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CALIFORNIA ENERGY COMMISSION

STAFF WORKSHOP

In the Matter of:	)	Docket No. 17-AAER-07
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	)	
	)	STAFF WORKSHOP RE:
General Service Lamps	)	General Service Lamps
	)	(Expanded Scope)
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CALIFORHIA ENERGY COMMISSION (CEC)
GENERAL SERVICE LAMPS (EXPANDED SCOPE)
STAFF WORKSHOP

CALIFORNIA ENERGY COMMISSION

THE WARREN-ALQUIST STATE ENERGY BUILDING

IMBRECHT HEARING ROOM

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

TUESDAY, AUGUST 28, 2018

10:03 A.M.

Reported By: Gigi Lastra

APPEARANCES

Staff Present

Patrick Saxton, Moderator

Stakeholders:

Joseph Howley, GE Lighting

Noah Horowitz, National Resource Defense Council

Phi Nguyen, Energy Solutions, on behalf of California Investor Owned Utilities

Mike McGaraghan, Energy Solutions, on behalf of California Investor Owned Utilities

Public Speakers:

Anthony Serres, Signify

Kevin Messner, Association of Home Appliance Manufacturers (AHAM)

Public Comments:

Chris Granda, Appliance Standards Awareness Project (via WebEx)

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Stephen Gatz, Whirlpool (via WebEx)

I N D E X

P R O C E E D I N G S

August 28, 2018 10:03 a.m.

MR. SAXTON: Good morning, my name's Patrick Saxton. Thank you for joining us for the Staff Workshop on General Service Lamps Expanded Scope. No clock in this room so I will try to keep watch up here.

Hopefully people on WebEx can see the screen and hear us. If someone could send a chat box message and confirm that, that would be great.

I've got the agenda up right now. We will start with opening comments if anyone has them from the public and then go into my Staff presentation. We'll break for comments and feedback. And most likely take a lunch break and then I'll finish my Staff presentation in the afternoon. We'll have another discussion break. And then we do have three presentations from stakeholders.

This 5:00 is worst case scenario. I think we're all hoping it doesn't go that long but it depends how much everyone has to say.

During the presentation we'll take clarifying comments. So let's save substantive issues and questions until those breaks if we could. And we'll have a handheld microphone to bring around for anyone who would like to make one of those comments.

So once again, this is the Staff Workshop on the

Analysis of General Service Lamps Expanded Scope. The Docket Number is 17-AAER-07. And that's the document number you'll need for submitting written feedback. We're asking for that feedback by September 17 at the end of the day. I will go through these -- the next three, this slide shows up three times so no need to take it down right now but you can submit comments through our e-comment system via the Docket Number 17-AAER-07. You can send hard copies through e-mail to our dockets, or hard copies through the mail, and also through e-mail.

So the purpose of the staff proposal today will be to align definitions related to general service lamps in the California Appliance Efficiency Regulations with the U.S. Department of Energy's final definition rules from January 19, 2017.

California's existing general service lamps standard of 45 lumens per watt would apply to these new definitions and it would be for lamps sold on or after January 1, 2020. We'll talk more about that in the presentation. But the sold on is an important qualifier.

And Staff will also propose a new definition and standard which would also be 45 lumens per watt for low-lumen lamps and these would be manufactured on or after January 1, 2020.

That is disappointing, the images from that slide

is showing up.

So this is a timeline of the activity that is happening in lighting. I think most of the people in this room are very familiar with it going all the way back to 2004, the California Energy Commission first adopted general service incandescent lamp standards. What started off the content of most of the items we'll be discussing today was the 2007 Energy Independence and Security Act, which both -- where Congress both defined general service lamps and set two tiers of lamp standards.

In 2008, the Energy Commission adopted those two tiers of lamp standards. The first tier for general service incandescent lamps became effective in 2011 in California only and 2012 nationally.

Also in 2012, a budget rider was applied to DOE's budget that prevented them from implementing the general service lamp -- general service incandescent lamp standards, excuse me.

In 2014, DOE began the general service lamp rulemaking. At that point, the ISA backstop or the second tier of lamp standards was triggered.

And in 2016, California adopts their LED standards and small-diameter directional lamp standards. As mentioned, those EISA Tier 1 standard supplied to general service incandescent lamps and really that was a

wattage limit that resulted in a transition of the incandescent market from traditional [inaudible] incandescents to halogen incandescents.

The second tier of those lamp standards is commonly called backstop and it's standard at 45 lumens per watt for general service lamps. The impact of that would be a transition from halogen incandescents to LEDs or CFLs are the two main technologies that are realistically the two primary perhaps only technologies in this sphere that would meet that standard.

In 2017, DOE did amend the general service lamp definitions. This was done through two final rules that were published in the Federal Register on January 19th. There were no energy efficiency standards set in those final rules.

On March 15 of this -- of 2017, NEMA sued DOE over those definitional rules. On April 21st of 2017, the Energy Commission began this proceeding on general service lamps and we're really in the prerulemaking phase right now.

On July 7 of 2017, NEMA and DOE entered into a voluntary out-of-court settlement.

On August 4 of 2017, NEMA sued the Energy Commission over both our state -- or all three of our State-Regulated General Service Lamps Regulations, the LED

regulations, and the small-diameter directional lamp regulations.

On January 1 of this year, all three of those regulations did take effect.

On April 10 of this year, NEMA withdrew the lawsuit against the Energy Commission.

On July 13 it appears -- or as of July 13, it appears that DOE documents related to general service lamps are at the Office of Management and Budget. Nothing has been published or released at this point.

And then on August 3, earlier this month, the Energy Commission did publish the Staff Report on general service lamps.

Then today on August 28, we're here at the workshop on that staff report.

So the expanded definitions would result in lamps as those shown on the left, a large-diameter reflector lamp, a globe lamp, a candle shaped lamp, items that have been covered under the EISA definition of general service lamps. And result would be the 45 lumens per watt standard is applied to those lamps and they would also transition to fluorescent or LED.

Beginning for lamps manufactured January 1, 2018 or afterwards, the California State-Regulated General Service Lamps Regulation was implemented. So in the first

row, we have a traditional A-shaped lamp. That is a general service lamp under the definition it is in the California Appliance Efficiency Regulations. And only LEDs or CFLs can meet the 45 lumen per watt standard and therefore lawfully be offered for sale in California.

For LED versions of these lamps, there are additional requirements in the state-regulated LED lamp regulations.

On the bottom row is lamps such as larger diameter reflector lamp, several decorative lamps. These are not general service lamps per the definition that is currently in the California Appliance Efficiency Regulations. 45 lumen per watt standard does not apply. Some of these lamps do have federal standards, either a wattage limit or minimum efficacy. However, LED versions of these lamps, if they have an E12, E17, E26, or GU24 base, LED versions of these are state-regulated LED lamps and they do have additional state requirements.

Staff's proposal is to align the definitions and the state regulations with the DOE January 19, 2017 final rules. The effect of that would be to expand the scope of the existing state-regulated general service lamp standard.

The proposal is to align with the sales prohibition that was set in EISA. And that would be on January 1, 2020. For those who are familiar with appliance

standards, implementation dates are almost always based on the date of manufacture.

Staff is proposing this date in alignment with a national date that was prescribed by Congress.

The staff proposal also defines low-lumen lamps. These are lamps with a lumen output from equal to or greater than 150 and less than 310 lumens. They would otherwise meet the definition of a general service lamp for base, shape, voltage, and other characteristics. This proposed standard for low-lumen lamps would be 45 lumens per watt minimum efficacy. The effective date would be based on the date of manufacture and January 1, 2020.

I'd like to make some clarifications within the staff proposal. For state-regulated LED lamps, Staff does propose to maintain all of those existing requirements. Many of those lamps would be general service lamps under the expanded scope, such as a large-diameter LED VR30, for example. So that lamp actually wouldn't change what can be sold in California today under this proposal.

LED downlight retrofit kits are considered state-regulated LED lamps, they are excluded from being a general service lamp. We'll see that when we get to the definition for general service lamp.

For state-regulated small-diameter directional lamps, Staff is also proposing to maintain all of the

existing requirements. And again, many of those lamps would be considered general service lamps under the expanded scope.

For both of these existing standards, Staff is not proposing to expand the scope of them or alter them in any way. So a lamp that today, for example, a E11 base lamp, there's no state regulations for that lamp. It could be incandescent or LED. The LED version on an E11 base, the LED lamps state regulation would not apply either.

If these expanded scope for general service lamps becomes effective, that incandescent E11 would no longer be lawful for sale in California because it could not meet a 45 lumen per watt standard. But an LED version of that lamp within an E11 base would be definitely lawful for sale in California. Its only requirement would be 45 lumens per watt as a state-regulated general service lamp. Not altering the scope of the state-regulated LED lamps.

So really the impact in that Staff proposal would be to apply the existing 45 lumens per watt standard to additional lamp types and the new 45 lumens per watt standard for the lumen lamps. This would result in only LED or fluorescent versions of these lamps being lawful for sale in California.

I guess there certainly are a few other light sources. We'll see a few places and definitions where

certain light sources are excluded from this. But of common things that most people are familiar with, it would LED or fluorescent technologies. And again examples of lamps that would be covered under this expanded scope are at the bottom. We've seen the large-diameter, reflector lamp, and the globe and candle shaped decorative lamps. The other -- the fourth one there is supposed to represent a shatterproof lamp. And then the nightlight is representative of the low-lumen lamps.

I failed to mention that a packet of draft proposed regulatory language was available on the table out there. I will pause in case anyone would like to grab a copy of that. Okay.

In Section 1602 which is the definition section of the regulations and 1602(k) is specific to lighting. Staff's proposing to split that existing section into two subsections. 1602(k)(1) would be for general service lamps, so before January 1, 2020, and all of the other lamp types. So what would happen is the existing Section 1602(k) would be picked up, placed into Section 1602(k)(1) unaltered.

The new section -- subsection 1602(k)(2) would be applicable for general service lamps sold on or after January 1, 2020, and for low-lumen lamps. And this is the subsection where the new and amended definitions from this

rulemaking would be inserted. And then align those amended definitions with the DOE final rules. I'm only going to include the most relevant of those definitions in this presentation. All of them are found in the Staff Report in Chapter 10 and on that handout that's on the table outside.

So the first definition I wanted to highlight is designed and marketed. I'm not going to read the whole thing but I will highlight that this definition is more complete and more rigorous than the current definition of designed and marketed including language exclusively designed to fulfill the indicated application designated and marketed solely for that application. And then this designation must be prominently displayed on the packaging of all publically available documents.

This comes into play with lamps that would be excluded from the definition of general service lamp and how they are identified.

Yeah, Anthony, do you have a clarifying question?

MR. SERRES: Clarifying question. So what you're saying is that this is different than the definition of designed and marketed that I would find in the DOE regulations?

MR. SAXTON: Yeah. So that was Anthony Serres with Signify --

MR. SERRES: Oh, sorry.

MR. SAXTON: -- who -- I'm going to repeat the question.

He asked: Is this definition of designed and marketed different than one would find in the Code of Federal Regulations right now?

And the answer is if you go look at the Code of Federal Regulations today, that is different. This definition is verbatim from the DOE January 19, 2017 final rule. And because those are not effective yet, they're not in the Code of Federal Regulations. But this is verbatim language from those final rules as well the next several definitions also. Thanks.

The next definition I wanted to highlight was general service light-emitting diode lamp. And just wanted to note that this would include both integrated and nonintegrated versions and that they're designed for use in general lighting applications.

In the DOE final rule, the definition for general service incandescent lamp was not changed, it still includes the narrowing of the scope to just those of the medium screw base. The lumen range of 310 to 2600 lumens, and a voltage range partially within 110 and 130 volts.

But what did change in those final rules were the exclusions. So I'm going to list them here but not read all of them. I'll note a few of them, things like

appliance lamps, large-diameter globe lamps remain excluded. The rest of the list of those excluded lamp types. But it's more notable for what is no longer excluded. So the exclusion for reflector lamps and most decorative lamps was removed.

And now really getting to the applicable definitions for this prerulemaking and rulemaking. The new definit -- highly modified definition for general service lamp would now include lamps with any ANSI base, much broader voltage operating range of 12, 24, between 100 and 130, between 200 and 240 or 277 volts for integrated lamps, any operating voltage for nonintegrated lamps, an expanded initial lumen range now from 310 to 3,300 lumens. And then specifically identified in the definition that a general service lamp is not a light fixture and is not an LED downlight retrofit kit. And again, these lamps are for use in general service lighting applications.

They include but are not limited to general service incandescent lamps, or GSILs; compact fluorescent lamps, or CFLs; general service light-emitting diode lamps, I'll be referring to those as LEDs; and general service organic light-emitting diode lamps.

There's also a long list of exclusions for general service lamps. Many of these are similar as we just saw in the previous slides for general service

incandescent light exclusions such as appliance lamps, large-diameter globe lamps.

The definition of general service lamp continues to exclude general service fluorescent lamps often referred to as linear fluorescent. It excludes high intensity discharge lamps such as high pressure sodium or metal halide. It also excludes certain multifaceted reflector lamps or RM lamps. It excludes certain small reflector lamps unless they're on specific basis. It does exclude some larger S and G shaped lamps and some longer or smaller diameter T shaped lamps.

Again, all of these exclusions are listed in Chapter 10 in the staff report and in the regulatory language handout that's outside.

The one new definition that Staff is proposing is for a low-lumen lamp. This would be a lamp with a lumen output range of 150 lumens or greater and less than 310 lumens and otherwise meets the definition of a general service lamp.

Section 1604 of the regulations is test procedures. Again, 1604(k) is specific to lighting. Staff is not proposing any substantive changes to test procedures. There are some clarify edits to ensure alignment with the Department of Energy. This is really just a language cleanup. For state regulating LEDs, the

optional testing will be maintained for flicker and audible noise. These are applicable to dimmable LED lamps under the Appliance Efficiency Regulations but they're also applicable to the California Building Efficiency Standards, Joint Appendix 8.

The Staff will propose that low-lumen lamps use the same test procedures as general service lamps. And that will be based on the light source technology.

Section 1605.3(k) contains a state efficiency standards for lighting. The newly proposed language is shown in underline here. The -- other -- the standard formatted language is existing.

So for general service lamps, state-regulated general service lamps that are sold on or after January 1, 2020 with a lumen range again of three hundred -- initial lumen range of 310 to 3,300 lumens, we're proposing a minimum efficacy standard 45 lumens per watt. There's also a minimum rated lifetime. This is again carried over from EISA of 1,000 hours. CFLs and LEDs can, of course, usually meet that.

I will highlight again that the effective date is based on a date of sale. Not typically what -- the way that an appliance standard would be implemented, but Staff is proposing to align with the way that Congress directed 45 lumens per watt backstop to be implemented nationally.

For low-lumen lamps, Section 1605.3(k) also contains a proposed new standard. An initial lumen range would be equal to or greater than 150 lumens and less than 310 lumens, an identical minimum efficacy standard and minimum rated lifetime. However, the implementation date would be based on manufacturing date. So on -- manufactured on or after January 1, 2020.

Section 1606 of the regulations contains the certification and data submittal requirements for appliances that are often for sale in California. The current regulations do not require certification for general service lamps and Staff is not proposing any new certification requirements at this time.

Most of the general service lamps are required to certify under a different lighting type. Some examples are state-regulated LEDs, state-regulated small-diameter directional lamps, federally regulated medium screw base compact fluorescent lamps. So the bottom line is Staff's not proposing a dual certification for a lamp that is likely to be in another category. And if there is a small number of lamps that are not certified in a different -- under a different lighting type, Staff is not proposing a certification requirement.

Section 1607 of the existing regulation contains the marking requirements for products. Staff's not

proposing any new -- new marking requirements but I'm highlighting the existing requirements just so everyone remains aware of them. All products that are covered by the California Appliance Efficiency Regulations do have to be marked with a name, model number, and date of manufacturer. There's an exception for lamps that allows this information to be placed on the product packaging rather than on the lamp itself.

There are existing products specific marking requirements for state regulated LED lamps and those would be maintained under this proposal.

So we've moved through that much quicker than I had planned. So I think that late date -- or late time on the agenda is unlikely to occur.

At this point we would stop for any comments, substantive questions, and feedback. Some questions that we may want to discuss are, do the definitions, test procedures, and standards that are proposed by Staff align with the DOE final rules? Are there ways which the Energy Commission could make the proposed regulations clearer? Should the Energy Commission require certification to general service lamps? And if so, what data should be collected? Shouldn't the Energy Commission expand marking requirements for general service lamps? And if so, how?

I think we definitely have some comments in the

room. Yes? No?

MR. HOWLEY: Joe Howley -- is it on?

Okay. Joe Howley with GE, manager of industry relations.

From an industry's standpoint, we certainly do not encourage any additional certifications or marking requirements. Those certifications and marking are very expensive for industry.

In terms of aligning with doing final rules, we do note there is no energy conservation standard placed on any of these lamps and the expanded definition.

We would also disagree that the backstop has gone in place in 2014 as indicated on one of your slides. That is just the year when they started the regulations. We would all -- we would disagree that it's in effect right now. We believe this is something that's still under consideration by the Department of Energy. It has not been prescribed by Congress. There was -- Congress prescribed a method by which to regulate these lamps and DOE has not completed their work on this issue.

In terms of make the regulations clear, I think what you're proposing is fairly clear on the issue. Thank you.

Oh, perhaps one more?

MR. SAXTON: Sure. Of course.

MR. HOWLEY: One more thought that I had was that the -- there's a presumption that lamps will be available, for instance, you mentioned E11 base. The E11 base is generally on high wattage, high light output halogens lamps. These lamps are very difficult if not impossible to make with LED technology. And so the presumption is that they will be available. But that is a major presumption that because of technical or economic feasibility, I don't think it's one the Commission can make across the -- all the products and expanded, potential expanded definition.

MR. SAXTON: Okay. Thank you, Joe.

And noted on the WebEx that you were having a little difficulty hearing speakers. We'll try to have them speak more clearly.

MR. MCGARAGHAN: Thank you, Pat.

Mike McGaraghan, [inaudible] with California Utilities. And we will definitely have some additional comments later, we have a presentation queued up, but I did just want to comment on one of the questions on this slide. Should the Energy Commission require certification of GSLs?

So we do a lot of work through our Compliance Improvement Program. Utilities run a subprogram all about compliance and working with stakeholders throughout the chain. And one of the things that we find is there are certain points that there's often confusion about the

standards and whether they apply and whether a product needs to meet the standards, is it a compliant product.

And the way we teach this in our education, our outreach efforts to retailers in particular but really all stakeholders is that if it's not certified, it's not compliant. That's one of the most basic tenets of our work and combines [inaudible] trying to drill that point home. So I think from our perspective having certain products that aren't required to be certified definitely challenges that notion and it means that we have to structure our education and outreach initiatives in a different way and can say that almost all products have to be certified except for these few very specific product types that don't and that I think will add confusion and just make a clean message under a messy one.

So our recommendation then on Point 3 there is that if there's a Title 20 requirement for a product, that it should have certification requirements to go with it.

MR. HOWLEY: Can I ask a question about the Staff Report?

MR. SAXTON: Okay.

MR. SERRES: Anthony Serres, Signify.

A couple of questions and some of these go back to the Staff Report. Just a comment. On page 18, you said, it says there's only one proposal was received. And

maybe they're not proposals but they were comments sent in by LEDVANCE, NRDC, and I believe the IOUs. So I don't know if those are being counted as proposals or not but there were other entities that submitted comments.

MR. SAXTON: Yes. Definitely, yeah -- thank you, Anthony. Definitely earlier in the prerulemaking proceeding there were numerous comments submitted by stakeholders and those were considered, we can note those in the Staff Report. But as far as an actual scope and standard proposal, the only one submitted was by the California Investor Owned Utilities.

MR. SERRES: Okay. And then in the Staff Report, I believe it's inception of Chapter 6, "Efficiency Standards," it says that Staff is considering possibility of increasing the minimum life LED life requirements in maintaining the minimum color rendering index requirements put in by -- placed by EISA.

And I'm curious if there's been any problems that are precipitating that thought. Like, why would you consider increasing the life and expanding the CRI requirements?

MR. SAXTON: I think that -- is that listed in the Alternative section?

MR. SERRES: No, it's under Efficiency Standards.

MR. SAXTON: Okay. I don't actually have that in

front of me right now.

MR. SERRES: Okay.

MR. SAXTON: I don't have a great response for you, Anthony. I think that's just -- that's something that's in the realm of possibility, that's not something that's being actively proposed or worked on right now.

MR. SERRES: Okay. Thank you.

MR. HOROWITZ: Good morning, this is Noah Horowitz with NRDC, the Natural Resources Defense Council.

We too will have comments later and I'll be brief. But I just want to highlight and offer a different perspective that we and many others believe the backstop has been triggered and that 45 lumens per watt is the standard.

Secondly, in terms of certification, we agree with the comments from Mike McGaraghan and would like to continue the conversation on certification in general. Certification is what's required to sell a product in California. We're not clear why the Commission wouldn't do it, and if they don't do it with that hindrance and ability to enforce its standards. So over the course of the day, we'd like to continue that conversation.

And lastly, the current regulations require printing of a date code on the package anywhere on the bulb. And many of those codes might say something like A7.

We fully support the ongoing requirement for printing. I wonder if there's any way to provide greater visibility on what those date codes are, either the CEC or if possible the public to support the compliance surveillance efforts.

Thank you.

MR. SAXTON: Thank you, Noah.

So in the regulations -- existing regulations which do allow date codes for date of manufacture, there's a provision there that the Energy Commission can request a date code for manufacture at any time and that that has -- must be supplied. There's not anything that would make those publically available, though.

I guess one, since we did several comments on certification, certainly we should continue that conversation throughout the day. One -- one thought is that identifying products in the -- by model number and requiring them to certify as often because two items outwardly appear very similar but have different energy consumption characteristics.

In this case with the 45 lumens per watts standard being proposed, it actually should be very little, probably, approaching zero question just by visually seeing a lamp if it meets 45 lumens per watts or not just based on the light source.

That's one train of thought we should definitely

all consider -- or continue talking about that.

MR. HOROWITZ: Just a quick follow up on that.

This gets into the inter -- Noah Horowitz with NRDC again. This gets into the interplay of certification. If it's not certified, you take a look at it, you say, oh, it's clearly in a condensed thing to worry, it appears to exceed the 45 lumen per watt. That's pretty simple, I agree. But then if it's not certified, this is still subject to the date code requirements so you can help this product.

MR. SAXTON: Thanks, Noah. That's a good clarifying question. And, yes, these products would be subject to the general marking requirements for all products that are covered by the California appliance regulations. So they would need to have a model number, date of manufacture. Again, it could be on the packaging or the lamp. So the standard marking requirements would apply to these products.

MR. HOROWITZ: Thank you.

MR. SAXTON: Okay. Did we have any other comments in the room? We received several online.

Okay. We have one comment from someone not identified. The backstop has not been triggered. This is an opinion only. The U.S. Department of Energy or Congress can make that determination. This information is

infuriating.

So clearly this has been a very legally contentious issue. I expect that that contention will continue. In the notice of proposed regulation that was published in the Federal Register on March 17, 2016, I quote: "Due to the appropriations rider, DOE is unable to perform the analysis required in Clause small 'I' of 42, U.S.C. 6295(i)(6)(a). As a result, the backstop in 6296," which I believe is air? I think that should be 6295. "(i)6(a)small roman 5 is automatically triggered."

Obviously none of us will be able to answer these questions today.

We have an additional question. When the lighting is used in the secondary product, how is the lighting marking to be conveyed?

That's a very good question. It needs to be conveyed at the time of initial sale. So I'm struggling for some reason to come up with a specific example, but when the sale, whether and this could be, these regulations apply both at wholesale and retail. So if a wholesale contract is executed where lamps are sold to a manufacturer who's then going to incorporate those lamps into a larger product, that information has to be conveyed to the purchaser of the lamps. So the assembler or the manufacturer of the larger product.

And if hypothetically, very hypothetically there was an enforcement action that wound its way all the way back to the lamps used in that product, the manufacturer of that overall product would likely be asking the manufacturer of the lamps to show them those date codes and how they comply.

That seems to be it for online questions. I do think we have the clarifying -- or another question in the room.

MR. NGUYEN: I'm Phi Nguyen with Energy Solutions on behalf of the California IOUs.

Just quick point and comment. While thanks Pat and the CEC for the discussion on the history of the rulemaking. It's interesting to talk about this 45 lumen per watt backstop. But just want to comment and clarify that this is perhaps not relevant to this precise rulemaking as California does have the right to regulate GSLs to adopt [inaudible], to adopt the final rule that was at least as stringent as the 45 lumen per watt backstop or that 45 lumen per watt backstop if you read [inaudible] that final rule.

So the IOUs will discuss that a little bit more in a later presentation, but just would like to point that out.

MR. SAXTON: Thanks, Phi.

Okay. One last check for comments in the room or online.

Okay. So that -- again, that went considerably faster than I expected. If anyone absolutely needs a break, we can take one. Otherwise, I think let's continue going.

Okay. The Warren-Alquist Act requires the Energy Commission to perform technical feasibility and cost effective analysis for all products which are covered in the California Appliance Efficiency Regulations.

For this proposal, four categories of lamps were analyzed. Lamps with E12, 17, 26, or GU24 basis, small-diameter directional lamps, low-lumen lamps, and then a catchall category for all other general service lamps.

As a high-level note, the 45 lumen per watt standard can be met by LED or fluorescent technologies. And newly covered lamp types fall broadly into two cat -- two subgroups. One where high-efficiency replacements are already available. And one where high-efficiency replacements are not necessarily available on a retail shelf that can be manufactured using interesting technologies.

LEDs are broadly available and shipments are continuing to increase. As of date in July, the ENERGY STAR qualified products list, there were over 8,600 models

listed. I acknowledge that not all of those are necessarily entirely need products. In any case, it's a very large number of LEDs. The figure is supplied by the National Electric Manufacturers Association, or NEMA, and this represents fourth quarter 2017 national shipments of A-shape lamps. The purple bar is LEDs, and we can see the significant growth in LED shipments over time.

Beginning in 2018, the blue bar at the bottom which represents halogen A-line shipments would no longer be lawful for sale in California.

I think the main item that I'd like to highlight from this graph is that despite the growth in LED lamps, since approximately two thousand -- late 2014, early 2015, the share of halogen lamps, shipments-wise, has remained relatively steady. There are, that is certainly not necessarily one-to-one tradeoff due to the various lifetimes of these products, but there's still significant number of shipments of halogen lamps.

LED, both manufacturing cost and retail price are declining. Typically changing the base-type or the lamp envelope which is the case in numerous of these products is not a costly effort. There are important items for manufacturers to be aware of. It is included and certainly aren't limited to thermal management light distribution but these are areas that manufacturers have significant

experience with and certainly predate the rise of LED technologies.

This figure is a LED lamp price index that was taken from a Lawrence Berkeley National Lab report of the impact of EISA. The specific numbers are not necessarily the most important part of the curve -- or most important part of the information, it's more the shape of the curve. And we've experienced that significant decline that is shown beginning May 2015. Perhaps we're reaching an area where that rate of decline is lessening but it's certainly expected to continue through the next several decades, perhaps again at a different rate.

The first category of lamps that was analyzed for technical feasibility, those with E12, E17, E26, or GU24 basis. This represents a group of lamps that were found to be technical -- technically feasible in the Commission's 2016 LED rulemaking. Some examples are shown in the picture. There's many lamps from multiple manufacturers in multiple form factors available on California's retail shelves today. Some of these lamps have been available and has compact fluorescents as well. They were made available today, they're market share has certainly declining as we saw in the previous shipments slide.

The second category of lamps that was examined was small-diameter directional lamps. Again, these were

part of the Commission's 2016 rulemaking. They were found to be technically feasible at that time. There are numerous products available on California's retail shelves today in compliance with those regulations.

For low-lumen lamps, these are again between initial lumen output between 115 and 310 lumens. They're essentially lower light output versions of other screw base LEDs. They're otherwise identical to general service lamps. LED versions of these lamps today are subject to the state regulated LED regulations in California and have been since January 1, 2018. So again we find these products on retail shelves in California. And there were over 440 models of lamps on the ENERGY STAR qualified product list between 115 and 310 lumens in July.

The last category of lamps that was analyzed was other general service lamps. These are primarily distinguished by a combination of light output level base-type and form factor.

DOE crafted their definitions and stated as such in published documents that they explicitly exclude lamps that cannot be made with nonincandescent technology. By inference, you would expect that high efficacy versions of the lamps that are included in the definitions are technically feasible. Those could be items that either exist in the market today as LED lamps or ones for which

there's a clear technological pathway for manufacturing. Again, there are some modifications that are relatively simple and others that are more complex.

For cost effectiveness and savings, both are also required by the Warren-Alquist Act, Staff analyzed five lamp types. Large-diameter reflector lamps, decorative lamps, glove lamps, so-called EISA exempt lamps, and low-lumen lamps.

EISA exempt lamps include rough service, shatter resistant, vibration service, three-way, and high-lumen lamps, ones that were excluded from the previous definition of general service lamps but included in the amended definition of general service lamps.

The Staff analysis for the EISA exempt lamps was based on the three-way and the high-lumen lamps. These two lamp types have a much incremental cost and also rough service, vibration service, shatter-resistant lamps can typically be replaced with standard LEDs.

So for these lamp types, representative lumen output was identified. For decorative lamps, this is the average between a 40-watt and a 60-watt decorative lamp. We can find the wattage of a representative incandescent version of this lamp. This is what's represented in the middle of the chart with a noncompliant lamp. And a hypothetical lamp is listed in the compliant side of the

chart. So you'll notice that the efficacy is exactly at 45 lumens per watt. In reality, the LED version, assuming the replacement lamp is the LED version, the efficacy is likely to far exceed 45 lumens per watt.

The lifetime hours do represent an LED. It's not a requirement but that's representative here. And then the wattage for the compliant lamp is back calculated from that 45 watts.

I'll make a note of an error I made in the Staff Report on large-diameter reflector lamps. I'd identified this lamp as something that is still found on retail shelves and I had attributed that to the Burgess rider that prevented DOE from implementing GSIL standards. As I looked further into that, I believe that this specific lamp is actually exempt from the standards. So that was an error in the Staff Report that will be corrected.

So as part of the analysis, assumptions were made for which portions of these lamps are found in the residential and commercial sectors and what the hours of use in each of those sectors were. Much of this was taken from the previously-mentioned Lawrence Berkeley National Lab report on the impact of EISA. Some information was also taken from the California IOU case report, and some is from Commission staff.

In the final columns, Staff calculated the sector

weighted annual hours of use based on those market shares and daily hours of use. These calculations are detailed in the appendix of the Staff Report including the equations that were used to determine them.

One basically combining the last two slides that we looked at, we had the wattage of the lamps from two slides ago. From the prior slide we had the hours of use. That allows us to calculate annual electricity usage for both the compliant and noncompliant versions of the lamps. Those are shown here in the middle of the chart in kilowatt hours. And then we can simply take the difference between those two to estimate the annual electricity savings. This is for a single lamp.

And then the last column is based on that 10,000-hour lifetime because the replacement lamps were soon to be LEDs, and that's compared to again back to that noncompliant lamp that was shown two charts ago. These equations are also in the appendix of the Staff Report.

The assumptions for cost of these lamps are shown in the middle of this cart. The source for this information was again in the Lawrence Berkeley National Lab Report impact of EISA. Energy Commission staff provided the estimates for lamp costs for low-lumen lamps.

The final columns, they're just the incremental cost between these two. It's just the difference in the

cost. Again, I'll note that for EISA exempt, the very high incremental of a compliant lamp is because this is based on the three-way lamp and the high-lumen lamp. One way to look at that would be that for the other three lamps in this category, this is a significant overestimation of cost, it's still cost effective.

I'll wait just a second, I see a few people taking some notes.

So this is the net monetary savings for a single lamp that uses their electricity rates that are shown at the bottom of this slide which came from the EIA. I believe that's California data for February of -- I can't actually remember if it was February 2017 or 2018. That is identified in the Staff Report as well.

The first year savings do have the incremental costs of the lamp subtracted from them. So this is a net savings. What this means is that for the four lamp types, large-diameter reflectors, decorative, globe, and low lumens that this proposal would have a simple payback of less than one year. Again, based on those assumptions of hours of use that were shown a few slides ago.

The one slide that does not have a simple payback in less than one year is in that EISA exempt category, it's due to that very high incremental cost that was for two of the five lamp types within that subcategory.

The lifecycle savings are shown here. They range from $11 to $90. This is really depending -- dependent on the daily hours of use. But again, all of this proposal is highly cost effective.

So I'm moving towards savings calculations now and acknowledge that the statewide savings estimates are dependent on the existing stock and shipments assumptions. Now the information that we're requesting stakeholders to share or supply if they have anything that they can contribute. For these calculations we assumed the LED shipments are increasing 10 percent annually, we used 2015 baselines for that, an increase from 10 percent there or from that point, I should say.

The estimates of low efficacy stock really means an estimate of low efficacy lamps that are populating sockets in California in 2020. And the shipments by light source are also Staff estimates. I'm sure we'll receive comments on this information.

Notable LED market shares for large-diameter reflector lamps, we're estimating or assuming 20 percent by 2020 and 15 percent for decorative lamps as well.

Pause again, I see a few notes being taken, numbers being calculated.

So this graph which is also in the Staff report is again representative of the existing stock of low

efficacy lamps that are populating California sockets. Assuming this proposal was implemented, those would eventually go to zero once all those lamps had to be replaced and the replacement products all had to be 45 lumens per watt or higher. So this does not show any stock based on reconstruction. It does not show any stock based on replacements of LEDs or CFLs. And that's why LED lamps and CFL lamps are not represented in this chart.

So you can see slower declines in -- in the stock of these products between the beginning of the chart of 2017 up until 2020. That's the 10 percent a year assumption of LED market growth. And then steeper rapid declines once 2020 becomes available, and the assumption is that all replacement lamps become LEDs. And the different slopes of those declines are due to the different lifetimes of those product categories. Excuse me, not necessarily the different products -- not necessarily the different lifetime of the lamp, but the different lifetime in the socket based on the hours of use.

So this chart is representing shipments. Again, it's only shipments of replacement lamps for those sockets which are currently populated with low efficacy lamps. It's not including any shipments for new construction or CFL and LED replacements. The orange color represents high efficacy replacement lamps. The blue, red, green, purple,

and yellow are representing low efficacy lamps. Again, if this proposal was implemented in 2020, those lamps would no longer be able to be sold in California and that's why those shipments rapidly go to zero at 2020.

If we look at the orange portion of the chart for high efficacy replacement lamps, the initial upward slope between 2017 and 2020 is again representing that assumed 10 percent market growth. The various drops in shipments of low efficacy replacement lamps mirror the rapidness of the decline in shipments that we saw in the previous category.

So for example, large-diameter reflector lamps which typically have longer daily hours of use are being replaced at a faster rate. The decline in shipments will be steeper. For a category like globe lamps with lower daily hours of use, the shipments of LEDs will be slower because the low efficacy lamps and the existing low efficacy lamps in sockets will persist a little longer.

These numbers are not only the equations of how these were calculated but a table including data points for each year are in the appendix of the Staff Report.

MR. SERRES: Clarifying question. Thanks. Anthony Serres, Signify.

So the -- in the orange curve there, there's a first sharp drop is because people have now replaced the incandescent reflector lamps through all these other

products with the high efficacy products and now they don't have to go to the replacement cycle, is that what you're -- what you're getting to?

The same thing for the other one, I notice the output is zero in 2026.

MR. SAXTON: Yeah, thank you, Anthony, that's a good clarifying question. What you identified is -- (Recorder turned off).

(Recorder turned on) -- the chart that showed -- (recorder turned off).

(Recorder turned on) -- low efficacy lamp, socket population in California right now. So the steep drop in the blue -- in the darker blue for large-diameter reflector lamps between approximately 2020 and 2022 is indicating a full replacement of that lamp type in approximately two years due to the longer daily hours of use.

So the shipments for that are likely reflected somewhere in this area. And as you said, any -- even if there's an LED in the downlight today -- an LED lamp in the downlight today that needs to be replaced in 2021, that's not represented in this chart. This is only the shipments to replace -- to replace lamps that are low efficacy that are currently populating the sockets. And so they do go to zero in -- for many lamp categories. Some of these categories as early as 2022, but for all of these

categories by 2026 and that's just because it's the first replacement cycle for a low efficacy lamp. So we're not trying to estimate continued shipments of LEDs for future growth, new construction, or once LEDs begin the replacement cycle or already have begun.

This table includes estimates of annual electricity savings and annual monetary savings on a statewide basis. Again acknowledging that these numbers are dependent on where we make assumptions of current LED market share and also the population of low efficacy lamps in existing sockets.

This -- the electricity savings are very high as all of us who have worked with lighting know the efficacy of LEDs is far exceeds those of current low efficacy sources. And again these are based on lamps hypothetically exactly 45 lumens per watt. So in that respect, savings could be -- it's hard to attribute the amount of savings due to turnover, due to -- specifically attributed to a standard with a long history of utility programs in the state as well. But the savings are very significant when you move from an incandescent lamp to a higher efficacy source.

So our estimates from the first year and after total stock turnover here, about 4.7 terawatt hours in the first year, 13.7 terawatt hours after turnover, that's

essentially representative of all those sockets we saw about four slides ago.

On the statewide basis, that represents net monetary savings of approximately 390 million in the first year to California consumers and businesses. For again for the four lamp categories that are looking at less than one year simple paybacks for everything except EISA exempt lamps. Those are based on the very high incremental cost of a three-way LED lamp or a high-lumen LED lamp. They have a simple payback of less than two years. And after stock turnover, more than $2.4 billion of electricity savings on an annual basis for California consumers and businesses.

So we would request any information the stakeholders have available on LED market shares, specifically in California. But in additional lamp categories, national data would be helpful as well. Any data that is specific to the existing stock and low efficacy lamps that are installed in sockets in California would be useful as well as California shipments of low efficacy lamps and LED lamps in various categories.

Any information that is submitted would be considered for inclusion in an updated staff report and would help form the final proposal. We'd also like any information that's available on updated LED pricing or

product availability from California.

The Commission does have a process whereby confidential information may be submitted to the Commission. There's two different methods that I will outline. This has been used in several appliance regulation proceedings. The submitter must request that a document or data be given confidential status.

One way to do that is to fill out an application for which I will be providing a link. Two separate documents are uploaded to the Commission's docket. One for the application, one for the confidential data. These are held, they're not publically released.

The chief counsel's office -- excuse me, the application is made public but the data is held. The chief counsel's office then reviews the application and the confidential materials and then makes one of three decisions. Either they approve the application and give confidential status to the information. They disapprove the application and the data's made public. This would not typically apply at compliance proceeding. We do have proceedings at the Commission that involve power plants whereby statute information must be supplied. And if someone requests confidentiality for that information and they're not granted that confidentiality by statute, that information must still be supplied and it would be made

public.

So that again, that's not something that wouldn't show up in a compliance proceeding. Or the application could be rejected at which point the information would not be made public either.

The second method which many manufacturers find to be preferable would be to initially consult with the chief counsel's office. This could be done via phone or e-mail. After that consultation, fill out the request for confidentiality application. This would be uploaded to the Commission's docket and made public. The chief counsel's office would review that application, likely continue a verbal conversation with the submitter.

And the two outcomes from this method would be either approving the confidentiality request and providing the method for submittal of the confidential materials or the application would be rejected and no data would be supplied to the Energy Commission.

If you are interested in submitting confidential data or learning more about how that process works, the contact in our chief counsel's office is Jared. His e-mail and phone number are here. These slides are also available in the Commission's docket. The web link for the confidentiality request application is at the link in the middle. And then the bottom link is the docket for this

proceeding where a confidentiality request application would be submitted.

For written feedback on both the Staff Report, the Proposed Regulatory lang -- Draft Proposed Regulatory Language, this presentation, we're requesting written feedback by September 17. Like that by 5 p.m. Pacific time.

Those comments can be submitted electronically through our e-commenting system at the link shown. This is link for Docket 17-AAER-07. Comments can also be submitted by mail to the Commission's docket's office at the address shown. And finally, comments can be e-mailed to the docket at the address docket@energy.ca.gov. If you do that, please include the docket number in the subject line of the e-mail.

Just very high level concluding statements for the Staff presentation. The remaining low-efficacy lamps in California, you consume a significant amount of electricity on a statewide basis. High efficacy replacement lamps are both technically feasible and cost effective. Significant statewide electricity savings would occur from implementing this proposal. And California consumers and businesses would accrue significant monetary savings from reduced electricity utility bills from implementing this proposal.

Another discussion break now. Some topics that we may wish to discuss are about those savings estimates. They may be over or understated based on the assumptions that I mentioned. Many of these could be differences between California and national lighting markets. Staff is liked to better reflect California's market share for low efficacy lamps, both existing stock and shipments and shipments of LED lamps.

We're also interested in any information or updating pricing and availability of LEDs in California.

We'll take comments in the very first.

MR. HOWLEY: Thanks, Pat. Joe Howley, GE Lighting.

In terms of information, I'll be providing a presentation a little bit later and commenting on the data. But NEMA is looking at their -- has access to shipment data so we know how the low-efficiency products were selling. And I think we could make some more accurate determinations with what you actually have in your market. Review the numbers that you are showing are somewhat overstating given the method that you used to calculate from. I'm talking more about why that is.

I think earlier on in this discussion, I'll state another comment. You had a comment that you believe that [inaudible] fell into two categories, GSLs at -- that were

currently being made in LED or CFL. Or GSFLs that -- there is a technical pathway for manufacturing. There's also a third category and this is a critical category and that is GSLs that do not have a clear technical pathway and are not technically feasible to be created.

You analyzed four very common areas where I think most would agree there's LED technology available today in the four categories that you -- they analyzed and therefore came to a technical feasibility conclusion.

But there's a huge disconnect between what you analyzed and the DOE definition which is a much broader set of lamps to include that broad set of lamps. And within that much broader set of lamps is this category of lamps that there is a technical feasibility for CFL or LED technology.

And the Commission is going to have to figure out what to do with that if they do proceed with this definition. What happens when it's clear there is no pathway for [inaudible] technology because there's many types that you would not analyze that would be covered by that real broad definition as opposed to the types you did analyze where LED technology is available.

Also I'd argue that what you did analyze probably represents the best bulk of the savings of -- that you could get from the remaining incandescent technology being

used. Types -- we're referring to types that are specialty, special application types of products that are inadvertently covered by such a broad definition. Thank you.

MR. SAXTON: Thank you, Joe. I do presume you'll be adding additional information in your presentation today and in your written comments any specific categories, subcategories, or specific lamp types that you'd like to identify would be as helpful as well.

MR. NGUYEN: This is Phi Nguyen, Energy Solutions on behalf of IOUs. Thanks, Pat. Thanks, Joe, from GE also on that information.

The IOUs would be interested in hearing more about this --

UNKNOWN SPEAKR: Can you speak a little louder?

MR. NGUYEN: -- especially [inaudible] values were involved with DOE's [inaudible] as well. The DOE final rules where identifying this [inaudible] applications. So DOE did rule that the lamps within those definitions were all [inaudible] as well consistent with the Energy Commission. So certainly would be interested in hearing whether lamp types will offset that definition.

And the last point that I would make is California IOUs like products that we're tracking prices for different products and we'll provide an update to those

costs and [inaudible] costs.

MR. HOROWITZ: Thank you. Noah Horowitz with NRDC.

I think we all agree that the LED bulb is wildly cost effective regardless of the assumptions. So I'm not challenging the overall conclusion you made. Just want to make an observation maybe there can be a clarification in the final documentation. I'm not suggesting you need to rerun the numbers.

But if you could please go to Slide 41. Thank you. I just want to point out that the compliant bulbs is a very conservative estimate. In reality, the savings will be much larger. So, yes, while the standard is 45 lumens per watt, that calculated what the wattage is. But if indeed that bulb is going to be an LED, it's probably 60 to 100 lumens per watt. So where you have 14 watts, that might be 10 watts and similar to grading in the numbers there. And that would then drive the annual energy savings and make the cost effectiveness even more favorable. So maybe to say this is a minimum and that actual savings might be greater.

And in terms of the cost, if you go to Slide 44, three more down, Pat. Thank you. We think the cost on the compliance side might be on the high side and it'd be good to clarify if you buy something in a onesie, a single bulb,

the price could be pretty high per bulb. But when you buy in a multipack, the cost could be must lower. So hopefully these costs both on the noncompliant and compliant side reflects similar packaging.

I just went to Home Depot last night on the way here and I have a receipt and everything. I just bought a two pack of Title 20 compliant candle bulbs that are LEDs and they're about $4 each. So we'll be providing additional information there. So if anything, your numbers might be high, but at the end of the day, you've met more than enough of cost effectiveness requirements. Thanks.

MR. MESSNER: Thanks. This is Kevin Messner with AHAM. I'm a little late but if you're talking about cost effectiveness, wondering we've got an issue with replacement bulbs and if they're no longer available for let's say a vent hood or something like that with the replacement of that plan out of the, have to replace the whole appliance, for example, if there's not a replacement bulb. Hopefully that will not happen but there's no -- to do with that, I wonder if that's been thought about.

MR. SAXTON: Yeah. Thank you, Kevin. So Kevin and I have been having a discussion about some specific lamp types that are really affected by the Commission's existing small-diameter directional lamp requirements. And so that's not discussed in this Staff Report. We are

definitely aware of the situation. We do intend to address it in this rulemaking but because it's not a general service lamp issue, you're not seeing that in the Staff Report.

But it does speak, I think, both to your comments and Joe's comments as well that the definition here is very broad and that does require a lot of consideration.

On Noah's comments, I think that the Energy Commission certainly does not get in the habit of trying to attribute split attribution between market and utility programs. I'm trying to make estimates based on the -- what the standard provides and so that's why we're only calculating up -- specifically up to 45 LPW. I certainly agree that the macro effect is much larger than that.

Also, to make it a little more complicated, the Commission did attribute savings to -- from the LED's rulemaking and small-diameter directional lamp rulemaking in 2016 from the market averages of those lamps. So for the market average LPW of an LED say circuit 2015, 2016 up to those standards has been counted so maybe we're looking at the bit in the middle. But your point's certainly valid both from the energy savings and a cost savings that a consumer or a business, whoever the purchaser and user of one of these lamps is, impact for them will be even greater than we're showing in the Staff Report.

And then Phi and Joe, yeah, thank you both for your comments as well.

Anything else in the room?

Okay. Looks like we've got someone online.

If halogen A-lamps will no longer be acceptable in California, what is the proposed replacement for something like an oven where LEDs cannot handle the heat inside the oven? Or would this application be excluded since it's an appliance lamp?

So that's very similar to the comment that Kevin from AHAM had here in the room. The answer's a little bit complicated. If it was an A-lamp, then it is most likely not excluded if it's truly an appliance lamp. So this is where the designed and marketed definition comes in. But there's exclusions for the current definition of general service lamp for appliance lamp.

I make the range hoods in Kevin's example are really using MR16s and PAR16s and those become small-diameter directional lamps. And that's a different -- different existing standard which does not have the exclusions which would address this situation.

So definitely the Commission's aware of these high temperature applications and we do intend to address that in this rulemaking.

Yeah, okay. Chris Granda, if you're still on the

line, we're going to unmute your line for you.

MR. GRANDA: Thank you. [Inaudible.]

MR. SAXTON: A little louder, Chris, we can barely hear you.

MR. GRANDA: Sorry about that. I had some background noise issues here so I was trying to respond in writing. I just wasn't --

MR. SAXTON: Even louder if you can, Chris, we're still struggling. I'm sorry.

MR. GRANDA: Sorry. I'm experiencing technical difficulties. No questions at this time.

MR. SAXTON: You know what? We can actually hear you this time.

MR. GRANDA: That's fine. Just go ahead.

MR. SAXTON: Okay. Thanks, Chris. Please do submit any comments in writing.

That was Chris Granda with Appliance Standards Awareness Project. I don't think I fully identified him.

Okay. If we have no more comments at this time, let's take a quick break.

It is 11:40. We have three stakeholder presentations about 11:50, 10 minutes. Okay. Thank you.

(Off the record at 11:40 a.m.)

(On the record at 11:53 a.m.)

MR. SAXTON: Okay. Thank you, everyone. So we

are restarting the Staff Workshop on General Service Lamps Expanded Scope. We've completed the Staff presentation at this time. Have just a couple of short discussions and we'll now move to stakeholders presentations.

The first one will be from Joe Howley with General Electric Lighting.

MR. HOWLEY: Well, good morning, everyone. I'm Joe Howley, I've made some comments already, manager of industry relations for GE Lighting. I'm also chairman of the NEMA light source section.

And so I've put together a short presentation of ten slides where I make ten points in I hope about ten minutes. So we'll see how this goes.

First comment I have is on the NEMA index report that was used in the Staff Report. And this is just to clarify what this index report is. It was designed to track regulated general service lamps. And it's a national index report. And it shows what happened to the incandescent market once the federal standards went into effect from 2012 to 2014.

As you can see, about 75 percent of the market at that time was incandescent lamps. About 25 percent in the green was compact fluorescent lamps, and a lot of that was driven by utility rebate programs at that point in time which was driving a lot of use of CFLs.

Then the regulations hit and you could see how the incandescent lamps went away except for the lower wattage incandescent lamps, which is the red area. The blue lamps represent halogens, the green is CFL, and the purple is LED.

There's two other points about this, though. The halogen lamps, the blue lamps are soon not going to be found in California. I say soon, the regulation did go into effect January 1, 2018 but there was inventory being sold off, 2017 inventory, which we imagine is going to take usually about a nine-month cycle to get rid of all the inventory. So as we're heading into September here, I imagine you'll see fewer and fewer halogen lamps at any store. There's always some stores that have a few, they're still selling manufactured from last year. And those will run out, though. So this cart will look very different if we're talking about California.

Also nationally, they -- this represents NEMA manufacturers who are reporting. There is a lot of non-NEMA reporting manufacturers who are making LEDs. One Only has to look at the ENERGY STAR data to see all these names of companies you've never heard of before that are making ENERGY STAR lamps. NEMA represents about 20 of the lamp companies, they don't represent about 80 of the other ones. The other ones tend to be small -- a small market share.

But when you take that to account, the LED penetration is actually larger than shown here by NEMA members because a lot of those other companies are no longer making any incandescent or halogens, they're all bringing in the LEDs these days.

Another point about the data. I made reference to this before. We believe that the data is inaccurate because we cannot support it based on our shipment data. We'll have to discuss this with NEMA about providing some of the shipment data. We typically view our shipment data as proprietary but we understand there is a -- there is a method to provide proprietary data to the CEC. So we'll have to discuss that. But we provide some more accurate data.

What it's going to show, though, is that there are much fewer incandescent reflector lamps, decorative lamps, and the so-called EISA exempt lamps that are being sold today nationally and therefore being sold in California. We might even argue there's even fewer being sold in California because of aggressive rebate programs out here.

In fact, when you look at the EISA data which is commonly available, DOE publishes the EISA exempt data, it would seem to support more of a -- installed market base of around 10 million lamps versus the 35 million. Of course,

DOE went ahead and put there backstop rule in place for vibration service and rough service lamps, limiting those products only 40 watt of single pack max. So it's going to eliminate a lot of the rough vibration service off the market in the next couple of years. That regulation only fully went into effect on May 1 with that inventory being sold out of those products.

And so we would estimate that these are probably off -- the total energy savings here, coming off by factors as much as two or three times higher than what you're really going to see, especially if you consider projections to 2020. And that's based on what we're seeing today.

The third point is that the projections and there's a confusing table in there, I did have some e-mails with the Commission to try to understand this, but there's a part in there that shows 2015 stock and then underneath it, it says 2020 projection. And it looks like the 2015 data is being projected all the way till 2020 and that is what is going to be inspected.

I notice that there was -- later on there was a chart in the appendix that shows a different projection. But with this projection, it would indicate that the market in 2020 would be 17 percent CFL, 1 percent LED. That produces to be about 4 percent and the zero percent LED. And we all know that that is not what the 2020 market's

going to look like for LED. There's a lot more shipments of LED going on right now.

In fact, we would look our sales today and estimate that there's somewhere between a 20 and 30 percent shipment data today in terms of percentage of our shipment in these categories is LED. And those are going into sockets and of course they stay there a long time. And they're taking away sockets that would be incandescent. And by 2020, the socket penetration could be as high as 50 percent if you're looking at LED, the LED plus CFL. But as much as 50 percent of the sockets could be energy efficient technology by 2020.

This is especially true with California where you've eliminated the ability to sell halogen lamps from this point forward. Of course, here we're talking about the specialty lamps. But even the specialty lamps are going to have a very high percentage.

One data point, that is publically available. ENERGY STAR last week, they recorded sales of ENERGY STAR lamps. They said there was 381 million ENERGY STAR lamps, this is A-line, reflector, and decorative that were sold last year. And they only represent 70 percent of the market. That means over 500 million LED lamps were sold in the United States last year.

This trend is continuing, makes it accelerating

even far faster than the manufacturers expected. The public is excepting LED technology in a big way. And this is rolling fast. And it's -- there's going to be a high penetration by 2020 without -- without regulation.

This particular issue, fourth issue, this is very difficult for manufacturers. The sales ban. We're used to manufacturing status, we are not used to sales bans. In fact, we've never experienced a sales ban before. So we don't even know if this is actually possible. Manufacturers have no control over our products once they are fixed which potentially mean retailers and distributors [inaudible] millions of dollars in inventory.

And the third prompt for the Commission is how, how does the Commission really supposed to enforce a sales ban across what could be hundreds of thousands of different sales locations both commercially and consumer? We would even argue to ask CEC how could do this? How are they even thinking about doing this?

It's not realistic to regulate a sales ban which is why there's always been a manufacturing date. And what we would suggest is what the Commission really needs to propose a regulation that has a plausible chance of enforcement because the charts showing the zero sales January 1, 2020 are interesting, you can do them on a chart but I would say almost impossible to enforce and that

doesn't represent reality simply because there are so many thousands of sales points. We really need a manufacturing date for any kind of expanded rule. I think a sales ban date is not realistic for any of us.

Again, we would argue that DOE has not implemented this as well, it does not show up in the Federal Register and we hope that DOE wouldn't try to do this as well because again it's just unrealistic for DOE to try to implement a sales ban. They also have placed every energy efficiency regulation they've done for 20 years as manufacturing dates. We don't expect this one to be different.

An issue this is -- with the current regulation on color. And I raise this just because there was some questions in there about should we expand. And our definite position is no, definitely not expand into this color area. I think this color area is problematic in California today for A-line lamps.

In the rest of the United States there's five basic types of lamps being offered to the public very successfully, they're delighted by these colors. We do not get any complaints. The only complaint we get on color was when somebody was expecting a 2700 per [inaudible] lamp and they accidentally buy a daylight lamp that's at 5,000. Then you can buy a different lamp.

But other than chromaticity, we do not get complaints on color rendering index or color.

Soft white and daylight are available 2700, 5008 CRIs. Not available in California now. There is 90 CRI versions of 2700, 5000, what GE would market it as a relax and refresh high definition.

And then the modified spectrum category is not in California. This is what in studies, this is the most preferred color point. But's it's arguably the best color on the market, you can't even get that, buy that in California today. It's 90 CRI, 2850 -- it's the lamp that removes the yellow tinge from the light.

The reason why that originally did get in there is because -- and it looks like -- you can't see the bottom of this chart. But there was -- there's more down here. But the reason is that they point to an ANSI standard. The ANSI standard that they point to is 2015. That's actually been updated 2017. But when this was originally proposed in 2015, there was no color points defined for the modified spectrum.

That has now been resolved. There are color points for modified spectrum. Then the -- in the 2017 color standard, the ANSI 7.8.377 standard, we can put in more comments about this but we would highly recommend that only that we don't add this. But this particular color

regulation be modified to also include Table 2 of the updated ANSI standard. So you conclude these new color points and California could have access to what's arguably the best color lamps that we sell in the rest of the country.

Deficiencies the same. These are now all running at 8 watts to replace the 62 watt lamp. There's no difference in energy use. To us this is kind of equivalent to if you're doing a car regulation with miles per gallon saying all the cars have to be, let's say, 30 miles to the gallon but also they all have to be the color green. It's the only color you can buy. To us this is sort of equivalent. Efficiency is the same, but only two color points. Doesn't make a lot of sense to us. At the very least, the best color lamp should be available for sale if indeed it presented more power than the other test.

Now that last five points are -- have to do with the DOE and the RFI. The RFI, requests for information. When DOE passed the definition that's proposed to be adopted here, they -- they did it very quickly. As you know, there's a Burgess rider where they couldn't collect information they needed, they were also under a lot of time criteria if they wanted to release it before the last administration left office. And because of that, they did a regulation that in our view was very poor. It's a little

equivalent to driving in the dark at high speed without using headlights. But they were told to get this done, they got it done, but at the end, the produced a very poor regulation, a very poor definition.

A lot of these comments -- in September, they basically DOE asked us how did we do and also give us information we didn't have before. Because the Burgess amendment was lifted, they can collect this data.

Because of that, they're analyzing this definition right now and trying to determine what they need to do to fix it from our point of view.

The actual sales they had projected were increasing. I think that was tied to LDL which is now tied to their study which is now tied in California which is why the rejections are so high for these energy efficient -- inefficient lamps. But in reality, sales of all these incandescent categories are going down. We shared that with DOE.

They also -- this definition would cover many special potential incandescents that really have no technical or economic feasibility as an LED replacement. We also put in comments to DOE on that.

What looks practical to the outside world is often not possible because of either seen or unforeseen technical problems that we run into with development or

simply economic problems. There just not enough of a market to develop -- to invest heavily in this so there's no business case for it because the product being eliminated at such a low volume just is not worth creating an LED.

The bottom line, if an LED product is not on the market, it can't be assumed it will be made. We're not saying they all won't be made. Some of them will be made. The reality is if it's not on the market today, some will yet be developed. But some will never be developed. And this definition covers all of them. Both the will be developed and the never will be developed area.

One of the examples of passing regulation is too broad, too fast and not carefully considered. When I look at the CEC analysis, it basically is for four very common types that are unmarked today that are made LED. But it's not for all the other types. But if you look at the small-diameter lamp regulation, we believe the 80 lumen per watt level was way too high, especially to move this to LED technology.

They just pushed -- this was pushed just too high. It was based on a couple lamps having that level at the time. But even today when you look at the very best products, the ENERGY STAR products, for MR16s, there's 400 ENERGY STAR products by 16 manufacturers. There's only 100

California registered products and 13 manufacturers.

On PAR16, there's 600 products from over 80 manufacturers. And ENERGY STAR, only 55 products and 13 manufacturers PAR16s. And PAR20s, there's only 30 products from 8 manufacturers. On the CEC website, there's over 400 products from 90 manufacturers representing only 7 to 25 percent of the ENREGY STAR products that are available to the rest of the country.

Also, the lumen output is lower because the LED has issues with creating high lumen outputs in such small form factors. So that LED versions rank from 200 to 700 lumens versus the halogen before was from 200 to 1200 lumens. [Inaudible] candlepower also was lower from 200 to 8000 and then versus halogen was 450 to 15,000.

So the selection they have does not provide the same light ouput they were getting from halogen lamps. Halogen PAR16s are the same thing, 600 to 900 lumens versus 200 to 600 lumens for the LED version equipment.

And then the final biggest issues right now, MR11. There are four of them listed from one manufacturer. And R16s and R14s there's none listed right now. There is no product available in California unless you get an incandescent lamp manufactured before the date.

That is -- the conclusion that we have on this one is this regulation was set too high and it really

should be lowered. I know that's not what the standard is about but this is really more of an example that if you rush into this too hard, it's probably hard for CEC retract this now. Even realizing maybe went too far in this. We don't want you to go too far on this definition and then have a hard time retracting it if it creates lots of problems.

So this is the definition. The forming issues with what DOE proposed, the biggest one is any ANSI base. The ANSI standard has approximately 150 different base types in it covering every lighting technology. There's four base types that were analyzed in this. There's over 100 base types that weren't analyzed. Now some of them aren't incandescent base types but still there's a lot of base types that have not been analyzed. We would argue general service lamp only as a medium screw base. But even you came in to candelabra and intermediate, those are a few other common -- common base types. But not any ANSI, ANSI base type.

The voltages also, there picking commercial voltages and other kinds of voltages that they really shouldn't have added. 100 to 130 volts, 120-volt type is really what this was all about. The next most common type used in a home might be 12 volts. But other than that, you do not find these other voltages.

We would still argue should limit this at 2600 lumens and not take to 3300. Those very high lumen LED sources are still rare and expensive and difficult to make and then has an omnidirectional light distribution. This is not about reflector lights, it's about omnidirectional.

Finally, it ends up capturing products I think that were in no way intended to be captured such as the way that it's set up they can capture pin base compact fluorescent light as an example. This is a small market, it's declining. It's down by over 20 percent in the last 5 years. All pinned base CFLs already operate at 45 lumens per watt, 100 -- over 100, 1000 hours. So there's no reason to regulate them, they've already maximize the technical capability, they're not growing, they are energy efficient.

Registering and testing these products to DOE test methods is extreme expensive for manufacturers and has no public benefit. And the reason I say that is DOE also changed test rules and they added some test rules to pin based compact fluorescents that were very problematic for manufacturers. We argued against them, the requiring of compact fluorescent lamps be tested on reference ballasts which are -- which we don't do. Everybody life tests CFLs on commercial ballasts not specialty reference ballasts. This is a big problem for us in the industry. Currently we

don't have to do it because there's no federal regulations but California approached it this way and didn't exempt these, or didn't give us a different test method for life, this would be extremely problematic for industry.

And then there's some -- a really odd exemption in here. We pointed this out to DOE with these J lamps. These J lamps are not names that are normally used in the American industry. They're not ANSI defined as a bulb shape, they're not ANSI defined as a base type. They end up being a couple of -- nomenclature used in some other countries outside the U.S. by a few manufacturers remaining conventions. And it's really odd that they picked these up. They should specify the bases and the voltages and the shapes that they're talking about here within these types and not pick sort of foreign based names to randomly exclude from the definition. We pointed this out to DOE as well.

Final, final slide. DOE mentioned in its request for information last August that they were doing this because they might modify -- they're considering modifying this definition. And it's sensible to suggest DOE wait to see what DOE's evaluation of this definition is and not rush forward to it until the federal definition of general service lamp is settled. If there is a change in the federal level, the entire CEC analysis might have to be

redone most extensively than what is being requested today. We think this will -- this will become clearer in the next few months as DOE makes some decisions on this. But in the meantime, they may give California different opportunities to regulate products in different ways. But certainly it's worthwhile to view ways to see how the decision making process plays out.

So that's it. In summary, we believe the data, it is inaccurate and it leads to overstate energy savings. The regulations has a manufacturing date not a sales ban date. The color requirements need to be updated and modified. The definition needs to be scaled back to cover only the products where a known LED option is available. Perhaps the products that were analyzed scale it to those. Pin base CFLs certainly to be excluded. Small-diameter efficiency regulations are set too high, it's too aggressive and it's kind of a lesson to not be too aggressive with this definition. And the proposed definition is highly problematic and they may change as a result [inaudible]. Thank you.

And thank you for allowing me time for federal presentation.

MR. SAXTON: Yeah, thank you very much, Joe.

I guess one quick comment I want to make is that the Energy Commission has had one standard for certain

faucets that was based on a date of sale. So California has implemented that one time.

Phi, did you have a quick clarifying question or? Okay. Then let's move to Noah's presentation and we will do comments afterwards for sure.

MR. HOROWITZ: Morning slash afternoon. This is Noah Horowitz with NRDC, the Natural Resources Defense Counsel.

I thought I'd take a moment just to set things up a little, I'm very conscious of people who want to have lunch or catch a flight. But imagine an opportunity where someone says hey, we have the opportunity to cut the power use of a public product by about 85 percent without sacrificing any performance.

Typically when we're in rooms like this here in Sacramento or Washington, it's this standard could save 10, 20, 30 percent. Here's instead of a 60 watt bulb, you could have something that uses less than 10 watts. Imagine there are billions of these installed nationally, several hundred million in California and it's a really fast turnover once the standard goes into effect. Because unlike a refrigerator that lasts 15 years, many lightbulbs are a year or two at the most in the inefficient form.

And imagine the new product is generally already on the shelf, probably available in all sorts of retailers,

in all sizes, light outputs with incumbent manufacturers and also many new ones, and then a wide variety of price points and [inaudible].

And better yet, this efficient product lasts up to ten times longer. And as a result is wildly cost effective often saving the consumer 50 or $100 over the life of the product.

Well, that's what a 45 lumen per watt standard would do and that's what's being discussed here. And for context, this is one of the biggest energy savings California will ever contemplate in their Title 20 proceedings.

So we need to get the scope right in order to capture the savings. And as I'll go over in a minute, unless we adopt the expanded definition, about half of the savings won't be obtained. And the market will not take care of this by itself, we've seen various charts. While LEDs are taking off, halogens still represent about half of current sales.

So the question is, how are we going to do this? I want to quickly point out that there's nothing unique about the base, type, or shape of it in enclosure. We used to have pear-shaped bulbs, then we could shift to apples, they could be round ones. The guts of the bulb are the same, it's just a different shape enclosure and the guts of

the bulb are the same whether the base is screw base that wide, that wide, or a pin. So we think DOE did the right thing and the CEC is looking to do the same thing as well.

And while it's true, it gets harder as some of these bulbs get smaller, we were all here a few years ago and in Washington when people said yeah, we can do that but those candelabras, that's too small of form factor with LEDs and all those different shapes today.

In fact, on my way here, I pulled over to Home Depot, and I found an LED bulb by Phillips. Look how small this form factor is. So if you can make it in a small landscape lamp, I think you can make them in pretty much everything else.

If there's some unique situation, then we should talk about that. But I've yet to see evidence that LEDs can't made in just about every common bulb that's out there.

Another question about timing. The prior speaker suggests that we wait until DOE completes its job. From our perspective they did their job, they published a complete, thorough definition, 1/19/2017, and that's the law of the land as we see it and CEC simply looking to codify and do the same.

Okay. Now to my formal remarks. At the high level, NRDC, the group I represent with several hundred

thousand members in the state, there's been a lot of work in California and national over the last 20 years to move from inefficient lightbulbs to more efficient ones. We're close to completing that transformation. There's been great response by the retailers, by the utilities, and industry has really done a great job as evidenced by the growth and explosion of these wonderful LED products.

California took a great and important first step January 1, 2018, the everyday medium screw based bulbs that were halogens or incandescents were removed from the market if they couldn't hit a 45 lumen per watt standard. Those are A-lamps with a medium screw base for those that keep score of the lingo there.

But we think that's only the first step, and the second they need to complete the job. And we thoroughly support CEC's proposals to expeditiously adopt the updated definitions that were set by DOE in early 2017 and apply the 45 lumen per watt efficiency, minimum efficiency requirement to that definition. We also support CEC's proposal to move down the lumen range to cover the 150 to 310 lumen bulbs.

So here are some numbers from the LBL Report that's been referred to. Roughly 45 percent of the bulbs and sockets wouldn't be covered. The EISA explicit, the 30 -- the three billion five hundred million bulbs, the

rest add up to 45 percent of the totals. And that's what would be brought into the scope here. And the reason California needs to do this is we need to protect against federal backsliding. The extent the definition is modified and some of those bulbs were not preempted, California is ready to go. And also it puts California in a position to implement and enforce the Title 20 standards to the extent the federal government isn't doing its job either.

So there're massive savings and these are per the CEC Staff Report. The numbers are enormous, I'll let you read those for yourself.

There's another aspect that we didn't discuss here. Lighting often comes on early evening and the evening and that's when we might have a big second peak that comes on when everybody comes home and turns on their air conditioner and their TV and their lights as well, and an evening when we can't count on the solar power. So this is really important that we get the lighting right from efficiency point of view.

So the main part here is closing loopholes. If certain lightbulbs that currently have low sales but aren't required to be efficient, those could readily become the replacement bulb and their sales would skyrocket. We think many of the exemptions are no longer warranted as there's an efficient LED drop and replacement on the market today.

This isn't some theoretical wish, these are on the shelves today at major retailers and widely on the Internet as well. And that DOE has closed these loopholes and we're encouraging the CEC to do the same. And today I'm going to go over a few of them, although this is not meant to be the exhausted list.

The failsafe that's in the 2007 energy bill is okay, we'll limit it to 60 watts or 40 watts, we'll only sell it in a one pack. That limits the damage. But in reality, having a 40-watt bulb is still unacceptable when you could have a 5 watt LED do the same job.

And take a shatterproof bulb, for example, no one's really exploited that loophole yet, but imagine you take the old incandescent, you put a rubber neoprene cover over it that costs a few cents, now you've got a -- an exempt bulb and you're continuing to sell the old 60 watt incandescent. You can imagine that would be much lower cost than any of the alternatives on the market.

So the other thing is to align with the DOE definitions. And there, DOE took the approach of regardless of the shape or the base, those are in and those where you can't make one, then let's take those out. We think that was the right approach.

DOE also importantly brought in incandescent reflector lamps because at the end of the day, this

regulation is meant to cover the lightbulbs that are typically in people's homes and reflectors or directional lamps are very common and increasingly common in new construction and remodels. There are close to a billion reflector or directional sockets in the country.

Also DO -- sorry, the CEC is proposing to extend the lumen range at the low end and this will ensure that today today's 25 and 40 watt incandescent and halogen products also have to meet the standard. Otherwise, people dim the bulb by a few lumens and then they continue to be sold in perpetuity.

So I've got some real world examples. I've been shopping a little too much as you'll see. These are all from August 2018. These images are intended to be illustrative and not meant call out or appraise a single manufacturer, retailer, or a particular model. These aren't endorsements or anything, it's just what I saw in the stores in my recent shopping.

So let's go to reflector lamps. Sorry that the package was broke but this is the last one on the shelf, the rest one had flown off the shelf. These are contractor packs and this is for a very common form of a reflector lamp. And in a multipack, these are about a buck 85 apiece. And these are very, very inefficient, about 10 lumens per watt. This is why we need to move to the LEDs

that are widely available.

Here's a picture from Home Depot. All of these are LEDs. Various wattages, various color temperatures, various manufacturers, and very attractive prices as well. Many of them are dimmable as well, and they're also high CRI options for those consumers as well and to meet the California requirements.

We spoke a little bit about the California requirements. Both FIGHT and CREE at a minimum have a broad selection on the website, the Home Depot website, and there's even a little note it's Title 20 compliant. And this bulb is under $3 for an LED that's dimmable and California compliant. That's without any rebates as well.

So let's shift to globes. The capital G just means it's a round bulb. It's the same bulb over there. Instead of an apple -- I'm sorry, instead of a pear shaped bulb you've got a round enclosure. So this bulb is readily available on the store. This could fit in many places where people have an incandescent bulb today. These are 60 watt bulbs and they also happen to be vibration service. Very small, consumer probably wouldn't know the difference.

And here is the LED bulb that replaces it. This is on the shelf today, they look exactly the same in terms of their shape, they perform the same as well. Instead of having a 60 watt bulb, you have a bulb that uses less than

6 watts and lasts a lot longer and uses a lot in electricity and will save the consumer a lot of money.

Another example here on the web. I found a 40 watt globe lamp. And it's light output level -- I don't know if you can see that there. It's 265 lumens. This would fall out of the regulation unless CEC moved down the coverage. This bulb would be exempt if CEC didn't move forward.

Here's a very good, I believe, real world example why we need standards. Yes, LEDs are very common. Their prices have come down. Adheres to reality and this was taken at WalMart. And WalMart has a very good selection of LEDs, not meaning to be critical but this is what the consumer is facing. On the left is a three-pack of 40 watt globes, it's about $4 for the three-pack. And on the right is the three-pack that are LEDs. That's about $12.

Consumers get a look at it, they look the same to me, they're both quote "40 watts." I'll buy the one for $4. Reality is, the LED is a far better deal. The consumer will get -- make the payback within the year. And over the lifetime of that three-pack, they'll easily save over $100 just in electricity cost, let alone not having to go to the store every year and buy another three-pack of bulbs.

This is why we need standards. Otherwise, there

are some consumers will continue to buy that. And again, the more efficient product is already on the shelf today and it's very, very cost effective.

We spoke about three ways earlier, those were originally exempt, the DOE closed that exemption and we want California to do the same and be in a position to enforce that. On the left here is a conventional three-way bulb that's an incandescent. And then there's the GE bulb, that's a 30, 70, or 100. And that's under a dollar apiece.

One would argue hey, three-ways, they cost a lot of money, there's no way consumers are going to buy them. So if I used to have a 60 watt bulb, I buy this, I click twice, I get 70 watts of light and now I have my old 60 watt bulb. Or if I want to go up to 100, I've got that as well.

Also want to point out the design the way incandescent three-ways are made. They're less efficient than even the old conventional incandescent. So we'd be going backwards and worse off than if we just had the old 40, 60, and 100 watt bulb.

Again, the replacement bulb exists today. This is not wishful thinking. Here are two examples, they're a lot more. This is CREE's bulb on the bulb. This is a premium bulb with high CRI, a 10-year guarantee, roughly a 25-year rated -- or 25,000 hour rated lifetime, it's ENERGY

STAR compliant. And the Sylvania bulb is on the left. There are many other manufacturers that make these products as well.

In terms of flame or candle shaped incandescents, they remain widely available. While there might be a great selection of A-lamps and reflectors, this is -- I wemt into a local Ace Hardware store and this is just a small part of the display of all the different incandescent and flames that are out there. Again, you can make a 60 watt version of these, put it in a socket and it will fit where the incandescent is. Again, while LED replacements are broadly available today.

Here is an example of just some of the various flavors that are out there. Some of them are this new filament design, one that looks exactly the same as the other. And here's one from Phillips with a different design. Multiple manufacturers; compliant in California.

Last point here is California standard went into effect January 1, 2018 for the A-lamps that have a medium screw base. We all recognize and understand that's a date of manufacturer import which is easier and preferential for manufacturers. It's now almost September. How much longer would one expect inventory to have been stockpiled and on the shelf? Don't know? We can't tell if these are compliant bulbs or not because here's a date code. Good

news is there is the date code and we're hoping that the CEC is working through its processes to do some monitoring to make sure that those bulbs are indeed manufactured before January 1, 2018.

Unfortunately average consumers can't tell, we don't have the decoder ring. If there's any way to make that information possible or if the manufacturers want to provide that to us, we're more than welcome to help police the market in case your competitors might be selling noncompliant products.

So in conclusion, we're very supportive of what the CEC is proposing to do and want to make clear that what they're simply doing is taking what the DOE has done and cut and pasting it. What Joe Howley from GE has proposed and altered a proposal that one, we don't think is warranted but we don't see how California could even possibly consider that the way federal preemption works. If there's a federal definition, that's the one that the CEC must adopt at a minimum.

So that concludes our remarks and we look forward to the rest of the proceeding. Thank you.

MR. SAXTON: Okay. And Phi is going to provide the last presentation for us.

MS. ANDERSON: Hi, this is Mary Anderson from PG&E on behalf of the California IOUs.

First of all, we want to thank the California Energy Commission for taking the act -- taking action on expand -- the expanded definition for general service lighting. We're appreciative and we recognize the huge amount of savings for our rate payers and for all Californians.

This is especially important, this move for quickly so that lost savings are minimized and that our most vulnerable Californians receive those savings so that they're not caught by that small differential at the storage shelves.

So we have funded some efforts through energy solutions and this is -- we want to present what we found and what we believe supporting the California Energy Commission's quick and swift movement.

MR. NGUYEN: Thanks, Mary. And I'll try to get through this in 10 minutes as I'm between us and lunch. But I do want to start off thanking the gentleman from GE and also the gentleman from NRDC for very informative presentations. I appreciate very much the different perspectives and different information that is provided as far as rulemaking.

So I really want to narrow down this presentation into three key points here. So the first one from the California IOU's perspective, why this measure matters to

rate payers. The second one, as Mary Anderson gave, why timing really matters to this measure. And the last point being the key recommendations from the California IOUs or as we've also called it, the statewide case team.

So just a little bit historical contents and backgrounds. So many programs including codes and standards have worked with industry for years, have invested millions of dollars towards incentive programs for both LEDs and compact fluorescent lights. So essentially moving the lighting market towards higher energy efficient products so I don't think that's in dispute at all. But the spirit of this presentation and its rulemaking ought to be to consider advancing energy efficiency within the lighting market.

So with that, the first point I had here, why California rate payers care about this rulemaking. As Mary indicated, Energy Solutions conducted a savings potential analysis with various different appliances that the Energy Commission has the opportunity to regulate.

And as you can see from this chart, general service lamps, specifically this expanded scope measure is by far the largest savings potential of any future measures including the next top ten combined. And if you're looking at the next 39, all together this dwarfs that as well. So this is in context to California's 2030 Senate Bill 350

targets of doubling the energy efficiency. That's just to frame in context in terms of a percentage towards a statewide goal that California has committed to.

So you can see from this chart that general service lamps, particularly this rulemaking and this measure is very serious business. And for that reason, we very much support the Energy Commission's efforts in passing and adopting this rule.

A different way to look at this is in terms of -- not in terms of total savings but in terms of cost effectiveness. So this chart here is just referencing California Air Resources Board in terms of measuring the cost per metric ton of carbon dioxide that is reduced from various different activities. So here, the more negative value, the more cost effective. If the value's positive, then you are spending money to reduce carbon dioxide from the atmosphere.

And as you can see here to no surprise, this measure, general service lamps, particularly the expanded scope measure, is far more cost effective than any other activity in the statewide energy efficiency portfolio.

So these are not numbers that we just made up, these are all public values that are sourced from the references. You can go ahead and see them but hopefully captures a little bit of why this matters to rate payers

and why this measure is so significant that we need to go ahead and adopt.

And lastly, I think this point has been made several times but there's a practical value to customers as well. So LEDs last on average 12 times longer. You can debate the value, 3 times up to 20 times longer, it really depends on a lot of different things. But that adds a whole another level to the cost effectiveness here. We note from some statistics in calculating electricity costs, each LED lamps saves about $10 per year on electricity costs alone. So here we're talking about lamps or bulbs that costs a few dollars, the consumer will save on average $10 just on their electricity bill.

You can top -- add on top of that avoiding cost of a dozen additional lamps, whatever shipments, packaging costs, replacement costs, whatever you want to put on top of that. The key point is that this is an extremely cost effective and valuable measure to consumers.

And lastly, there's a practicality to this particular measure as well. As many have noted, it is a very cost effective measure. The 45 lumen per watt requirement is technically feasible as the gentleman from GE pointed out, Joe. This is widely accepted by consumers as well so it's sort of a no-brainer in that sense.

We've seen this acceptance through feedback from

utility programs. We've seen it through the market share, increasing market share values and of course through the growing number of ENERGY STAR qualified products. So this is all evidence that this measure is no-brainer and probably needs adopted.

So timing. Want a little bit of discussion on the timing here. So here for some context, the Energy Commission is proposing not only the definitions that are in line with DOE but also the effective date that's aligned with DOE. So we want to just kind of give a bit of perspective of what that means in terms of wasted energy.

In as much as California has had the right since January 1, 2018 to be regulating general service lamps, any inaction to do so is sort of a wasted opportunity. So just from that perspective. And I know there are different arguments, but if you just take that perspective here.

For some perspective, by delaying -- so we have another statistic here. By delaying this standard only two months, that's equivalent in terms of emissions, greenhouse gas emissions, to adding 75,000 cars to California roads within those two months. So that's kind of mind-blowing, I think.

The amount of energy, here's another stat, this amount of energy is roughly equivalent to leaving on three LED energy lamps all the time 24/7 in every home in

California. So that puts things in perspective, over 12 million homes there. As Noah from NRDC pointed out, this is not exactly true because some hours in the day are more important so 24/7 being on is not as bad being on at the worst times of the day for that same amount of energy use. That's maybe a conservative look at it as well.

From a standards perspective, there's uncertainty in any from delaying from adopting this standard. So we know the current definition of the general service lamp allows these exceptions, many, many of these different exceptions and some of them for good reason as well. But this causes confusion in the market, right. So manufacturers and retailers as my colleague Mike pointed out is sometimes unsure as to which lamps should meet which requirements. So they can have this discussion and certification as it relates to this as well.

This also causes uncertainty for utility program. So utilities are looking to work with manufacturers and retailers and incentivized products are also waiting to see what to do for it. So this -- this -- the key point is that the added clarity in adopting this standard and these definitions as soon as possible lead to less confusion, less uncertainty, and ultimately higher [inaudible] beyond the 2020 date that the standard is supposed to under effect.

And it catches off here with some texting of U.S. Code showing that California has had the right to regulate at least 45 lumens per watt since January 1, 2018. So as the California IOUs commented about a year ago, CEC should be adopting this as soon as it can. Any sort of I was trying to show through this presentation, any sort of delay in sort of waiting on this, yes, there are some issues to -- to -- look to resolve and yes, there are some considerations, but this is long overdue. We're now, I believe August 28, 2018, so we're over six months from when California should have been regulating general service lamps, not just general service [inaudible] lamps.

So to summarize, I've got a few slides here with some key recommendations from the California IOUs. Assumptions, are they conservative? And yes, we've heard different sides here. And so I think the takeaway here is the California IOUs will submit in written comments where we believe that some of the values are overly conservative thereby sort of reducing and undervaluing the [inaudible] measure.

We support the adoption -- or we support the Energy Commission adopting the proposal for low-lumen lamps. We believe the NRDC made some great points in terms of these lamps and refer you back to the initial response a year ago from the California IOUs as to why this is

particularly important.

And summary, get this sort of some measure is also cost effective, it is technically feasible at least significant savings also, it's sort of a no-brainer here.

And lastly, adopt and enforce as soon as possible. So we were demonstrating the amount of wasted energy from sort of inaction where we should have been doing something long ago. So adopt and enforce will reduce uncertainty, will allow for potentially early effective date all things considered equal. And this will help California achieve its statewide goals of doubling energy efficiency by 2030.

So summarize three points. Refine Staff Report assumptions, adopt low-lumen lamps, and adopt and enforce this measure as soon as possible.

I have some reference slides but that's the end of the presentation here.

MR. SAXTON: Thank you, Phi.

All off the stakeholders proposal -- or excuse me, presentations are also in the Energy Commission docket.

At this point, we concluded all the presentations. We take any final discussion and feedback on anything and if you would like to combine your closing comments with that as well, you may. I will check again before we conclude for anyone who wants to separate those

comments.

MR. SERRES: Thanks. Anthony Serres, Signify.

So in response to the last presentation, I'd like to state that manufacturers are not confused about federal and state regulations. We may disagree about the interpretation but we're not confused about it.

Now speaking for Signify, we agree with the [inaudible] points, right. What we don't understand the move to push this forward while the GSL rulemaking is pending. We've heard everyone get up and give their comments, but why not just wait until the GSL rulemaking comes out see what it says and then move forward from there.

Building on what Joe said, you know, we think it would be simpler for everyone if it was a -- if this were to be implemented as a manufacturing ban, right, as opposed to a sales ban and you're doing that for the rulemaking product so why not just do it for everything? Just make it simple.

You know, so it seems like, you know, this may just go -- this may just go forward and not wait for [inaudible]. And if that happens, you know, again like I'm saying, make as many [inaudible], it's just it will eliminate confusion, if you would, and do it that way as opposed to try to do something as a sales ban and something

else as a manufacturing ban. So. Thank you.

MR. SAXTON: Thank you, Anthony.

And I assume that Joe mentioned, Joe Howley, from GE Lighting mentioned that he was going to leave early to catch a flight so I assume he'll provide his comments in writing as well.

Okay. Any other comments in the room?

MR. KIM: I'm Charles Kim, [inaudible]. Father of two, but my wife says she is mother of three. So I'm trying to find the one child that I [inaudible]. And I'm looking hard in my house, but I haven't succeeded at it. Maybe I have a definition problem what is a child or what is children there.

One of my child is paying for college and I have mixed feelings. Because I'm feeling things and seeing things. Some good stories, some terrible stories. And then when I heard those stories [inaudible] I puzzle myself and question myself. Then I pause and look back and how I raise a child, the difficulties we went through together. Sometimes I was a offended teaching her mathematics because I was too harsh. And then I question myself, is she ready to go to college? And then for the future why she's so passionate about [inaudible]. Right? And then I can say can we embrace those uncertainties of some of the bad stories that I'm hearing or not. Probably in the latest

question but 90 percent my daughter say is all of them.

My third child is going to college [inaudible] some day will worry. And I'm hearing the same thing today as well, we're exposed to many informations. We're exposed to many arguments presented by the subject matter experts. When we're puzzled, when we need to question some of things, sometimes we have to look back, pause and effect and what we have been and one question that we're heavy.

When inventor or manufacturer come with great promising innovations, what California has done is we embrace that technology and accelerate the market. Certainly lying technology fall into the categories. California is the major variable who transform the market in the nation. CHEE presented that they're forecasting 500 million sales in LED. And certainly if you look deep, there's a California leadership three and we cannot dispute that.

So what I'm trying to say here is that look back at what we have done and question ourselves are we heading the right direction? Do we need to slow down the movements that we created? When I go to a Lightfair, I'll say 98 percent of all the products that I've seen at the Lightfair or some of the [inaudible] is all LEDs.

So it gives me more assurance that what California is trying to do and pushing the market into the

area is work because new innovations, new products, they're trying to sell from those trade shows is showing there. So knowing that and we ask ourselves because I'm standing here in front of incredible companies who brought those innovations and transformed the market and worked together with the state. And then our question is we need to stop, slow down the movement or continue to do not just for the benefit of Californians, but the entire nation as well. This movement has started long time ago and we ask once again ourselves, am I -- am I will be the one who is going to stop that movement or I will push them all continually so that benefit will be hand off not just this generation but all other generation following us.

As a father who needs to send my daughter to hold this place, I'll look into the future knowing that the past build up. Might not ready for 100 percent. Now I realize that this will be on the record for the daughter, it will be a permanent record. Is she ready 100 percent? As a father, I want to say maybe [inaudible] but can I support her [inaudible] and I say absolutely. She'll go there with my pocket but I will do that gladly. It reflects probably same thing done for my previous generation who has transform this market and also just like a father our state agency has been pushing this market gentle and gentle and gentle. And I greatly appreciate it.

So my two cents is that I'm being very proud standing here in front of all these incredible people who transform the market and my previous [inaudible] less [inaudible] than movement. Thank you very much.

MR. SAXTON: Thank you, Charles. Do we have any other comments made? Phi?

MR. NGUYEN: This is Phi Nguyen, Energy Solutions.

My comments are really in response to the gentleman from GE's presentation, I hear Joe has walked out of the room so hopefully they'll be on this -- we can pass his [inaudible] get sent over there his response to this in GE's [inaudible].

So first I want to point the discussion on sales [inaudible] which is [inaudible] or shipments or stock. And would -- I want to point out that I come from the data world and in sort of a data science we have this saying that all models are wrong but some are useful. So the question that I have for what we're trying to do here is how relevant are those shipment numbers? I'm not insinuating that they're not relevant but I want to understand more what is the usefulness here? If they actually have as many shipments or quarter as many shipments, does that make measure any less cost effective? Does it make a measure any less worthwhile?

So when we were suggesting that decisions shouldn't be made without informed data, I'd like to bring that to question in terms of how useful is this additional or [inaudible] and should it actually be holding back any progress?

The last one that I want -- the second point that I want to make is sort of on this sales ban. I think Joe had a good point in terms there potentially being some market uncertainties in terms of how to deal with the sales ban from manufacturers.

I want to point out that the California IOUs do have a compliance-proven program where we'd like to work with manufacturers, distributors, and retailers in improving compliance. So noncompliance is a real thing and we believe, I know the gentlemen in the room here from the industry, is not a malevolent practice. Noncompliance is not intentionally trying to circumvent standards or so I personally believe, at least. But we have an opportunity to make things easier for the industry and manufacturers.

This is a real thing and I don't think that that concern ought to be holding up any sort of potential standards. There will always be programs and there will always be opportunities to learn and advance towards becoming more compliant with the potentially difficult standard.

The third issue here is a statement from Joe in terms of him saying that his ruling is not about reflector lamps. I just want to point out I just think that is patently false. This rulemaking is about general service lighting which may include reflector lamps. And as most folks in this room are well aware, DOE had a final rule, an entire rule specifically devoted to identifying whether reflector lamps are indeed general service lamps. So maybe one detail that might have been lost here is that there were two DOE final rules, one on general service lamp expanded scope and one specifically on [inaudible] scope. So I think that issue has been resolved and I don't think that is a true issue.

And the last point I'd like to make. I think Joe brought up some great points in terms of product availability and product diversity. And it's certainly something that the California IOU should work with manufacturers and the Energy Commission to identify where there are some gaps. However, I would like to caution us from going down very, very deep rabbit holes. The question ought to be does any of these benefit the consumer? Does any of these benefit the rate payer or Californians? So whereas we can always point to some thing that may not exist in the future that perhaps we should be are those useful things and offer the consumer a sign of futility.

So just a word of caution but certainly value very much the feedback and participation of the gentleman from GE.

Those are my comments.

MR. HOROWITZ: Thank you. Noah Horowitz with NRDC.

Joe made comments on that were reflected GE's position and I believe the NEMA as an organization. I want to make sure that is part of this process, manufacturers like CREE, TCP, Fight, Green Creative, MaxLite, many companies that make a wide range of LEDs today and probably were in the pipeline, that their input is included as well. And I wouldn't assume that NEMA's necessarily reflecting all of their inputs. So if there's additional channels to get that communication, I hope that occurs and to further inform the data that's being requested.

Also have a question maybe that Anthony you can answer this as a NEMA member and Joe speaking on your behalf. Maybe you can help us understand. Joe made the comment that a sales ban is harder to enforce than a dated manufacturer import. As we discussed earlier, if it's a dated manufacturer import, those products could be on the shelf legally for many, many months or illegally. You can't tell when you look at it unless you have the date code. If it's a date of sale January 1 you go into the store January 15, then if it's still a 43 watt halogen, you

know it's noncompliant.

So can you help us understand why a sales ban is harder to enforce? I understand it's more complicated for the industry. Make sure I understood that.

MR. SERRES: I -- no, not at this point.

MR. HOROWITZ: Okay. Thanks.

MR. SAXTON: Thank you. Any other comments here in the room?

MR. KELLER: I'm Mike Keller, I'm with Satco Products. We are a manufacturer, we are a member of NEMA as well. And Joe does reflect and we do share our comments through NEMA and through Joe.

I would question a couple of things that the Commission has looked at. The market is developing so rapidly. We made the change from A-line lamp. They commented -- various people around here have commented about the cost drop. We don't know, I don't know that we really looked at efficiency gains as well. We produce a new LED A-lamp approximately every six to nine months because of the general efficiency gain you have in the LED [inaudible] themselves.

They gain give or take roughly a tenth of a [inaudible] per month. So many of these gains that we've talked about here, I'm not sure that the numbers really reflect what the market has done in terms of [inaudible]

depression. So I'd like the Commission to really consider those efficiency gains that are made in the LEDs themselves, I'd like to see that reflected in the numbers.

I'm also a little concerned about some of the economic situations that are going on. Most of us in the industry are going to be faced with price increases here fairly soon. That probably should go into the calculations as well.

MR. SAXTON: Michael, when you say faced with cost increases, I assume you mean tariffs?

MR. KELLER: Et cetera.

MR. SAXTON: Okay. Thank you.

Okay. Is that it for the room? I think we do have several online comments.

The existing database for lighting products is not designed from products. See Slide 15 on the last presentation that include lighting. Since the database requires the inclusion of light test data which may not be available to a third party. The inclusion of a category from products and lighting that references an approved bulb is leading.

If whoever sent that comment could maybe add a little bit of clarification, that would help. This is Slide 15 from the last stakeholder presentation, I'm not sure if that's what they referenced. I'm sorry, I don't

fully follow the comment.

Okay. We're going to unmute you so that you could provide your comment.

MR. GATZ: Hello, am I unmuted yet?

MR. SAXTON: Yes, Stephen, you're unmuted.

MR. GATZ: Okay. Thank you. Yes, the current database the last time I checked requires that you have specific test reports for the lighting products that are included. The last presenter had a number of slides. And on Slide 15, there were a couple of different lamps shown. Not lightbulbs but products containing lightbulbs. And when you try to certify these products in the database, you're required to have the test reports for the bulb itself. So even if you are certifying a product that includes a certified bulb, the database is not appropriate for it.

MR. SAXTON: Okay. Thank you.

MR. GATZ: I think it's something that needs to be looked into.

MR. SAXTON: Okay. Thank you.

I think I understand your comment. If you could provide it in writing, that would be very helpful as well.

Yeah, we look at these two luminaires in this example, they most likely are treated by the appliance regulations as a portable luminaire and they require

certification as such. And then if they're using a screw based LED lamp, that lamp also has to meet state regulations.

Let's take the one of the right-hand side with the globe lamps. Assuming those were LEDs on E26 base, they would have to meet the Commission's state-regulated LED lamp regulations. So the bulb should be certified as bulbs and then the portable luminaire as a portable luminaire.

I believe but can't say with 100 percent certainty that the database now talks to each other. And if you enter the model number of the lamp exactly, it will pick it up. So.

MR. GATZ: Okay. Thank you. I'd like that to be --

MR. SAXTON: Okay.

MR. GATZ: -- looked at.

MR. SAXTON: Okay. Yeah. And the model number has to be absolutely identical, spaces, dashes for it to automatically pick up if that feature is working. I know we were trying to implement that feature.

MR. GATZ: And it -- basically fall under two, the appliance regulation and the lighting certification, correct?

MR. SAXTON: Yeah, that is correct. In this

case, the bulb or the lamp is regulated separately from the luminaire and so there would be two certifications for this product.

MR. GATZ: Okay. Thank you.

MR. SAXTON: Okay.

MR. GATZ: We need to make sure that that ties together well.

MR. SAXTON: Okay. Thank you.

MR. GATZ: And it sounds like you taking steps if the model of the lamp is correctly identified, it's pulled up.

MR. SAXTON: Yeah, I will double check on that. But if you could submit your comment in writing, that would be very helpful.

MR. GATZ: Okay. Thank you.

MR. SAXTON: Thank you.

I do not see any additional comments online. I'd like to provide contact information one more time for submitting written feedback. We're asking for comments by September 17 a 5 p.m. Pacific.

I believe the easiest way to submit those is through the Commission's e-commenting system. That could be accessed at the link that's shown. The Docket Number is 17-AAER-07. If you'd like to provide hard copy comments via mail or via e-mail at docket@energy.ca.gov, please do

reference that docket number.

I think that concludes everything. But if anyone has a final public comment either in the room or online, please let us know at this time.

Okay. I'm getting nothing online either.

That concludes this workshop. Thank you very much everyone.

(Whereupon, at 1:09 p.m., the workshop was adjourned)

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

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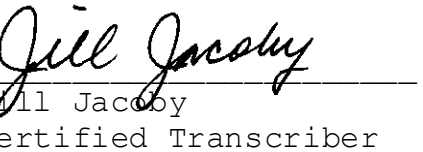

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