for giving attention to these  
15 comments.

16 MR. SHIRAKH: So if you hold on for one  
17 minute, Gene, please. So again, I want to ask a  
18 question, in most of the retrofits that you're  
19 doing, and other folks, you're not having any  
20 problems meeting the power allowance  
21 requirements. Is that correct?

22 MR. THOMAS: Right.

23 MR. SHIRAKH: So the problem lies with  
24 the controlled requirements.

25 MR. THOMAS: The dimming which just in

1 itself typically doubles the cost of the job.  
2 And we're, you know, I was horrified to hear of  
3 the \$200 ballasts, we don't see that, we're  
4 typically seeing them in the \$30 to \$40 range for  
5 dimmable ballasts. We hammer down the cost of  
6 our projects, we have an equipment list with set  
7 prices, and so the customer even before a rebate  
8 is getting the lowest possible job cost they can  
9 give. And even that is double the cost of what  
10 it is without the dimming and controls  
11 requirements. So it's not a matter of not being  
12 able to hit the LPDs, we can do that, with every  
13 retrofit it's not a matter of coming in  
14 substantially below those, we're doing that. We  
15 just don't think an arbitrary 20 percent has to  
16 be in there. We could probably live with it, but  
17 we think it might trip us up in some situations  
18 like I described.

19 MR. SHIRAKH: So again, given that we can  
20 meet the LPD requirements, then would you agree  
21 with me that the problem lies in this table and  
22 we need to fix these requirements to basically  
23 allow folks to meet the bi-level requirements not  
24 through stepped dimming or continuous dimming,  
25 but by doing inboard-outboard switching --

1           MR. THOMAS: Right, right, or alternative  
2   luminaires or strip -

3           MR. SHIRAKH: Which is the stuff we were  
4   doing in 2008 and I didn't hear a whole lot of  
5   complaints back then or doing checkerboard, or  
6   rows of luminaires.

7           MR. THOMAS: Yeah, that was -- customers  
8   didn't have a problem with that. We don't always  
9   do it, but sometimes it's just a great option or  
10  switching alternate luminaires in a strip. In  
11  the Bookshop Santa Cruz we did that and the  
12  customers have been happy with it for 10 years,  
13  so we think you've made improvements to that  
14  table, we don't think -- we think it makes sense  
15  to keep a table like that. Could you make it  
16  even clearer?

17          MR. SHIRAKH: Well, we're going to keep  
18  the table, but we're going to clearly spell out  
19  other alternatives.

20          MR. THOMAS: Right, right, that's --

21          MR. SHIRAKH: And I think that will be  
22  the heart of our corrections, rather than editing  
23  the language up above. I think once we solve the  
24  control issues here, then there shouldn't be so  
25  much anxiety about specific language in the

1 preceding sections. But you know, we'll be  
2 working with you and I think we have kind of an  
3 understanding where the problem is and how we  
4 should work on it.

5 MR. THOMAS: Okay. Thanks a lot.

6 MR. PENNINGTON: So I heard you say that  
7 you could meet the LPDs that are in the  
8 standards, but you were concerned about the  
9 exception there that would reduce the existing  
10 LPD by 20 percent.

11 MR. THOMAS: Well, the existing wattage,  
12 and it's one of the great changes that the team  
13 has made in this proposed language because it  
14 removed the necessity for retrofitters to have to  
15 go in and measure square footage and do LPD  
16 calculations by just saying you have to reduce  
17 the wattage to compare to the original  
18 luminaires.

19 MR. PENNINGTON: Okay, so it seems like  
20 to me your comments are surprising a little bit,  
21 that there would be not a problem in the one case  
22 and a problem in --

23 MR. SHIRAKH: But if I may interject,  
24 Bill, if we pursue the line of thought that I was  
25 just describing, I don't even think we need this

1 exception.

2 MR. THOMAS: You don't think you need  
3 Exception 2?

4 MR. SHIRAKH: Well, because the reason,  
5 again, we need this is to get out of the  
6 controlled requirements in that table, which this  
7 section refers to. Now, if we fix the controlled  
8 requirements in this section, then I would argue  
9 we don't even need, because then all you have to  
10 do is meet the LPD requirements and we were just  
11 told the LPD requirements can be met.

12 MR. THOMAS: Right, but having to  
13 calculate them is what is the problem, it's not a  
14 problem for new construction where you've got CAD  
15 files and you've got all these calculations  
16 running. It is a problem to do LPD calculations  
17 in the built environment because you're taking an  
18 audit that might have taken an hour and a half  
19 and you're making it four or five hours many  
20 times, or having to come back for a second trip.  
21 Measuring square footage is not a small task,  
22 it's virtually never available in the built  
23 environment to retrofit or to come in and get as  
24 set of plans. So what you've done here  
25 eliminates the necessity for measuring square

1 footage and doing those LPD calcs, that's huge to  
2 the retrofit world. But it would be problematic  
3 if you took out that Exception 2, however the  
4 language ends up looking, if you took it out  
5 because that is the off ramp. Code officials  
6 need to see an exception that says, "Oh, this  
7 meets that exception, therefore it doesn't  
8 trigger code." And they don't need to get a  
9 permit.

10 MR. SHIRAKH: And again, this is a  
11 conversation we need to have, but without that 20  
12 percent language in there, this off ramp would  
13 basically allow some people, maybe not everyone,  
14 to do a retrofit job without saving any energy,  
15 and that's where Bill and I have a little bit  
16 anxiety. And --

17 MR. THOMAS: I understand that and we can  
18 continue it off line, we can just give you our  
19 assurance and we can provide you with data if you  
20 want that you should be reassured with that? You  
21 make the mesh so fine to find the edge cases that  
22 you end up getting a lot more problems when  
23 you're looking at things like CFL to LED, which  
24 may not have necessarily that 20 percent cutoff,  
25 it might be less than that, in which case you'd

1 be triggering Code. But we can take that off  
2 line.

3 MR. SHIRAKH: All right. Thank you,  
4 Gene. Appreciate it. Jim.

5 MR. BENYA: Jim Benya, Benya Burnett  
6 Consultancy. I want to first of all compliment  
7 Gene for -- and I've worked with him for a number  
8 of years, and for your ongoing not only  
9 commitment to helping the process, but the very  
10 professional and constructive way that you've  
11 contributed comments. Not everyone in your  
12 industry is quite as calm about this issue as you  
13 are.

14 Secondly, I want to compliment staff,  
15 Simon, Mazi, Peter and others, for continuing  
16 this dialogue. Clearly we don't want to destroy  
17 one of the most important industries involving  
18 lighting in the state which is retrofitting the  
19 buildings because, as we all know, for every new  
20 building affected by the Standards, there's  
21 10,000 existing buildings that could also benefit  
22 from their work. So this is very important.

23 I would agree with Gene in at least a  
24 couple of areas is that we have to look at every  
25 provision and have different options for

1 retrofitters, because I agree with him, getting  
2 square footage for an existing building is very  
3 difficult. And so we ought to continue to  
4 consider a unitary reduction in wattage. And  
5 that's supported by the fact that these guys  
6 don't have any work to do, and they don't have  
7 any customers unless they save energy. So you  
8 know, we can kind of count on them to a certain  
9 extent.

10           Finally, I've been teaching lighting  
11 classes, code standards classes, through the Bay  
12 Area Regional Energy Network to inspecting  
13 authorities throughout the Bay Area. And I  
14 discussed with them their feelings about Section  
15 141. They would like to see it simplified, too.  
16 They really don't want to be issuing permits and  
17 checking retrofit projects unless they require a  
18 reconstruction or a major renovation, and so  
19 anything we can do to again not invoke the  
20 Standards and make that possible would be of  
21 great benefit. Thank you.

22           MR. SHIRAKH: But, Jim, I have a  
23 question. Now, prior to 2013 Standards, there  
24 was always this requirement to meet the LPD  
25 requirements, which required measuring square

1 footage, and we generally didn't hear a whole lot  
2 of complaints about that. Is something different  
3 now?

4 MR. BENYA: Because people weren't  
5 pulling permits, Gene? They just did the job.  
6 They just did the job, they weren't pulling  
7 permits, there were no inspections, and so nobody  
8 was checking it.

9 COMMISSIONER MCALLISTER: And how much of  
10 that was driven by incentive programs? How much  
11 of that unpermitted work?

12 MR. BENYA: Go ahead.

13 MR. THOMAS: This is Gene. Incentives  
14 have a huge effect in effecting change in the  
15 built environment, so they're necessary, and  
16 that's why I think it's a mistake when  
17 Regulators, both CEC and PUC, don't factor that  
18 into their equations. So prior to 2013, it's the  
19 Building Officials just, it's the lighting  
20 retrofit, they don't even think about it. And  
21 irrespective of what was written in there that  
22 was just the way it was. If it wasn't a gut  
23 rehab or it wasn't an addition or a new  
24 construction job, they just didn't expect permits  
25 and neither did the retrofitters or the program

1 implementers.

2           COMMISSIONER MCALLISTER: Yeah, and yet  
3 there is a certain amount of wiring going on up  
4 in the --

5           MR. THOMAS: Very simple, that's why I  
6 was --

7           COMMISSIONER MCALLISTER: Very simple,  
8 but --

9           MR. THOMAS: -- adding daylighting and  
10 multi-level into those simple wiring  
11 requirements. If you're doing a job that is on  
12 one of the off ramps, so it doesn't have to  
13 comply in order for you to still get some energy  
14 savings, you shouldn't be compelled into the most  
15 onerous parts of the Code just because you're  
16 doing some simple wiring changes under that job.

17           COMMISSIONER MCALLISTER: Yes, so I think  
18 the intent is to sort of acknowledge that and try  
19 to have reasonable buckets to match the bucket of  
20 projects type with the, you know, make the  
21 requirements for under Code commensurate with the  
22 complexity, right? So I think that is the  
23 intent. But I also, I don't want to kind of  
24 drive necessarily down the road like, okay, we  
25 have to create openings for incentives to move

1 the marketplace. There's this undercurrent of  
2 like, you know, needing to keep the incentives  
3 flowing and I think we kind of need to talk  
4 through that, probably across agencies, and make  
5 sure that we're not stepping on each other's  
6 toes, but also it would be nice to have a  
7 marketplace that sort of had a post-incentive  
8 pathway.

9 MR. BENYA: Where I see that in this  
10 proposed language, and I hadn't gotten into  
11 exterior in this context, I've been trying to  
12 keep those off line, but the only place I see  
13 that happening is the proposed exterior LPDs  
14 virtually mandate LEDs as the baseline, and the  
15 problem with that is what the utilities do is  
16 they say, oh, it's mandated in Code, therefore  
17 we're not going to give any incentives for it,  
18 and therefore you don't get more than a small  
19 percentage of those upgrades that you would  
20 otherwise get. That's why we pushed for  
21 something in between the 40 percent reduction  
22 that's proposed and the way it is now.

23 COMMISSIONER MCALLISTER: Yeah, I mean,  
24 the key data it would be great to have is what  
25 projects are not being accomplished because of

1 that gap in the overall package, right?

2 MR. BENYA: I can provide you with some  
3 examples.

4 COMMISSIONER MCALLISTER: So examples are  
5 great, but I think, you know, the PUC is working  
6 on it and we're collaborating with them on  
7 figuring out what that gap actually looks like  
8 because it's a little bit of a tough public  
9 policy goal to say, no, no, we need to keep  
10 subsidies flowing to keep this marketplace. I  
11 think that's a little bit of a difficult spot to  
12 be in, so, you know, if it's cost-effective and  
13 our analysis shows it's cost-effective, then it  
14 ought to be moving forward based on the value  
15 proposition. So are we understanding the value  
16 proposition in the marketplace both with respect  
17 to the portfolio programs, and independently,  
18 correctly?

19 MR. BENYA: I would just make a last  
20 comment on value proposition and the cost-  
21 effectiveness part of it. In the small, medium  
22 business environment that we work in, not the  
23 huge project, but the small/medium businesses,  
24 they really, their metric is simple payback.  
25 They're not used to time dependent valuations and

1 the other metrics that you guys are used to,  
2 they're using how long will it take me to pay for  
3 my out-of-pocket strictly through the savings.  
4 And if that doesn't fall into a pretty shallow  
5 window, they'll say no because it's not like a  
6 broken water heater or broken air-conditioner,  
7 it's a lighting system that's fully functional.  
8 And if the light turns on, you have a job to sell  
9 them on it, and if that window is three, four,  
10 five years out, they will typically just say no.  
11 So simple payback is something that I think  
12 should be part of the equation.

13 COMMISSIONER MCALLISTER: I appreciate  
14 your helping us ground truth that and I know  
15 you'll be having some further conversations with  
16 staff.

17 MR. THOMAS: Thank you.

18 MR. BENYA: Jim Benya, just one final  
19 comment. Just keep in mind, with Solid State  
20 Lighting, the lighting power densities they're  
21 getting to, for both indoor and outdoor lighting,  
22 they're getting to be very low. And so what's  
23 happening is the utility incentives are being set  
24 on a baseline that is the standard that we have  
25 today.

1                   COMMISSIONER MCALLISTER: That's exactly  
2 why I probed there, and I think those two Code  
3 issue is one that's broader than just lighting,  
4 even, but it's definitely one that, as we're  
5 headed towards each cycle of billings, we're  
6 confronted with this a little more seriously each  
7 time.

8                   MR. BENYA: As I will be reporting here in  
9 a few minutes, in Section 140.7, the lighting  
10 power densities are dropping on the average of 35  
11 to 40 percent from the 2013 Standards. And those  
12 kind of numbers combined with that effect could  
13 be quite damaging to the way this industry  
14 approaches retrofits, particularly for outdoor  
15 lighting.

16                  MR. SHIRAKH: So I just wanted to bring  
17 your attention to this change, again, it's a very  
18 small change, but it actually opens up a whole  
19 host of other options for meeting the multi-level  
20 lighting requirements. So again, we'll be  
21 looking at fixes like this throughout and see if  
22 we can preserve the intent while providing more  
23 alternatives, less expensive ones. Randall?

24                  MR. HIGA: Randall Higa, Southern  
25 California Edison. I'm going to start off by

1 stating the obvious, and that is lighting  
2 retrofits are very very important to the utility  
3 energy efficiency portfolios in terms of the  
4 savings that we get from them.

5 I'll next say that the utilities will be  
6 developing comments on this issue, we don't at  
7 this point know exactly where our comments are  
8 going to end up. We need to do a lot more  
9 background work on this. We want to make sure  
10 that there are no unintended consequences, you  
11 know, by doing something that may inadvertently  
12 lower the incentives or something like that. As  
13 most of you know, the utilities are under a lot  
14 of scrutiny to appropriately analyze and justify  
15 the savings claims that we make and we have  
16 things like net to gross ratios, and realization  
17 rates, and a whole host, and TRCs, and a whole  
18 host of other things that we have to consider, so  
19 we do want to do some homework on that.

20 One of the things I want to say, though,  
21 is that at least from the utilities'  
22 perspectives, we want to have as much information  
23 and specificity in terms of what the issues are  
24 from the retrofit industry so that we can best  
25 address them. In some of the concerns I've

1 heard, it's not necessarily the Code that's the  
2 issue, it may be the way that the programs are  
3 administered, or the baseline that's used for the  
4 basis for energy savings. The baseline  
5 translates to energy savings, which translates to  
6 the incentive rates, and I think that we need to  
7 -- and this is both short and long term -- work  
8 with the industry to understand what's going out  
9 out there in terms of the baseline, the existing  
10 situation, and what are the barriers to the  
11 retrofits being done? And I don't want to speak  
12 on behalf of the Public Utilities Commission, but  
13 in some cases the Code may not be the appropriate  
14 baseline for all lighting retrofits, so we need  
15 to look at that, but as a data driven entity with  
16 data driven programs, we need to understand and  
17 gather data on what's out there existing and  
18 realistically the probability of having retrofits  
19 under certain scenarios. So I think our common  
20 goals, we want to save energy cost effectively,  
21 and I think there's ways to do it, but it may not  
22 necessarily be addressed strictly by what's in  
23 the Energy Code, so in any case we'll be  
24 submitting comments. Thank you.

25 COMMISSIONER MCALLISTER: Thank you very

1 much.

2 MR. SHIRAKH: Randall, I have a question.  
3 If we submit this language in the Exception 2  
4 without that at least 20 percent requirement,  
5 essentially, you know, some people could go into  
6 a space and retrofit the whole area with very  
7 little savings. Now, what does that do to the  
8 IOUs' claims of savings and so forth?

9 MR. HIGA: Right now, I can safely say  
10 that I don't really know. That's one thing that  
11 we'll have to look at carefully and, you know,  
12 see what we think the various scenarios are, if  
13 that were removed or changed, or whatever. So  
14 we'll be looking at that.

15 MR. SHIRAKH: All right. Gene, did you  
16 want to make a comment?

17 MR. THOMAS: I can answer that. As a  
18 program implementer or as someone that is tasked  
19 with delivering savings to utility clients for  
20 which we get paid performance, if we're not doing  
21 that we don't have a program and we go out of  
22 business. So in the world, in the small world of  
23 retrofit jobs where the contractor nor the  
24 customer are looking for any kind of rebate and  
25 don't care about achieving any savings, that

1 could be a factor, but we think that is such as  
2 miniscule part of the market that it certainly  
3 wouldn't work under any program delivery volume.

4           COMMISSIONER MCALLISTER: Let me just see  
5 if we're hearing right. So if without that at  
6 least 20 percent, and notwithstanding the kind of  
7 plain reading of the one for one, right, if we  
8 resolve that as we talked about before, right,  
9 the one for one replacement, okay. So you go  
10 into a job, you don't have at least 20 percent  
11 savings, does that then in your view open up a  
12 bunch of head room for incentive programs to get  
13 in there and harvest those non-Code, those above-  
14 Code savings?

15           MR. THOMAS: It just makes it easier,  
16 it's going to make it easier. I mean, in point  
17 of fact --

18           COMMISSIONER MCALLISTER: When any  
19 savings there become above-Code, right, any  
20 savings like if you use Exception 2, then any  
21 savings at all become above-Code savings, right?

22           MR. THOMAS: Well, no, because in  
23 Exception 2, you're basing it on the existing  
24 equipment. By definition that's an early  
25 retirement job for which you can claim the full

1 amount of savings, so we don't have a problem, I  
2 mean, if I went back and looked at our history,  
3 certainly at the project level we're always going  
4 to be over that 20 percent.

5 COMMISSIONER MCALLISTER: Whether or not  
6 that 20 percent phrase is in there, that any  
7 project that utilizes Exception 2 in your view is  
8 above Code, is sort of not a Code driven --

9 MR. THOMAS: Well, when you say above-  
10 Code, you mean greater savings than Code? Is  
11 that what you mean?

12 COMMISSIONER MCALLISTER: Yeah, I'm  
13 trying to get a handle on what we're really  
14 talking about here in terms of the marketplace  
15 for these retrofits, and what would be driven,  
16 then, by Code under different scenarios versus  
17 what you would then be able to say to your  
18 customer is above-Code. So I don't want to go  
19 down the path that we're letting Code be driven  
20 by this two Code problem, which is really not the  
21 Energy Commission's problem, per se, but I just  
22 want to get a handle on -- I'm trying to  
23 understand it from your perspective as somebody  
24 who is out there selling jobs and trying to put  
25 the financial package together.

1           MR. SHIRAKH: Let me put it another way.  
2 If a project saves 50 percent, it seems to me if  
3 this 20 percent language is not here, you get  
4 incentives on the whole 50 percent. If this is  
5 here, then you get incentive on 30 percent. Is  
6 that correct?

7           MR. THOMAS: No. It depends on if the  
8 job is under PUC policy, anyway. And really  
9 under the POU programs that are administered by  
10 CEC. A project is either early retirement, and  
11 the program is causing that customer to take that  
12 fully functional lighting system and you're  
13 incentivizing them, they're upgrading it, and  
14 they wouldn't have done it otherwise. Replace on  
15 burnout or normal replacement is they would have  
16 done it without the program, regardless. So  
17 those replace on burnout jobs get a Code to new  
18 baseline. Early retirement jobs for which  
19 presently we have to provide some proof that we  
20 are motivating the change, those get existing  
21 equipment to new savings, which this helps  
22 reinforce that. So let me put it another way.  
23 If this is where we end up, what you've got on  
24 there with a couple of just teeny changes, it's  
25 so much better than what is happening right now,

1 it will literally save the industry. And I've  
2 had people, since we just put out the word, "Hey,  
3 they're talking about the Code for the next  
4 cycle," since I put out the word, we've been  
5 deluged with calls, and you've been deluged with  
6 comments, and most of them say, "How can you get  
7 them to adopt it now?" And I know that may not  
8 technically be possible in this forum, you know,  
9 there may be other avenues, but literally there's  
10 businesses that are going to go under between now  
11 and January 1 of 2017. If this is adopted, it  
12 will be great then, but it's pretty dire now,  
13 so...

14 MR. SHIRAKH: Yeah, again, I appreciate  
15 your comments and I'm hoping that this is an  
16 improvement over existing language which you seem  
17 to agree, and we can talk about the details of  
18 this exception and, you know, go do an exhaustive  
19 review of these requirements here, we could even  
20 add another column here that further relaxes the  
21 multi-level requirements. So anyway, I think we  
22 have an understanding and we'll be in touch.

23 COMMISSIONER MCALLISTER: Thanks, Gene.

24 MR. STRAIT: And certainly I should  
25 mention we've had a successful collaboration with

1 Gene up to this point, so I think we can just  
2 continue the work that we've been doing on this.

3 COMMISSIONER MCALLISTER: Yeah,  
4 absolutely. I mean, I think this is a key topic  
5 and I don't want to get too far off track here  
6 with respect to trying to figure out how we can  
7 enable attribution of utility programs because  
8 that's not really what we're here to do, but I  
9 think that we do want to just make this clear and  
10 make the buckets clean and try to base it on the  
11 value proposition.

12 MR. STRAIT: Absolutely.

13 MR. SHIRAKH: It may be possible to do  
14 something for existing language, it's very  
15 pertinent, we'll be talking about that later.  
16 Jon.

17 MR. MCHUGH: Jon McHugh, McHugh Energy.  
18 Probably a lot of us are wondering how did we get  
19 here and I think a little bit of context is  
20 probably good. Title 42 of the United States  
21 Code, Section 6833, describes that each state is  
22 supposed to certify to the U.S. Department of  
23 Energy that their standard is more stringent than  
24 the ASHRAE 90.1 Standard. And in 2010, ASHRAE  
25 90.1 adopted requirements that not only are the

1 requirements for new construction, but that all  
2 alterations would meet the new construction  
3 requirements unless there was less than 10  
4 luminaires replaced per room. And that's  
5 essentially where you see the 10 percent in our  
6 standard and you see the requirements. Right now  
7 the Committee has voted out for public review  
8 that those standards be relaxed to 20 percent per  
9 room, but also add the full range of control  
10 requirements in the ASHRAE 90.1 Standards. And  
11 back in the 2010 Standards, and still in the  
12 current ASHRAE Standards, is that this also apply  
13 to "non-repairs" which included when you replace  
14 both the lamp and the ballast, and so they were  
15 looking at retrofits, as well as complete  
16 luminaire replacements.

17           The Standards up until the 2013 Standards  
18 Title 24, the requirements were that if you  
19 replace more than 50 percent of fixtures in a  
20 room, you had to meet the LPD, and if you did any  
21 wiring alterations, those altered circuits were  
22 required to meet all the Standards, all of the  
23 control requirements in Title 24. And the  
24 language that Mazi has showed on the screen in  
25 regards to lighting alterations are the same

1 requirements that were in place in Title 24 in  
2 the 2008 version.

3           And I know there's some argument that,  
4 you know, some people don't like what's required  
5 there, but those requirements don't include  
6 everything that's in 2013, those are all the  
7 requirements that are in the 2008 Standards. The  
8 only exception is Item B, which is the multi-  
9 level control and it appears to be the area with  
10 the highest level of concern.

11           My concern about the Exception 2, which  
12 essentially would allow someone to say, you know,  
13 "I'm replacing this old T-12 and, you know, yeah,  
14 I'm a lot better than the existing T-12 fixture,  
15 but I don't really have to do anything else other  
16 than just replace the fixture." The problem I  
17 have with that is if you think about it there's  
18 about 150 million square feet per year of new  
19 construction, and that accounts for about 1.5  
20 percent of the total building stock. If you  
21 think that TIs are occurring on average once  
22 every 30 years, that's about three times the  
23 square footage, we're talking about 300 million  
24 square feet of alterations that are occurring per  
25 year. And so someone who is running a program

1 and doing alterations, which my understanding are  
2 not focused on the people that are doing the gut  
3 remodels or the TIs, but are more focused on the  
4 people who would never fix their lighting, I  
5 mean, that's the target that the CPUC really  
6 wants these folks to address, are the people  
7 that, you know, they still have T-12s, right?  
8 Those luminaires were probably bought over 30  
9 years ago, and those are the kinds of waste that  
10 we're trying to squeeze out of the system that  
11 those are potentially the customers that, you  
12 know, aren't doing TIs, they're the corner liquor  
13 store and those kind of places that it doesn't  
14 have to be too fancy for people to go and buy  
15 their six-pack.

16           So the issue is, in crafting this  
17 language we don't want to lose all of the energy  
18 savings associated with the gut remodel and the  
19 TI, and currently this language would allow you,  
20 yeah, the existing building had a bunch of T12s  
21 and I'm putting in an LED, or a high efficiency  
22 fluorescent system, I don't have to do the  
23 daylighting controls, so all the lights around  
24 the windows can be at full light output all the  
25 daytime hours of the year, all the lights can

1 stay on all night because there's no automatic  
2 shutoff control. To me, that's exactly the wrong  
3 direction that the state should be going. That  
4 being said, as I mentioned, there are those areas  
5 where we want to make sure that those businesses  
6 that never replace their lighting, that they have  
7 the right sort of incentives. And my  
8 understanding is that a substantial fraction of  
9 those applications are what are considered  
10 luminaire component replacements. And so my  
11 expectation is that the Commission should perhaps  
12 be a little bit more surgical about, you know,  
13 right now if you look at the 45-Day Language,  
14 basically a huge meat cleaver was taken to the  
15 Standards. Simplification, I think, is really  
16 important. But if what we're saying is we're  
17 trying to protect the retrofit industry, let's  
18 look at the luminaire component retrofits rather  
19 than something that is so broad that it would  
20 apply to that 300 million square feet of TIs.

21           The other issue is that there's this hope  
22 to bypass permitting and, you know, concurrent to  
23 this rulemaking is CALGreen rulemaking, and one  
24 of the proposals for that rulemaking is that when  
25 people pull permits on projects of more than

1 5,000 square feet, that someone file a universal  
2 waste plan. This is a requirement since, I  
3 think, 2003 in the California laws, but aren't  
4 uniformly applied, which would actually make sure  
5 that when someone is doing, whether it's a  
6 component replacement or it's a luminaire  
7 replacement, that those lamps aren't ending up in  
8 the landfill, and that all that mercury is  
9 actually being recycled and removed. You know, a  
10 standard that might imply that people do not have  
11 to consider waste disposal, seismic issues, so  
12 that you know, those luminaires that may have  
13 been installed before there was a seismic code,  
14 that they're actually braced so that when there  
15 is an earthquake the lights don't actually land  
16 on people's heads, those are all the kinds of  
17 things that imply that maybe the permitting  
18 requirement is not an either or, but what is the  
19 incremental burden when someone is essentially  
20 redeveloping a lighting system.

21           The other aspect is, though, that the  
22 Standard has a lot of forms, a lot of paperwork,  
23 and there needs to be a way of streamlining this,  
24 and you know, as I mentioned earlier the  
25 acceptance testing has taken on a life of its

1 own, it expanded past, you know, it was something  
2 to be done by the installing contractor to a  
3 third party, I really wonder if there's retrofits  
4 that are below a certain size that the installing  
5 contractor could not actually perform those tests  
6 because that's an additional cost. So anyway, I  
7 think we need to revisit that there's a lot of  
8 questions here and I think some of the key  
9 questions are, you know, what are the key  
10 obstacles? Are we really primarily talking about  
11 luminaire component replacements or not? And how  
12 do we actually make sure that we obtain the  
13 savings for all the existing buildings? Thank  
14 you very much.

15 MR. SHIRAKH: Thank you. Gene, are you  
16 responding to those comments?

17 MR. THOMAS: Just a quick follow-up.  
18 First off, utility programs have environmental  
19 aspects, so we have to properly recycle and  
20 dispose of all mercury containing lamps and  
21 ballasts, so that's part of doing business. And  
22 I mean, the 20 percent issue isn't the hill we're  
23 prepared to die on. I may get some flak for it,  
24 but that's something that would be livable if not  
25 ideal, but I think you're characterizing the

1 market a little bit black and white, it's not  
2 just Joe Six-Pack, it's a lot of mid-size jobs  
3 where they do have a functional lighting system,  
4 but they don't want dimming and they're not  
5 willing to pay for it, and there's a great letter  
6 that a business owner submitted, I can't  
7 remember, McMurphy or something like that, I'd  
8 encourage you all to read that letter. He was  
9 basically a guy that was forced to add dimming  
10 and daylighting to his job that he didn't want to  
11 have it, and I would just encourage you to read  
12 it. This isn't happening in a vacuum. And we  
13 have to get out of the academic cloud and back to  
14 the real world impact of how is this affecting  
15 people that are doing this for a living? How is  
16 it affecting businesses where they'd like to  
17 upgrade their lighting, but if it's going to cost  
18 them two or three times as much as it would just  
19 by adding dimming to it, daylighting is even more  
20 astronomical, they're not looking at, "Oh, well,  
21 if I get a payback in 15 years, then I'm good to  
22 go." And the solution isn't, you know, lending  
23 them extra money with on bill financing, either.  
24 We had a company that we worked with for years  
25 that went bankrupt with \$2.5 million in

1 receivables of on bill financing, but that on  
2 bill financing was supposed to be net 30 or net  
3 60, and it was taken six to nine months. And  
4 they just couldn't carry it. They couldn't sell  
5 it to anybody else and they went out of business.  
6 So it seems like you really have to confab with  
7 the people who live and breathe in those worlds  
8 before you impose costs for retrofits for  
9 daylighting and continuous dimming. And let's  
10 see, what was my last point?

11 MR. SHIRAKH: It's not on my slide.  
12 While I have you out there, Gene, I have a  
13 question. Sorry, Jon. So both you and Jim Benya  
14 said the 20 percent power reduction or meeting  
15 LPDs of 140.6 requires additional paperwork.

16 MR. THOMAS: Well, no, the 20 percent  
17 doesn't, it says compared to the original  
18 luminaires. Since this is a jumping off point,  
19 where it's an exception, it means compliance is  
20 not required. I mean, that much of it, anybody  
21 can provide that evidence: here's what was there,  
22 here's what we put in.

23 MR. SHIRAKH: So you find this 20 percent  
24 less onerous than meeting LPD requirements of  
25 140.6?

1           MR. THOMAS: It's much less onerous than  
2 having to measure square footage and do LPD  
3 calculations. I mean, that's what we're doing  
4 now for Code triggering jobs, we just can't sell  
5 enough of them. We're forced, but we don't want  
6 to, but we're being forced to just look at the  
7 non-Code triggering jobs. It's like eating your  
8 seed corn, there's only so many of them that are  
9 out there and because we've been largely unable  
10 to sell, the jobs that are adding dimming and  
11 daylighting, we're not even touching because we  
12 can't even claim any savings for it. There's no  
13 rebate and no savings available for that because  
14 nobody knows how to calculate it. So this is by  
15 far superior. We will hit the target LPDs and  
16 significantly below just by doing that 20 percent  
17 or lower. We're typically coming in quite a bit  
18 below 20 percent. With that percentage, I was  
19 just concerned mainly with the CFL to LED, there  
20 might be some product gap in there where you  
21 wouldn't hit it.

22           MR. SHIRAKH: Maybe we can work around  
23 that issue. Jon had some comments. Go ahead,  
24 Peter.

25           MR. STRAIT: Let me follow-up on this.

1 It might be there's two separate questions, one  
2 is whether there should be some percent to where  
3 we say there has to be some target so that  
4 somebody can't do a .0001 percent improvement and  
5 say "we're so much better, we don't have to do  
6 controls."

7 MR. THOMAS: Yeah.

8 MR. STRAIT: And it's just a question of  
9 whether that should be 20, 15, what that ought to  
10 be.

11 MR. THOMAS: Exactly.

12 MR. STRAIT: So I think that's the  
13 narrower question.

14 MR. THOMAS: For a percent, I probably  
15 wouldn't even have brought it up.

16 MR. STRAIT: Okay. And since you're on  
17 the record, is that a good benchmark to start  
18 with, that 15 is a lot more acceptable than 20

19 MR. THOMAS: I mean, I just did some  
20 quick pre- and post- between typical luminaire  
21 existing and new, and 20 percent wasn't far off,  
22 but there were some wattages that didn't quite  
23 hit that. You know, and like CFL to LED, we  
24 screw in, we want to encourage that because the  
25 LED, even though it may not be that many fewer

1 watts than the CFL, it's still much more long  
2 lived and so forth, and people are much happier  
3 with it, it's dimmable, so I can pretty certainly  
4 say if it was 15 percent those edged wattages  
5 would kind of drop out of the picture.

6 MR. STRAIT: Okay, because I know we had  
7 internally considered a couple numbers, so I  
8 think that's something we can definitely continue  
9 to work on.

10 MR. THOMAS: And I know you were raising  
11 your hand there for a second, but as far as the  
12 luminaire replacements, that's a big part of what  
13 we do, where we take that HID and we put in a  
14 high bay, and for most of those we're not doing  
15 any kind of extra wiring, it's going right back  
16 on the same lip. So that's a luminaire  
17 replacement, that's a huge part of what we're  
18 doing, it's not just modifying an existing  
19 luminaire. Many times it is, but it's an arsenal  
20 that we are drawing from all the time in the  
21 field to try to give the customer the optimum  
22 retrofit that he's willing to pay for. And the  
23 large majority of the time, we're not saying  
24 dimming never makes sense or that we would never  
25 try to sell a dimming job, but the large majority

1 of the time, they don't want it. And if you  
2 merely reduce the wattage by 20, 30, 40 percent  
3 below what's there, who cares if you add dimming  
4 to it or not in that go-round? You'll get them  
5 maybe the next time when they do change tenancy  
6 and do a gut rehab, but if the mean time you've  
7 achieved all that wattage. If by adding those  
8 burdensome requirements and all those costs, you  
9 don't sell that job, you not only don't get the  
10 incremental savings, you don't get any savings.

11 COMMISSIONER MCALLISTER: So in Exception  
12 2, it sounds like, I mean, it's good to hear that  
13 vast improvement under Section 2, and the 20  
14 percent is a little bit around the edges, but  
15 this sounds like the one for one replacement  
16 earlier in that exception is still something we  
17 can --

18 MR. THOMAS: It was taken out of the  
19 Modifications part in J, I think it should also  
20 be taken out in the Alterations part.

21 MR. SHIRAKH: So the difference is --

22 COMMISSIONER MCALLISTER: Clarifying  
23 would be good there.

24 MR. SHIRAKH: Commissioner, if we take  
25 out the one for one replacement, almost every job

1 in the state will qualify under Exception 2.  
2 With the one for one replacement in there, some  
3 jobs will not qualify obviously, and if somebody  
4 is like changing a retail into an office, or vice  
5 versa, where they're changing their entire  
6 lighting system, that would not qualify under  
7 this Exception 2. And they're doing substantial  
8 changes to the lighting anyways, then it would  
9 come in under the main requirement which would  
10 mean they have to meet the LPD requirements of  
11 140.6, which we hear is not a problem, and then  
12 they have to meet the control requirements in the  
13 table. And as we discussed, we're going to go  
14 back and take the whole thing -- it may work in a  
15 way that's a lot simpler than before and still  
16 ensures some energy savings. But --

17 MR. THOMAS: I'm confident we can get  
18 there. The way we had it in the original 45-day  
19 language that was posted, the one for one, if it  
20 wasn't the one for one, basically it's the same  
21 as it is in 2013.

22 COMMISSIONER MCALLISTER: Right.

23 MR. THOMAS: Which, you know, you do have  
24 the double project cost and so on, but that's  
25 maybe 10 percent of our jobs instead of, you

1 know, 80 percent of our jobs. So it would be  
2 better, but still we think it would be much  
3 better without that one for one.

4 COMMISSIONER MCALLISTER: Well, I was  
5 just confused about our interpretation of that  
6 one for one, and when Peter said it also includes  
7 when you're reducing fixtures, that was somewhat  
8 confusing in terms of just a plain language read.

9 MR. SHIRAKH: No, we can clarify it.

10 MR. THOMAS: If that's the case that  
11 would be great. That would take care of it.

12 MR. SHIRAKH: Our intention here was that  
13 if you're doing a really major retrofit where  
14 you're changing the space and taking out all the  
15 old luminaires, putting in new ones, then  
16 obviously there's an opportunity here to meet the  
17 146 LPD requirements. And it should not qualify  
18 for this exception. And, yes, the control  
19 requirements will kick in, but we are looking at  
20 those controlled requirements to make them less  
21 onerous. So that's the philosophy that we're  
22 pursuing.

23 COMMISSIONER MCALLISTER: Great, okay,  
24 well, we're pretty behind schedule, so let's see  
25 if we can move it forward a little bit.

1 MR. SHIRAKH: Rick -- sorry, Jon?

2 MR. MCHUGH: Yeah, I just had one more  
3 comment which is, you know, as Gene pointed out,  
4 this work is predominantly performed for the  
5 utilities and in terms of documentation, we  
6 should be investigating ways to actually -- the  
7 same information is collected once, so if we're  
8 collecting information to show the CPUC that  
9 we're actually saving some energy, why can't that  
10 same information in the same format be used to  
11 show the state that, yeah, indeed we're saving  
12 energy?

13 The other thing that I actually had a  
14 question for Gene on, I'm sorry -- he sat down,  
15 etc., but is the whole issue of one of the  
16 burdens I've heard described around controls and  
17 particularly daylighting controls, is the need  
18 for a set of plans and in terms of retrofits, is  
19 it always required, or is there some way that a  
20 working set of plans is always required? So for  
21 instance, you know, for daylighting could you  
22 actually just show a sample plan that shows the  
23 dimensions around in terms of window heights  
24 around, saying oh you've got to re-draw all the  
25 plans and put that day lit zone on there rather

1 than saying "this is what we mean by these are  
2 the light fixtures that are, I forget what they  
3 call it, example, you know, specification. So I  
4 think that there's a number of ways, you know,  
5 some of this may belong in the manual as opposed  
6 to the actual standard itself, but I guess a  
7 concern I still have is how are we coming back to  
8 this with a gut remodel if indeed that gut  
9 remodel allows you, as long as you don't move any  
10 of the junction boxes, you could just put in a  
11 lower wattage fixture and you're done, there's no  
12 control requirement, there's not even an LPD  
13 requirement at that point. So thank you very  
14 much.

15 MR. STRAIT: I can very quickly at least  
16 provide some cause for this. For alterations  
17 overall, there's a section at the start of  
18 everything that says that the Regulations apply  
19 to the altered components and with lighting  
20 systems it becomes a little bit fuzzy, so that's  
21 where some of this had to align with that  
22 language, to where if the only altered component  
23 was, say, a ballast inside a luminaire, does that  
24 let you say that you now are including the  
25 controls in the alteration? So we're trying to

1 true up that language, that's part of it. But we  
2 can talk off line about that in more detail.

3 MR. MCHUGH: Okay, thank you very much.

4 MR. SHIRAKH: Rick.

5 MR. MILLER: Okay, I'd like to know how I  
6 can get access to this redline mark-up?

7 MR. SHIRAKH: It will be posted on our  
8 website by the end of the week.

9 MR. MILLER: Great, thank you. I'd like  
10 to know if this section that we're talking about,  
11 the lighting alterations, does it still contain a  
12 requirement to implement Section 130.4, which is  
13 Acceptance Testing, as it has in the past? And  
14 if it does, then that first check-off item on the  
15 Acceptance Testing form, it complies with LPDs,  
16 and now you're forcing someone, whether it's the  
17 installing contractor, or the Acceptance tester,  
18 to go out and measure the building to prove that  
19 it complies with the LPDs. So there some cost  
20 there. And has there been any analysis whether  
21 Acceptance testing is cost-effective on  
22 renovation projects? Okay, thank you.

23 MR. SHIRAKH: Thank you, Rick. Stu.

24 MR. TARTAGLIA: Stuart Tartaglia, PG&E.  
25 I just wanted to mirror what Randall Higa said

1 earlier about the impacts that this provision has  
2 on our programs, incentive programs. Also wanted  
3 to compliment Mazi and his staff for trying to  
4 address this and make the Code a little simpler.  
5 There are some very major issues that need to be  
6 considered and we will provide comments to this  
7 language. We plan on providing those by March  
8 17th' so we're having internal discussions amongst  
9 our programs internally, as well as with the  
10 other IOUs, and we will provide some  
11 recommendations on what we feel would be a good  
12 solution to this issue.

13 MR. SHIRAKH: Thank you, Stu.

14 COMMISSIONER MCALLISTER: I appreciate  
15 that, looking forward to seeing those.

16 MR. SPAHN: Hello, Mark Spahn with ABI.  
17 I'm a contractor, but I'm also a lighting  
18 designer. And there are a couple of comments  
19 that were made that I just wanted to talk a  
20 little bit about, and that's the fact we've done  
21 a lot of work, especially with Ecology Action,  
22 but we've done maybe \$30 million in projects over  
23 the last 15 years as far as retrofitting, and  
24 that goes anywhere from small mom and pops to  
25 right now we're doing the United States Postal

1 Service as kind of the subcontractor for another  
2 contractor up in Richmond, which handles most of  
3 Northern California. So we have a broad range of  
4 experience in some of these things and my  
5 background is Environmental Studies, I really do  
6 care about energy and efficiency. I'm also, like  
7 I said, I passed the LC Exam, so it's important  
8 to me to give the customer a really good lighting  
9 project. And part of what happens when Ecology  
10 Action or any of the other programs -- and we  
11 work with all of them -- when they go in they  
12 want to do the best job for the customer and in  
13 some cases the type of lighting, you may be going  
14 from a warehouse to a retail application with  
15 marble or something like that, so to take the  
16 existing lighting system and try and say, "You  
17 should do a one for one replacement" is a little  
18 bit archaic and there are areas where you always  
19 want to maybe increase it for safety, increase  
20 lighting, so you may not be able to make it in  
21 that specific area. There are other areas where  
22 you can take advantage of reducing the light  
23 levels, like along walls and open offices, you  
24 can reduce it. You can reduce it, let's just say  
25 in a lot of different applications. But when you

1 take it on a one for one fixture, rather than  
2 looking at the entire project, like Gene said,  
3 putting LED lighting fixtures in or screw-in  
4 lamps, it's going to meet the LPD, but they're  
5 actually adding value because, without the other  
6 measures they are not going to get people to go  
7 to the screw-in LED and pay twenty bucks for an  
8 LED. They're actually providing greater value by  
9 doing that. And the other comment that came up,  
10 and with respect, if someone does a retrofit  
11 project and they don't get any savings out of it,  
12 it's pretty much a lighting maintenance project,  
13 or it's a cost avoidance project: they need to do  
14 something in order to maintain their lighting  
15 system. What Ecology Action and a lot of the  
16 other programs do is they go in and the goal of  
17 retrofitting is, in my case, to save 30 or 50  
18 percent, to improve the lighting system, to give  
19 them something that is going to last them the  
20 next 10-15 years, and really do a good job for  
21 that customer. So from a retrofit standpoint,  
22 just doing a one for one fixture and not looking  
23 at the overall project, or looking at 20 percent?  
24 On the 20 percent, I know contractors that will  
25 go in, and this is not us, but they'll go in and

1 they'll put in a lower wattage lamp to make that  
2 20 percent, but it's not going to do the customer  
3 that much good. There are contractors that work  
4 with PG&E, they go in and, you know, they can put  
5 a compact fluorescent in and it won't cost the  
6 customer anything, but that compact fluorescent  
7 may not put in or put out enough light in order  
8 to light that application properly. So that 20  
9 percent can be a problem in some cases, not  
10 because they're not reaching the LPD, but because  
11 the light levels aren't high enough in those  
12 specific cases.

13           So those are some of the things that I've  
14 come across just in listening and I really  
15 respect all of you and appreciate everybody's  
16 time, you know, we're way past lunch. But a lot  
17 of what Gene is saying in the one for one, it's  
18 not necessarily whether or not it will meet LPD,  
19 but in proper application it may not be the best  
20 thing for the project or the customer.

21           MR. SHIRAKH: So there may be other  
22 alternatives to the one to one. I'm not  
23 presenting everything that's basically going  
24 through my mind, but if we could potentially get  
25 rid of the one for one, but put a limit on how

1 many, like what, 50 percent of the fixtures in a  
2 space can go through this retrofit without  
3 triggering something else. And there's different  
4 ways of doing it, and I have written some of it,  
5 I would like to share it with you guys after this  
6 meeting. But, yeah, we hear you.

7 MR. SPAWN: Yeah, and what I will tell  
8 you is that LED is a whole new ballgame because  
9 you can take just linear fluorescent lamps that  
10 are going across the warehouse, you can take out  
11 all those strips, and you could take out 50 of  
12 those and put in a dozen LEDs and light that area  
13 very effectively, but that one LED may have a  
14 higher wattage than any of the linear  
15 fluorescents you're taking out, but it does a  
16 much better job.

17 MR. SHIRAKH: So wouldn't that be a case  
18 where you actually have to meet the requirements  
19 using the main criteria rather than the  
20 exception?

21 MR. SPAWN: It's a good point. And, yes,  
22 you probably would.

23 MR. SHIRAKH: If we have the LPDs in hand  
24 and we simplify the controlled requirements, what  
25 is the issue?

1           MR. SPAWN: I think, like Gene, we would  
2 obviously meet the requirement with the LPDs,  
3 you're right. But the language is confusing and  
4 it's limiting.

5           MR. THOMAS: We'll take this off line, I  
6 promise, but one thing that I thought of that  
7 might help --

8           MR. STRAIT: Can you please speak closer  
9 to the mic?

10          MR. THOMAS: -- rather than putting in a  
11 number of luminaires, that I think would be  
12 counterproductive, make it something like 15  
13 percent or 20 percent less aggregated wattage for  
14 the space. Because then that will take exactly  
15 what you're talking about into account and that's  
16 really what you want, it's not so much each  
17 luminaire, but it's the aggregate wattage of the  
18 space, and that gets you to the LP -- it gives  
19 you the assurance of beating the LPD without  
20 having to measure square footage and do those  
21 direct calculations.

22          MR. SHIRAKH: I like where this is going,  
23 I think we're thinking alike. Let's continue  
24 that discussion after tomorrow. Thank you.

25          MR. CHANGIS: Jonathan Changis with the

1 Northern California Power Agency, and I know  
2 we're pushing up a lunch, so I'll be very brief.  
3 In general, I think we just wanted to make sure  
4 that, for the record, it reflected that public  
5 powers programs reflect the changes that the IOUs  
6 have experienced, as far as participation. While  
7 we're not governed by the CPUC, while we're not  
8 required by the CEC to mirror CPUC decisions,  
9 there's significant pressure obviously for public  
10 power to be consistent, and so the baseline issue  
11 Code above Code below Code, existing conditions  
12 is something that's proven to be a challenge in  
13 our communities, as well. And when the utility  
14 programs don't have participation, when the  
15 lighting community is having trouble staying  
16 afloat as businesses that means customers, as  
17 well, are not making the decisions we all are  
18 hoping to see. So I'm very pleased, I was very  
19 relieved to see this coming forward. I think the  
20 conversation is productive and just very much I  
21 appreciate the opportunity to be here and wish  
22 you all the best.

23 MR. SHIRAKH: Thank you so much. Just a  
24 note that we still have several online comments  
25 and the agenda includes Jim Benya for the

1 morning. What I would like to suggest is that we  
2 finish the lighting alterations and the comments,  
3 and then break for lunch -- Jim is saying no, he  
4 has - yours is quick, okay.

5 COMMISSIONER MCALLISTER: Maybe what we  
6 ought to do is let Jim get his presentation in,  
7 take the questions after lunch if we can? Or  
8 just try to make it quick.

9 MR. SHIRAKH: Pat, do you have a quick  
10 questions?

11 MR. STRAIT: Yeah, let's make sure we get  
12 through the comments on this section here, just  
13 so that they record is consistent. Oh, I'm  
14 sorry.

15 COMMISSIONER MCALLISTER: So, Jim, I'm  
16 hearing you have to leave for the afternoon?

17 MR. BENYA: I have to do a presentation  
18 at PG&E this afternoon.

19 COMMISSIONER MCALLISTER: Okay, so let's  
20 just try to --

21 MR. SHIRAKH: Let's try to move as fast  
22 as we can.

23 MR. EILERT: Thank you. It's Pat Eilert  
24 from PG&E and I will make this very quick. I  
25 just want to reemphasize the need to just hit the

1 pause button. We realize that there needs to be  
2 some reaction to the 2013 Code and potential  
3 stranded savings on projects, but the idea of  
4 going in and doing 200 fixture projects with no  
5 record of that seems odd. We should at a minimum  
6 be talking about thresholds for permits and not a  
7 complete abandonment. At some point, and we're  
8 talking about simplified permitting options going  
9 forward, so I just want to emphasize let's talk  
10 about this a little bit more before we start  
11 writing final language. Thank you.

12 MR. SHIRAKH: Thank you. Anymore - let's  
13 go to on line. Make it quick, George, please.

14 MR. NESBITT: I'll make it very quick.  
15 George Nesbitt, HERS Rater. I'm wondering to  
16 what extent allowing performance path for  
17 alterations for lighting, because that's never  
18 been allowed, might make things easier? Too, I  
19 think globally we need to think about, as we make  
20 new construction, you know, really low levels,  
21 high insulation, whatever, more efficient, the  
22 divergence with alterations, that they need to  
23 become much more separated, that it's not always  
24 possible. And then I was just going to say,  
25 yeah, a lot of lighting retrofits are about

1 replacing bulbs and ballasts and not even  
2 fixtures.

3 MR. STRAIT: It's probably worth noting  
4 the exception in a sense does create a  
5 performance path, sort of, so I think we're  
6 considering all of our options.

7 MR. SHIRAKH: Performance generally  
8 doesn't work for retrofits very well.

9 MR. STRAIT: Yeah.

10 MR. SHIRAKH: Okay, let's go to online  
11 questions.

12 MS. NEUMANN: So we have a question from  
13 Jeff Guild. "Presuming the proposed language is  
14 implemented, how soon will it go into effect/will  
15 the public need to wait for AHJs to adopt the new  
16 language?" And then to clarify, he said,  
17 "Typically new codes are more stringent and  
18 become law when adopted by the local authority  
19 having jurisdiction. The proposed changes of  
20 this Code will be less stringent, so can the  
21 public opt to comply with the new Code ahead of  
22 adoption by the Local AHJ?"

23 MR. SHIRAKH: The answer is probably not.  
24 The 2013 Code is adopted, will remain in effect  
25 until 2016, goes into effect January 1, 2017.

1 Again, there may be opportunities to do something  
2 about 2013 Standards, I'm not prepared to talk  
3 about it right now, but the answer to the  
4 question is that 2013 will remain until the  
5 adoption and the local governments cannot adopt  
6 it.

7 MS. NEUMANN: Okay, so then we have a  
8 comment from Nathan from AES. "Many too few  
9 higher power consumption compared to the 'one for  
10 one' replacement, but removing 20 fixtures and  
11 replacing with eight fixtures is greater than 20  
12 percent lower power consumption."

13 MR. SHIRAKH: Good. We're fine with  
14 that.

15 MS. NEUMANN: Okay. So then we have a  
16 question from Dave Pfund. "Why not either/or 20  
17 percent per luminaire or LPD compliance?"

18 MR. SHIRAKH: I thought about that, I  
19 mean, we can consider it, but typically you have  
20 to have one or the other because, you know, it's  
21 just for clarity, otherwise it makes for an  
22 ambiguous Code. Again, we need to after this  
23 meeting kind of step back. We've had a lot of  
24 information and we've got more insight into this,  
25 and we'll get together with the stakeholders and

1 we'll try to resolve these issues.

2 MS. NEUMANN: Okay, and then we have a  
3 caller, Anthony, I'm going to unmute you. You're  
4 up.

5 MR. ANDREONI: Oh, can you hear me?

6 MS. NEUMANN: Yes, we can.

7 MR. ANDREONI: Thank you. This is  
8 Anthony Andreoni from the California Municipal  
9 Utilities Association. And I want to echo some  
10 of the comments made earlier by Jonathan, changes  
11 from NCPA, we work very closely with NCPA and  
12 SCPPA. This is really kind of one of the first  
13 times I think many of our members have provided  
14 comments, but I do just want to get on the record  
15 this is a very important issue to our members.  
16 Our Public Benefits Programs over the years have  
17 provided significant funding to go towards Energy  
18 Efficiency Improvements. In our last report, we  
19 actually showcase the fact that lighting accounts  
20 for roughly 46 percent of the total energy  
21 savings that many of our members get and our  
22 members include over 39 of the local electric  
23 utilities which includes LADWP and SMUD, which  
24 are the two largest. We have many smaller and  
25 medium utilities throughout the State of

1 California that looked very closely to these  
2 improvements, and so we are definitely happy to  
3 hear that the Energy Commission is considering  
4 some of the changes, especially regarding  
5 lighting. We know in talking to many of the  
6 folks that you've already heard from today when  
7 the 2013 Code changes came about, it made it very  
8 difficult to actually go into these facilities  
9 and make some of the changes needed. So if there  
10 is a way to reconsider the actual start date of  
11 these changes and maybe consider going back in  
12 time if you can, I know it's very difficult, but  
13 consider some type of timeframe that would allow  
14 some of the existing challenges that still exist,  
15 recognizing that these changes will not actually  
16 come into effect until 2017, we would certainly  
17 greatly appreciate it and definitely look forward  
18 to continued working with the Energy Commission  
19 on these changes. Thank you.

20 MR. SHIRAKH: So I'm going to state one  
21 more time that we are contemplating some possible  
22 solutions for 2013 Standards. I'm not prepared  
23 to talk about the details, we need to run this by  
24 our Legal, and Management, but at least we think  
25 we may have a solution. Any other topics or

1 comments?

2 MS. NEUMANN: Yes. There is a chat  
3 message, let me scroll back up, from Michael  
4 Jouaneh. "How can we get a copy of this language  
5 so we can comment?"

6 MR. SHIRAKH: This language will be  
7 posted on our website by the end of the week.  
8 Peter Strait, is that correct?

9 MR. STRAIT: Yes, we hope to have it up  
10 by close of business tomorrow. It may take until  
11 the end of the week, but all the material we're  
12 presenting will be up. This is something we were  
13 working literally up until the last minute, so...

14 MS. NEUMANN: He continues: "Contrary to  
15 what was presented at the beginning today, this  
16 is a big decrease in stringency from 2008, 2013,  
17 and behind ASHRAE and IECC. This can be  
18 simplified a lot. A major lighting retrofit,  
19 more than 20 percent of Luminaires in the space,  
20 should have to meet the same control requirements  
21 as new construction. These control requirements  
22 save energy and space," sorry, this scrolled off  
23 of my screen, "...this control requirements save  
24 energy and have good payback. I will be  
25 submitting written comments to show this. And

1 since the lighting retrofits can easily meet LPD  
2 requirements, the table is fine, which get  
3 projects out of the way and most control  
4 requirements when LPD is less than 85 percent of  
5 allowed. This can be simplified a lot by  
6 requiring all lighting alterations, one for one  
7 are not, that have to be met in the table."

8 MR. SHIRAKH: So this is pretty much in  
9 line with what I've been saying this morning,  
10 that LPD requirements can be met, and I think  
11 there is consensus within the room the issue is  
12 the controlled requirements, and whether they're  
13 requiring a full dimming multi-level ballast is  
14 reasonable or not, then how it's impacting the  
15 industry, that's the subject of the debate and  
16 that's what the language is responding to. And  
17 again, we're going to continue the discussion.

18 MS. NEUMANN: Okay, so then we have a  
19 caller, Marc Costa. You're up.

20 MR. COSTA: Thanks. So this is Marc  
21 Costa with the Energy Coalition and the SoCal  
22 Regional Energy Network. I think that we would  
23 definitely agree with all the comments that have  
24 been made by Edison and the IOUs that more  
25 analysis is needed on these issues and a baseline

1 and program impacts. One simple question is,  
2 with the Exception 2, what does that mean for  
3 documentation of existing conditions? And from  
4 the local government perspective and the  
5 permitting perspective, this would allow a little  
6 bit more transparency and a little bit more ease  
7 on things like EM&V, and measuring true grid  
8 impact from permitted activities for GHG  
9 measuring and for real KW measuring. And so we  
10 would encourage without being too burdensome just  
11 the inclusion of collecting or documenting  
12 existing conditions on more types of measures and  
13 things in projects.

14 MR. SHIRAKH: So if that exception  
15 remains in place the way it is, we would have to  
16 develop a form that would accommodate basically  
17 to document 20 percent reduction, and whether  
18 it's per fixture or per enclosed space, or per  
19 floor area, wherever we land with that. So the  
20 form would be documenting that final language.  
21 And then where I'm less clear is how the Building  
22 Departments would require that or not. Peter, do  
23 you have any inclination into that?

24 MR. STRAIT: I think it's, just in the  
25 interest of time, it is something that we're

1 going to have to work on internally, so we agree  
2 that we're going to be having those discussions  
3 on a fairly rapid basis.

4 MS. NEUMANN: Okay, so we have a comment  
5 by Dave Pfund. "Delta and aggregate lighting  
6 load per space makes sense."

7 MR. SHIRAKH: Okay.

8 MS. NEUMANN: And then we have a  
9 comment/question from Cheryl English. "I'm  
10 perplexed with the changes that are still  
11 occurring to the 45-Day Language. It is my  
12 understanding that changes will continue to be  
13 posted, which makes it difficult to provide  
14 comments by 3/17 as requested. I would encourage  
15 you to reevaluate the comment period.

16 MR. SHIRAKH: So as I mentioned this  
17 morning, the commenting period for these hearings  
18 are March 30th, but we strongly encourage people  
19 to give us the writing by March 17th because that  
20 will give us more time to respond to this. But,  
21 you know, if you absolutely have to give it to us  
22 by the 20th or 22nd, you can do so, but again, we  
23 really want to have these comments by the 17th.

24 MR. BREHLER: And Mazi, this is Pippin  
25 Brehler again from the Chief Counsel's Office.

1 If staff and the Commission is absolutely  
2 proposing changes to the 45-Day Language like  
3 they're displaying in here, those will be subject  
4 to a minimum 15-Day formal comment period that  
5 people will be able to comment on at that time.  
6 But by making this available now, we're hoping to  
7 jumpstart that comment process. But it's not  
8 shortening any comment process.

9 MR. SHIRAKH: We're not, yeah, what we're  
10 showing here is what would have been presented as  
11 part of the 15-day language. So we're basically  
12 providing the public an opportunity and advance  
13 notice of what's going to be part of the 15-day  
14 language. So we'll have actually more time to  
15 respond to the 15-day language, which will be  
16 presented in April. Go ahead.

17 MS. NEUMANN: Last comment.

18 MR. SHIRAKH: So with that, I'm going to  
19 ask Jim, and the good news is when he presented  
20 this back in November, it didn't take very long.  
21 And it's up to you guys with your number of  
22 questions how long it's going to take, so...

23 MR. BENYA: James Benya, Benya and  
24 Burnett Consultancy. Just to comment, had I done  
25 this instead of feeding my meter, we'd still be

1 sitting here talking about the last topic, so  
2 we're not really missing anything.

3 My topic is Sections 146.0, 147.0. This  
4 is essentially the prescriptive methods for  
5 interior lighting which is 140.6, and exterior  
6 lighting which is 140.7.

7 MR. STRAIT: Mr. Benya, we've been given  
8 a version, I've just been notified, is there an  
9 updated version or is that this one here that's  
10 in more recent or a newer --

11 MR. BENYA: I sent to you a version as  
12 requested Sunday afternoon, and that would be the  
13 one.

14 MR. STRAIT: All right, because I've got  
15 two versions here, one of them was yesterday, so  
16 which version do you want me to upload -- or to  
17 display on screen?

18 MR. BENYA: I did not make any changes,  
19 I'm not sure why it's dated yesterday because I  
20 did it Sunday like you asked. But that's not it  
21 because it did have my --

22 MR. STRAIT: This is not the one? All  
23 right, let me try the other one. Is this  
24 correct?

25 MR. BENYA: Here is it, yes sir.

1           MR. STRAIT:   Okay.   I will - I'm just  
2 going to take a quick step here to make sure that  
3 we don't post the wrong version later.   There we  
4 go.

5           MR. BENYA:   Good.   Okay, thank you.  
6 First slide, please.   Section 140.6 is  
7 Prescriptive Requirements for Lighting Systems in  
8 Interior Spaces.   These are again just the bullet  
9 points of the things that have changed.   Many of  
10 these are in response to changes in Section 130.1  
11 and in the other one, 130.2, so there's a lot of  
12 little things that have been moved around.

13           Here is the major changes in reduction of  
14 wattages and controls, or the power adjustment  
15 factors we've historically used.   There's been an  
16 elimination of an exception, allowing power  
17 adjustment factors for additional Section 130.1  
18 Controls, it's been an elimination of the power  
19 adjustment factor paragraph for partial on  
20 controls.   That's because these have been  
21 essentially rewritten, so there's a new section  
22 (a.)2(H.) paragraph for power adjustment factor  
23 for daylight dimming plus off control.

24           There's been a change to Section  
25 (a.)2(J.) power adjustment factor eliminating

1 manual dimming or multi-scene programmable  
2 dimming, replacing it with a power adjustment  
3 factor for institutional tuning. Finally, we've  
4 eliminated (a.)2(L.), the power adjustment factor  
5 for manual dimming plus partial on controls. The  
6 reason why all these occurred is that you cannot  
7 give a power adjustment factor for controls that  
8 are required under Section 130.1. And so that's  
9 why all this stuff is happening.

10           There's one other phrase that's been  
11 introduced here that's new, it's called  
12 "Institutional Tuning." We've always talked  
13 about something called tuning, this is the  
14 process of affixing a maximum light output on a  
15 luminaire that is somewhat below its maximum, but  
16 making that adjustment not accessible to anybody  
17 else. The IES in 2013 published a document that  
18 established the phraseology for that called  
19 "Institutional Tuning" to differential from the  
20 tuning an individual might do for their own work  
21 station. So that's pretty much the gist of this  
22 particular slide.

23           There have been some minor new changes to  
24 lighting wattage exclusions, these are lighting  
25 watts that are not required to be counted.

1 (a)3.(C.) Performing Arts Dressing Rooms, if they  
2 have a vacancy sensor, so performing arts  
3 theatres, you've got special lighting just for  
4 makeup, that's this.

5 ATM machines in garages was deleted in U  
6 and V re-lettered. The reason why is ATM  
7 machines were a wattage exclusion, they've now  
8 been given an allowance under Section 140.7 (*sic*)  
9 Is it 140.6 or 140.7? I can't remember. Well,  
10 it's now specifically an allowance that we're  
11 given.

12 Finally, the rest of it was re-lettered  
13 and there was a coordination to refer to Section  
14 120.6 for lighting in elevators. So in essence,  
15 there were a lot of little lighting exclusions  
16 that have been modified slightly.

17 The summary of the impacts of lighting  
18 power adjustment factors, this is in Section  
19 140.6(a.)2 and in Table 140.6-A, a power  
20 adjustment factor has been eliminated from the  
21 table, and this is the slides I just went  
22 through, if you have automatic daylighting  
23 controls with an off control, so we're not  
24 required to switch lights off, but if you have  
25 the off control, there's a new power adjustment

1 factor for that feature, and there's a power  
2 adjustment factor for institutional tuning that  
3 have been added.

4 In terms of allowed lighting power where  
5 we have complete building power allowances under  
6 140.6-B, area category allowances under 140.6-C  
7 and general lighting power allowances, etc. under  
8 140.6-G, which is going to be for the tailored  
9 method. There has been a five to 10 percent on  
10 the average reduction. These were justified by a  
11 Case Report that showed through the use of  
12 primarily LED lighting replacing fluorescent in  
13 many applications, a five to 10 percent power  
14 adjustment factor is warranted, and I agree.

15 In addition, a footnote was added to the  
16 area category method for ATMs in parking garages.  
17 Parking garages are non-conditioned spaces  
18 regulated under 140.6 and, there is a footnote,  
19 giving a power allowance for ATMs in garages.  
20 But ATMs used to be unregulated, they're now  
21 regulated.

22 140.7, Requirements for Outdoor Lighting.  
23 The exception, once again, allowing, not  
24 providing power for an ATM was eliminated,  
25 exceptions 7, because we eliminated one, they

1 renumbered the rest of the sections, and  
2 Exception 9, originally number 9 now, 8, bridges  
3 and tunnels, was also eliminated because they are  
4 now going to be regulated, bridges and tunnels  
5 are now included in the hardscape lighting  
6 allowance, and the ATMs are included in specific  
7 lighting allowance under 140.7.

8           The lighting power allowances. This is  
9 probably the biggest change in the lighting power  
10 allowances in the standards for the 2016  
11 Standards. The hardscape lighting power  
12 allowances were reduced typically 35 to 40  
13 percent. In addition, the lighting zone zero was  
14 added with no allowance and a note added. Just  
15 so that you know, lighting zone zero which has  
16 now become standardized by the IES and the CIE,  
17 is a zone essentially for wilderness. And so the  
18 theory is that the only lighting you can have in  
19 these applications is where you absolutely need  
20 this light like next to the door to the restroom  
21 in a campsite or something, so with very limited  
22 amount of lighting allowances provided.

23           Table 140.7-B, the ATM machine lighting,  
24 has been added and, again, lighting zone LZ Zero  
25 has been added to this table with no allowances

1 for anything. In other words, you get no power  
2 allowance for pretty much parking lots or  
3 anything you want to do, hardscape, special  
4 activities, car dealerships, there's none of this  
5 in Lighting Zone Zero. Lighting Zone Zero is  
6 being preserved as literally what it was intended  
7 to be.

8 That's it. Eight minutes. (Applause.)  
9 Any questions.

10 MR. SHIRAKH: Yeah, I have a question.  
11 When you go to Yosemite, you do see parking  
12 lighting, so how is that going to change?

13 MR. BENYA: Okay, we're now delving into  
14 some expertise I have in outdoor lighting.  
15 Yosemite, because I actually did major lighting  
16 study and report for Yosemite. In general, what  
17 we call the front country at Yosemite and all the  
18 National Parks, which is the Valley Floor at  
19 Yosemite, primarily, this is actually lighting  
20 zone one. It is a space where, and we  
21 differentiated primarily -- the Park Service has  
22 one set of rules basically having to do with  
23 where their -- they have to meet essentially the  
24 accessibility requirements of all people in  
25 lighting zone one. So if there's a parking spot

1 there with an accessible plaque on it, that area  
2 falls into Lighting Zone One because you've got  
3 to light it, you've got to light for  
4 accessibility.

5 MR. SHIRAKH: The Curry Village parking  
6 lot.

7 MR. BENYA: In Curry Village. The minute  
8 you head up the hill, you know, you're outside of  
9 Lighting Zone One, and then the lighting is only  
10 incidental. That's the way it's going to be  
11 handled, I think.

12 MR. SHIRAKH: You might want to take a  
13 seat there so people can -- Meg.

14 MS. WALTNER: Meg Waltner from NRDC.  
15 Starting with the indoor lighting proposal, in  
16 general we're strongly supportive of the proposed  
17 updates, but did flag a couple of concerns in the  
18 Draft Standards that still haven't been corrected  
19 here for Tables 140.6-B and C, there's several  
20 lighting categories that don't respond to ASHRAE,  
21 that haven't been updated since 2001, and I  
22 listed those on our comments to the Draft  
23 Standard and I can resubmit that, but we want to  
24 make sure that those proposed LPDs are reflecting  
25 the latest technologies, we're guessing that they

1 might not given that they haven't been updated  
2 since 2001. And I think they've just sort of  
3 been missed since they don't align with the  
4 ASHRAE categories.

5 MR. SHIRAKH: Meg, let Simon respond to  
6 that.

7 MS. WALTNER: Okay.

8 MR. LEE: Yeah, the Case Team does a very  
9 good job, they have looked into these different  
10 scenarios, they have compared the ASHRAE  
11 requirements and to the Title 24. And so based  
12 on their analysis, that is not either feasible,  
13 or it's not cost-effective to match up to the  
14 ASHRAE in those few spaces or lighting function  
15 areas.

16 MS. WALTNER: So my point is actually  
17 that there's a few space categories in Title 24  
18 that don't align to ASHRAE at all, and so I think  
19 you haven't compared those to the ASHRAE levels  
20 because there's no corresponding ASHRAE levels,  
21 and they haven't been updated in Title 24 since  
22 2001. So I urge you to re-look at those  
23 categories and I don't need to list them all  
24 right now, but can send them back in again.

25 MR. LEE: Yes, so thank you. We will --

1           MR. SHIRAKH: We'll look at it and -- go  
2 ahead.

3           MR. LEE: So I guess we'll have maybe  
4 another dialogue with you to make sure we are on  
5 the same page.

6           MS. WALTNER: Great, thank you. And then  
7 I also just wanted to flag a concern with the  
8 changes from the Draft Standard to the 45-Day  
9 Language in Table 140.7-B for Outdoor Lighting.  
10 There was a great proposal proposed from the  
11 Draft Language that's been washed back from here  
12 and we're disappointed to see that and we'll be  
13 submitting further comments in writing on that.

14           MR. SHIRAKH: So that's a table that has  
15 been the subject of a great discussion between us  
16 and the case teams and what happened was that  
17 basically the cost-effectiveness wasn't there for  
18 many of the lighting levels that was being  
19 recommended, so you know, we have to pull some of  
20 them back. Fortunately we were able to maintain  
21 or retain some of the major LPDs reductions for  
22 hardscapes and some of the areas which basically  
23 captures about 70 percent of the original savings  
24 anyways. But for the other ones, we just  
25 couldn't demonstrate that they were cost-

1 effective in all four lighting zones and that was  
2 the main reason for changing it back. Thank you.  
3 Rick.

4 MR. MILLER: Hello, Rick Miller with RNM  
5 Engineering. Jim presented on the slide a  
6 requirement for daylight harvesting, he said it  
7 included an off? Did he say that?

8 MR. BENYA: It's not a requirement.

9 MR. MILLER: Oh.

10 MR. BENYA: It's a power adjustment  
11 factor.

12 MR. MILLER: Oh, a power adjustment  
13 factor, okay, thank you.

14 MR. BENYA: It means you get a little  
15 extra reward for doing that.

16 MR. MILLER: Okay, now does the on-off  
17 switch on the wall fulfill that with the off?

18 MR. BENYA: This is for everybody's  
19 information, what Rick is talking about is when  
20 you have an automatic daylighting control system  
21 and the lights dim, they can either dim to a  
22 minimum setting, or they can then switch off, and  
23 usually it's a step function because most systems  
24 aren't going to go perfectly down to zero. And  
25 most -- the Standard requires the dim to the low

1 setting and you get a power adjustment factor, in  
2 other words, a little extra boost, if you then  
3 turn it off when you fall below a minimum.

4 MR. MILLER: So that go to off is part of  
5 the control speed of the daylight harvesting  
6 function?

7 MR. BENYA: It would have to be a part of  
8 that, yes.

9 MR. MILLER: Okay, all right, and not a  
10 manual off at the wall switch?

11 MR. BENYA: No, no.

12 MR. MILLER: Okay, we'd like a little  
13 clarification language on that. Okay, a bigger  
14 item on Section 140.6 is the mixed use of terms  
15 throughout the document. We all know the  
16 difference between lighting power density which  
17 is watts per square foot, and lighting power,  
18 which is watts. There seems to be a very  
19 consistent -- a wrong use of the term "lighting  
20 power density" throughout the whole section.

21 MR. SHIRAKH: That has been pointed out  
22 to us, we'll be making corrections.

23 MR. MILLER: Okay, that will be  
24 corrected, because it's very hard to read it when  
25 there's wrong words in the document.

1           MR. BENYA:   Been going on for years and  
2 we still fight it, but you're right.

3           MR. MILLER:   It's going to be fixed.

4           MR. SHIRAKH:   Yes.

5           MR. MILLER:   Thank you.   All right, the  
6 other one is Section 140.6, it includes side  
7 light, which was funny in its placement because  
8 the skylight section, the primary daylight  
9 section, are in 130.1-D, as well as the  
10 definition of side lit.   So why is it the  
11 controls for side lit are in 140.6?

12           MR. BENYA:   This one is easy.   Section  
13 130 is mandatory for all projects, whether you're  
14 using the prescriptive or performance method, so  
15 if you have skylights, these sky lit zones have  
16 got to have lighting controls.   If you have side  
17 lighting, windows, the side lit day lit zone has  
18 to have controls, but that's the primary side lit  
19 day lit zone.   If you've chosen to use a  
20 prescriptive method, there is a secondary side  
21 lit day lit zone, which is essentially the same  
22 area, but another window head height into the  
23 space.   If you use the prescriptive method, then  
24 you have to have separate lighting controls for  
25 the secondary side lit day lit zone.

1           MR. MILLER: You say "if" you use the  
2 prescriptive. How do you calculate allowed  
3 lighting power if you don't use the prescriptive?

4           MR. BENYA: I'm sorry?

5           MR. MILLER: How can you calculate the  
6 allowed lighting power, the lighting power  
7 allowance, without using the prescriptive method?

8           MR. BENYA: The prescriptive -- in the  
9 projects on which I've worked where we've used  
10 the performance method, which is quite a few, the  
11 baseline for the lighting power, actually the  
12 lighting energy portion of your total energy  
13 budget, is determined from the prescriptive  
14 values. But the whole concept of the performance  
15 method is to allow tradeoffs which involve  
16 energy.

17          MR. MILLER: Fine, I understand.

18          MR. BENYA: Energy tradeoffs. So it  
19 serves as the basis, but it's part of the  
20 engineering of the project.

21          MR. MILLER: When reading Section 140.6,  
22 Side Light section, the language in there is  
23 worded in the imperative sense.

24          MR. BENYA: It's because if you're using  
25 Section 140.6, you are required to do it because

1 you've chosen the prescriptive path. If you  
2 chose the performance path, the baseline against  
3 which you will be judged for your responsibility  
4 uses Section 140.6 to create the baseline. But  
5 you're free to make tradeoffs with HVAC and  
6 envelope. And so you could use more energy than  
7 that would allow, or less energy in your  
8 tradeoffs. So that's the fundamental difference  
9 between --

10 MR. STRAIT: Let me try to explain it a  
11 different way. What's in Section 130 is  
12 mandatory requirement that has to be done, what's  
13 in 146, those are prescriptive requirements,  
14 which you may trade away, that's the difference.  
15 So you have to always comply with the primary day  
16 lit zone because it is in 130.5, but if it's in  
17 140.6, you can go to performance path and trade  
18 it away.

19 MR. MILLER: And how does the performance  
20 path use, what, ACM and CBECC, allow --  
21 incorporate side light controls? Is it in the  
22 software packages in this black box software  
23 packet?

24 MR. BENYA: I can't answer.

25 MR. STRAIT: That would be a question of

1 what's in the ACM Reference Manual, I believe.

2 MR. SHIRAKH: Jon McHugh is going to  
3 respond.

4 MR. ARENT: Yeah, John Arent, NORESKO.  
5 Yeah, I'll try to keep this brief and simple  
6 since our stomachs are turning to food issues  
7 only. So for the performance method, so we do  
8 model daylighting, or have a means to model  
9 daylighting, and then we use, as Jim was  
10 mentioning correctly, we use the prescriptive  
11 levels for each space type to set the baseline  
12 lighting power. So aside from the mandatory  
13 requirements, which are still required in  
14 performance, you can put in whatever lighting  
15 power you want for your model, and as long as the  
16 total energy use shows to be less than the  
17 baseline or the referenced building, then your  
18 project would pass.

19 MR. MILLER: My question was does the  
20 model include the values for secondary side lit  
21 zones.

22 MR. ARENT: Oh, yes, it does for the  
23 baseline, so you're compared against a building  
24 that has secondary side lit daylighting controls.

25 MR. MILLER: Thank you.

1           MR. NESBITT: George Nesbitt, I'll keep  
2 it brief. In fact, I won't even go into detail.  
3 I just want to say the process for calculating  
4 your outdoor lighting budget is not easy, and I  
5 suspect that most of the time numbers are made up  
6 just to show compliance.

7           MR. BENYA: Thank you for your comment.  
8 I'd just like to say that it the method was  
9 developed to be fair to smaller projects and for  
10 irregularly shaped projects. If you have a nice  
11 big square -- big square -- parking lot, it's  
12 very easy to meet a simple standard. When you  
13 start having odd shaped parking lots, various  
14 islands, funny roads, and stuff like that, it's  
15 really hard to use a simple number to give a fair  
16 value. This was developed, by the way, the  
17 current system was developed for the 2013  
18 Standard, so this is not a revolution, and it  
19 seems to be working well for those who do the  
20 calculations, like me.

21           MR. SHIRAKH: Okay, any comments on line?

22           MS. NEUMANN: Yes, we have one request.

23 Cheryl English: "Can you please describe what  
24 changes were made to the Code in 140.7 from the  
25 November workshop?"

1 MR. BENYA: Hi, Cheryl.

2 MR. STRAIT: If we're asking for a  
3 breakdown of what the differences are between the  
4 November 3rd and the 45-Day Language that was  
5 posted, this conversation is about to be 45-Day  
6 Language, I don't think we've made an effort to  
7 say exactly what the differences are between  
8 those two versions. We can provide that answer  
9 off line later. And it might be as simple as  
10 performing compare and merge documents to show  
11 where that language is changed.

12 MR. BENYA: And Cheryl, you know enough  
13 to know that IES changed its recommended practice  
14 for parking that has been taken into account and  
15 is being watched very carefully, Michael McMansky  
16 and I have been working on this to make sure that  
17 the current numbers will allow compliance with  
18 RP20. So this is an ongoing worry of ours and we  
19 are keeping an eye on it. Right now it looks  
20 like it's okay, but we'll have an update by the  
21 end of this current process.

22 MS. NEUMANN: That's it, no more  
23 comments.

24 MR. SHIRAKH: Okay, so it's 1:15. Why  
25 don't we come back at 2:15, one hour for lunch

1 and we'll continue.

2 (Break at 1:15 p.m.)

3 (Reconvene at 2:22 p.m.)

4 MR. SHIRAKH: Good afternoon. We'll start  
5 in a couple of minutes. We're waiting for Mark  
6 Alatorre to arrive.

7 Voluntary Reach Standards first because  
8 the presenter is here. Farakh will present that.

9 MR. NASIM: Good afternoon, everyone. My  
10 name is Farakh Nasim and I'll be talking about  
11 proposed changes to the Title 24, Part 11  
12 CALGreen Code. So there wasn't any change since  
13 we've posted 45-Day Language to this section,  
14 basically we're making some minor edits, and  
15 adding clarifying language that local  
16 jurisdiction adopting these voluntary measures  
17 would need to submit an application to the Energy  
18 commission and seek our approval prior to  
19 adopting their local ordinance.

20 In this section, the Voluntary  
21 Residential Measures, we've made some revisions  
22 to the lighting prerequisites as an update. We  
23 are working to align the language, the  
24 prerequisite lighting language in Part 11 with  
25 the proposed language in Part 6, so we've

1 received comments that there are some  
2 similarities between the language in the two  
3 Codes and we will be working to align that, and  
4 there may be additional changes to these lighting  
5 requirements in the 15-Day Language.

6           So this is one of the changes that we've  
7 made since the 45-Day Language was posted, and  
8 has to do with the performance approach for newly  
9 constructed buildings. Currently, the language  
10 has for Tier 1 and Tier 2 has percent-based  
11 requirements, so you see the bold 85 percent for  
12 Tier 1 and below the Code Building, and then Tier  
13 2 is 70 percent of Code. So we are proposing to  
14 change the percentage-based minimum requirements  
15 to an energy design rating for both Tier 1 and  
16 Tier 2. I believe when we proposed a third Zero  
17 Net Energy Tier, we talked about an energy design  
18 rating score of zero at that time, and that we  
19 discussed possibly making a revision to the Tier  
20 1 and Tier 2 percent-based option, and at the  
21 time of the pre-rulemaking workshop, we hadn't  
22 done that analysis, and so we have some  
23 preliminary work now and I'm going to be  
24 presenting it in the next slides.

25           So the energy design rating, the score

1 we're considering will be based on CEC approved  
2 ACM calculations and assumptions, and the rating  
3 will include energy use for space heating,  
4 cooling, water heating, which are the regulated  
5 loads, but it will also consider lighting, as  
6 well as plug and appliance energy use. So those  
7 are the nonregulated loads.

8           One item to note is that in the numbers  
9 you're about to see, we're using the IECC 2006  
10 Code reference as our reference baseline, so in  
11 that energy design rating formula, the reference  
12 home is the 2006 IECC home and our thought in  
13 using that as our baseline was to align our  
14 rating with RESNET and the National HERS Rating  
15 Scores. And so the home compliant with 2006 IECC  
16 has the score of 100 in our rating and, again,  
17 this score would be calculated by CEC approved  
18 residential softwares.

19           So how we set the ratings for these  
20 tiers, we're using the same framework as we used  
21 for the Standards development process for,  
22 basically we're using the 2016 TDV values. We're  
23 assuming that the 2016 home has the same features  
24 that staff has been proposing, so the high  
25 efficacy lighting, tankless water heater, high

1 performance walls and attics. What we did was  
2 established Tier 1 and Tier 2 levels at 85 and 70  
3 percent, so equivalent to what the percentages we  
4 currently have, and we did that by identifying  
5 individual measures that go beyond the 2016  
6 prescriptive features, so examples were QII lower  
7 air leakage, improved walls, etc., and we  
8 combined those measures to come up with the 15  
9 and 30 percent Tier 1 and Tier 2 levels, and we  
10 based the savings on a weighted statewide  
11 average.

12           So the design ratings basically Tier 1,  
13 the sample features that we considered in the  
14 table you see at the right on this slide, we  
15 included QII, three air changes per hour, and  
16 then 2X6 walls with R23 cavity insulation, R5  
17 sheathing on the walls, as well as a compact  
18 distribution system for the water heating. Those  
19 features produce the Energy Design Rating you see  
20 in the Tier 1 column. Tier 2 included all of the  
21 features described and included in Tier 1 with  
22 the added 50 percent solar savings fraction for  
23 the water heating system, and verified low  
24 leakage ducts in conditioned space. So those  
25 were the measures used to get these values, but

1 there can be many other combinations of measures  
2 that could be used to meet these tier ratings.

3 I don't know if folks in the room can  
4 see, it's kind of small, the font, but there was  
5 a wide range of values for Tier 1 and Tier 2. In  
6 Tier 2, the low IC is 49, the high score was 74,  
7 but on average the weighted Tier 1 score was 55,  
8 and the Tier 2 the weighted score was a 50, and  
9 the range went from 45, looks like, up to 69. So  
10 those were the new changes that were considered  
11 after the 45-Day Language.

12 Another proposed change here is the Zero  
13 Net Energy Tier. As the current proposal called  
14 it Tier 3 Zero Net Energy, but because CALGreen  
15 doesn't currently have a Tier 3 designation, we  
16 are looking for a different name to call it, and  
17 so we've got some suggestions there at the  
18 bottom, "Tier 2 Enhanced," "Tier 2 plus  
19 Renewables," we're open to other ideas, but  
20 basically the requirements haven't changed, you  
21 still need to achieve the efficiency levels of  
22 Tier 2, and then get an energy design rating of  
23 Zero. But we are taking names for whatever this  
24 tier would be called.

25 Changes in the Section A4.204 for

1 Additions, there weren't any changes since the  
2 45-Day Language was posted, we are no longer  
3 requiring alterations to lower-rise buildings to  
4 comply with these voluntary measures. The rest  
5 of the language changes were primarily cleanup.  
6 We do have an exception to the Tier 1 and 2  
7 Performance Standards whereby a builder that gets  
8 a whole house rating prior to their proposed  
9 modification may comply with these requirements  
10 without doing the performance requirements that I  
11 mentioned earlier.

12           Again, the lighting requirements for  
13 additions are listed here, I won't read them, but  
14 they are very similar to the lighting  
15 requirements that are proposed in Part 6, so we  
16 will be working to align those two Code  
17 requirements.

18           The Section A4.602, the Application  
19 Checklist, there's some minor edits to that  
20 checklist, and there will be further edits based  
21 on some of the proposed changes I'm describing  
22 today.

23           Appendix A5, Nonresidential Voluntary  
24 Measures, again, there's some minor edits to that  
25 section and some clarifications about local

1 jurisdictions needing to apply to the Energy  
2 Commission prior to adopting their ordinance.

3           The Section A5.203, the Performance  
4 Approach, we made changes to the outdoor lighting  
5 prerequisites so outdoor lighting would be no  
6 greater than 90 percent of the allowed outdoor  
7 lighting power defined in Section 140.7 of Part  
8 6.

9           Similar revisions were made in the next  
10 section and we've removed Interior Lighting  
11 requirement for Additions and Alterations to  
12 High-Rise Residential Dwelling Units and  
13 Hotel/Motel Guestrooms. And again, some minor  
14 edits to the checklist in this section.

15           So those were all of the proposed changes  
16 to Part 11, the Energy measures of Part 11. I  
17 can open it up to comments and questions.

18           MR. RAYMER: Thank you. Bob Raymer with  
19 the California Building Industry Association.  
20 And for starting off, particularly regarding  
21 Tiers 1 and Tier 2, we're very supportive of  
22 using the Energy Design Rating. From an  
23 Administrative Procedures standpoint, you may  
24 want to allow use of either the 15 percent and  
25 the 30 percent for Tier 1 and Tier 2,

1 respectively, and then as an alternative allow  
2 the use of the Energy Design Rating, simply  
3 because one might be considered 45-Day Language  
4 as opposed to 15-Day Language. If you keep the  
5 15 and 30 percent respectively, and simply adding  
6 an alternative, you're basically staying on the  
7 same track, but you're making a modification as  
8 opposed to simply stopping and going to an  
9 entirely different calculation method, plus you  
10 may already have some jurisdictions that, you  
11 know, they really love 15 percent; I don't know  
12 why, but that's kind of where it is. But this  
13 provides us a nice little stair step where we're  
14 pretty sure we're going to be in 2020. So the  
15 bottom line is we're supportive of using the  
16 Energy Design Rating, I think from a legal  
17 counsel discussion of what is and is not 45  
18 versus 15-Day Language.

19 MR. PENNINGTON: So, Bob, maybe I could  
20 comment about that. The Energy Commission has  
21 been talking about moving away from percentage  
22 since the 2012 IEPR proceeding and I think  
23 there's been quite a bit of conversation with the  
24 New Construction Program and so forth about the  
25 value in moving away from a percentage as a

1 criteria. In the current Part 11, there's a  
2 requirement that design ratings be done, and so  
3 that was kind of signaling that that's where  
4 we're headed, in that direction. We think that  
5 the proposal that's here is closely enough  
6 related to what we're proposing in 45-Day  
7 Language --

8 MR. RAYMER: And that may be the case,  
9 you know.

10 MR. PENNINGTON: So I guess I wouldn't  
11 use that argument for your suggested  
12 alternatives, but maybe there's other reasons to  
13 do it.

14 MR. RAYMER: One of the definite benefits  
15 of using the Energy Design Rating is that, you  
16 know, for minimum compliance with Part 6, we're  
17 going to have the PV design option, okay, sooner  
18 or later we're going to be getting the updated  
19 version of CBECC, the Beta tool that we can use  
20 to start calculating that and get warm and  
21 friendly with that, and obviously with Tier 3,  
22 whatever we're going to end up calling that,  
23 there's the ability to use solar there, but there  
24 should be effectively the ability to use solar  
25 all the way through. And right now it's sort of

1 in question. You know, I know next to nothing  
2 about the Energy Design Rating, the actual filled  
3 application of it, and so I'm making some  
4 assumptions here, but we definitely are  
5 supportive of going in that direction and I think  
6 you've got a good point, something I hadn't  
7 thought of since it's already listed in current  
8 Part 11, this may well be right on track and just  
9 be considered 15-Day Language. So with that,  
10 we're good to go.

11           Moving on to Tier 3, yes, we made our  
12 comments back in I believe August, and then in  
13 November we did have a major problem with calling  
14 it Tier 3, and more in terms of the use of the  
15 word "3" as opposed to calling it some other  
16 Tier. Whether it's a Net Zero Energy Tier or  
17 Advanced Energy Tier, we would be fine with that  
18 simply because, of course, Tier 1 and Tier 2 also  
19 includes HCD in the Building Standards  
20 Commission's provisions for Water Conservation,  
21 for Resource Management, for Recycling, Waste  
22 Management, Indoor Air Quality, all that. Tier 3  
23 as it is here is going to be an Energy component,  
24 which is fine, but to kind of keep HCD and  
25 particularly my office from having to fill

1 potentially hundreds of calls, explaining to the  
2 local jurisdiction that it's called Tier 3, but  
3 you don't have all of this other part of it, we'd  
4 rather there be a different name. And from a  
5 personal perspective, I've got a concern with  
6 calling it Zero Net Energy, our preference would  
7 be to call it Advanced Energy Tier, and still  
8 have the Energy Design Rating equal to Zero. The  
9 reason for that is we're already getting a little  
10 bit of pushback out in the field, homes that are  
11 "Zero Net Energy" don't get zero bills, they're  
12 never going to get zero bills, and we've got a  
13 figure out a way over the next four to five years  
14 to figure out how to effectively market this, so  
15 the home-buying community, you know, those  
16 individuals aren't getting a wrong impression.  
17 Once they get upset, they stay upset, and we want  
18 them to know that they've got a house that's  
19 going to be effectively grid neutral, etc., but  
20 that there's still going to be some bills out  
21 there. There's just going to be a whole lot less  
22 than what they've ever imagined paying for in the  
23 past. So that's one area. We would prefer  
24 "Advanced Energy Tier" as opposed to calling it  
25 Zero Net Energy, but just don't call it Tier 3.

1           Moving along, as soon as we can get the  
2 Beta version of CBECC, we can start doing some  
3 number crunching. We pretty much brought to an  
4 end our cost of compliance analysis that ConSol  
5 has been doing with us, that we've been working  
6 with Mazi and others on, that's kind of to an end  
7 and now we can start doing some sort of advanced  
8 analysis or whatever. And this would certainly  
9 be very helpful to get our hands on that so we  
10 can start looking at the applications of the PV  
11 design credit and the energy design rating. So  
12 the sooner we can get our hands on that, the  
13 better.

14           In addition, we do have a concern with  
15 the proposal and it's not with the proposed  
16 regulations, it's with the Initial Statement of  
17 Reasons. In it, it's stated that these are  
18 voluntary standards, therefore there wasn't any  
19 reason to really do the cost of compliance  
20 analysis. Please keep in mind that the two bills  
21 that got passed, Assembly Bill 1612 in 2012, and  
22 Senate Bill 401 in 2013 effectively said, when a  
23 State agency is proposing building Standards,  
24 they need to do the cost of compliance and put  
25 that into both the Notice and the Statement of

1 Reasons. It didn't differentiate between a  
2 voluntary provision and a mandatory provision.  
3 And that was intentional. It was actually  
4 brought up in both housing policy committees for  
5 both bills, whether or not there was a desire to  
6 have it limited to mandatory provisions. And as  
7 the sponsor of AB 1612 and the Co-Sponsor of 401,  
8 we wanted to apply to Building Standards. Now,  
9 the good news for you is, you've already got a  
10 boatload of cost of compliance data information  
11 and once we get our hands on the CBECC version  
12 here, we can go ahead and work together and just  
13 crunch out the numbers for what a Zero Energy  
14 Design Rating could cost. And the fact is it's  
15 not going to be cheap, but it's going to be a  
16 whole lot less than it was three years ago  
17 because the cost of solar has drastically come  
18 down. And so we would look forward to working  
19 with Commission staff on developing some cost  
20 numbers well in advance of you having to go  
21 before the Building Standards Commission probably  
22 six to eight months from now, I guess.

23 MR. SHIRAKH: December-January timeframe.

24 MR. RAYMER: Yeah. So that's pretty much  
25 our comments.

1 COMMISSIONER MCALLISTER: Thanks, Bob.

2 MR. SHIRAKH: Thank you, Bob. Jon.

3 MR. MCHUGH: Jon McHugh, McHugh Energy.

4 I'm very supportive of what the Commission has  
5 proposed. I actually suggest the Commission call  
6 Tier 3 the Zero Net Energy Tier. The state has a  
7 goal since 2008 to move the standards and the  
8 market towards Zero Net Energy and the State is  
9 not going to be effective if they don't actually  
10 have a position on the roadmap of where Zero Net  
11 Energy is. For years, Bob Raymer has been  
12 decrying the issue that, you know, Zero Net  
13 Energy is creating a liability issue for his  
14 builders that might want to use this term in  
15 terms of, you know, being a good citizen and  
16 having some early buildings that meet zero net  
17 energy. And the impact on liability is that this  
18 is the State's definition. The State says that a  
19 Zero Net Energy Building is one that has a design  
20 rating of zero, it's not claiming that your  
21 energy bills are zero. And as long as your  
22 marketing materials aren't saying that your bills  
23 are zero, but saying this is our Zero Energy Tier  
24 Building, this actually provides I think the  
25 shield from liability that you're looking for and

1 it provides the directed guidance from what  
2 essentially are we looking for, there's been all  
3 these discussions, there's already been a finding  
4 in terms of the IEPR that TDV is the basis of  
5 Zero Net Energy. My presumption is that in your  
6 design rating, that's based on TDV, and this  
7 actually administratively creates the clear  
8 definition of where the State is going. So I  
9 highly support that.

10           The second thing has to do with the  
11 prerequisites. You know, we should be trying to  
12 simplify Standards as much as possible, and by  
13 putting the mandatory requirements that are in  
14 Title 6 in the prerequisites for Part 11, I don't  
15 see why that's actually desirable. You're just  
16 duplicating what's already there.

17           The next thing has to do with the  
18 definition of Zero Net Energy and, you know, the  
19 idea is to meet Tier 2, and then have a Design  
20 Rating of zero. And in keeping with both the  
21 desire to hit zero net energy and also  
22 maintaining the loading order of efficiency  
23 first, I think you might want to consider hitting  
24 Tier 2 without the photovoltaics, and then  
25 photovoltaics is taking the rest away to ZNE.

1 And I don't know if you guys have done the  
2 analysis yet on whether that's feasible or not,  
3 but I would recommend that you take a look at  
4 that and see what are the opportunities to hit  
5 Tier 2 without PV and, if that's the case, then  
6 use that as part of that definition. Thank you.

7 MR. SHIRAKH: Thank you, Jon.

8 MR. NESBITT: George Nesbitt, HERS Rater.  
9 I certified the first new Single Family Home, Net  
10 Zero Energy, or Zero Net Energy, about three  
11 years ago. The Energy Commission and CalcERTS  
12 did a thorough review, thanks to Panama  
13 Bartholomy, who is no longer with us, at least  
14 not in this room, and verified it. The  
15 Commission made a nice little proclamation.  
16 Andrew signed it, commended the builder, and  
17 CalcERTS and the Energy Commission, and of course  
18 left out the HERS Rater, that's the only reason  
19 it actually happened, not because of Building  
20 America and not because of Davis Energy, only  
21 because I redid it in my own will, so obviously I  
22 know something about this subject and I'm  
23 passionate about it.

24 So let me start with a couple clarifying  
25 questions. In the published 45-Day Language, the

1 terminology refers to, well, not only the design  
2 rating, but then also Title 24, which is  
3 regulated loads and doesn't really include what's  
4 in the design rating, so I think if you go to the  
5 terminology of just using rating, that becomes  
6 clear. On the additions, I believe the language  
7 just also refers to Title 24. Now, you're  
8 requiring an improvement, but is that an  
9 improvement only under the Title 24 regulated  
10 loads? Or is that an improvement on the design  
11 rating calculated loads? So that's not clear.  
12 Okay?

13           So I actually have another single-family  
14 home that I think calcs out as net zero, although  
15 they haven't finished it, I need to. I'm also  
16 working on an 80-Unit Multi-Family Affordable  
17 that's done with construction and we planned it  
18 to be Net Zero, whether we will exactly hit it or  
19 not, I don't know yet. So my problem is this.  
20 I've been trained three times as a HERS Rater in  
21 the past decade to do HERS Ratings. The Title 20  
22 Regulations, California Title 20, Section  
23 whatever the heck it is, I don't remember,  
24 specifies what a HERS rating is. And under Title  
25 20 in California, if you want to act as a HERS

1 Rater, you have to be certified under Title 20.  
2 And then we have RESNET. To do a RESNET rating,  
3 you have to be certified under RESNET. So we can  
4 call this Design Rating a Design Rating, but the  
5 reality is it's a HERS Rating, a HERS Score. It  
6 is based with 100 being the standard design,  
7 whether that's 2006 IECC or 2008 Title 24, Part  
8 6. I don't care. Zero is Zero Net Energy. If  
9 it was truly a RESNET rating, it would be based  
10 on site energy with some modifications. You're  
11 probably still basing it on TDV. If it's based  
12 on TDV, that's Title 20. So if we're going to  
13 have a Design Rating, it has to be done by a HERS  
14 Rater.

15 MR. STRAIT: Simply for the clarity of  
16 the record, when you were saying Title 20, did  
17 you mean Title 24?

18 MR. NESBITT: Title 20, Section 6000  
19 something or other.

20 MR. STRAIT: Okay --

21 MR. NESBITT: The HERS Regulations, Title  
22 20, not the Appliance Regulations.

23 MR. STRAIT: Right, no problem.

24 MR. SHIRAKH: Mike.

25 MR. HODGSON: Mike Hodgson, ConSol. Not

1 sure if I'm representing CBIA because I'm  
2 disagreeing with Mr. Raymer. The building  
3 industry supports the Energy Design Rating and so  
4 do many of us in the field, we think it's a very  
5 significant topic that we've been bringing to the  
6 Commission for quite a few years to get a  
7 national rating score. And thanks to  
8 Commissioner McAllister at RESNET a few weeks  
9 ago, thanks to some RESNET Board members and from  
10 the Energy Commission staff we have momentum. I  
11 won't say how long it will last, but we will have  
12 a meeting soon, and we're going to try to  
13 harmonize those scores. So my concern is kind of  
14 two-fold. One, but proposing scores today, I do  
15 think you kicked it back into 45-Day Language  
16 because we don't understand the scores, we don't  
17 know how they were generated, we don't have  
18 software to double-check what the scores are and  
19 their impact on the building industry, so I think  
20 that's a significant change and I think that puts  
21 it into a jeopardy of going back to 45-Day  
22 Language, which I don't think is the intent of  
23 staff.

24 Mr. Raymer's suggestion of having both  
25 kind of walks that line so that we have 50

1 percent and 30 percent, so I think that helps you  
2 maybe stick to 15-Day Language rather than 45.  
3 But my second issue is, having those scores, and  
4 regardless of whether we understood them or not,  
5 I think the scores, if we can actually move  
6 toward a unified number in the next three to six  
7 months, are going to be different, and yet these  
8 are going to be Codified in 60 days? And you're  
9 going to propose them. And I don't know what  
10 they are, but in Climate Zone 12, we're going to  
11 be a 49 in Tier 1. Well, when we harmonize  
12 RESNET and the California Rating Scale, is that  
13 still going to be a 49 come the end of this year?  
14 And I honestly don't know. And I know with off  
15 comments of how these scores were generated, and  
16 they were predominantly per the CEC using TDV,  
17 and that's great, and I fully support the  
18 California Energy Commission on their logic and  
19 their math and their Energy Code, but the  
20 harmonization process is going to be a compromise  
21 and one compromise was the Base 2006 IECC, there  
22 may be others. And if so, that changes all these  
23 scores. So I think it's wise to have both a  
24 percent above Code, as well as a score. I'm not  
25 sure how you picked the score number right now

1 because we don't understand what the score  
2 numbers are or how they impact us in a production  
3 environment, and so we have a lot of questions  
4 which we'll be generating once we get software  
5 and can evaluate it.

6 MR. PENNINGTON: So, Mike, I agree with  
7 you that there's quite a bit of work ahead of us  
8 here in the next few months to try to figure out  
9 what aspects of alignment will work and there's  
10 some uncertainty about that. Related to our Part  
11 11 adoption, sort of the process will be to put  
12 out 15-Day Language and then take that 15-Day  
13 Language to the Code Advisory Committee for Part  
14 11 and get feedback from the Code Advisory  
15 Committee, and if there's meritorious feedback  
16 there, then we would change our 15-Day Language  
17 and have another version of 15-Day Language. And  
18 in looking at the schedule, that looks like that  
19 fits in completely satisfactorily with the  
20 Building Standards Commission adoption in  
21 December. So we have a little bit more time than  
22 what you were imagining there to kind of nail  
23 this down. You know, it's ambitious --

24 MR. HODGSON: So is Part 11 going to be  
25 adopted alongside of Part 6 by the Commission?

1 Or are they going to be separated?

2 MR. PENNINGTON: They will be separated.

3 MR. HODGSON: Oh, okay.

4 MR. PENNINGTON: So they're going to be  
5 on a different timeframe, so the May-June  
6 timeframe for 6 -

7 MR. HODGSON: So I'm getting - like you  
8 were saying, disagreeing with Bob. We're not  
9 going to have a job here, Bill, if you and I are  
10 going to be -

11 MR. PENNINGTON: So maybe I don't know  
12 enough about this to answer the question without  
13 error, so maybe I should just be quiet. So I  
14 will agree that this is ambitious and I will  
15 agree that the Energy Commission has a commitment  
16 to try to work through these things  
17 expeditiously. It would be desirable if we had a  
18 design rating in this version of part 11, so it's  
19 there. It's possible that there won't be any  
20 reconciliation with RESNET by that time, and I  
21 think there would be an advantage to go forward  
22 with a design rating that could be in effect in  
23 California prior to the next round of Standards  
24 that's based on where we can get to.

25 MR. HODGSON: Well, and my point would be

1 I'm not opposed to posting numbers in there. I  
2 don't know what they really should be, and so by  
3 having a percentage and a number, if we don't  
4 like the number six months from now, we still  
5 have the percentage and that's a fallback. And  
6 if we're saying I don't know what a 49 is, and  
7 I'm not sure how I'm going to meet it, so that  
8 would be my suggestion, is to be open to both of  
9 those so that we can choose which number we  
10 really want. Now, in three years when we all  
11 have been doing numbers and we're harmonized, I'm  
12 not sure whether we're going to get there or not,  
13 but we'll figure it out by then, whether we will,  
14 then I'm all about numbers, that's fine. I like  
15 the number idea and I'm a very strong supportive,  
16 but I just don't think we know enough about it,  
17 and I still think it kicks you back to 45-Day  
18 Language, but that's me.

19 MR. RAYMER: Bob Raymer with CBIA. Thank  
20 you, Bill and Mazi for that clarification. I was  
21 originally under the impression going back to  
22 November that both Part 11 and Part 6 were going  
23 to be adopted on the same day in May. Hearing  
24 that that's not the case, the Code Advisory  
25 Committee, the BSE's Green Building Code Advisory

1 Committee, will be meeting in late July or early  
2 August and so there's going to be plenty of time  
3 to do a lot of the initial number crunching, and  
4 the way the Code Advisory Committees are set up,  
5 they effectively are the end of the informal  
6 process for all the other agencies, namely HCD  
7 and BSE. After that meeting in late July or  
8 early August, there's going to be a 45-Day  
9 Language that both HCD and BSE go out with, and  
10 so the fact that the Energy Commission may be  
11 simply fine tuning based on some input by the  
12 Code Advisory Committee and the people who  
13 testify it, that's great, so we've got a lot more  
14 time to work this stuff out. And so I have a  
15 much higher comfort level we're going to be able  
16 to work this out. Thank you.

17 MR. SHIRAKH: Jon.

18 MR. MCHUGH: So this discussion of a  
19 harmonized design score, I think is a great move  
20 to harmonize this with RESNET. It actually gives  
21 the builders a great marketing tool when somebody  
22 moves from Georgia or some other state, and they  
23 recognize the value of a California home because  
24 they bought a score of 70 or something back East  
25 or something. So I think this is a great move

1 forward. Whether or not the tiers have to be  
2 based on that, I think I'm kind of Agnostic to,  
3 but I just want to come up here and say that I'm  
4 totally in support of harmonizing this with  
5 RESNET, even though we use TDV, so we know where  
6 100 is, and of course there will be some  
7 deviation, but I think that's relatively minor  
8 compared to the bigger picture of harmonizing  
9 this. Thank you very much.

10 MR. SHIRAKH: Nehemiah.

11 MR. STONE: Nehemiah Stone, Benningfield  
12 Group. As you go through the analysis from here  
13 to the point where you're going to have the  
14 actual numbers, I just want to strongly recommend  
15 that you take a look at how the scores work out  
16 for three-story multi-family buildings versus  
17 four-story multi-family buildings, and also for  
18 multi-family that's mixed use. It's real easy to  
19 do this stuff for single-family, but then it also  
20 gets applied to multi-family, so it would be  
21 really nice to make sure that the analysis  
22 supports what you have. Thanks.

23 MR. SHIRAKH: Thank you. Meg.

24 MS. WALTNER: Meg Waltner from NRDC. I  
25 just wanted to be on the record briefly in

1 support of the harmonization between the National  
2 RESNET System and the California HERS System, and  
3 also support the use of an Energy Design Rating  
4 in the Tier 1 and 2 for CALGreen. It's good to  
5 get these numbers, we just got them so I want to  
6 look at them more closely and we'll probably  
7 provide some written feedback on the specific  
8 numbers, but I like the approach. Thank you.

9 MS. SHIRAKH: Thank you, Meg. Ken.

10 MR. NITTLER: Yeah, Ken Nittler with  
11 Enercomp. So I did those numbers a little while  
12 ago for the Commission. I have a suggestion that  
13 maybe bridges the score and the 15 percent thing.  
14 Just like in the regulator Title 24, we don't in  
15 the standard anywhere say what the budgets are,  
16 but we do refer to an ACM analysis how they're  
17 calculated. So if we in the Chapter 11 stuff  
18 said the Tier 1 is 15 percent less of the  
19 regulated loads calculated in accordance with our  
20 Energy Design Rating framework, then as the  
21 baseline changes a little bit or maybe the  
22 software changes a little bit, we're not locked  
23 into having the number in the Code, but we know  
24 how to calculate it.

25 MR. PENNINGTON: That's a good idea.

1 That would give us a little bit more time to work  
2 through it and have the Commission ultimately  
3 approve it when the ACM Approval Reference Manual  
4 is approved.

5 MR. SHIRAKH: Thank you again for that  
6 suggestion. Any other comments in the room?  
7 Anything on line? Okay, so we're going to go  
8 back in time and pick up the first topic, that's  
9 Nonresidential Appendices NA7.4, NA7.5, and  
10 NA7.14, NA7.15 and NA7.8.

11 MR. ALATORRE: Okay, changes that were  
12 made to NA7.4.3.2 was to remove any reference to  
13 the FC 1 form as a source for the U-Factor SHGC  
14 or Visible Transmittance. These changes to 7.5.4  
15 and 7.5.11 were to align the construction  
16 inspection and functional testing to the changes  
17 that were made to the relevant sections in the  
18 Standard. So for economizers, we harmonized the  
19 construction inspection to reflect what was  
20 changed in 140.4(e) and the same goes for the  
21 fault detection and diagnostics.

22 NA7.14 is a new Acceptance Test for the  
23 elevator and ventilation controls. These were  
24 put in there to ensure that the requirements were  
25 being met and the document sensors that are

1 installed will actually work.

2 NA7.15, again, was to come up with  
3 Acceptance Tests for the new requirement to slow  
4 down escalators and moving walkways, so we  
5 developed a construction inspection and  
6 functional testing to assure that the speed  
7 controls on the motor and that the sensors  
8 detecting occupancy were working.

9 MR. LEE: And changes to Section NA7.7,  
10 since we have the new measure for the  
11 institutional tuning as a power adjustment  
12 factor, so we're adding this as part of the  
13 requirements to refine.

14 And then changes to Section NA7.8, this  
15 is more like a clarification to add some of these  
16 different lighting control methods like photo  
17 control, astronomical time switch controls, these  
18 are existing 130.2 requirements, so we are just  
19 adding to the NA7.8 to make sure that we have all  
20 of these captured. And that's all.

21 MR. SHIRAKH: Thank you. Any questions  
22 on changes to NA7 Acceptance Requirements?  
23 Please.

24 MR. MILLER: So I'd like to talk about  
25 NA7.6, I know it's not on the list, but if you

1 don't mind?

2 MR. SHIRAKH: Sure.

3 MR. MILLER: Okay, NA7.6 is Acceptance  
4 Testing and I would like to recommend that the  
5 lighting control acceptance tests also include  
6 the testing of the on-off switch and the dimming  
7 capability, and also include 130.5 for the  
8 testing of the controlled receptacle, because  
9 right now the controlled receptacle is not being  
10 tested and we have a qualified tester on the  
11 site, so let's proceed and test the receptacles.

12 Another item on Acceptance Testing is  
13 that the very first item on the forms to fill out  
14 is that it says Acceptance Tester Certifies that  
15 the design complies with Part 6. I think that  
16 puts the tester in a very awkward position as  
17 regarding liability because it's not the tester's  
18 job to design the job. There was a designer on  
19 the project, the licensed designer who has  
20 already filled out compliance forms saying these  
21 comply to Part 6, and then there are  
22 commissioning forms that also review the design  
23 that say it complies with Part 6. So it's really  
24 not in the realm of a tester to certify the  
25 design.

1           The third item, Automatic Daylight  
2 Harvesting, and the testing procedure requires  
3 three separate tests, but only two of them are  
4 mentioned in part 6, so therefore the third test  
5 mentioned in the Appendices raises the cost of  
6 Acceptance Testing for Daylight Harvesting by 50  
7 percent, without a Part 6 justification. Similar  
8 applies to Demand Response, the Appendices  
9 mentions two separate tests, Part 6 mentions only  
10 one set point, so that second test raises the  
11 cost of demand response testing by 100 percent.  
12 I'm curious as to whether those increased  
13 Acceptance Testing costs have been gone through a  
14 cost analysis.

15           Another item around Demand Response, the  
16 Part 6 mentions a Standards-based protocol, it's  
17 kind of a buzz word for meaning open ADR 2.0, or  
18 SEP 1.1. So it's mentioned in there and the  
19 Acceptance Test therefore should be using a  
20 Standards based protocol. And if you go online  
21 into Open ADR 2.0 Alliance, you will find that  
22 the test kit for Open ADR 2.0 costs \$16,000. So  
23 now is it the intent of this Commission to  
24 require every certified lighting controls testing  
25 technician to purchase a \$16,000 test kit? Those

1 are my items, thank you.

2 MR. SHIRAKH: Thank you. Any other  
3 questions?

4 MR. NESBITT: George Nesbitt, HERS Rater.  
5 Section NA1, which is the HERS, which the only  
6 measure that applies in Nonres is duct testing,  
7 so that whole section is regurgitated exactly the  
8 same as what's in the Residential Appendices. So  
9 we should delete it all. And we should either,  
10 well, we should take the HERS out of the  
11 Residential Appendices and just call it the HERS  
12 Appendices. Quite simple.

13 MR. SHIRAKH: So I talked to Jeff Miller  
14 about this last time around and he thought they  
15 were, although the NA7 RA, NA1 and RA1 are  
16 similar, they're not identical, there were enough  
17 differences in it that he thought it should be  
18 its own chapter. And again, you know, it's in  
19 the Nonres system, the --

20 MR. NESBITT: All the form registration  
21 stuff is the same, the testing procedure is the  
22 same, it's all the same, there's no reason for it  
23 to be different.

24 MR. SHIRAKH: -- possibility is to cause  
25 it to move into a joint appendix, but I mean,

1 yeah, do we want to go through the trouble of  
2 restructuring all of the Appendices?

3 MR. NESBITT: It's just the thing is,  
4 when you have these things in separate places  
5 that essentially are saying the same things,  
6 you're more likely to say different things in  
7 different places. And that does not help. So  
8 you know, the Code needs to be clear, and that's  
9 one of the problems. And I hear all the time,  
10 "Why are we updating the Code? We don't even  
11 understand the current one." So, you know, we  
12 don't want to make it harder than it is.

13 MR. SHIRAKH: Okay, any other comments in  
14 the room? Anyone on line?

15 MR. STRAIT: We're having some technical  
16 difficulties with the microphone we'd normally  
17 use. Can you read me the person's name and I can  
18 read it into the mic over here?

19 MS. NEUMANN: Yes. Michael Jouaneh.

20 MR. STRAIT: Michael Jouaneh.

21 MS. NEUMANN: And he says he agrees with  
22 the previous commenter.

23 MR. STRAIT: Okay, Michael Jouaneh agrees  
24 with the previous commenter --

25 MS. NEUMANN: -- that the tester cannot

1 certify design, also there are going to be  
2 additional Acceptance Test forms - or are there  
3 going to be additional Acceptance Test Forms for  
4 these new lighting control tests?

5 MR. STRAIT: He also asks if there would  
6 be new forms for these additional lighting  
7 control Acceptance Tests.

8 MR. LEE: So we got into Mr. Miller's  
9 suggestion to add on/off control, dimming control  
10 and control receptacle controls as new Acceptance  
11 Tests. Staff, we have to evaluate whether these  
12 are appropriate and the initial perspective is  
13 that on/off control are typical and these are  
14 common control strategies used by almost all  
15 buildings and almost everyone will understand the  
16 on/off control, how it works. So there may be  
17 not much wear use in terms of, I mean, having an  
18 Acceptance Test to verify whether the on/off  
19 control is working properly. But we'll be  
20 looking at this suggestions whether they are  
21 suitable to be new Acceptance Tests.

22 MR. SHIRAKH: Okay, any other questions  
23 online?

24 MR. STRAIT: No, there are not.

25 MR. SHIRAKH: Seeing none in the room, so

1 we're going to move to the last topic of the day,  
2 which is Environmental Impact, CEQA. And Ron  
3 Yasny will be presenting it.

4 MR. YASNY: Okay, so every cycle we  
5 double-check to make sure that we're not having  
6 any environmental impact, any significant  
7 environmental impact, so starting at the top of  
8 the slide, staff independently created an initial  
9 study, a Negative Declaration, which concludes  
10 that the potential environmental impact  
11 associated with the 2016 Standards will be less  
12 than significant.

13 That independent study Neg Dec was  
14 released for public and state agency comment on  
15 February 27th, and the comment period will end  
16 March 30th. That initial study Neg Dec will then  
17 be submitted to the State Clearinghouse, the  
18 Office of Planning and Research, and a Notice of  
19 Intent has been published in newspapers  
20 throughout California, and mailed to County  
21 Clerks. And any comments that are received from  
22 the public or state agencies will be docketed,  
23 and if no substantial evidence of significant  
24 effect on the environment is found in light of  
25 the whole record, then staff will propose a

1 Negative Declaration be adopted with the 2016  
2 Standards. Any questions?

3 MR. STRAIT: Actually first I would add  
4 that when we talk about a significant impact here  
5 under CEQA, we're looking at significant negative  
6 impacts. We certainly see that energy savings  
7 also reduces the amount of emissions that result  
8 from energy generation, so we certainly see if  
9 there are going to be beneficial impacts for what  
10 we're adopting, but we do check to make sure  
11 there's no negative environmental impacts for the  
12 work that we do here, and that's the basis of the  
13 Negative Declaration. Negative Declaration and  
14 Initial Study are available online on the same  
15 web page that you've downloaded the express terms  
16 from, where our notes are found.

17 MR. SHIRAKH: Thank you Ron, and Peter.  
18 Any questions on CEQA in the room. George.  
19 Anybody online? So this concludes our formal  
20 commenting period, and now we're to the public  
21 comment. So since we're in the public  
22 commenting, you know, you can comment on anything  
23 that was presented yesterday, today, the movies  
24 that you saw, the Oscars. Here comes George.

25 MR. NESBITT: George Nesbitt, HERS Rater.

1 Hey, I've sat out a couple sessions. And I  
2 didn't make us late for lunch. Yesterday we had  
3 the issue of change-out of HVAC equipment in  
4 package, so the package equipment is exempt from  
5 refrigerant charge if it's certified by the  
6 manufacturers being correct. Of course, who is  
7 going to admit they did it wrong at the factory?  
8 So in my HERS Update Training about three weeks  
9 ago, we were told that with a change-out, if  
10 you're not replacing 75 percent more of the  
11 ducts, essentially if it's not a new duct system,  
12 the mandatory measures of adequate airflow and  
13 fan watt draw are not required. And the reason I  
14 bring that up is, looking back in Chapter or  
15 Section 152, the Alteration Section, all the  
16 mandatory measures are required, except for  
17 solar-ready in Alterations Additions. And in the  
18 section on Altered HVAC, of course, it talks  
19 about, yeah, the package equipment is except from  
20 refrigerant charge, but nowhere in the mandatory  
21 sections have I found an exemption for --  
22 basically any time you have an air-conditioner  
23 you're supposed to meet the air flow and the fan  
24 watt. Nowhere do I find an exception for an  
25 altered system within an existing duct system,

1 yet this is what I as a HERS Rater have been  
2 told. I mean, in the 2008 Code, Refrigerant  
3 Charge was not exempt in any climate zone, yet of  
4 course as HERS Raters, everything we were told,  
5 it was only Air-Conditioning Zone. So any  
6 comment on that?

7 MR. ALATORRE: Yeah. For Alterations,  
8 the fan efficacy requirements of 150.M 13 and 15  
9 are not required unless you replace the entire  
10 duct system, or more than 75 percent of the duct  
11 system. If you're not doing that and you're just  
12 doing a change-out of the equipment, you do have  
13 to do refrigerant charge and meet the minimum 300  
14 CFM. But there's no fan watt draw requirement.

15 MR. NESBITT: Yeah, I'm not sure if  
16 that's clear, but we'll go on that later.

17 The only other thing is I think multi-  
18 family, well, two things, I mean, I think  
19 Alterations, we need to pay a lot more attention  
20 to. As I said earlier, as the Code gets more  
21 stringent, we have to look because essentially  
22 most of the mandatory measures and most of the  
23 prescriptive measures apply for alterations, it's  
24 just with alterations we have a lot more  
25 exceptions in some places, but not everything.

1 And so we need to pay a lot more attention to  
2 alterations and, as the Code gets tighter and  
3 tighter, the two have to probably merge more  
4 because there definitely are a lot of times you  
5 can't get there, although I think some of the  
6 current exceptions in the low-rise residential  
7 actually give you too much exception, but I won't  
8 go into that.

9           And then the other thing is multi-family.  
10 I think most of the time multi-family, whatever  
11 applies, single-family, multi-family, most of it  
12 is not different. I also think that high-rise  
13 multi-family belongs fully within the low-rise  
14 part of the Standards. We already have water  
15 heating, which follows the low-rise, the interior  
16 apartment, and exterior lighting that's  
17 controlled from within the apartment, falls under  
18 the low-rise mandatory requirements and/or  
19 prescriptive. And in the past, one of the  
20 problems I've had with multi-family is high-rise,  
21 when you model it in a non-air-conditioning zone,  
22 like a Zone 3, Zone 4, Bay Area, it's a heating  
23 dominated building. These are buildings that do  
24 not have air-conditioning. So what we are doing  
25 is prioritizing air-conditioning savings that

1 don't exist. So we're getting the wrong answer.

2 A little bit of my 2013 modeling has  
3 shown that's different, and I don't know if there  
4 are any deliberate changes, but in general I  
5 think we need to also pay a lot more attention to  
6 how some of this does hit multi-family because  
7 it's certainly in the Bay Area, it's not single-  
8 family homes.

9 MR. SHIRAKH: Thank you. Heidi, are you  
10 stretching your legs? Or do you have comments?

11 MS. HOWENSTEIN: Heidi Howenstein with  
12 Energy Solutions on behalf of the Statewide  
13 Utility Codes and Standards Team. I just had one  
14 comment regarding the mandatory requirements for  
15 solar-ready buildings as they relate to the  
16 proposed changes for Res lighting. So there's an  
17 exception for both Single-Family and Multi-Family  
18 Homes that if you install an OSD plus high  
19 efficiency lighting, that you do not have to  
20 comply with the solar ready requirements. The  
21 proposed requirements for Res Lighting for 2016  
22 would make the portion of those exceptions that  
23 pertain to Res lighting obsolete because they're  
24 already going to be mandatory. So we'd like to  
25 just put a placeholder in here that we'd like to

1 think about replacement for those Res lighting  
2 requirements. We have some ideas, maybe OCST  
3 Plus EV charging in garages, or maybe OCST plus  
4 MAPP premium toilets, and we'd like to discuss  
5 this further with the Energy Commission staff and  
6 other interested stakeholders in the next weeks.

7 MR. SHIRAKH: That's a very good point.  
8 Thank you for bringing that to our attention,  
9 again, because for Res it's going to be all high  
10 efficacy, this requirement does not work anymore.

11 MR. MCHUGH: This is Jon McHugh. I just  
12 wanted to talk a little bit further. If you look  
13 at the off ramp, why residential lighting was  
14 used in the past was that the residential  
15 lighting is not part of the budget, and that's  
16 why, you know, for the solar ready, which is a  
17 mandatory requirement, but it does not affect the  
18 budget of the building, it made sense to look at  
19 measures that also don't affect the performance  
20 budget. And you know, the two measures that  
21 Heidi was just talking about, neither of those  
22 would affect the performance budget either, and  
23 yet both of them have impacts on state policy.  
24 Of course, you know, the Governor has got the  
25 plan for I think it's a million Electric Vehicles

1 and especially for us that live in the Central  
2 Valley, the impacts on air quality are  
3 significant. We're actually one of the worst  
4 counties in the entire United States in terms of  
5 air quality in regards to ozone and the vast  
6 majority of our ozone problem has to do with  
7 vehicles. Similarly, with the MAPP Score, or the  
8 proposed MAPP score, which is that you actually  
9 have a toilet that works, kind of similar to what  
10 we're doing with lighting that the quality of the  
11 lighting, the lighting is actually providing the  
12 desired amenity, the MAPP Score makes sure that  
13 it works, and the MAPP premium toilets use 20  
14 percent less water, so a fairly significant  
15 impact on the State's water usage, as well as the  
16 embedded energy that's involved in water. Thank  
17 you.

18 MR. SHIRAKH: So Jon, before you go,  
19 related to the solar ready off ramp, for some  
20 reason both you and I, and I think Pat, we all  
21 remembered the off ramp was OCST and plug load  
22 controlled, yet we cannot find any reference.  
23 That's the case of -

24 MR. MCHUGH: Yeah, so what happened there  
25 was, you know, a few dead brain cells kind of

1 sparked back to life last night and the issue was  
2 this, that the evaluation of the plug load  
3 control, or one of the issues that was identified  
4 was, you know, what is the purpose of the plug  
5 load controller? It's primarily to shut off  
6 receptacles to primarily reduce energy  
7 consumption associated with the standing losses  
8 with attached devices, or potentially devices  
9 that are left on. The issue is that the plug  
10 load controller has standing loads, and  
11 potentially the standing losses or the stand by  
12 loads of the plug load controller could be  
13 equivalent to the amount of energy that we're  
14 saving by using the plug load controller, so  
15 resulting in significant uncertainty about  
16 whether it actually resulted in a net savings.  
17 So I think that's why at the 11th hour it was  
18 changed to the high efficacy lighting. And, you  
19 know, in 2020 hindsight, the proposal to use all  
20 high efficacy lighting as an off ramp was  
21 actually a great idea because it actually helps  
22 prepare the market for the 2016 Standard. So  
23 actually turned out to be fairly serendipitous.

24 MR. SHIRAKH: Okay, Heidi.

25 MS. HOWENSTEIN: So we did write a case

1 report, the Utility Team wrote a case report on  
2 residential plug load controls for the 2013  
3 cycle, and the issue that Jon just mentioned,  
4 that the plug load control actually uses energy  
5 itself could be addressed by establishing an  
6 efficiency requirement for the plug load itself.  
7 But one of the other reasons that we didn't move  
8 forward with a plug load control measure for the  
9 last cycle was that there wasn't a lot of data  
10 that could justify the savings of the plug load  
11 control itself, so we estimated the savings to  
12 the best of our ability at the time, but there  
13 wasn't sufficient data that we could point to,  
14 that showed how the plug load controls were used  
15 in residential buildings, so the savings from  
16 that control were not clearly understood.

17 MR. SHIRAKH: Okay, then I guess we're  
18 interested in hearing alternatives to lighting  
19 for this off ramp. Any other questions, comments  
20 from the public? Anybody online?

21 MR. MILLER: Rich Miller with RNM  
22 Engineering. I'd like to talk about the  
23 education of the Design Community. A little  
24 history back, in 2008 I was hired by Southern  
25 California Edison and PG&E to develop a training

1 course of Electricians, 40 hours long, it's now  
2 50 hours, and over 2000 electricians have gone  
3 through that training course on how to install  
4 lighting control systems. But what I learned  
5 from them was they install what was in the design  
6 documents. If it isn't designed right, it's not  
7 their job to correct the design. So how do we  
8 get the design community educated on the  
9 requirements of Title 24? I've tried doing it,  
10 talking to Engineers, I've talked to Architects,  
11 I'm just a single person, I know there's  
12 organizations out there who have been hired to  
13 get the word out, but somehow it's not getting  
14 out.

15 MR. SHIRAKH: Are you talking Residential  
16 or Nonresidential?

17 MR. MILLER: Nonresidential. I'm getting  
18 comments back from the cool cats that they're  
19 called in, they look at a project, and it's not  
20 designed compliant to Title 24. That means they  
21 can't even start the testing. And one cool cat  
22 said he looked at 45 projects and only three of  
23 them were compliant. So there's a real problem  
24 out there and I don't know how the Commission is  
25 getting the word out. One suggestion, I'm a

1 professional engineer, there are professional  
2 architects, walk across the street, get hold of  
3 the licensing department, and somehow, I don't  
4 know, coerce them into requiring the Licensees to  
5 get educated.

6 MR. SHIRAKH: Thank you. No comments  
7 online, so this concludes the hearing,  
8 Commissioner.

9 COMMISSIONER MCALLISTER: Well, great.  
10 You guys have - congratulations. You've all made  
11 it until the bitter end. It's only 3:30, so  
12 we're doing a little bit better than yesterday.  
13 Those of us in this room know how important this  
14 is and I've been very interested and gratified to  
15 hear all the comments. I know staff has gotten a  
16 lot out of it, as well. You know, it really  
17 takes a broad range of viewpoints to make sure  
18 that all the flags that are possibly there go up  
19 and we get them noted down and deal with them.  
20 So that's what the process is supposed to do. So  
21 thanks very much to all of you. And particularly  
22 thanks to staff, really, this is a large solid  
23 team effort and your persistence is really paying  
24 off on this round and certainly together with the  
25 stakeholders that we've been talking with for,

1 what, almost a year and a half probably now  
2 trying to move forward on all the different  
3 fronts. I think we've gotten ourselves in a  
4 reasonably good place. Now, obviously the 45-Day  
5 Language is out and we have some changes that  
6 we're looking at for that, so it's important to  
7 get that right and do that quickly,  
8 expeditiously. And so hopefully those of you who  
9 have brought up some of these issues can really  
10 be available to have some quick back and forth on  
11 this to make sure we get to the end point we  
12 need. But I want to just thank everyone again,  
13 and I think we are done with these two days, and  
14 we will go from here. Thank you very much.

15 MR. SHIRAKH: Thank you.

16 (Whereupon, at 3:30 p.m., the workshop was  
17 adjourned.)

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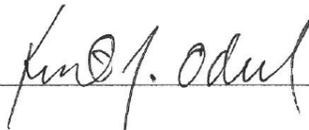
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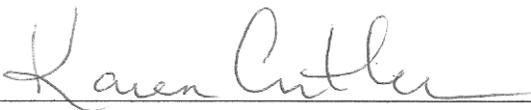
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