BEFORE THE

CALIFORNIA ENERGY COMMISSION

In the Matter of,	)
	) Docket 11-AAER-2
Appliance Efficiency	)
Standards	)

Appliances and Process Energy Office

Public Hearing

Battery Chargers and Self-Contained Lighting Controls

CALIFORNIA ENERGY COMMISSION

HEARING ROOM A

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

MONDAY, OCTOBER 24, 2011

1:03 P.M.

Reported by:
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Commissioners Present

Karen Douglas

Commission Staff Present:

Galen Lemei
David Hungerford
*Mike Leaon
Ken Rider
Paula David
Lyn Sadler

Also Present (*on phone/WebEx):

Henry M. Wong, ITI
Ric Erdheim, Philips
Cory Watkins, Schumacher
Steve Carlson, CTIA
Mark Bare, Motorola
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I N D E X

P R O C E E D I N G S

OCTOBER 24, 2011 1:03 p.m.

COMMISSIONER DOUGLAS: Good afternoon. Welcome to today's public hearing on the Battery Chargers and Self-Contained Lighting Controls. My name is Commissioner Karen Douglas. To my left is David Hungerford one of my adviser's on efficiency; Galen Lemei is my advisor who will be coming in shortly. Before we—Mr. Hungerford sat in the wrong chair.

Before we begin I wanted to say briefly that when we Noticed this hearing we Noticed it as a Committee Workshop and since that time the Commission has changed its business practices to a model of lead Commissioners leading on subject areas. So this is now a Commissioner opposed to a Committee Workshop. In any case, this is the public hearing on the Battery Chargers and the Self-Contained Lighting Controls.

With that, let me turn this over to staff to go over the agenda.

MS. DAVID: Thank you, Commissioner Douglas. Good afternoon, everyone. Welcome to the hearing. Thank you those of you who have come in person and thanks to everyone participating on the phone and via WebEx.

My name is Paula David. I'm the Supervisor of the Appliance Efficiency Program. First I have a couple

of housekeeping items for everyone.

First to let you know that the hearing is being recorded today and for those of you not familiar with this building the closest restrooms are located to left of the exit here. There are also restrooms behind the guard desk and around the corner.

We have a snack bar that's on the second floor under the white awning. In the event of an emergency and if the building is evacuated please follow our employees to the appropriate exits. Then we all reconvene in Roosevelt Park which is the park that's diagonally across the street from this building. Please proceed calmly and quickly. Again, following the employees with whom you are meeting to swiftly and safely exit the building.

A reminder for speakers, please state your name clearly before speaking. That helps those on the remote access and also our recording.

And, finally, our Public Adviser's Office has blue cards available for those who want to speak after PowerPoint presentations from staff. It will be the opportunity for public comment. The blue cards are available out on the front counter where you came in and when you have one filled out please return it to either me, I'll be sitting right over here by the podium, or Lyn Sadler from the Public Adviser's Office in the green suit

here. Thank you. And now I'd like to introduce Ken Rider, electrical engineer from the Appliance Efficiency Program.

MR. RIDER: Hello, everybody. I hope everyone had a good lunch and is ready to talk about Battery Chargers and Lighting Controls and regulations.

So I want to begin with an introduction to process. The purpose of the hearing today is to really gather public comment from stakeholders. We will also respond to clarifying questions, questions about the process, about the regulations. It's an opportunity to deliver oral comments rather than only written comments.

The Battery Charger proceeding started quite awhile ago; we've already hosted three workshops. The first one was about a year ago, a little over a year ago, and we held two more. One in March and one in May.

All the documents for the rulemaking are available on the web at this link here, www.energy.ca.gov is the homepage. You can find proposed regulations, staff report and this presentation along with other documents at that webpage.

The comment period began October 7 and will continue through November 21. After that date the comments will be considered outside of the 45 day comment period.

We will also be having an adoption hearing on November 30 and you may submit written or oral comments at that adoption hearing, or is consideration for adoption I should say.

Once the 45 day period lapses we will take a look at all of the comments, both oral and written, we've received before November 21 and consider what we want to do. Do we want to amend the regulations? Do we want to adopt the regulations? The decision process will be summarized in the FSOR, Final Statements of Reasons, where we will respond to all stakeholder comments received. The adoption hearing, as I said, is scheduled for November 30, 2011. It will be part of a Business Meeting at the Energy Commission. We will be either adopting the regulations or proposing to conduct a 15 day language review.

Here's a link to a good resource for questions about processes and Business Meetings and just general Energy Commission questions. We have a Public Adviser's Office here and there's the phone number and the link. If you're on the phone and can't see this, again this presentation will be available online through the webpage.

So I'm going to give some background on the proposed regulations. You shouldn't take this in place of the actually 45 day language. I'm going to give an overview but the presentation isn't meant to be

comprehensive. There are some things that are in the 45 day proposed language that will not show up in this presentation and that goes for some of the background information for the proposal too, there's a wealth of information on the web including a lot of the referenced documents. I won't be going into great detail into each and every one of them so this in no way is going to completely replace those documents so I recommend you take a look at them.

So battery charger systems. What is a Battery Charger system? This definition I have here is copied and pasted, essentially from the proposed regulations. Essentially a battery charger system includes the external power supply, the battery and the charging circuitry and together these things are referred to as the battery charger system.

The full definition is a little bit more complex then that but the full definition is available in the express terms in Section 1602(w).

There are some exceptions. So what does this really cover? It covers a very broad range of products from cell phones to laptops to golf carts to forklifts. There are certain things that it specifically does not cover. These are available in Section 1601. Many types of motor vehicles are not considered battery charger

systems for the purposes of this regulation. FDA class II and class III medical devices which are essentially ones that are—your life could depend upon. Illuminated exit signs are exempt. Stationary power applications with three phase line-line input voltage of 300 or greater, so like really big systems that maybe a utility or a large server farm might use. Battery analyzers and certain types of uninterruptable power supplies.

So some general definitions that you'll need to know to kind of follow along with this presentation. So there's a distinction between large and small battery charger systems in the regulations. The line is drawn at an input power of 2 kilowatts.

If it's above that it's a large battery charger or if it's below it would be considered a small battery charger system. And there's also a distinction between small consumer and non-consumer and that distinction is drawn by federal law and that law is cited here. It's 49 U.S.C. Section 32901(a)(3).

There's also a couple types of special classes of small battery charger systems. One is an inductive charger system. This is a quotation from the definition of that. Basically it can transfer power—it would be a battery charger system that could transfer power without direct wiring. It can do it through magnetic or electric

induction.

Another type of special class is battery backup or UPS system. These would be the type of battery charger system that would provide power in case of an outage or brown out.

So they're also many measurements needed and different modes that battery charges have. No battery mode that—Oh, sorry. Let me start over.

There's many types of modes that battery chargers have and we regulate several of those. Let me give a quick background of what those are and what they mean.

No battery mode is a mode where the battery charger is connected to the main electricity supply but has no battery in the cradle or in the product.

Maintenance mode is where the battery charger is connected again to the electricity supply, has a battery in it but the battery is full.

There's another measure and it's called 24 hour charge and maintenance energy. This is essentially part of the test method where you measure—where you take an empty battery, put it in the charger—well you start with an empty battery, charge it and then measure the energy consumption over a 24 hour period. It includes a little bit of maintenance mode because at some point the battery

will become full. In some cases, it's kind of misleading, but the test can last—this can measure more than 24 hours of energy because some chargers are very slow chargers and can take sometimes three days or longer to charge a battery.

Large battery chargers have some specific metrics associated with them that we're proposing to regulate. Charge return factor is the ratio of amp hours used to charge the battery to amp hours discharged from the battery. Power conversion efficiency is exactly what it sounds like. It's the efficiency of converting AC to DC. Power factor which is a kind of complex topic but is essentially the ratio of real power to apparent power.

The test procedure and the method of testing we are proposing to use for small battery chargers is the recently adopted federal test procedure. There was a final rule released, I believe in July that adopted a similar test procedure to what we had before.

There's a few small additions. The test procedure can test the battery charger in many ways and so we specify which test result. There may be five test results that the DOE test procedure could produce and we tried to specify it down to one.

Firstly, we require that the battery charger be tested with a battery in each port so if you had a AA

charger and it has two ports you would test it with both ports full. When there are multiple results provided by the DOE we required the highest values to be reported. We also have put some requirements on what's considered a multi-port and what's not. I'll get into that further when I get into the 24 hour maintenance calculations for small battery charger systems.

We haven't changed the large battery charger system test procedure. We adopted that in 2008. We have added a few modifications. Mainly to reduce burden to manufacturers by limiting the number of tests needed to be performed. We have a kind of worst case scenario test where the—where we charge the test profile with the highest charge return factor and that's CRF, the term I mentioned earlier, Charge Return Factor, battery with lowest capacity and then of batteries with the lowest capacity we would then test the lowest voltage.

We also allow testing at discharge voltages other than defined in the test procedure. Meaning if you had an exotic battery or a battery manufacturer recommends a different discharge voltage we would allow that to be used in place of the table that's inside of the test procedure.

So the proposed large battery charger standard has an effective date: January 1, 2014, so approximately

two years after the proposed adoption. We have regulations for—we're proposing regulations for charge return factor and that's that three different levels of depths of discharge which is—this first level here it discusses 180 percent depth of discharge. So this would be a charge return factor standard when the battery is essentially empty. We're requiring a CRF or charge return factor of 1.10 when a battery charger is charging an empty battery.

For a half empty battery or 40 percent depth of discharge means that it still has quite a bit of energy left in it. That charge return factor is required to be 1.15 so a little bit less stringent in that case.

Power conversion efficiency must be greater than or equal to 89 percent for large battery charger systems.

We also propose power factor requirements. That requirement is that it must be greater than 0.9 for large battery chargers. There is no power factor requirement for small battery chargers.

The maintenance mode power must be less than or equal to 10 watts and there's also an additional kind of skilling factor depending on the size of your battery. So you get 10 plus 0.0012 multiplied by the battery capacity so you get additional wattage depending on what the size of your battery is.

The no battery mode power must be less than or equal to 10 watts for large battery charger systems.

The small battery charger systems have two separate effective dates one for consumer products and one for non-consumer products. For consumer products we're proposing an effective of January 1, 2013. For non-consumer products we're proposing an effective date of January 1, 2017. We also have an exemption for À la carte chargers which are essentially are battery chargers that don't ship with a battery. For À la carte chargers which are used for repair parts will have an additional period of time to comply with the standards.

There's a lot of symbols used in the proposed regulations so I'm going to take a second to explain them to you. As you can see there's Eb and N and it's a mess.

The Eb stands for the capacity of the battery as measured in the test procedure. The unit used is watt hours and it's the capacity of all hours. So, again, if I had two AA battery chargers it would be the capacity of both batteries, would be considered Eb and not just the capacity of one of the two batteries.

The number of ports as I mentioned earlier we kind of specify what the number of ports—so if I had a four AA battery charger that had four ports in it but only two were independently controlled so I had to, you know,

if I put two in here—it won't charge just one. I have to put two in. It can—the number of independent ports is independent ports is equal to the number of charge control circuits in the battery charger. We'll see how that plays into the standard in a second here.

We have four—for the 24 hour charge and maintenance energy, we have four separate standards but they all make a continuous line but there are different lines for each capacity range. So for very small batteries it's a flat line, it's at 16 watt hours and then multiplied by the number of ports. Again that's N. (For Eb <= 2.5 Wh : 16 x N)

For between 2.5 and 100 watt hours, it's, this equation, 12 times N plus 1.6 times Eb, the battery capacity. So 12 times the number of ports plus 1.6 times the capacity of the battery. (For 2.5 < Eb <= 100 Wh: 12 x N + 1.6 x Eb)

And then for 100—between a 100 and 1,000 watt hours you can see this slope gets a little bit more shallow. The equation is 22 times the number of ports plus 1.5 times the capacity of the batteries. (For 100 < Eb <= 1000 Wh: 22 x N + 1.5 x Eb)

And for really large batteries—well, larger batteries in the small battery charger category the equation is greater than 1,000 watt hours. The equation

becomes 36.4 times the number of ports plus 1.486 times the battery capacity. (For Eb > 1000 Wh: 36.4 x N + 1.486 x Eb)

If that wasn't confusing enough for you, I tried to provide a graphical equation of those four standards. This is in logarithmic scale so it's Base 10 scale and you can see on the bottom here is the battery capacity note. This is for a—oh we have a video guest. Hi, Steve. We put Steve in the corner.

[LAUGHTER]

MR. RIDER: You're not in trouble, Steve, don't worry.

Okay. So on the bottom axis is battery capacity. As you can see, the bigger the battery that you're charger the more energy you have in this standard. On the left side is the allowance so you can see how it scales. And note that this is only for a single port so this graph was based on in this previous slide, which I can't change slides anymore, N equal to 1. This is a graph where N was equal to one but varying Eb.

There's also a maintenance and no battery mode power requirement. So there's not individual requirements but the requirement is that the sum of your measured maintenance mode power and your measured no battery mode power must be less than or equal to this equation which is

1 x N, which is again the number of ports, + 0.0021 x Eb. So as you can see it scales with the battery capacity so bigger battery, larger amount of maintenance mode allowance and no battery mode allowance.

There's some special case standards, one for inductive charger systems that essentially says that if you can demonstrate that an inductive charger uses one watt or less on average then we'll accept that instead of meeting the other standards that I just presented.

For battery backup and UPS systems we only regulate the maintenance mode power because of the low instances of free charges. The duty cycle of a UPS system is essentially that it's always in maintenance mode because most of the time you have power. So we're only looking to regulate the maintenance mode so the equation for that is that same in form but a little bit different. It's 0.8 watts + 0.0021 x Eb watts.

We're also proposing marking for battery chargers systems. We are proposing to require circle BC marking, and I've tried to illustrate that in my slide. And that circle BC would need to show up on the product that has the charge terminals. So if you have an external power supply and you had a cell phone, the labeling would go on the cell phone and not on the external power supply. It would only need to be on one and not both.

For products with extremely small nameplates we would also have, instead of requiring another label on a space constrained product, we're requiring those types of products to put the label on the packaging and also the first page of the instructions.

The proposed regulations would also require battery charger system manufacturers to certify to the Energy Commission and would require them to submit data basically demonstrating compliance with the various metrics that I just presented.

The proposed regulations also cover lighting controls or more specifically self-contained lighting controls. The definition—I've pasted the definition up there but essentially a self-contained lighting control is a lighting control that's in a single package as opposed to a system that may have several components to construct the lighting control. It covers such things as time-switch controls; an automatic daylight controls; lighting photo controls. There's a whole list of them.

The proposed regulations for lighting controls essentially are adding the requirements that exist in Title 24 which is building code standards and moving them into Title 20. Currently these products are already required to certify with the Energy Commission. The real

purpose and the benefit of this move is that it will clarify the certification process which Title 20 has a very robust certification process and will also prohibit the sale of noncompliant lighting controls before they're installed in buildings. Title 24 regulates what's installed and Title 20 regulates what's sold. So now they won't even be able to be sold. It'll hopefully prevent noncompliant products from getting installed in California buildings.

So this is also a hearing—besides the proposed regulations this is also a hearing to collect comments on the proposed negative declaration. The proposed negative declaration is basically a discussion of the environmental impacts of the regulations. The study shows that there are no adverse environmental impacts and you can read that. That's on the web. The comment period of that document is different than the comment period for the proposed regulations. It ends sooner and the final date for comment is November 12, 2011 for those. However, they will share the same adoption hearing on November 30.

So I'm going into some of the background into why we proposed the regulations we have and also some of the fundamental concepts located in the staff report.

So where did we get all this information that we used to propose these regulations? One major source is

stakeholder input. We've been gathering input for proposed regulates since December 28, 2007. That's when the Energy Commission first started looking into battery charger standards and, at that time, we decided to move forward only with the test procedure. But we've been gathering information since that time and also during the workshops that I discussed earlier. We also have funded a few research endeavors through PIER included research to create the test procedure that's now the basis for the DOE test procedure and is still the test procedure for the large battery chargers. We also received a great deal of information from Investor Owned Utilities and we also took a look at the US DOE's preliminary analysis for battery charger systems.

The proposed express terms include many changes that we made over the last year and most of those changes were made to minimize burden to industry while maximizing savings. For instance, in the May 19, 2011 Committee workshop the notice for that workshop discusses notice discusses more than 16 changes made to the regulations and those were all made based on stakeholder input. The express terms we're considering now include even further changes made after that workshop, that Committee workshop or Lead Commissioner workshop.

The IOUs submitted a case study in October of

2010 that really identified battery chargers as having significant statewide energy use. At that time it identified as having over 170 million of these products in use in California, consuming 7,700 GWh/year that's very significant. And those numbers were projected to continue to rise but more importantly than that they identified that battery charger systems have a significant energy savings potential. I'll get into that next.

So how can you improve the efficiency of a battery charger system? One important way is to introduce or modify charge termination for very simple products, battery chargers, they don't stop charging the battery once it's full so one way to improve the efficiency would be to install some type of switch or termination circuitry that will stop charging the battery once it's full.

Ecos demonstrated this on a few real world products. One example is their tear down and redesign of a power tool. They estimated for about $1.20 worth of parts that they could improve the 24 hour efficiency of a power tool by 19 percent and cut the maintenance mode power by nearly 2 watts. With that kind of incremental cost and the duty cycles of a power tool that puts the payback period in about half of a year.

So an example of the change made here. Originally this power tool kind of just kept drawing the

same amount of wattage over the entire period of the charge cycle. After the alteration you can see that after a certain amount of time the battery charger system went ahead and switched into a low power mode and that was the basis for the majority of the savings.

This is some DOE data that further demonstrates the feasibility of this standard. This is only looking at extremely small or smaller sized battery charger systems. You can see here there's that flat 16 line that we mentioned earlier. So this is more zoomed into the lower end, not in logarithmic scale this time. To the left here you can see the 24 hour energy as measured by the DOE and on the X axis you can see the battery capacity of the products tested. The red dots represent lithium ion technology batteries and the green dots represent nickel metal hydride and they didn't have any nickel–cadmium tested at this low capacity. You'll see that the primary reason that these lines above these dots fall above the line is due to their high maintenance consumption and this is typical of a system that doesn't enter a low power mode when the battery is full. These bars are in order in order, from left to right, of the dots so this bar—the bar to the left, Number 1 here, is correlated with this first dot on the graph and the same goes for the red. You can see here for the dots that fall below the line they have

extremely low maintenance load power. That goes for both lithium and nickel chemistries.

There are other opportunities to improve efficiency of battery charger systems. One can improve the AC to DC conversion efficiency and that can be done with an external power supply or an internal power supply. The constant power draw or what I like to call the overhead of the system can be reduced and that can be done by using more efficient transformers or eliminating transformers and also switching from resistor based current limiters. For instance, resistor based current limiters are used frequently in LED indicator lights. It's just a cheap method to use a LED but there are more efficient ways to light up a LED than by using a resistor. Also, there are many products that comply with the regulations today. So looking at those products and applying strategies and technologies to noncompliant products will be a key way meet to the proposed standards.

So we've estimated the cost and savings and we've done this for several product categories but this is kind of an aggregated version. Small battery charges. This is an aggregate of power tools, golf carts, laptops. All these products are all kind of aggregated here into this line. The individual calculations for each product type are available in the staff report in Appendix A.

You can see here that a typical small battery charger system, the incremental cost is about $0.80 and the savings are about 14 kWh and that leads to a payback period of less than half of a year in California.

In large battery charger systems, obviously the numbers are quite larger because the systems are much bigger. For this product the incremental cost is estimated to be $375-$376 and the savings are estimated to be 3.3 megawatt hours per year. Cost effective, the simple payback period is a little longer but the product lifespan is also a big longer.

So what does this mean for the State of California passing these regulations? Well, we estimate that if all the battery chargers on the market today and in people's homes were compliant with the proposed regulations that we'd be saving 2,187 GWh/year which is quite a large number of houses as you can see in the diagram. That would save $306 million per year in avoided electricity costs and that's using a rate of $0.14 a kWh. Just the compliance of the consumer products of first year sales in 2013 would save 370 GWh/year. So that means that next year, at the end of the year, if all the battery chargers met the proposed standard, we'd be saving energy at a rate of 370GHw a year until those products broke, essentially.

So I'd like to again reiterate the comment process. That's why we're here today but the written comments are due by November 21, 2011. Please remember to send a hard copy to the Dockets Office as well as a digital copy and the information is here. It's also in the NOPA which is the Notice of Proposed Action. I would actually just following the directions in the Notice of Proposed Action but, again, this an attempt to summarize those requirements.

Thank you. That concludes my presentation. I guess that leads to the Public Comment process if you want to take it over with that.

COMMISSIONER DOUGLAS: Absolutely. Thank you, Ken. I've got a stack of blue cards. If you'd like to make a comment and you haven't given the Public Adviser your card, please do so. We'll take the people in the room and then we'll move onto the phones. So the first card I have is Henry M. Wong with Intel.

MS. SADLER: Is it this one?

MR. WONG: CEC battery charger. October 24. Yes. Okay. Great. I'll instruct you as to when to move the slides.

Hi. My name is Henry Wong. I'm a Senior Power Technologist at Intel and representing both ITI as well as its members.

Thank you for listening to the comments that we have and inviting us to this forum.

I'm going to cover some of the details behind the comments that we've already submitted through ITI as well as the recommendations that we submitted last year. For any of the additional questions or clarifications, the CEC staff and the key stakeholders are more than welcome to contact either Ken Saletts at ITI or myself for any of the details. The contact information is listed in the documentation that's been submitted. Next slide.

There are actually two areas of which are extremely challenging for these multi-function mobile computer systems. The first is the 24 hour charge and then the second is the maintenance plus no battery test limit.

I'll highlight the challenges that these provide as well as offer a recommendation that would reflect the current manufacturability of products that are in our industries today.

I'd like to remind the Commission of the industry's previous written comments prior to last week's comments on the test procedures. We still believe the best way to isolate just the battery circuitry of these complex devices is to test and subtract these non-battery functions away from the power levels that way we can

isolate the battery charge and maintenance power separately.

The industry will be working with the CEC staff and consultants to demonstrate the viability of this new test procedure during next year. We hope that the CEC will support the industry in its effort and consider its adoption ending viability of the adoption. We also hope that the CEC will support industry's efforts with the DOE to harmonize to these new test methods, unless we have them developed.

Let's move on to the challenges that the current specifications hold for us given the current test methods. Next slide. Next slide.

Great. So the industry really wasn't sure whether or not the publicly available ENERGY STAR data was taken into account when reviewing some of the limits and so forth. Unfortunately this ENERGY STAR data is data on a very narrow scope of notebook computers and it's all without the battery; so it establishes the baseline where the limits of the battery systems were a few years ago. We expect that the other mobile computers that are not in this category would actually represent a broader spread but we haven't had a chance to go ahead and review a lot of those other product lines. We'll also note that it doesn't include the battery nor the integration of the

battery because once the battery is inserted into these platforms and is plugged into these AC outlets there's an addition integration outlet in terms of power to manage the systems between the battery as well as the AC load.

Fundamentally to be able to migrate all of these systems from the, roughly around the limits are around 2.5-3 watts, to migrate them down to the half watt level which is represented on the maintenance power for these systems is very, very challenging. In order for the industry to achieve those levels it will take a lot more time than the few years that are available in order to migrate the entire population down below a half a watt. Next slide.

As was indicated to the industry since mobile computers are really using advanced battery chemistries like lithium ion as well as sophisticated power management, it was indicated to the industry that they would use the 1.6 multiplier that was in the limits, in the 24 hour test limits, to address some of these other AC power loads. Since we're using very advanced and very efficient battery charging techniques already that we could go ahead and use that 1.6 and part of that would be associated with the AC load that's not accounted for. However, what I show is here basically the budgeting that the system manufacturers face when encountering a

specification as we described or as has been described to us.

If you look at the budget, especially when dealing with devices with less than 50 watt hours, the fixed load losses are tremendous. Instead of 1.6 it tallies up to 1.9 that the manufacturers would have to reach in order to go ahead—that's the best that they can do with the current devices that they have available.

Let me also emphasize that since these are manufacturing limits when manufacturers go to these limits they test 100 percent compliance to them. Anything that fails these limits are rejected, scrapped and the cost burden is on all of the other passing units which can be quite tremendous. Next slide.

Now this is not just a budgeting exercise. Now the industry took five of these very small battery charging systems and tested them according to current manufacturer flow given the limits that were described to us. You can see from the five samples that we took four of them failed the limits, especially the 24 hour test limits. Those 24 hour test limits do include the manufacturer guard bands that are going to be necessary for the industry to comply with in their manufacturer test. Next slide.

So given those challenges this is what the

industry recommends in terms of the limits for the very small battery chargers. On the devices ranging from 50 watt hours to 100 watt hours, we're recommending increasing the maintenance and off power to 1.2 instead of the scalar of 1+0.0021 x Eb. It really is meant to handle these fixed off power losses that are associated with these non-battery functions.

On the devices less than 50 watt hours, these are really the really small devices like cell phones and, or excuse me smart phones, tablets and netbooks and things of that nature. We're looking at 20 plus 1.6 for the 24 hour test instead of the 12 plus 1.6. The 12 was representing the half watt that we were talking about before. The 20 represents something closer to a 0.7 or 0.8 watt for 24 hours.

On the maintenance and off mode test we're looking for the additional 100 milliwattts because of the fixed off power losses with the AC functions. Although this is what we think is feasible it's still very challenging when you looked at the budget of what the systems have to go through today and were still pretty well challenged to bring the population down to those tighter levels. In addition what these levels do is that they provide a slightly greater margin for the small battery supply devices. That's actually consistent with

the motivations behind reducing the AC grid burden by moving to smaller and smaller battery supplies for these devices and reduce the effective load on the AC grid.

Finally, next slide. An additional comment on the labeling. On the labeling, ITI does not recommend labeling to signify compliance. In fact the physical label on the units would actually raise costs and may increase debris and also may impact the functionality of the device such as blocking the airflow and things of that nature.

If documentation is really needed we recommend placing compliance acknowledgement in the accompanying literature or be referenced electronically. That way we know that it's compliant and it just ships with the product.

Thank you for your time.

COMMISSIONER DOUGLAS: Thank you for your comments. Thanks for being here. Next I have Ric Erdheim, Senior Counselor for Philips Electronics.

MR. ERDHEIM: Good afternoon, Commissioner and Dave and Galen. My name is Ric Erdheim, I'm Senior Counselor for Philips Electronics.

We have three major lines of business. First, we're one of the world's largest medical companies. If you're ever needed an MRI or an X-ray you may have had a

Philips machine that's performing that operation but we also have a large home healthcare division. We have numerous products that are in the hospitals.

We have a very large consumer lifestyle division where we have our consumer products. You may be more familiar with them as the Norelco Shavers and Sonicare toothbrushes as well as our own consumer electronics products.

Finally, we're the world's largest lighting company. I know this Commission is very familiar with our lighting activities and I'm sure that you're aware we recently received the L Prize for the achieving of the highest standards for the new LED bulbs. We have 60 watt bulbs which are in the marketplace right now. We have 60 watt equivalent products in the marketplace. We've just come out with 75 watt marketplace. I think you can guess what's going to happen with the 100 watt equivalents also.

As Ken said this process has gone on for over a year. I've been involved in the whole process. It has been long process and during that time the staff has made themselves available. I think Ken and I have become pen pal buddies. So we very much appreciate the staff's attempt to work with us. There have been a number of changes that were very positive and I don't want the record to reflect that we don't appreciate that, we do.

When we submit written comments I will in more details explain the changes that we found were favorable.

But I'm going to focus today on three areas where we still find significant problems with the proposal.

The first deals with emergency lighting. Simply put we believe that the CEC has no data to make the requirement determinations regarding the technical and economic feasibility for emergency lighting products which are listed under UL standard 924. That's the technical standard for the emergency lighting as opposed to other battery backup type products.

Now as Ken pointed out and as the proposal pointed out, there are four sources of data. One source is the DOE data. That rulemaking does not apply to non-consumer products. It only applies to consumer products. That data provides no information regarding emergency lighting equipment.

Second is the case report. Commissioner, you may remember that I talked about this at the last hearing. The case report only looked at one low-end product out of dozens of emergency lighting types of products. Those products address a wide range of environments and applications which is why you would have such a large number of different types of products.

But more importantly it focuses on the wrong aspects in terms of measuring energy. There are code requirements and those code requirements focus on providing a certain amount of light in a certain area. It's not done on a per product basis. This is done on providing a certain amount of light and a certain area. We provided staff with an analysis showing that it would take nine of the products that the case report included. The low end products to provide the amount of light required by the standards and a Philips Chloride which is our major brand would have two of those products that would provide the same amount of light. When you actually total up the energy use you'll find that the two products use less energy than the nine products, although on a per product basis the low-end product has a lower energy use than our higher end product. So by focusing on the product ourselves you're missing the focus of what you should be dealing with in terms of energy.

The third area is the staff report. We saw no discussion of the applicability of any of the technologies discussed in the staff report to emergency lighting. None of these technologies are proven for emergency lighting. We think that emergency lighting is fundamentally different than the products that are otherwise being looked at in the staff report.

The fourth set of data was data that we provided under confidential business information which we may have been the only one to have done that. Since it is CBI I'm not going to disclose the information other than to say it shows that for any theoretically possible savings that they're not economically feasible. We don't see any data in the record that deals with emergency lighting. So without having that data we don't know how you could make the findings by this statute of technologically and economic feasibility.

The vast majority of existing emergency lighting products do not meet the maintenance mode power standards proposed in the regulation because of the inherent performance attributes and battery characteristics used. There's no discussion in the report about the feasibility and the cost effectiveness for emergency lighting and the charging circuit modifications and other proposed solutions discussed in the staff report have not been shown to be reliable for emergency lighting.

Now, I think the CEC's own proposal demonstrates that it can't make the findings necessary because as Ken pointed out you provide five years to come up with compliance for non-consumer products. There's no explanation as to why five years are necessary and the staff has informally told us that it will give us time to

figure it out. Well we don't think that the figuring out standard is the standard that's in the statute. The statute says that you have to show that it's technologically and economically feasible.

And, ironically I've made this point at every workshop, also part of this rulemaking today that you're talking about are regulations dealing with lighting controls. At the very first meet, Mr. Flamm of the staff, talked about how the CEC sat down with NEMA, the National Electric Manufacturers Association which represents the lighting control manufacturers, and came up with a proposal and worked it out and that's why there's no objections that you're hearing about on lighting controls because that was all worked out. We don't understand why the exact same process isn't being used for emergency lighting.

Finally, we think that the proposal is potentially dangerous for occupancy safety. We're not talking about a product that we like to use but not essential. I love my iPod Touch but if it was taken away it wouldn't be the end of the world. If you have a problem with an emergency lighting product it could be the end of the world. We think that these are heavily regulated products for life safety purposes. We think the CEC should be even more careful than for other products,

for regulating such life safety products because the effects of being wrong are so potentially serious.

Finally, we'd point out there there's no urgency. These products are not being regulated by the Department of Energy. We've talked about that through this rulemaking that you have concern about acting before the DOE acts so there's no preemption. There's not going to be any preemption for these products. The fact that we have five years to comply shows there's no urgency.

So, again, we don't understand why this proposal is going forward and we don't think that you have the information necessary to do that.

Second area I want to talk about is labeling. We share the concerns that were just expressed by ITI but I want to go into a little bit more detail. We all know that the DOE is expected to regulate battery chargers and that the DOE is in fact under a congressional mandate to do that. As part of that the DOE could propose rulemaking and if the DOE acts on energy standards and labeling then the CEC actions are, of course, preempted.

If DOE labeling is not exactly the same as what CEC is proposing then manufacturers would have to change a label twice. First to comply with CEC and then to comply with the DOE, adding costs and providing no value as my colleague from ITI just mentioned. We don't know what the

DOE is going to do. I've heard, "Well, we're going to do this and then the DOE will pick it up." Commissioner, as an attorney you know as well as I do, probably better than I do, that we don't know what the DOE is going to do. They have to go through the notice and comment rulemaking and only after they've gone through that can they decide what in fact they're going to do. So any statement about well, the DOE is going to pick up what the CEC does would make, if true, would make a mockery of the DOE process. I think DOE—if I were to say that in front of the DOE they would reject that right out of hand.

If the DOE regulates battery chargers but doesn't require labeling the CEC can't require labeling to show compliance because you'll be compliant to preempted standards. What's particularly puzzling is that we're faced with the exact same situation that we were with regard to regulating the energy efficiency of televisions. It was either last year or the year before that the CEC required television labeling at the same time the Federal Trade Commission was working on a federal labeling standard. The legislation passed a bill and the Governor signed it staying the CEC labeling as long as the FTC acted which in fact is what it did. The CEC proposal on labeling in the face of the DOE's expected imminent action shows that—seems to show that the CEC hasn't learned

anything from the television labeling experience and we would urge the CEC to not move forward with the labeling proposal or, at the very least, stay its effectiveness until the DOE makes a decision on its own labeling.

Finally, I want to talk about a more generic problem. I think you heard a little bit about this from my colleague at ITI. Unlike the DOE draft proposal which broke the regulation into 10 product categories and, in fact, we asked for even more product categories to reflect the differences in the products CEC proposal lumps many dissimilar together to make the statutory findings.

To be fair the CEC has added more categories into what was originally proposed then I don't want that to be neglected but you still have this lumping of very different product categories to come up with this conclusion that the proposals are all technological and economically feasible.

Now we've raised concerns throughout this process about regulating infrequently charged products which are documented in the DOE's technical support document. I see my friend Mr. Hungerford has a beard; perhaps he uses a beard trimmer like I do. If he does, maybe he doesn't, so my beard trimmer I use once a week. It lasts about 13 trims which means that I plug it in four times a year. If I'm not carefully maybe it goes more

hours than it's supposed to but at the most it's going to be four days a year that it's plugged in out of 352 days. Again, we would—there are other products like this, again, that are established in the DOE technical documents. I really don't understand how no matter how efficient you make the battery charger you're going to save any energy if the product is almost never plugged in.

We think that, and that's just an example of how the CEC has lumped all of these products together and said since it's all well and feasible and economically feasible because you're lumping in lots of products, some of which don't have the characteristics of other products. Now we also have just become aware that we have a Class I medical product that is going to be affected by this. It's a bilirubin monitor. We're in the process of reviewing the feasibility of that now but we are concerned because unlike the devices, other devices which are made for consumer products where you're making large products of them, we make small numbers of them. So whatever the costs are, they have to be covered over a much smaller number of products making the cost per product much higher.

We also some more extensive testing requirements that are necessary for Class I products as well as Class II and Class III. Again, the staff, based on our

comments, exempted Class II and Class III and I want to recognize that. But we're not sure that we don't have the same problems with Class I.

We're going to continue to study this problem over the next month and provide you with comments about these other types of products that are lumped together in the CEC's findings that allow you to make the proposed findings that you have.

I thank you for your time and I'd be happy to answer any questions.

COMMISSIONER DOUGLAS: Thank you for your comments. The next card is have is from Cory Watkins, Executive VP and General Counsel for Schumacher Electric Corporation.

MR. WATKINS: Good afternoon. I'm Cory Watkins, Executive Vice President and General Counsel for Schumacher Electric. I'd like to thank the Committee for giving us an opportunity to speak today.

We did submit some material prior to the meeting that I assume is now in the docket. After listening to the comments from both ITI and my colleague at Philips it would appear to me that our products are not what you're attempting to regulate here. By way of background Schumacher Electric makes battery chargers for 12 volt automotive products. Cars, motorcycles, snow mobiles,

ATVs, those sorts of things.

In all of the material that has been not only submitted but produced by the Committee, they all seem to be systems which is, as Ken pointed out, it's a battery, it's the circuitry and it's the external power supply that goes with it. In our industry, it would appear that we would be what's classified as your À la carte chargers which is we don't know the battery that's being used here. It could be anything from a five amp hour motorcycle battery up to a deep cycle battery for starting a bus. When you're looking at these tests that we would be required to meet and I guess I would submit that we're not proposed to the testing mechanism it's just that one of the known things that we would need is lacking. Well, what battery are we using and which scenario.

Not unlike what Mr. Erdheim said of Philips is also of the duty cycle of these chargers in a consumer context is virtually none. If any of you have battery chargers for your motorcycles or, I guess not snowmobiles in this area, but they may be used three or four times a year. When you classify a consumer product under this testing and we look at what that duty cycle is some of the proposed areas where we would be lumped in would require a charger that's being using almost daily. In our scenario that almost never happens.

Likewise in the type of product that we have we are not looking at something that is always used constantly. I think the example is that I heard most frequently was with cell phones and cordless tools and things like that. In this scenario and especially in the consumer application which is, again, a scenario where I think we're being lumped into two different categories is that we sell a range of battery chargers for a range of different types of batteries. Sealed lead batteries, AGM, gel cell, not nickel hydride or lithium ion like was mentioned but they're used in two different applications as well. There's a commercial application which is your repair shops and dealerships and things like that and then there's also your do-it-yourselfer that perhaps has two or three different types of vehicles at home.

If we are suggesting that most all of these are 2,000 watts or less and therefore we would be a consumer product that doesn't really apply for when it's used in a commercial application so is it exempt, is it not. We're not really certain there and the definitions don't seem to be clear.

A couple of the comments I do want to make regarding that even if you did decide if we were in one category or the other is that some of the data that the CEC has set forth isn't accurate in our industry. Our

distribution network is not only through the service dealer and so forth that is used in a repair shop but also in a retail application at many retailers that sell products throughout California. In those scenarios there was a suggestion made in the NOPA that replacing some of the technology that we use. I believe they said it was going to be no large cost on either the manufacturer or the consumer and in our product category that's just not accurate. We cannot take a retail based product that if we are required to redesign the topology of the unit to make it comply with this test, especially in the scenario where the duty cycle of it is only two or three times a year. That is known to be at the cost of the manufacturer. Well, Mr. Schumacher is not so magnanimous that he's not going to pass that cost on, of course. Our retailers are certainly not that magnanimous and they're going to double that cost. In the example that we used that if it goes up $1.20 and we raise that cost, that's going to be at least $2.40 that goes to the ultimate consumer. So I don't necessarily think that that is something that the Committee has considered when looking at our types of products.

Again, it may be that our chargers are in such a subset of what you're attempting to cover here, I'm not even certain that some of these exemptions that you've

listed that we could arguably fit into now. I think what we're attempting to determine today is do we fit in or do we not so we're not attempting to play some sort of game about whether we're in compliance tonight. I would argue that this type of product is not something that would be covered under this type of regulation and that's part of the reason why we attempted to submit all the materials that we have.

Finally, my only other thought there on the technology is that the comment that there's readily available technology at a low cost. Again for our type of product because the one thing we don't know is the battery, again I think we're talking laptops, cell phones, power tools, they know what the battery is; in our scenario it's not known. It could be such a broad range of products it would be impossible for us to know whether we've passed the test or not.

So, again, it's our opinion that what is regulated here our product should be excluded. And, again, if you have any questions I'd be happy to answer them.

COMMISSIONER DOUGLAS: Thank you. Thanks for being here. Is Ted Harris with CTIA in the room?

MR. CARLSON: Ms. Douglas?

COMMISSIONER DOUGLAS: Yes.

MR. CARLSON: This is Steve Carlson. I'm—can I make comments from my webcam position here?

COMMISSIONER DOUGLAS: I have both of you on my card and—

MR. CARLSON: That was because if I wasn't able to make it but I'm the California representative for CTIA. If that's okay?

COMMISSIONER DOUGLAS: It appears to be okay with Mr. Harris.

MR. HARRIS: Yes, it does. Thank you.

COMMISSIONER DOUGLAS: So it's okay with me.

MR. CARLSON: Thank you.

COMMISSIONER DOUGLAS: It's your turn.

MR. CARLSON: I'm Steve Carlson. I am with the California Government Affairs Council at CTIA, the wireless association. We are the trade association for wireless carriers, equipment providers and software providers. I appreciate the opportunity to address the Commission today. I wanted to start out by saying we certainly the support the intent and goal of the Commission on this issue. CTIA is in the forefront of doing things that decrease energy use, solid waste and other things. One of the things that we have done on a voluntary basis is to standardize the inputs for battery charges and the goal of which it looks like we're going to

meet is 50 percent of all battery charges having the same input by January 1, 2010. Again, that was a voluntary action on behalf of the industry.

We certainly appreciate the Energy Commission staff extending their proposed implementation by six months to go into effect January 1, 2013. But we believe and I think some of the other speakers referenced that the timeline is still aggressive and will be difficult for manufacturers to do all the necessary research, testing, production and labeling changes within that period of time.

I'll also second the comments of a number of folks on the labeling issue. Because of the labeling on the box and directly on the product it will—we don't believe that the consumer benefits are public safety which are, in most cases, what those disclosures are meant to be on those. Again, these products are distributed nationally and sometimes internationally and not just in California.

As the last speaker mentioned, we also believe and we will be providing more detail on this information in our written comments but we believe that the costs have been understated and we are gathering that information currently.

We also second the point raised and I'm

certainly not an engineer or a mathematician but that even with products that may currently meet the proposed energy efficiency standards, the proposal may negatively affect production because of the allowance problems. We think that for these very low power devices because of the inherent variability in the manufacturing process we believe that the final regulations need to allow adequate allowances to account for the natural variability within each process.

Again, I think the first speaker spoke in much more detail about that but that is concern we certainly have and many of our members of ITI as well.

Finally, I think there's an issue that hasn't been brought up but the issue of inductive charging. The sort of mats that are used where you can put any number of charged devices on that. But the emergent technology for that, I think they're called loose coupled charges, has the potential to reduce or eliminate multiple chargers for different electronic devices which certainly has its huge benefits in the UA side. Because loose couple inductive charges must have the flexibility to charge a wide range of highly complex electronic products such as cell phones, hearing aids, gaming devices, etc. they're very different from the tightly coupled charging devices for toothbrushes and various other things which we're talking about here.

We believe those kinds of devices warrant a specific exception while these devices are being developed and initially introduced to the market.

Finally, we would also like to second the concern we have about parallel proceedings or upcoming proceedings with the Department of Energy. You know, to try to predict an outcome that's exactly equivalent with what goes on in California we don't, just don't, think is possible or feasible.

With that, thank you very much for the opportunity to testify. We look forward to working with the Commission staff on these issues as we go forward. Thank you very much.

COMMISSIONER DOUGLAS: Thank you, Mr. Carlson. We'll look forward to working with you as well. Thanks for being online.

MR. CARLSON: Thank you.

COMMISSIONER DOUGLAS: All right. Next card I have is from Motorola. Mark Bare.

MR. BARE: Good afternoon, Commissioner Douglas. Mark Bare, Director of Government Affairs for Motorola. First, I'd like to thank you, the other Commissioners and staff for your willingness to meet with Motorola Solutions to hear our issues and concerns to work collaboratively to address those issues and concerns. Also want to recognize

Ken Rider in all the work that he's done and his willingness to work with Motorola Solutions.

Regarding the proposed amendments Motorola Solutions has one request for clarification on a matter related to the newly referenced Department of Energy test method and one safety concern with the DOE method. The DOE test method requires that battery charger systems with DC inputs that do not shift with an external power source nor recommend one for use be tested with five volts DC for products drawing power from a computer USB port. This is also a requirement in the California Energy Commission's Energy Efficiency Battery Charger System Test Procedure, Version 2.2 referenced in earlier drafts of the CEC's regulation.

Motorola Solutions previously asked for clarification that the energy conversion losses to develop the DC source should not be included in the test measurements. This clarification was received during the May 2011 workshop from Mr. Rider. However, Motorola Solutions respectfully requests that this clarification be formalized in the final version of the amendments and regulation. In addition, Motorola Solutions has a safety concern with the DOE test method's requirement to test batteries at a prescribed end of discharged voltage based on battery chemistry as this may require testing at a

point of discharge beyond that recommended by the battery manufacturer.

Previously in the draft proposed amendments from May 2011 the CEC had addressed this issue and had amended the requirements of the Energy Efficiency Battery Charger System Test Procedure, Version 2.2 to state that the batteries end of discharge voltage may be use in places of values in the test method Table D. We respectfully ask that this same modification to the DOE test method be added back into the final version of the regulation for small battery charging systems. This will allow a manufacturer to specify the appropriate end of discharge voltage and prevent violation of the manufacturer's specifications during the testing process resulting in a safer test.

So, Commissioner Douglas, we again thank you for the work that's been done to-date and we are seeking the Commission's favorable consideration of these remaining issues. Thank you.

COMMISSIONER DOUGLAS: Thank you. We've appreciated your working with us as well. The next card I have is from Jay Taylor with Schneider Electric.

MR. TAYLOR: Okay. Thank you very much for seeing me today. I appreciate also you lending me a lot of Ken and Mr. Singh's time to work through these issues

with us and the industry. To give you some background, I've been in power systems design for about 20 years and I am an engineer. I also have about six patents with perspective battery chargers and battery charging systems on record.

So we'll go ahead and start out. Next page, please. Nope, that's not mine.

MS. SADLER: Anybody got an idea?

MR. TAYLOR: Thank you. Excellent. Okay, so. First of all, we'd like to also acknowledge the fact that we adopted the definitions in the IEC 6204-3. It's important to us because it provides us a method to reduce the complexity involved in defining battery chargers and it also allows us to shift one product worldwide.

These definitions also align to all of the international norms that we currently meet. We also will be at the end of this proposing because battery charging by itself hasn't really been a topic of standards generation we would like to consider proposing it as a topic for battery charging for standards setting. Specifically within the UPS framework.

We also like the fact that you reduced the complexity which was our recommendation by narrowing the scope to VFD UPS systems. We also acknowledge that also is the largest number of UPS systems that we ship to the

marketplace and they're available here in California.

All UPSs with output voltage regulation transformers capable of correcting undervoltage. Generally speaking, in the United States and in California specifically we don't have overvoltage conditions that UPS systems are really targeting. So a lot of them target undervoltage systems. This happens to be a modification that sits between the categories within the IEC document and we're recommending that you include that in the exemption of UPS system. Next page, please.

Today when we started looking at the data that's available I heard it a number of times about how there are a number of battery charger systems that meet the criteria of the current standard. I cannot find any UPS systems that meet the battery charger criteria of the current drafts. This is a particular concern because in a graph that I'm going to be showing you in a few minutes, I'm not even close.

Systems we have currently in production don't meet the criteria. Systems that I actually have on the drawing board targeted toward getting developed also do not meet the criteria from the development tests that we've made thus far.

Finally, we've also gone to the point of procuring competitive systems. I don't want to leave you

with an impression that there's an exhaustive number of these systems that we've evaluated but we've taken a hard look at competitive systems. We also find competitive systems—we haven't found competitive systems that also meet the criteria. And it wasn't been for want of trying to find them either.

So our concern is basically that the data set we have is non-exhaustive and we'd be happy to provide what we do have at this point. The DOE information which we provided substantial information to was also unavailable for this particular draft comments so we weren't able to provide you the extensive list the DOE currently has. And I was in contact with the DOE folks last week on that topic.

The development cycle time, we have a little greater than 60 systems which sit in this framework that you're currently specifying and the 15 months that we have to deliver to that means we have to be on a schedule of delivering four systems a month which considerably exceeds what we're capable of providing. So that's the other concern is. That we'd either have to withdraw them in order to meet the timeframe criteria or shift them to other systems which are exempted under the current rulemaking which we don't propose either. We would actually propose a longer cycle time for compliance

specifically within UPS systems.

And then, finally, UPS systems in general are not just battery chargers. I realize there's a long debate about whether they should be included or not. I'm not arguing about whether they should be included because they do, as a function, charge batteries. However, in the greater scheme of things they are also continuously monitoring the power line voltage that goes into the systems. Why? Because as little as a half cycle dropout can cause whatever they're attached to to stop functioning. And they're usually used in critical system applications although in man consumer cases they're used to make sure that consumers don't have to reprogram their DVDs for the time. In the greater scheme of things they're also there to protect the data of computer users to prevent desktops from going down and losing whatever data occurs when the operating system crashes due to lack of power.

That's one of the reasons that we think that we need better consideration on some of the criteria that are there for the UPS systems. Next page, please.

So this is a chart that we prepared which shows the redline shows where the actual current limits are in the drafts. The blue line indicates where we have systems, we meaning APC by Schneider Electric, we have

systems there. The yellow lines, the yellow dots, were not intentional but that is competitive equipment that we have in the marketplace. That is what our concern is, basically that even the best systems we have to offer you right now don't meet the current criteria and we haven't found systems that do.

I will leave that with you. I do appreciate the opportunity to get to address this body; and that we had the opportunity to submit our data to you through both written comment and oral comment. Thank you, very much.

COMMISSIONER DOUGLAS: Thank you. Thanks for being here. Kevin Washington, Home Appliance Manufacturers.

MR. WASHINGTON: Commissioner Douglas and staff, thank you for the opportunity to address this rulemaking. It's nice to see you again. It's nice to be talking battery chargers again.

One of the things that seems to be a very common trait is that the folks in the room are all and certainly on the phone will be talking about energy efficiency. One of the other common traits about the comments that have preceded me is that, particularly from the industry perspective, while we all appreciate the ins of achieving and maximizing the energy efficiency that the rulemaking would achieve we cite some continuing, ongoing concerns

about the details of the rulemaking as the proposal currently stands.

We are grateful for the changes that have come as result of our interaction. AHAM, Appliance Home Manufacturers, have certainly been glad to be available to you and for the interaction that your staff has provided with us. And for the changes that have come from that. For example, now that we're talking about standards in the case of three categories – 24 hour maintenance, energy maintenance and no battery modes.

However, there are other details where our concerns still remain and places where we've offered these concerns in the past. I would start as my friend from CTIA mentioned, and others have also mentioned, the fact that the DOE is currently working on a battery charger proceeding. The contents of which could have the potential with conflicting with the rulemaking that we have pending before the CEC as well. To the extent that, for example, that rulemaking would cause standards to be set that might be duplicative and in conflict with the CEC, thereby compelling manufacturers to make changes not once but twice with their products. First, it puts a burden on manufacturers because of those changes but second, it also places some risk of products to be available to consumers here in the state of California as

well. Because manufacturers being put in a position of making those changes or pulling a product all together, as my colleague from Schneider Electric just before me pointed out, if there are not products that actually meet the standard then that certainly puts manufacturers in a very difficult position. So we would argue to have the rulemaking continue to evolve on that particular point.

Similarly, with regard to making changes to products the currently proposed effective date of January 2013 is something that would place an incredible burden, basically an impossible burden, on the products that our members make but even more to that we express some concern that the CEC would pursue that particular date in light of previously information from your own consultants that would recommend an actual two year window to enforce this rulemaking and to expect manufacturers to make changes. If that is true, since we are currently 13/14 months from what would be your November approval date for that hearing that would fall well short of the two years, 24 months, that industry would advocate and your own consultants had previously advocated in their 2010 report.

When it comes to the issue of labeling I could echo many of the comments that have come before me today in the sense that we would advocate against not only the need of labeling but the end that it would achieve. Given

that the product certification is already the requirement or the law under Title 20 and that registration currently exists as a requirement, we question the need for the labeling in terms of what end it actually meets. For example, labeling is typically used to serve two purposes: to differentiate products in an instance where there are in effect two standards being met or to differentiate in products when they're using a voluntary standard. Neither of those purposes is served in this case. The CEC standard will, of course, be mandatory here in California. And compliance of that standard will be adequately demonstrated both to the CEC and to the public by the certification processed by the reporting that is necessary through registration in the amended proposal. We would argue that, in fact, there really is no need for the labeling itself.

There are other concerns that we have with regard to the process of the proceeding itself. As I mentioned we've been appreciative of the interaction we have received but we're curious and have concerns about the several opportunities when comments have been solicited and submitted by my organization but have met with no response. Four opportunities in writing in particular in the 12 months this particular proceeding has been underway since last October, and that doesn't count

our oral comments or other request to information that we're happy to provide. We're very interested in being a resource and have been in the past and continue to maintain that interest ongoing. We're certainly concerned about the fact that the concrete data that has been submitted through those comments and other opportunities have not yet been met either with response and certainly in the case of issues like labeling and other parts of the active rulemaking that's proposed before us our comments— that data is not actually reflected.

We would further express a concern about the limitations of technologies that can be employed by the proposed rule. The presentation indicates that there are a number of technologies currently on the market and at low cost that could actually allow for products not in compliance to actually come into compliance. Setting aside the issue of the cost which we would, of course, certainly differ with the level of energy standard and performance to that standard is actually best achievable by lithium ion technology but in order for the standard to actually impose that requirement it would foreclose the use of other technologies in currently used products, most of that being nickel based. We have a great concern about that. Not only from the retooling standpoint and the burden that places on manufacturers but, again, the impact

that that would have on the supply of products facing consumers here in the state.

So all told we, again, continue to be willing to work with the Commission. We are very glad that this Commission is very active on the issue of energy efficiency. We maintain our very strong and serious concerns with both the substance of the rulemaking, the process that goes forward and would certainly urge that the Commission continue to work with us and consider it's behavior going forward and its timeframe in particular to perhaps adjusting that to match many of the comments and concerns expressed by industry today. We're very thankful again for the chance to offer comments and happy to continue to be a resource.

COMMISSIONER DOUGLAS: Thank you. Thanks for being here. It's good to see you again. Next I have Gary Fernstrom from PG&E and SCE and SEMPRA.

MR. FERNSTROM: Commissioner and staff, I'm Gary Fernstrom from PG&E. I'm representing PG&E and the Southern California Edison Company and SEMPRA Utilities here today.

I'd like to thank you for the opportunity to present the case study on battery chargers and work with the Commission through the past several years in developing this energy efficiency advocacy opportunity.

As utility supplies we serve the majority of gas and electric customers in California. We're really working in this energy efficiency effort in the public interest. We think that the recommendations we've made are modest. And, again, we think that they're in the public interest. I've made the observation that there are a few advocates here today and many opponents that have concerns. When you look at the position of the advocates and the concerns please keep in mind the interests that are being represented. I believe the utilities are representing the interests of the public, energy efficiency and the environment.

Many of the issues brought up here today are ones that have been previously raised and we'd like to minimize our comment here today and address some of the issues that have not been previously raised and reserve the opportunity to address all of the comments later in writing.

So with that brief introduction I'd like to call upon our consulting team to bring up any specific comments that we may have. Thank you.

COMMISSIONER DOUGLAS: Thank you. Please come forward.

MS. FOSTER-PORTER: Good afternoon. I'm Suzanne Foster-Porter with Ecova, formally known as Ecos

Consulting. I'm here representing the Investor Owned Utilities Statewide Codes and Standards Team and have been a technical consultant to Pacific Gas and Electric on this topic.

Thanks, Gary, for passing that over. I wanted to raise a couple—respond to a couple of comments that have been made by manufacturers here today regarding the feasibility of the levels for the proposed in the 45 Day Codes and Standards.

Specifically, I'd like to address, just to start, the comments that were made by Schneider Electric, that manufacturers, the APC, uninterruptable power source products. In response to the question of data and whether or not there's sufficient data to create a UPS energy efficiency level under the battery charger systems. Specifically DOE has addressed this product in its preliminary analysis and the levels that were proposed for battery maintenance were actually significantly lower in the various candidate standard levels than what's being proposed here at the Energy Commission in the 45 Day language.

Specifically the levels proposed were 0.5 watts for the most stringent levels, 0.7 watts was cited as the market average. CEC's level, which is approximately 1 watt, for a 70 watt hour UPS is significantly higher than

both of these levels and would yield energy savings. This particular product category is worth 90 gigawatt hours per year after full stock turnover to the Californians.

We recommend as well that the Energy Commission keep the 45 Day language energy requirements for computer systems. ITI raised some concern around data and whether or not either the CEC staff or the IOU consultant team has considered data that's publicly available or other test data. I wanted to highlight that as part of the preparation of the case proposal, the IOU consultant team did test a number of netbooks and laptops, some of which met the standard and some of which did not; resulting in the compliance passing rate that's cited in the case report.

I'd like to emphasize that these are older systems form 2006-2008, excuse me, 2006-2010 and as a result we also sourced publicly available data from two main manufacturer websites specifically on these small systems just to support the case standard levels.

Our breakdown of the analysis from this public data suggest that the CEC battery charger low power mode requirements currently proposed in the 45 day language are actually less stringent than the European Union's Lot 6 requirements proposed to go in on the same date, by about 60 percent which about only 0.3 watts but is significant

when you're looking at the power budget.

In addition, I'd just like to point out that the data that was shared by ITI in the first slide of their presentation which created the framework for why less stringent levels were needed includes computer systems from the ENERGY STAR programs that goes back to 2008. So the distribution of power in the power modes is quite different with the newer systems which is why we cited the newer data from two manufacturer websites. So there's a little bit of a more nuanced story in the data that are being shared relative to the total—relative to the timeline.

Thirdly, I'd like to address Philips' comments related to emergency egress lighting. Unlike most lighting applications in California, the majority of energy consumed by egress lighting is to charge a battery that's used for emergency purposes in the event of a power outage. This standard does not impact the type of lighting, the amount of lighting, the quality of light that's used with the emergency egress and only measures the energy use that a battery has used to create the backup system for that light.

The case report—in preparation for the case report, we reported test data from one specific lighting system and investigated the circuitry of others to confirm

that the battery charging circuitry found within an emergency egress light is the same type of topology, technology and approach that is used with other battery charger systems found in other parts of the standard; and concluded that the technology from other battery charger systems that have similar topology can transfer to this technology.

In sum, we recommend that the CEC keep emergency egress products in the scope. We recognize that the CEC has given these product groups five years to comply in part to reflect the life safety concerns associated with the products. This is worth 37 gigawatt hours per year to the California ratepayers. So we encourage you to keep that standard as the same.

Lastly, I'd like to address comments from Schumacher Electric representing the auto chargers. The duty cycle and comments made by Schumacher Electric are largely focused on consumer products for auto marine chargers. Although the types of duty cycles are common for some consumer products, these products are also used in non-consumer applications such as garages as well as marine and RV applications where the product is plugged in for a significant amount of time. We do not disagree with the costs presented by Schumacher. In fact the cost we cite in our own case report analysis is $24.00 incremental

cost which is very similar to Schumacher's range of $12.00-$70.00 which averages, if you average the data points, is about $30.00. To us that helped to confirm the case report findings that although the cost compliance is high for this category so is the energy use.

The payback time for this category is very short and it's a significant portion of the savings associated with the battery charger system measure. Specifically the energy savings for this category which includes recreational vehicles, auto marine chargers, chargers of all those categories is 570 gigawatt hours per year and that's in part because of the inefficiencies that are now found in auto chargers.

To give you an example we observed chargers in the course of studying this product category that had fans that were constantly operational over the course of the charge and constantly plugged in when not charging, using approximately 3 watts. Other examples are linear power supplies that are not very efficient relative to their switch mode power supplies which are currently available. So those are two examples of obvious efficiency improvements that can be had within this category and one of the reasons why 570 gigawatt hours is such a large number is because there's lots of room for improvement in this category where cost has been a large focus and

efficiency has not.

And that concludes my comments. Gary, would you like to add anything else? Okay. Thank you.

COMMISSIONER DOUGLAS: Thank you. I have two more cards now. We've already heard from CTIA so I don't know if we need Ted Harris or not but if you're still here, it doesn't look like it, if you'd like another bite of the apple here it is otherwise we'll go on to Robert Callahan of TechAmerica.

MR. CALLAHAN: Thank you, Commissioner and staff for the opportunity to speak here today. My name is Robert Callahan. I'm the Director of State Government Affairs here for TechAmerica in California. We appreciate the workshop being held here today by the Energy Commission and many of the comments that I was planning to make have already been made by several of the presenters so I will be very brief in acknowledgement of your time and I don't want to be repetitive here.

First and foremost, we represent over a 1,000 technology member companies across the country, many of whom are very engaged in energy efficiency and sustainability on a voluntary basis. Part of that is voluntary is being good environmental stewards and another part of that is the inherent competition and battling for consumer preference in the marketplace which comes

naturally for these companies. Much of this has led to, as I think we saw in a staff report or presentation at the last Energy Commission workshop on the broader scope of appliance energy efficiency standards, was the industry gains that have been happening over the past decade have been very significant and shouldn't be ignored in our opinion.

I'd also like to commend the Commission for what appears to be very thoughtful work that's being put into this proceeding thus far. It is very complicated and there are a lot of factors to address and to consider so we understand the challenge before you.

Kind of our primary concern when looking at these regulations is we want to ensure that any potential package adopted by the Energy Commission allow this sector of the economy, the technology industry, to continue to evolve as rapidly as it does. I think that's part of the balancing process that we have here but we want to ensure that it can do so without unnecessary costs or delays to production of new technologies that may deliver greater energy efficiency savings and be more nuanced in terms of consumer demand. And that's what these companies are doing on a voluntary proactive basis regularly. One of the examples in that area that I think has already been mentioned is the loosely coupled wireless charging systems

which is a new, innovative technology that is still in its not really yet to market and we just want to ensure that as it is currently captured in the inductive charging systems, I think that it's one that merits special attention by the Commission.

Second, I think I'll bring up something that hasn't been mentioned yet. We've been—I think you've heard some comments about some of the tests and formulas need to be looked at a little bit more carefully. Number 1 to ensure that we are seeing some practical thresholds for industry to meet to make sure that it's not overly burdensome or challenging while still providing energy savings; and Number 2, some of the formulas can lead to some nuances with the various technologies involved and I'll point out one. I ask that you take a look at the USB charging systems which are inherently limited to 5 volts as larger battery capacities are going to be being applied to—or being used by those USB-based chargers because time for charging is one of the factors in the formula that results in an efficiency score those will naturally be burdened or handicapped because of that limitation that's naturally in USB-based chargers which is again the 5 volt limitation.

So that's something that I think that as you guys are looking at your formulas and testing procedures

to take a look at that one in particular. And, again, we're happy that we have until November 21 to make written comments because we are still taking an in-depth look at these things.

Finally, I'll pile on to the folks who said we do have concerns with the proposal for labeling. Again we think that on the product labeling is excessive and is challenging to meet. You know, if it's part of the documentation that's a lot easier for us to comply with and, again, because you have the parallel process happening at the federal level it sort of speaks to that issue.

And, yeah, I guess I'll wrap it up there. Thank you for your time.

COMMISSIONER DOUGLAS: Thank you. Thank you for your comments. Is there anybody else in the room who may not have filled out a card who still wants to make comments? I see that there's at least one. Anybody else beyond the person who just filled this out? All right. Well, we'll go to Suzanne Porter.

MS. PORTER: Thank you. Suzanne Porter, representing the IOUs Statewide Codes and Standards Team. I just wanted to respond to one more concern that I heard today around the wireless, loosely coupled inductive chargers. Specifically what this is referring to is what

you might call a pad charger. Where you have a pad on a desktop and then you're able to set a wireless device down on the pad without connecting a wire to charge the device.

I just wanted to clarify that the Technical Team for the IOUs did examine two of these types of these products in consideration of the standard. As has been mentioned here it is a new technology and so the ones we looked at were aftermarket products which means they weren't integrated with the devices that they charged.

What we found was that there were two different technologies, one of which has been focused on here and another of which has not. The first technology is the inductive wireless cart coupling which has been championed by some parts of the industry and does have some inherent efficiency penalties associated with the inductive coupling.

The other technology that we've seen in aftermarket products is actually a conductive product where you have a conductive pad, a product sits down on the conductive pad and then with various analytics can assess where those point contacts are and then charge the battery.

So the same exact consumer service is delivered in both of these technology scenarios that we've studied. But very different technologies. We would recommend that

the Energy Commission continue to keep these products in scope. They provide the basic—there's two technology pathways to compliance. They provide the same and possible same pathway compliance within each technology. They combine the same functionality to the consumer and they are maybe an important and growing energy use in the state of California. Although, it is difficult to articulate now because they are an emerging technology.

I think the main point we'd like to make is we want all battery charger systems in the state of California to be efficient regardless of the specific form factor or sort of configuration of the device. Thank you.

COMMISSIONER DOUGLAS: Thank you. Let's now turn to WebEx. Do we have any public comment on WebEx?

MS. SADLER: I'm going to unmute and ask.

COMMISSIONER DOUGLAS: We've unmuted the lines. Please speak up if you'd like to make a public comment. I hear somebody speaking. Whoever just spoke, would you like to make public comment. All right, I didn't hear any comment on WebEx and you've got the phone line at the same time, right Lyn? So it sounds like there's no public comment on the phone.

As was mentioned there's still time to submit written comments. I've been—just listening to see if anyone wants to pipe up. Okay.

MS. MAUER: This is Joanna Mauer. Can I make some discrete comments?

COMMISSIONER DOUGLAS: Yes, you may. This is the perfect time to do it.

MS. MAUER: Thank you. This is Joanna Mauer with the Appliance Standards Awareness Project. And thank you very much for the opportunity to participate in this hearing.

We support the CEC moving forward on this rulemaking for standards for battery chargers. And I wanted to just briefly comment on the significance of the CEC rulemaking in the context of the DOE rulemaking on battery chargers.

So, first, the CEC rulemaking has a broader scope than the DOE rulemaking. DOE only has authority to set standards for battery chargers for consumer products while the CEC rulemaking is covering battery chargers for both consumer and non-consumer products. And the standards for non-consumer products will achieve long term energy savings for California.

Second, California has the opportunity to lead here and set strong standards for battery chargers that will achieve large, cost effective energy savings. The staff analysis of the battery charger standards estimate that in just the first year that the standards are in

effect, California would save over 400 gigawatt hours and peak demand would be reduced by 46 megawatts. And after stock turnover, California consumers and businesses would save over $300 million each year on their electricity bills. We would hope that DOE establish standards that are no less stringent than standards set by California.

Third, California has the opportunity to accrue savings for consumer battery chargers before the DOE standards take effect which can help the state meet its aggressive energy savings goals and reduce consumers' electricity bills.

Based on the effective date of January 1, 2013 for consumer battery charger in the Notice of Proposed Action, California would accrue at least one year of savings before any DOE standards go into effect.

DOE was required by statute to publish a final rule for efficiency standards for battery chargers by July 1 however we still have not yet seen even a proposed rule published and, therefore, we encourage CEC to move forward as the timeline and the outcome of the DOE process are still very much uncertain.

And I also just wanted to note that the Power Sources Manufacturers Association which represents manufacturers who make components for battery chargers and external battery supplies submitted comments to this

docket expressing their support for California strategy to increase the energy efficiency of battery chargers and stating that their member (inaudible) provide solutions to help achieve this goal of energy savings. Thank you very much.

COMMISSIONER DOUGLAS: Thank you for your comments. I wanted to ask if there's anyone else who'd like to make public comment.

All right. We've got a hand raised. Let's go to Peter Newman. Peter Newman, would you like to say anything?

MR. NEWMAN: Hello?

COMMISSIONER DOUGLAS: Yes, go ahead. Peter Newman do you have any public comment to make right now?

Would anybody else like to make any public comment? All right. In that case.

MS. SADLER: Mike Leaon just raised his hand.

COMMISSIONER DOUGLAS: Mike Leaon, would you like to make a public comment?

MR. LEAON: Thank you, Commissioner Douglas. I guess I apologize for not being able to be at the hearing today in person but as the Manager over the Appliance Program I just wanted to recognize the efforts of staff and stakeholders in working to make changes to the regulations to, I think, improve them from where we

started from. We'll certainly be taking a close look at the testimony that we've heard today and consider any additional changes that might be necessary.

COMMISSIONER DOUGLAS: Thanks, Mike. That's a very helpful comment and I agree wholeheartedly with both statements. With that, is there anybody else who'd like to comment?

MS. SADLER: There's one comment that came over chat that I'll read into the record, if you'd like.

COMMISSIONER DOUGLAS: Sure.

MS. SADLER: "NEMA supports Mr. Erdheim's comments regarding emergency and life safety products be exempt from this proposal and Title 24 energy savings goals. That is a comment by Alex Boesenberg.

COMMISSIONER DOUGLAS: Thank you, Lyn. All right. With that we will look forward to written comments. We'll work on the comments that we got toady and the issues that were raised today and so we'll look forward for more communication with stakeholders. Thank you. With that, we're adjourned.

[Meeting is adjourned at 3:06 p.m.]

REPORTER'S CERTIFICATE

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

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

IN WITNESS WHEREOF,

I have hereunto set my hand this 3rd day of November, 2011.

Kent Odell

Kent Odell
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