DOCKETED

Docket Number:	15-AAER-02
Project Title:	Pool Pumps and Spa Labeling
TN #:	212730
Document Title:	Transcript of the 07/13/16 Staff Workshop on Pool Pump and Motors and Portable Electric Spas
Description:	N/A
Filer:	Cody Goldthrite
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	8/10/2016 2:02:46 PM
Docketed Date:	8/10/2016

HEARING

BEFORE THE

ENERGY RESOURCES CONSERVATION AND DEVELOPMENT

COMMISSION OF THE STATE OF CALIFORNIA

CALIFORNIA ENERGY COMMISSION

In the matter of,	)
	) Docket No. 15-AAER-02
	)
Efficiency Division	)
Appliances and Outreach	)
and Education Office	)

STAFF WORKSHOP ON POOL PUMP AND MOTORS

AND PORTABLE ELECTRIC SPAS

CALIFORNIA ENERGY COMMISSION

FIRST FLOOR, IMBRECHT HEARING ROOM

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

WEDNESDAY, JULY 13, 2016

10:00 A.M.

Reported By:
Peter Petty

APPEARANCES

CEC Staff Present

Leah Mohney, Supervisor, Appliance Efficiency Program, Efficiency Division

Sean Steffensen, Mechanical Engineer

Ben Fischel, Associate Energy Specialist

Bruce Helft, Appliance Efficiency Program

Mike Murza, Legal Office

Presenters/Panel Members Present

Charles Kim, California Investor Owned Utilities

Chad Worth, Energy Solutions on behalf of California IOU

Shajee Siddiqui, Zodiac Pool Systems on behalf of the Association of Pool and Spa Professionals (APSP)

Matthew Vartola, Bestway

Mike McCague, Association of Pool and Spa Professionals

Dave Moreau, Western Urethane Systems, Ltd.

E. Jess Tudor, Coverplay

Also Present

Jeff Farlow, Pentair

Meg Waltner, Natural Resources Defense Council (NRDC)

Dan Delaney, Regal Beloit and APSP

George Nesbitt, Home Energy Rating System, HERS Rater

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P R O C E E D I N G S

JULY 13, 2016 10:00 A.M.

MS. MOHNEY: Good morning. Welcome to the Pool Pump and Electric Spa Workshop. My name is Leah Mohney and I'm the Supervisor for the Appliances Unit.

Before we go over anything, I want to go over a few housekeeping rules. The bathrooms are through the double doors and to the right.

In the case of an emergency, please go out the double doors. You can exit the building either through the right or the left. And follow staff to the park that's caddy corner across the intersection.

Another item of housekeeping, please note that your mics are now in the off position. When you press the button, the light will turn red. Please, only have your mic on if you are speaking. When you're finished speaking, please turn your mic off. And note that the microphone will not amplify your voice in the room. It is for our WebEx participants.

That being said, we have a number of items today. We're going to have the Pool Pump Motor Proposal and then we'll have some stakeholder presentations. Please come up to the mic for your presentation so that you can advance the slides.

Then, we'll have open comments and discussion.

We'll have a short break at 11:30 and then we'll have the Electric Spa Proposal, stakeholder presentations, and discussion, and comment after that.

I briefly wanted to go over the history of the pre-rulemaking. March 2012 was the Order Instituting Rulemaking. March 2013, the Invitation to Participate. May 2013, the invitation to participate workshop. June 2013, stakeholders were invited to submit proposals to reduce energy consumption. September 2013, we had the proposal workshop. January 2014, we had additional information on pool pump motors and portable electric spas requested.

January 2016, now we're in this year, the staff analysis for pool pump motors and electric spas was published. February 2016, the staff workshop. And June 2016, the revised staff analysis for pool pump motors and portable electric spas was published.

That brings us to today's workshop. In case you're not familiar, this is the entire process and we are right here.

Written comments for today's workshop are due by 5:00 p.m., on July 29th. You can go to the Energy Commission website for rulemaking, click on submit e-comment, or you can send a hardcopy. Just remember that the comments are all due on July 29th, at 5:00 p.m.

With that, I would like to introduce Sean Steffensen, who will present the information for you.

MR. STEFFENSEN: Good morning. It's always good to see so many familiar faces in the room.

I'm Sean Steffensen. I'm a Mechanical Engineer with the Efficiency Division. And today I'll be talking about our proposal for pool pump and motor standards.

So, I'd like to welcome everybody today, both in the room and online, and thank you for your participation.

My agenda is shown here. I will summarize the updates to the staff draft report and end by suggesting topics for discussion.

Pool pump motors, including motors sold with a pump, and replacement motors use a significant amount of energy, as much as 2,500 kilowatt hours per year, per pool, according to the Residential Appliance Saturation Study.

The California Energy Commission first regulated pool pumps and motors starting in 2004. Before that time, most pool pump and motor systems used single-speed motors, with some systems utilizing fairly inefficient electric motor constructions.

The current standard for residential pool pumps and motors, and replacement residential pool pump

motors, includes a prohibition on inefficient split-phase and capacitor-start, induction-run electric motors, and a requirement that all pumps and motors that have a total capacity of one horsepower or more have at least a two-speed operation and controllers.

Today we will discuss staff's proposal to update the standard, with a focus on what has changed since we last met. As I present today, I will attempt to say pool pump motors, including motors sold with a pump, and replacement motors. From time to time I may say pool pumps or pool pump motors to briefly mean pool pump motors, including motors sold with a pump, and replacement motors.

Staff's proposal includes a review of comments received at the February 2016 staff workshop. Also, comments to the docket, as well as information made available at the U.S. Department of Energy, Appliance Standards Rulemaking, Federal Advisory Committee Working Group for Dedicated Purpose Pool Pumps. And again, I'll refer to that as ASRAC for short. That was a very successful effort.

I appreciated the wealth of comments received through these efforts and closely considered them as the staff proposal was updated.

The results of the review are as I show on this

slide. The scope of the rulemaking continues to include commercial pool pumps under 5 total horsepower, and pool pump motors used for filtering, booster cleaner, and waterfall pumps.

The staff analysis has been updated to reflect comments received regarding differences in duty cycles, energy consumption, cost, and product lifetime.

For changes, staff adjusted the minimum pool pump motor efficiency requirements, consolidated motor efficiency standard to a single effective date. We also added freeze protection settings and timer requirements for the integral filter pool pumps, consistent with those discussed at the ASRAC meetings.

Our goals continue to be to modernize the standards to take into account current market trends, and technology advances, and to extend statewide energy savings.

Much more detail is shown in the draft staff report at this link. We hope to receive public comment today and in the upcoming weeks as part of the workshop process.

So, here's some pictures to help define what we hope to discuss today. The scope of the staff proposal will include all pool pump motors and replacement motors that are 5 total horsepower or less, the residential

pool pump motors that are in the current scope of the regulations, and will expand the scope to include pool pumps intended for commercial applications.

We also want to cover various pool pumps found around the pools, including the filtering pumps, the pressure cleaner booster pumps, and the waterfall pumps as examples.

The scope will include pool pumps and motors, and replacement pool pump motors for in-ground, above-ground and storable pools. And there are pictures shown here at the right of the slide to help define those terms.

So again, the comments received at the last workshop were very helpful to help clarify what we intend to regulate through these proposed regulations.

Staff proposes minimum motor efficiencies for in-ground filter, above-ground filter and pressure cleaner booster pumps. The proposal will result in significant energy savings to California. The staff estimated at 1,277 gigawatt hours at full stock turnover.

Staff proposes a single effective date for the regulations two years from adoption. That would be January 1st, 2019.

So, the chart shown above shows the minimum pool

pump motor and replacement pool pump motor minimum efficiencies. Single-speed pool pump motors, between zero total horsepower and less than one-half horsepower must meet a 70-percent minimum efficiency at full speed.

Single-speed pool pump motors one-half horsepower and less than one total horsepower must meet a 75-percent minimum efficiency at full speed.

And those that may have studied the draft report in detail may notice I've slightly amended this to close what was somewhat of a gap, where I had defined it between zero horsepower and .49, and then I set a second standard between .50 and .99. We tried to just close up the .49 to .50 gap that was not intended. So, you may see a slight change to this as you compare it to the draft staff report, just to be clear.

Staff updated the minimum efficiency for the variable speed and dual speed to remain the same, 80-percent minimum efficiency at full speed and 65-percent minimum efficiency at half speed.

Staff considered comments that the half speed minimum efficiency would be difficult to achieve. Although, a review of the Appliance Efficiency database shows many appliances that meet the standard.

I show an update to the motor capacities, again, to remove this ambiguity. So again, it's just I wanted

to be clear that this is slightly different, but I think it preserves the intent of what was proposed on the draft staff report.

Staff proposes the test and list requirement for waterfall pumps. Staff found insufficient cost-effective savings to propose a minimum motor efficiency. This has to do with the lower duty cycle, lower power consumption versus the cost to improve the motor.

Staff proposes a timer requirement for integral filter pool pumps, with no minimum motor efficiency standard. Integral filter pumps are pumps most commonly found on portable or storable pools.

Those pool pumps sold with freeze protection shall meet a requirement to ship with default settings intended to save energy. The settings would provide adequate water flow to prevent freezing in the pool plumbing system on cold days.

Manufacturers will test and list power factor. No minimum power factor standard is proposed for pool pump motors.

Staff performed a survey of the pool pump and motor combinations and replacement pool pump motors certified to the Energy Commission. The chart shows single-speeds, less than one horsepower.

This chart was updated to show pool pumps

certified to the Commission as of March 2016. I'd updated this chart. The previous one was from July of 2015. So, a lot more points can be seen here, than previously, which aids in our analysis.

The plot shows full speed motor efficiency on the vertical axis and motor size, in horsepower, on the horizontal axis. Points above the orange line show pumps currently compliant with the standard. Many single speed pumps meet the standard.

This chart shows the dual speed and variable speed pumps up to 5 total horsepower. The plot shows half-speed motor efficiency on the vertical axis and full speed efficiency on the horizontal axis. On this graph, the blue dots represent the dual speed models, while red points represent the variable speed models.

Points to the right and above the orange lines show pumps compliant to the standard. Again, it's kind of the upper right quadrant that is the pumps that would meet the standard. Many pumps meet the standard.

Staff reviewed motor size versus compliance to the pool pump motors and found many motors, of all total capacities, currently capable of meeting the standard. All size ranges were represented with currently compliant models.

Staff applied the standards savings methodology

used on previous rulemaking efforts to calculate savings on a consumer and statewide level. Efficiency of a current compliant product are held at the same level, while noncompliant products are moved to exactly meet the minimum standard, as indicated by those green arrows. So, they're either moved up or moved up and to the right.

Staff assumed product stock, duty cycles, operational speeds and product lifetimes based upon published research, including the recent ASRAC hearings.

Calculations detailed are shown in Appendix A of the draft staff report.

Staff found the proposed standard is highly cost effective, with payback periods well within the expected product lifetimes. And the product lifetimes have been updated to reflect the recent ASRAC meetings.

Staff updated the cost of the incremental efficiency gains through the use, again, of the ASRAC meetings' data that was provided to the USDOE. The most significant per-unit savings are shown for commercial pool pumps, due to their much higher, 24/7 full speed cycles.

Staff found the proposed efficiency standards cost effective for all cases considered, except waterfall pool pumps, where no minimum standard is

proposed.

And then the bottom line, that shows the integral filter pool pump savings, reflect the assumption of a noncompliant pool pump running 24 hours a day versus a compliant pump running 12 hours a day, under a timer control. Staff assumed a 150-day pool pump season based upon comments to the docket.

Staff found substantial statewide energy savings for minimum motor efficiency levels and integral filter timer standards. When fully implemented, the standard will save 1,277 gigawatt hours, or about 98 gigawatt hours per year more than the previous workshop.

That translates into millions of dollars of savings for California businesses and consumers. At full stock turnover, there will be $204 million of savings of electrical costs to Californians.

Staff found substantial statewide environmental benefits from the proposed standards. The standards, when implemented, will reduce criteria air pollutants by 134 tons per year and reduce greenhouse gas emissions by 440,000 tons per year.

The proposal supports the wider, long-term strategy for the State to reduce its carbon emissions. And it will support the target set by Senate Bill 350, the Clean Energy and Pollution Reduction Act of 2015 to

double energy efficiency from existing buildings through appliance and building standards. As well as the goal of the Warren-Alquist Act to reduce energy consumption through cost-effective and technically-feasible energy efficiency standards.

So, I'll show several slides of discussion items. Again, we are here to listen to the public and to the stakeholders to understand comments. So, I'll list off a couple here to help facilitate the discussion at this workshop.

We seek comments on the manufacturing cycle and if a particular calendar date would be preferred by industry for the effective date.

We would also like comments on impacts to the environment, small businesses and manufacturers by the proposed regulation.

Staff seeks comments regarding the size of the replacement pool pump market relative to the size of the pool pump and motor combination market. Pool pump and motor combinations are where a pool pump and motor are sold together. So, we're looking at how often is it a pool pump and motor are sold together versus how often is a replacement motor intended to be placed onto a pool pump as a repair, how often is that sold.

As seen on this slide, staff assumes one

replacement motor is sold for every three pool pump and motor combinations.

Staff also seeks comments on the market share versus motor total horsepower. At the ASRAC meeting, manufacturers provided information, through the USDOE, to show that less than -- that the less than one total horsepower market share is less than 10 percent. So, the small motors represent a very small portion of the market.

That differs than what's shown on the slide here, where I've extracted the graph showing the market share that was assumed for the staff proposal. So, I would look for comments here to update the proposal to understand the market share.

To support this, staff has recently concluded a phone survey of California pool pump distributors, retailers and installers. Twenty-one individuals chose to participate, of the 50 that were called. Fifteen of the 21 participants reported their most popular pool pump motor size was the variable speed, the three to four total horsepower pool pump.

So again, this would tend to indicate that the small market or the small motor market is small.

Four of 21 participants reported selling replacement pool pump motors. The results of the phone

survey seemed to support, again, the assumption that staff shows, where one replacement motor is sold for every three pool pump and motors. We would like to receive comments on these topics.

The ASRAC meetings recently concluded with the unanimous consensus on a strong, nationwide dedicated pool pump standard. The standard would require pool pumps to perform as efficiently as the current variable speed pool pumps for pumps roughly one total horsepower and above.

This would lead to 3.8 quads of savings, quadrillion Btu, it's the way the DOE indicates energy savings, over the next 30 years. The USDOE led this effort, while the Energy Commission participated in this effort.

Staff considers the efficiency standards as roughly equivalent to the proposed California efficiency standards for pool pump motors. The effective dates differ between the ASRAC agreement and the California proposal. Staff seeks comments in light of the recent ASRAC agreement.

This list is the start of discussion topics and we welcome comments on other topics relevant to staff's proposal.

So, staff has released a draft staff report.

We're in a comment period right now. Comments may be submitted electronically at the link above or e-mailed to the docket. Hardcopies may also be sent to the Energy Commission, at the address shown on the slide. One route of submission is sufficient. We do not need to see items submitted in all three ways.

Comments are due by 5:00 p.m., July 29th, 2016.

For those of you on the phone, this entire slide package, as well as the upcoming slide packages, have been docketed. It is available at Docket 15-AAER-02.

Once we receive comments, we will analyze the issues, compare the comments to the proposed standard and figure out the best path forward. We look forward to your feedback and we will work hard to incorporate it into our next draft of the standards.

Thank you, today, for your participation. My contact information is shown here.

We will proceed next into the formal presentations, followed by an opportunity to receive comments from the public.

I can take clarifying questions on this presentation, but substantial comments and statements should be saved for the public comments, following the remaining formal presentations. Thank you.

So, if there are no questions, I will call

Chad -- or, sorry, Charles Kim to the podium as the next stakeholder.

Oh, I'm sorry.

MR. FARLOW: This is Jeff Farlow, from Pentair. I just had --

MR. STEFFENSEN: Speak right into the mic. And as we want to speak loudly enough so that the entire room can hear.

MR. FARLOW: This is Jeff Farlow, from Pentair. And I just wanted to ask a clarifying question on your cost effectiveness slide, number 12.

MR. STEFFENSEN: Okay.

MR. FARLOW: I was wondering if you could expand a little bit on that.

MR. STEFFENSEN: Okay, this is Sean Steffensen. We updated the analysis based upon comments from stakeholders, both at the workshop and in the docket, as well as our participation at the ASRAC meeting. I think there was a lot of great information shared there.

We can see that the design life has been changed and updated to reflect more modern, current understandings of product lifetimes. So, whereas we assumed, uniformly, a ten-year life based upon the DEER standard, we have updated to coincide with what the ASRAC working group agreed to.

Electrical savings are derived from looking at the duty cycle times the motor size times the efficiency gains.

Incremental costs are found through, again, reviewing the ASRAC working group motor efficiency prices at the various levels. I took some liberties as to what EL level coincides because I know we were talking about pool pumps there, versus motors here. But I think there's a connection there because we were talking about motor prices. That's really incremental cost of comparing, say, an EL-0, EL-1, EL-2. So, I looked to see what I felt was the appropriate level to assign to -- that would coincide with -- the California standard versus what I feel the baseline in California is.

Annual energy savings, again, are dividing the lifecycle savings by the life expectancy. And then the benefit is subtracting out the increased cost of the system versus the total lifecycle savings.

So, that's a broad explanation. Is there anything in detail that you would like for me to address?

MR. FARLOW: Yes. Specifically, when we look at the third item, single-speed residential filtration. I assume that is representing an energy efficient single

speed that represents 400 kilowatt hours per year savings over what would be considered the baseline?

MR. STEFFENSEN: Yeah, that's correct.

MR. FARLOW: Okay.

MR. STEFFENSEN: Currently, there's no standard for motor efficiency in California. So, I believe it was an EL-0 motor that was chosen.

MR. FARLOW: As baseline.

MR. STEFFENSEN: As a baseline and we looked to EL-2.

MR. FARLOW: Okay. Now, the dual speed offers 424 kilowatt hours per year. Is that in addition to the 400 or is that just the two speed over a baseline --

MR. STEFFENSEN: Yeah, in a sense we were looking at an EL-0 dual speed. I mean -- maybe I'm -- I probably should look at my notes. But we did try to attempt to look to see what type of motor would be used. So, the motor efficiency at that level.

MR. FARLOW: I guess my question comes around, the variable speed indicates only 51 kilowatt hours of savings per year. And is that 51 kilowatt hours of savings relative to the baseline or is that 51 kilowatt hours of savings relative to the dual speed at whatever? I mean, because it seems like a very low savings amount for a variable speed. In this case, the dual speed

shows eight times more energy savings than the variable speed.

MR. STEFFENSEN: Yeah, so in regards to that question, we are trying to compare -- I may have misspoke earlier about dual speed. I believe dual speed was EL-3.

MR. FARLOW: Okay.

MR. STEFFENSEN: You know, it's a baseline. A motor that minimally achieves dual speed, has the dual speed capability but has a low motor efficiency. So, we looked to see, well, what would make a high efficiency dual speed system, with a high efficiency motor? And I believe that was EL-5.

MR. FARLOW: Okay.

MR. STEFFENSEN: So, we compared EL-3 to EL-5.

For variable speed I mean it was EL-6. They are a very efficient product to begin with, so we're not proposing a lot of improvement to that product. We're really trying to set a uniform standard across the entire spectrum for all motors, whether they're single speed, dual speed, or variable speed as we've indicated on the minimum efficiency slide.

MR. WORTH: This is Chad with the Cal IOUs. Jeff, I see what you're saying. I believe how this analysis was done is basically you took the average

noncompliant, variable speed motor, for which there were very few, and said what does it take, basically, to bring the poorer performing variable speed up to these motor efficiency standards.

MR. STEFFENSEN: Yeah.

MR. WORTH: So, this is done with the baseline assumption that everything over one total horsepower appears to be multi speed or variable speed.

And I think the delta of going from the least efficient, two-speed motor, to the 80/65 split is greater than taking, basically, the least efficient variable speed motor and going to the 80/65 split.

MR. STEFFENSEN: It's looking -- again, this is Sean Steffensen.

MR. WORTH: Baselines are different for motors above one horsepower and below it.

MR. STEFFENSEN: Yeah, very much an apples to apples. Variable speed before the standard to variable speed after the standard. Dual speed before the standard to dual speed after the standard. That was the intent.

I looked to the ASRAC committee as a very recent source of information, where there was wide participation among manufacturers that provided some good data, to update my analysis to make it consistent

with that proceeding.

(Off-mic comments)

MR. STEFFENSEN: Okay, I think you have -- I run the slides, so I would have to -- oh, I'm sorry, I see two hands raised on WebEx. We would like for them to respond through the chat function.

Okay, we still want to hear from those participants online. We can come back to you, so please type your question and we will respond to it.

I would like to invite Charles Kim to the podium.

MR. KIM: Thank you. I'm Charles Kim. I'm with Southern California Edison Company. I'm speaking on behalf of the California IOUs.

What a journey. This journey started in the year 2012. But in the context of a market transformation for pool pump and pool pump motors, our journey started even earlier. More than 15 years Californians see witnesses and the benefit from the market transformation.

It was a long journey, but this journey cannot be a successful journey without leadership of the CEC.

From time to time we reach a turning point where we can raise the bar and bring more benefits to Californians, the common customer that we have today.

So, we are here to speak nothing more than support, and support the CEC's proposal. For people I say that, I want to say thank you to CEC for leading the nation and leading the California to bring energy-efficient products to market and bring some benefits to Californians. And, moreover, protecting our environment.

California has been a leader in energy efficiency and this particular measure clearly demonstrates the California leadership on energy efficiency. My gratitude and thankful heart extend to the staff who wrote this report. It was clear, clearly demonstrate the technical feasibility, clearly illustrate the cost benefits, and clearly outline all the benefits that it brings.

When I read this report and my exclamation was wow, this is well-written report, and I'm very thankful for that.

Success cannot happen without support from industry. Technology advancement, the variable speed drive was not available, maybe not too cost effective many years ago, but today it is. And many products are available for variable speed that our customers can enjoy the benefit of a pool without jeopardizing the quality of using the pool.

And I'm sure many years from now we're going to see many different technologies. So, today's the day we can make things change. And without, once again, your help, and your innovation, and your leadership this cannot happen. So, my thanks and gratitude goes to industry as well.

So, bottom line is, from California IOU stand point, once again we want to support, and support, and support the latest proposal put up on the table.

First support is the efficiency level. Second support is the effective date. And third support is all the benefits that this brings to Californians, and I'm very, very grateful to that.

And we have comments, minor comments, where the area we can make any improvements. And my colleague, Chad, is going to present that next. But once again, thank you so much. Thank you, CEC. Thank you, industry. And thank you for all stakeholders who are trying to make this one happen. And the time is now and we need to move on. Thanks so much.

MR. STEFFENSEN: Thank you, Charles.

Were there comments from the -- Ben, were there comments or questions?

Okay, then let's go forward with Chad's presentation.

MR. WORTH: Good morning. Thank you, Charles. My name is Chad Worth. I work for Energy Solutions on behalf of the California Investor Owned Utilities. Again, which are Pacific Gas & Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and the Southern California Gas Company.

First, again, I'd like to echo and thank the CEC for a well done report. And I appreciate the collaboration we've had on this rule, and at DOE, and hope we can continue that collaboration through today.

Just a real quick documentation of the IOUs' involvement in pool energy efficiency. In 2001, PG&E started a voluntary program for time clocks and two-speed motors. That was started by our dear colleague, Gary Fernstrom, who is not here today. He's back in Washington, D.C.

In 2004, the IOUs proposed the first case study or Codes and Standards Enhancement Study for Residential Filtration Motors. And this led to a prescriptive motor requirement that banned split-phase and cap-start induction type motors. They also said, a few years later, we should have all residential filtration motors over one total horsepower be two-speed, multi-speed or variable speed.

A few years later we incorporated these and some other best practices into the Building Code, such that new pools built in California were very efficient.

And then, as has been mentioned, this rulemaking began in 2012. In 2013, Energy Star adopted or took on pool pumps, which has had a wonderful impact nationwide.

And then, most recently, as has been mentioned, we've been working very rigorously the last year, at the Department of Energy, for a national pool pump standard. Here, we're working on pool pump motors.

Again, I mentioned these briefly. But this is the Title 20 language that exists right now. And we have a prescriptive motor efficiency requirement and then we also have a requirement that says any pool pump motors over one total horsepower must be two-speed, multi-speed, or variable speed, and must be sold with controls that enable that.

The current rulemaking, you know, again, this has been going on since 2012. There have been a number of workshops. We've docketed many responses. In 2014, we had a round table that was convened by CEC and us, in San Francisco, where we worked through a lot of these issues. We also engaged with APSP 15 Committee to work through some of the test procedure issues. We had the workshop in February and here we are today.

So, as I think Charles mentioned broadly, we definitely support CEC's staff proposal. We believe they are cost effective -- or, the standards are cost effective, achievable, and will lead to significant savings statewide.

Really, there are three important changes that are made within this proposal. I think an important one is the clarification and simplification of the test procedure and reporting requirements, extending the motor design and motor efficiency standards to cover all pool pump motors under five total horsepower, and shifting from prescriptive to performance standards.

The test procedure and reporting changes, currently the IEEE 114 test procedure is not ideal for testing motors at multiple speeds. Again, we worked with the industry to identify an appropriate test procedure, which we determined was the CSA C747-09 for motors. And we agreed on some common testing points and reporting requirements that will give much clarity and strengthen CEC's database.

Expanding the coverage to all pool pump motors. Again, currently, the Title 20 language is highly unique as far as appliance standards goes in that it only applies to residential filtration applications.

However, when a distributor or a retailer is

selling a motor, they may not necessarily know where a pool pump motor goes. This has led to a number of compliance issues. It's been well documented. People have come here, on the record, pool installers and stated as such.

And so we see the largest advantage of this proposal is making it such that all pool pump motors, regardless of application, will need to meet these requirements.

CEC's proposal will extend the motor efficiency requirements, replacing the prescriptive ones to all pool pump motors under five total horsepower. I note that CEC provided an exemption for waterfall pool pump motors. We have a few comments on that, so we'll come back to that.

And again, expanding the two-speed, multi-speed, or variable speed requirement. Therefore, in a post-effective date world, one should not be able to find a single speed motor over one total horsepower, pool pump motor, in California. We know if those are out there, they will get put on pools and pools will run inefficiently.

So, that is the big thing we're trying to get at here is increased compliance and increased certainty.

And again, these standards will apply to booster

pumps, replacement motors, above-ground pools, small commercial.

We believe the shift from prescriptive to performance standards is a good one. There's plenty of data to show that motors can be efficient regardless of the motor construction type. And this, I believe, was something that was driven from industry to move to a more performance-based standard, and we support that.

We think what CEC has proposed is reasonable. We think they, you know, on the single speed products have compromised and met a lot of the concerns that industry brought up a few months ago. And that is allowing, basically, single speed motors below one total horsepower, giving them a little more leniency with this 70 percent and then 75 percent steps. We think that's a reasonable concession and we, again, support the continuation of the 80/65 split for, you know, variable speed and two-speed motors.

We also support the January 1st, 2019 effective date. And I would like to, I guess, point out that we've got 1.2 million in-ground pools here in California and I believe 5 or 6 hundred thousand above-ground pools. And according to CEC's analysis, every year we don't act is costing these pool owners $34 million a year in energy costs. So, there is a cost to delay.

Again, we have some suggestions for improvement, of which we'll document in more detail in our written comments, and perhaps get into the weeds of some of these in the discussion.

One, you know, opportunity for improvement, we would like to see the hydraulic testing and characterization of waterfall and booster pumps removed. We think this is kind of an unnecessary burden on manufacturers, as we're regulating motors here. We believe DOE standards will, in due time, supplement the hydraulic reporting requirements and testing.

We propose to treat waterfall pool pump motors no differently than other pool pump motors, as there's a very small market share for these products. And meeting the 1725 rpm efficiency requirements of 65 percent seems reasonable, and we would hate to create a loophole for such a very small market segment.

We generally support the integral product timer. I guess exemption's not the right word. But the opportunity to supplement the motor efficiency requirements with these integral products.

The only comment we would have on that, to prevent a loophole, would be to put an upper bound on that such that someone doesn't make a three horsepower motor and put a timer on it, and then get excluded from

the motor efficiency regulations. Again, probably unlikely, but I think that's something we probably could come to an agreement on.

And then finally, you know, align CEC terms, definitions, test procedures as much as possible with what DOE has done. And I think Sean and the CEC recognize that. They developed this report prior to us finishing a lot of the work at DOE, so some of that discrepancy is to be expected.

But specifically, we'd like to see the definitions in alignment as possible. We see the freeze protection requirements in alignment. The motor controller language in alignment as much as possible. And such that the impact of this standard will ultimately be CEC -- sorry.

In closing, we hope that the impact of this standard will essentially be CEC adopting what DOE will do, a few years early in California. To the extent we can, we would like to create California-only models, knowing where DOE is going. However, what we see that the CEC has proposed is cost effective, and is reasonable, and we can work together to bring these into alignment. Thank you.

MR. STEFFENSEN: Thank you, Chad. I would like to call up, next, Shajee.

MR. FARLOW: Sean, this is Jeff Farlow from Pentair. Can I ask one question on the previous presentation?

MR. STEFFENSEN: Regarding Chad's presentation?

MR. FARLOW: Yes.

MR. STEFFENSEN: Yes.

MR. FARLOW: I think it can be addressed easily. When you referred to waterfall pumps and the performance requirement for them, you indicated that if we look at the table, on Table 6-3, it shows a half-speed 1725 rpm column with -- it shows no, N/A for single speed pumps, and then the 65 percent for multi-speed pumps.

Are you proposing, I thought I understood you to say that for waterfall -- single speed waterfall pumps that run at only 1725 rpm, they would have to comply with the 65 percent motor efficiency requirement. Is that accurate?

MR. WORTH: Yeah, so currently, and Sean clarify if I'm wrong, what you've proposed is to exempt them from any motor efficiency requirements. And I think in order to -- I think we would see that as a compromise position. In order to avoid a loophole, such that they get out completely, we think testing them to the 1725 would be a reasonable compromise there.

MR. STEFFENSEN: Just so I understand, test to

1725 rpm or half speed and list, or test and meet standard of minimum efficiency?

MR. WORTH: We would like to see motor efficiency standards for all pool pump motors, knowing that CEC can't or will have a very difficult time differentiating a motor on a distributor's shelf, a waterfall pool pump motor versus a self-priming pool pump motor.

Perhaps, I'd be curious to get industry's feedback on that. One concern that we have is we don't want to create a world of 1725 becomes the default rpm speed. But we also recognize that these motors are unique, having a unique application.

So, maybe we can work -- I'm sure, given this is the one percent, we can come to some agreement on how to address this product.

MR. STEFFENSEN: Okay.

MR. SIDDIQUI: Good morning to all. My name is Shajee Siddiqui. I'm with Zodiac Pool Systems. I stand here today representing the Association of Pool and Spa Professionals, and their pool pump and motor manufacturers.

My colleagues, who are online, as well as those that are here, I invite them to speak up or anytime interject if I miss anything or misspeak.

So, firstly, the APSP, Association of Pool and Spa Professionals, and its pool pump manufacturers or members, are supportive of the CEC's initiative to further advance the efficiency standards for pool pumps and motors. We believe this is yet another opportunity for the industry to demonstrate its ability to cooperate with its various constituents. As has been very aptly demonstrated recently and witnessed through the DOE's dedicated pool pump working program.

The APSP recommends that the CEC, its manufacturers, and energy advocates model their efforts on the recent DOE process, which proved to both effective and fair to all those involved.

As such, we'll talk about the following comments and recommendations which we are making. These are based largely on what was learned and utilized in the recent rulemaking.

First, the APSP recommends that the CEC utilize the same product categories and definitions as the DOE did. This will provide consistency with the federal regulations and thereby allow the manufacturers to have a common platform to which to build upon. You know, it gives it a common target that we're all after, which we feel was very fair and very effective.

Specifically, we recommend that the CEC use the

same DOE definitions for the following four categories, which were the self-priming pumps, the non-self-priming pumps, or extra small non-self-priming pumps, and the pressure cleaner booster pumps.

This, in turn, will allow for the associated requirements, test methods, et cetera, to be flexible instead of a one-size-fits-all approach, which I'll go into a little bit later as well. You know, the one-size-fits-all approach, we feel, clearly handicaps the ability for the industry to meet the established federal guidelines.

Motor efficiency versus the overall pump. We would like to better understand why the proposed requirements are based on motor efficiency instead of parameters for the overall pump such as, but not limited to, the energy factor. The impact of the pump's hydraulics plays a significant part in the overall energy consumption of a pump.

Additionally, there are examples of products that we believe would meet the new, what the DOE defined as the Energy Level 6 federal guidelines, yet not have the motor efficiency at either high or low speed, as per the CEC regulation.

So, APSP recommends that the CEC set different requirements for the categories, per the federal

guidelines as we've discussed above. In the recently negotiated DOE ruling, self-priming pumps represent the vast majority of the energy saving opportunities, which I believe the CEC has validated, as well. And therefore, these should rightfully be focused upon as far as the updated regulations are concerned.

The other categories, such as the non-self-priming pumps, the pressure cleaner booster pumps, these represent much smaller saving opportunities, as well as less financial justification for the homeowner. And I think the CEC study supports that as well. As such, the APSP proposes separate requirements for these categories.

Further recommendations regarding the pressure cleaner booster pumps will be noted below, which I'll talk about. And this, again, would align with the DOE, where each category has its separate or specific energy level requirements.

Two-speed pumps, the proposed requirements for pumps larger than one total horsepower would effectively eliminate two-speed pumps as they exist today, as most do not meet either the high or low speed motor efficiencies, and sometimes in both speeds. The energy savings opportunities of an existing two-speed versus a single speed can be significant. So, it would be

counterproductive to require further product categories for what would amount to minimal incremental savings.

The APSP recommends that two-speed pumps be allowed, but only if they meet two-speed definition and subsequent criteria, as described by the federal standard. This would still require most self-priming pumps, greater than the one total horsepower threshold to be variable speed, but at least would not eliminate the use of existing energy savings technology.

On the subject of pressure cleaner booster pumps, most of these on the market today are anywhere from, you know, 1.1 to 1.3 total horsepower. The proposed requirements would result in these either changing to variable speed, which we believe is impractical given the application, or reducing performance to less than one total horsepower, which would likely reduce the performance of the pressure cleaner itself, resulting in longer run times and greater energy consumption.

The federal guidelines that we've discussed currently do not differentiate the total horsepower for pressure cleaner booster pumps. And the associated energy level aligns with a more efficient single speed option. We recommend that the CEC look closely at this and adopt similar requirements as well.

On the subject of auxiliary pumps, these were also discussed at the Department of Energy. And it was found that many self-priming pumps are used as auxiliary pumps or, you know, what we call water feature pumps or spa booster pumps. This is different from pressure cleaner booster pumps. These applications are not speed discretionary. Meaning that their application does not allow for reduced speeds associated with significant energy savings.

Further, these applications run a fraction of the time, of a typical filtration or circulation pump. Therefore, the associated energy consumption or savings opportunity is dramatically lower with these types of pumps. And we'd like to encourage the Commission to look at that closely, as well.

By adopting the same federal guidelines or definitions, as noted above, it allows the manufacturers to develop products that would not be suitable or easily modified to be used for filtration or circulation, yet still appropriate for low energy consumption and auxiliary applications.

On the subject of freeze protection, the APSP recommends that the CEC adopt federal guidelines which include that if the pump is shipped with freeze protection disabled, then the prescriptive requirements

do not apply.

The APSP recommends the CEC adopt federal guidelines for the pressure cleaner booster pump test procedure, which involves testing the pump at the minimum head that the pump can achieve greater than or equal to 60 feet of 10 GPM. Again, this was just a test process or procedure that was discussed at the recent pool pump rulemaking at the DOE. And we would encourage the Commission to adopt that, as well.

The timing, that's an important one. The federal guidelines go into effect four and a half years or 54 months following the publication of the direct final rule.

The APSP recommends that the CEC align the implementation of its revised standards for pool pumps and motors with the DOE so that the industry can prepare for both rules concurrently, rather than have two moving targets, potentially.

This is particularly important if there are differences in the fundamental criteria. For example, the motor efficiency requirements versus a weighted energy factor, which is what the DOE considers. Which could otherwise result in California-only models, if subsequent model design changes are made to meet the DOE requirements.

And so from an industry stand point, that would be quite a burden if we had California-only SKUs versus general SKUs that would meet one general requirement.

One of the things that the industry's unclear on, and I guess we would request that the Commission give us absolute clarification, it's as far as the CEC's view as to the impact of the DOE pool pump rulemaking on CEC pool pump motor efficiency standards.

The DOE is expected to publish rulemaking, based on recent workgroup negotiations, once approved by ASRAC. The industry believes that any state standards pertaining to pool pumps or pool components would be preempted upon the DOE effective date. So, I guess we would like some clarification on that.

And just a point to note, it is important to note that pool pump manufacturers, when we certify a pool pump, not only for performance but for regulatory requirements such as safety, UL, et cetera, the motor is certified as an integral part of the pump. So, typically, the certification of that pump includes a specific motor or specific sets of motors which are declared or evaluated by the certification agency. So, just something to note.

So, in conclusion, the pool pump and motor manufacturers, you know, we've always cooperated and

worked with the regulators on higher efficiency standards. We support such. In the past, some state regulations have been implemented in limited coverage, which have resulted in loopholes, or insufficient market enforcement or implemented, and then rescinded, as in Florida a few years ago. Which has caused motor manufacturers to invest in compliant motor designs without a return on the investment because they've had to change or rescind the requirements.

The APSP is confident that the CEC, the manufacturers, the energy advocates and, you know, and all the stakeholders together can leverage the successes from the recent DOE rulemaking process to deliver an effective set of efficiency standards for pool pump and service components, such as the replacement motors.

We're also confident that we can align such regulations to ensure consumers realize the maximum benefits.

To the above points, the APSP and the industry respectfully request that the CEC consider all our comments as it develops its final rulemaking.

With that, I thank you for allowing me to bring these points in front of you. Appreciate it.

I'll invite any of my colleagues online or anyone here to add to what I've said or if I've missed

anything. Thank you.

MR. STEFFENSEN: Thank you. So with that, that concludes the formal presentations. If there were -- as Shajee alluded to, if there's anyone else from the pool industry that wanted to make a comment, we could go there.

We do have an online comment.

MR. FISCHEL: So, this comment comes from Doug Philhower and it looks like there are two questions. The first one is in slide 7, so that would be your presentation, Sean.

He asks, "Although it doesn't list single speed motors greater than one total horsepower, can I assume it's in the 80-percent block?"

So, you want to repeat it again?

MR. STEFFENSEN: Hi, this is Sean Steffensen. For Doug's first question about what the standard would be for single speed pool pump motors above one total horsepower, the standard would remain unchanged. There's a general prohibition for those pool pump motors. They would not be allowed to be sold. So, it's not a minimum efficiency standard, it's just a prohibition. To allow for consumers to purchase dual speed and variable speed motors.

MR. FISCHEL: Okay, so question two, in slide 8,

Doug wants to know how do you define waterfall pumps?

MR. STEFFENSEN: This is Sean Steffensen. I'm looking up the definition so I can describe how we tried to define those. Again, the effort here is to try to reflect what's currently available in the market and to describe its key features, so that it can be identifiable as a waterfall pump. And so that other pumps that exist cannot be additionally assigned a waterfall pump status. We are concerned about a loophole, so we're trying to define what the essential parts of it are. We would look for comments as to how to improve the definition.

Again, a lot of this was informed by the ASRAC working group. So, the definition for a waterfall pool pump and motor combination meets a maximum 1,800 rpm normal speed, motor-driven pool pump and motor combination, with a maximum head less than or equal to 30 feet.

The requirements are two, one that it has a maximum speed roughly equivalent to half speed. And the other is that it has a maximum head or pressure that it can generate equal to 30 feet or less.

These values were chosen as part of the discussion at the ASRAC meeting. If, during that discussion -- and this was put out somewhat ahead of the

conclusion of that meeting. If we came to a different agreement, again, I would want to review that to understand how that could affect the California proposal. Thank you.

MR. FISCHEL: And there was one other person online who also raised their head, so I'm going to ping them real quick. If you could please type up your question in the chat, that would be great. Thanks.

MR. STEFFENSEN: So, in the meantime, we'll open the floor to public comment. Those in the room, we'll start with first and then we'll move to those online. So, if there was anyone in the room that wanted to provide a public comment, up to five minutes, we would invite you to approach the podium, where you can make those comments.

MR. MOREAU: Is this the only time for public comments or will there be more later?

MR. STEFFENSEN: Yes, this is Sean Steffensen. We will have a public comment period for spas. But we would like -- I guess the plan is, to lay it out, we've had the proposal, we've had the stakeholder formal presentations. We would now open it up for anyone who wants to make a public comment. And then, what we would like to do is then open it up for questions amongst the various participants.

MR. MOREAU: Yeah, my focus is spas.

MR. STEFFENSEN: Okay. Okay, great. So, has the participant online provided a question or a comment?

MR. FISCHEL: So, we have Meg Waltner, who just raised her hand, so I'm going to unmute her. So, Meg, you can go ahead.

MS. WALTNER: Hi. Yeah, can you hear me?

MR. FISCHEL: Yes.

MS. WALTNER: Great. This is Meg Waltner, with the Natural Resources Defense Council. I just wanted to make a brief comment in support of the CEC's proposal. The CEC has done a great job on the staff report and the extension of coverage to all pump motors will result in significant energy savings. So, just wanted to voice our support for the staff report on pool pump motors.

MR. STEFFENSEN: Hi. Thank you for those comments, Meg.

Sorry, could we mute the -- thank you.

So, I guess at this point we would like to discuss amongst the stakeholders and ask some questions. I had provided several discussion areas that are of interest to me, and I know that maybe some of the questions may be hard to answer. But we do look for information to help inform our rulemakings, market share, size of pumps, relative sales of replacement

motors versus pool pumps and motors sold together. Those are very interesting.

I believe I've heard the APSP express their comments in light of the ASRAC meeting. If there were comments or questions regarding that, again I can't speculate as to what direction the Commission would go to. But we really want to hear from all interested parties so that we can have a full picture as to what it means, the proposal that was shown today versus the consensus, the great agreement we made out in Washington, D.C. about what we would do in the future.

So again, I just wanted to provide, again, my request. If there's some way we could discuss the replacement pool pump market, that is something of interest to me. So, I'll, I guess, call on Chad or Chad's got his hand up.

MR. WORTH: Yes, Chad Worth with the Cal IOUs. Just responding to a couple of comments in both Sean and Shajee's presentation. I guess an important thing to clarify in light of a lot of the DOE discussion here, the Department of Energy has authority to regulate pumps and the hydraulic characteristics of pumps. The Energy Commission cannot set an energy factor standard or anything related to the hydraulic characteristics of a pump.

Whether we can define them like that, while we would prefer not to, I guess is questionable. But they can only set standards based on the motor because that's the regulatory authority they have and they have not been preempted by DOE.

So, that's kind of the underlying conundrum we're in here is that California can set motor efficiency standards, the Department of Energy sets pump standards. And how those two interplay can be complicated, but we're hoping -- I think we're pretty close in finding numbers that would ultimately mean the same thing. And again, we worked really hard at the DOE to come to an agreement on a lot of those things and we'd like to build upon that.

Two, I guess, points to that. I hear what -- I think I understand some of the manufacturers' concerns with regards to there should be different motor efficiency standards for different pump types.

You know, however, I guess I would ask for your thoughts or recommendations. I understand the two in the room are OEM pump manufacturers and not replacement motor sellers. But like how do we address the issue of someone taking a motor that was not intended to go, say, on a self-priming pump, and put it on there?

If we let two and a half horsepower replacement

motors be sold on the market, they will be coupled with self-priming pumps, I think is really kind of the issue, and how we work through that.

And then secondly, I guess, just one comment, Sean, on your assumption of the 10 percent market share, less than one total horsepower. I recall that number from DOE and I'd like to clarify that that is for self-priming pumps. That was for self-priming pumps, only. If we add in non-self-priming pumps, I think we would see that market share be significantly higher.

MR. STEFFENSEN: It looks like perhaps Jeff wants to respond.

MR. FARLOW: Okay, this is Jeff from Pentair. And, Sean, just to address the concern over how a larger horsepower, single speed pump, if it was available on the market could be placed on a pump. And I'm not really going to address the technical feasibility of that, but I wanted to express the concern that even if that is prohibited in the State of California, if it's successful and anything one total horsepower, single speed is eliminated, without the enforcement arm there's nothing to prevent a truckload -- you know, a truck going to Nevada and picking up a whole truckload of single speed pumps and bringing them in, and installing them in that method.

And that is a concern that without enforcement there's a risk of that happening. And the problem with that is that what it does is it takes the reputable and credible dealers that want to respect the regulation, as it's written, and it makes them look bad when they're telling their customer this is what's required by the State regulations. And yet, you've got an unscrupulous person coming in behind them and they're like, ah, don't worry about it, I'll just slap this one in.

And so, there is that concern with the industry. And to date there's been very little, if any, enforcement of the current regulations. And without a real shift towards regulating this, I see it as a problem with being able to comply and get the savings that you're trying to achieve.

MR. WORTH: This is Chad with the IOUs. We fully agree and support CEC in their enforcement. And they certainly have been enhancing those capabilities in recent years.

The challenge now with the standard, as I think we're all aware of, is it was written by its residential filtration applications, which is highly unique for an appliance standard, and we're trying to move away from that. Because you could go to a distributor's warehouse and they could say, well, these motors are for

commercial pools or, therefore, you know, these other applications. And right now it's impossible to enforce.

And so by changing the definitions, that will be the first step. And then, agree a hundred percent, the second step needs to be enforcement.

MR. STEFFENSEN: Yeah, I agree. When we write regulations, we intend to enforce those regulations. We have created or regulations have gone into effect July of last year to broadly enhance the enforcement powers of the Energy Commission.

MR. FISCHEL: Yes, so we have one -- oh, never mind, his hand went down.

MR. STEFFENSEN: I want to, again, thank Shajee for presenting his material. This is Sean Steffensen. And it is a lot to consider. I know that we want to look to the DOE. We participated in that meeting and gained consensus for a very strong national standard. So, it is somewhat reflected in the current proposal. I did take a look to see what we could do to try to emulate that. It does reflect, somewhat, a work in progress as we were moving forward to that consensus.

That being said, I'm trying to -- you know, I want to try to understand, you know, I think there's a lot of good material here. And there are a number of topics that I took notes on that, you know, we would try

to understand your concerns.

I may want to contact you and your partners to understand those concerns in more detail. So, thank you.

MR. SIDDIQUI: Yeah, we appreciate that, Sean. And I think we see -- we see the effort. And as I said, we support the efforts, we'd just like to make it a win/win for everyone, so thank you. And I think, like you said, we see that you are trying to do that, so thank you.

MR. FISCHEL: So, we have a couple more. So, we have from the WebEx Dan Delaney. I'm going to unmute you.

MR. STEFFENSEN: Hi, Dan, would you state your name and also your organization, if you represent anyone, for the court reporter.

MR. DELANEY: Hello?

MR. STEFFENSEN: Hello, we can hear you.

MR. DELANEY: You can hear me?

MR. STEFFENSEN: Yes.

MR. DELANEY: Okay, very good. So, this is Dan Delaney with Regal Beloit, as well as APSP. I just wanted to clarify, I heard a comment and I wanted to make sure I heard it correctly. This is regarding the preemption. Obviously, there's a slide in our APSP

presentation and I just wanted to clarify again, or maybe there needs to be clarification from the CEC on this. But we are looking for clarification that, obviously, when the federal standard for pool pump goes into place what is the position of the CEC pool pump motor standard?

Kind of from what I heard in the comments, I don't know if it was Chad or Sean, that that may not preempt a pool pump motor standard, such as what is proposed here.

So, I'd just ask for clarity on that one more time.

MR. STEFFENSEN: Yeah, this is Sean Steffensen. Chad has spoken earlier on this topic. I'm a mechanical engineer, I think I'd get into a lot of trouble trying to speak in legal terms. I understand this question to be a legal question of preemption and what would happen given the circumstance you describe.

So I would ask if, you know, Mike wanted to provide a brief comment or not?

MR. MURZA: Yeah, we will make a comment, I think in our rulemaking package.

MR. DELANEY: Mike's mic was not operating there, I didn't hear any of that. Could that be repeated?

MR. MURZA: We will be providing more detailed comments regarding preemption, but we do see preemption occurring on the effective date of the federal standards.

MR. WORTH: And this is Chad with the IOUs. Just to clarify, what I think you mean is CEC would be preempted for new pump and motor combinations, but would have the ability to continue to regulate replacement pool pump motors?

MR. MURZA: Yes, that's correct.

MR. DELANEY: Okay. Well, we'll certainly look forward to further comments. I'm not sure if that was -- I was looking for more specifications on the regulation, obviously, of a pool pump motor, itself, versus the total pool pump. Obviously, two different type of systems at different levels. Just trying to get clarity. That's one of our concerns, obviously, that we don't want any ambiguity in the marketplace. We want a nice, clear understanding from the customers, the users of what those specifics are for both California and for DOE. Clearly, we'd love for those to be aligned.

When they're not aligned, clearly understood by the marketplace, and that's clearly not understood at this point by us as users -- or, I'm sorry, as manufacturers today. So, thank you.

MR. MURZA: And, yes, we will try and clarify that in our response to comments.

MR. STEFFENSEN: Hi, this is Sean Steffensen. Are there further comments, either in the room or online?

MR. FISCHEL: So, Sean, I have a couple more hands raised. So, we have Ken Gregory and he had a comment about rebuilt motors. And he was saying that we have a lot of service people complaining about rebuilt motors being used to get around the standard. He does not have -- let's see, he's not tuned in with audio, but that was the comment that he had.

UNIDENTIFIED SPEAKER: Sean, if I could just add, because I was --

MR. STEFFENSEN: Hi, would you step to the mic and state your name?

MR. HELFT: This is Bruce Helft, from the California Energy Commission. So, this question was what I was going to raise as well, that whereas the enforcement, Title 20 regulates new regulated appliances, we noted that in this category of residential pool pump replacement motors that the warranty, home warranty companies, in cases where they're covered, will opt for rebuilt motors. Matter of fact, a call came in yesterday where there was

originally one single speed -- one horsepower single speed was replaced with a two horsepower rebuilt motor. And we cannot enforce on that, yeah. We cannot enforce on that because it's not new.

So, I was thinking in the workshop if there's any data that could be provided as to what you think the portion or the activity in that kind of rebuilt -- in that category, how we might be able to come up with some strategies to overcome that loophole.

MR. WORTH: This is Chad with the IOUs. I guess I have a clarifying question. What means "new"? What is the definition of new. I mean, we know there are manufacturers that repurpose, and repaint and sell, essentially, as a new -- what we know are used components as a new product for sale, with a new brand. Would that meet the definition of a new if it's offered for sale?

It would seem to us that if it's been -- I mean, some of the metal in some of these motors may have previously been aluminum cans. They've been repurposed and are marketed under a new brand and sold as a pump, but it would fall under Title 20 standards.

It's one thing to have a service guy go out and replace the bearings and the pump seal on a motor. It's another to offer for sale as a product that has rebuilt

equipment in it.

MR. STEFFENSEN: Hi. I'll least talk as to how I try to answer questions from the appliance hotline. In cases like this, where there's a general question, it's always very illustrative to see the product, I mean, that's being considered to understand how it's being marketed and weight it versus what's in Section 1601 of Title 20, that talks about new appliances being regulated.

In talking generalities, it perhaps may be regulated. It may perhaps not be regulated. It's hard to say until we have that product in front of us to make a -- at least, as a mechanical engineer, again, I'll identify myself as not a lawyer and I'll try advice, only, to try to steer very clear of the line of the law. It's hard to say without knowing what that product is to know how, in a sense, how well it meets that new requirement for it to be within the scope of the appliance regulations.

So, it's a hard question to ask without an example to put in front of us.

MR. WORTH: Okay. Well, I guess in our opinion, in this particular case, if products are offered for sale and as under a new brand name, repurposed and make no mention -- or, regardless, but some of these make no

mention of them being rebuilt products. They are offered for sale as products and should come under the Title 20 standards. And we think that would be the way to close this loophole.

MR. HELFT: This is Bruce Helft from the California Energy Commission. The date of manufacture is what's certified to the Energy Commission and that's what determines when it's new. Then, when a new standard or test method comes into effect for that appliance type, it's archived and it's no longer in the active database. So that's what's considered, in my way of looking at it, unless Mike has a different opinion, it's the date of manufacture.

MR. WORTH: So, I guess what an alternative could be is if someone buys a motor it would be -- what happens is, right, they get these motors, they put new bearings in them, they put maybe a new capacitor on it or something, they put a pump head, they spray paint it a new color, they offer it for sale and that would be the situation. It's obvious to me that you would need to stamp that product as a new product because it has new components and it's essentially just recycled some old components.

MR. HELFT: So, you're saying that a rebuilt motor should be certified to the Energy Commission has a

new regulated appliance?

MR. WORTH: Correct. Some of these out there, they might be -- some of these motors or pumps out there may be a Pentair or Zodiac product, but when you buy it from, I think, these rebuilt manufacturers, it no longer says Pentair, it no longer says Zodiac. It has a new manufacturer, it's got a new SKU number, it's got a new -- you know, it's completely unidentifiable from the original manufacturer. So, if it's got a new nameplate, in our view I think that would count as a new product.

MR. SIDDIQUI: I'll chime in, this is Shajee with Zodiac. I'm sorry, this is Shajee Siddiqui with Zodiac. That's actually a concern because as far as a manufacturer, such as Zodiac, and I might speak for Pentair or even anywhere, if someone's doing that, that's not even a legitimate product to be honest with you.

MR. WORTH: Can you clarify what you mean?

MR. SIDDIQUI: Yeah, I mean if someone takes -- you gave the example of a Zodiac or Jandy pump. And if there are people out there that are actually rebuilding, in the sense that putting new bearings in, and putting in a new capacitor, and then spray painting and selling it under another brand -- and even if it wasn't under another brand, if it wasn't done by one of our

authorized service centers -- first of all, we don't rebuild motors. But first of all, if we did, but if it wasn't done under the premise of one of our authorized centers or one of our authorized, even certified facilities, because that pump has an electrical safety certification to it. If there's a third party doing that, as far as we're concerned it's not even a legitimate product. It's an outlaw product. I think I'll go as far as saying that.

MR. FARLOW: This is Jeff with Pentair. I think I'm hearing two or three things on the table. I think, Chad, you're expressing a concern over somebody that's taking component pieces, reassembling and selling them as a whole good back into the market.

From our perspective, I share with him, it's not even a legitimate product. But at a minimum, if they're going to try to do that, it should be listed in the California Energy Commission database as a compliant product because it's going to serve as a whole good. And let me just state that.

Regarding, I think there is a bigger issue around just the component pieces for the replacement motor. I think that's commonly what's failed, that's the primary mode of failure for the pool pump. Where that motor may be pulled off, replaced with a new motor,

maybe a new compliant motor. But that old one is then rebuilt, repainted, like you said, new bearings, new capacitor, and then there are organizations or groups that will sell that as a replacement part.

And I think that's the bigger question, does that replacement part fall under compliance?

And Bruce, regarding your question on the home warranties, I think that's another unique. The way I understand it, our legal interpretation was Title 20 applies to any product that is offered for sale into the market. And our interpretation of if it's replaced under warranty, that's not a transaction that's offered for sale and that falls outside of the regulation requirements. And so, it's just for warranty purposes, anything replaced under warranty was allowed to replace like for like. That's at least how our legal has interpreted it.

I think it exists, but I think that's a small issue in comparison to just the rebuilt motor industry. I don't want to call it an underground, but it is a -- I think that's a bigger issue than the items replaced under warranty.

MR. WORTH: And I guess, just to speak to the pool pump motor as a component, what CEC is regulating are pool pump motors and essentially regulating

components. So, I think that falls completely within the scope. I mean, it's exactly the definition of what CEC's regulating. Were they regulating pumps as a whole, there would be a stronger argument that the motor is a component. But we're regulating pool pump motors alone here. So, I think we're in pretty close agreement on that.

MR. STEFFENSEN: Yeah, Chad, I'll offer a comment to try to clarify what advice I would provide someone who asked me, is my replacement motor regulated. I mean, if it appears to be new, if it looks like it's new, I would advise them to comply with the regulation. I mean that's -- but again, I'm not a lawyer and a lot of this would be decided in a sense of proceeding. But if it looks like a new product, they really should be asking the question what are they doing here? Are they complying or are they not complying? And that's a real caution that I would advise them, as an engineer, that the regulation's fairly clear that replacement motors are a regulated product. It's difficult to determine if it's a rebuilt or new motor. They're in a sense a zone where it could be subject to interpretation and that's -- anyway, that's what I would say, but I'm not a lawyer.

MR. WORTH: I would just add, I think our

recommendation would be for CEC's Outreach and Compliance team to reach out to these folks to ask them to test and put their products in the database.

MR. STEFFENSEN: And we have done a bit of outreach. That phone survey that we did, I mean that helped. I saw the results. One of the students in this room here conducted that result.

And so we're looking at, you know, who we had contacted to see, you know, what is the current market to understand what is out there. So again, that was a helpful thing to see. We called all over California, it was very geographically diverse, to get a sense of what's being sold.

MR. FISCHEL: Okay, so next on the lineup we had Meg Waltner. I think your hand was raised a while ago. I'm not sure if it was on the same topic. I'll unmute your right now.

MS. WALTNER: Sorry, I didn't mean to raise my hand, again.

MR. FISCHEL: Okay. After Meg was George. It looks like we have two Georges. So, not George Nesbitt, but I don't have a last name, it's just George. I'll unmute you right now.

MR. STEFFENSEN: Hi, George, would you state your name for the record.

MR. NESBITT: Yeah, that's probably me on two computers. George Nesbitt, I'm a HERS rater, which stands for Home Energy Rating System. In California, we're independent third parties. We're also considered special inspectors to local jurisdictions. We are used for compliance with portions of the Title 24, Part 6 Energy Code, the utility rebate programs and various other national energy programs like Energy Star Home.

So, enforcement. There's a lot of things about enforcement and it's really, you know, critical. And one of the problems is pools, as mentioned there are requirements in Title 24, Part 6 Energy Code on pools. We're talking about, right now, requirements in Title 20, which is the appliance standards. I'm not sure what requirements are in the Plumbing Code.

But this is sort of an issue we have. And to use an example of Title 20 versus Title 24, is Title 20 allowed 2.5 gallon-per-minute showerheads. Yet, the Plumbing Code and CalGreen, which is Part 11, both required 2 gallon-per-minute showerheads. Now, CalGreen applied only to new construction, whereas the Plumbing Code would apply to everything.

And typically, at least my interpretation is typically when you're replacing something, it has to comply with the current code. If you're repairing

something, it's typically exempt.

So, there you have a disconnect between two different State rules. So, I'm wondering to what extent you have thought about and looked at what you're doing in Title 20 versus what is actually in the Title 24, and whether you need to pull back requirements that are in Title 24 into Title 20, also, and/or vice-versa, and/or alter either to make sure that they agree with each other. So that people don't have to go multiple places.

And a lot of this comes back down to educating the installers, suppliers, manufacturers so that they actually know what the rules are and can at least act appropriately or choose not to.

And the other problem we have is you can buy out of state, whether online, or if you're close to the border, and get things that are noncompliant in-state. And so, to that extent, you know, the more consistent we are with national rules, the better for manufacturers, obviously, if they don't have to make products that only meet California requirements. I don't think there's a problem with us asking for, you know, better equipment, but as long as that equipment still meets rules nationally.

And what we're ultimately talking about is customers. And the customers that I audit, if they have

a pool, it's their biggest electric use, it's the biggest cost. And while we cannot force them or their professionals they work with to make the best choice, we can, hopefully, minimize making the worst choice.

MR. STEFFENSEN: Hi, thank you, George. I'll just address one of the comments you made regarding alignment of Title 20 versus Title 24 for pool regulations. Title 24 does have a variety of requirements that have to do with both the pool and pump, the pool pump motor and pool pump, as well as the various plumbing for new pool construction. For the pool pump and motor combination, that pool pump and motor must be selected from an approved, certified California Energy Commission database of pool pump and motors.

So, they are consistent, Title 24 points to Title 20 and asks -- and says that pump, that's going to be installed under Title 24's authority must be certified to the California Energy Commission as meeting the requirements of Title 20.

And I do agree, education is one of the pathways to achieving better compliance with the regulation.

Are there additional comments online, Ben?

MR. FISCHEL: No hands raised right now.

We should have a break coming up for 15. Yeah,

15 minutes.

MR. STEFFENSEN: Hi, this is Sean Steffensen. Let's break here, at the conclusion of the pool pump topic. Again, I would like to thank everyone for their participation today and the comments regarding this.

We will resume at 11:55, promptly, to begin the portable electric spa topic. Again, 11:55. Thank you.

(Off the record at 11:37 a.m.)

(On the record at 11:55 a.m.)

MR. FISCHEL: All right. So, we'll go ahead and start the second half of the workshop for the portable electric spas.

Hi, everyone, my name is Ben Fischel. I'm an Associate Energy Specialist here, at the Energy Commission. And I want to welcome everybody here and all those tuned in, as well, to our second prerulemaking workshop on spas.

So, today I will be presenting the updates to our staff proposal that were detailed in the revised staff report that we posted in mid-June.

To briefly walk through the outline, I'll present our revised staff proposal in which I'll touch on the scope, the test method, the feasibility, the savings, the cost effectiveness and some discussion topics.

After my presentation, a few other speakers will be doing their formal presentations. And finally, we'll open it up to the comments.

So, the purpose of today's workshop is to clarify what the changes were since our last proposal. So, in summary, we've made a few small changes to the proposed definitions. We've added a few edits to the proposed labeling requirement, which includes an entirely separate combination spa label. And we've updated some numbers for the feasibility, estimated savings and cost benefit analysis in light of the additional data that has been submitted to our database.

So, what hasn't changed is the test procedure we're proposing, the standby power standard and, overall, our staff's focus on being technology neutral and performance based, rather than being prescriptive.

If you haven't had a chance to read the revised report, you can find it at the link we've provided in the slide. Also, we have some printed copies here, for those who are in the room. If you didn't get one, yet, I hope we haven't run out, yet. But they're near the sign in sheet, as you walked in.

Regarding public comments, they can be submitted any time from now through July 29th.

So the scope, since the last proposal, remains

unchanged. A portable electric spa, as currently defined in Section 1602 in Title 20, in the California Code of Regulations means a factory built electric spa or hot tub, supplied with equipment for heating and circulating water.

The first time around we proposed to expound on this definition, but we believe the definition as it exists is clear and suitable as it is, so it will not be altered. So in short, all portable electric spas are still regulated.

So, some proposed additional definitions in the revised report include one for exercise spas, one for combination spas, and one for the standby mode, which are all based off of the similar definitions within the proposed test method.

For the exercise spas, also known as swim spas, the definition will be a portable electric spa designed to produce a water flow intended for water therapy or recreational physical activity including, but not limited to, swimming in place.

For combination spas, also known as combo spas, the definition will be an exercise spa with multiple reservoirs of water capable of heating each body of water. So, to just illustrate, it's a proposed tree of definitions, with the unaltered general spa definition

being the umbrella. And right underneath it, as a sub-definition we have the exercise spas. And then underneath the exercise spas, we have combo spas, which are an exercise spa with an attached reservoir, similar to a traditional spa that can heat in its own separate system.

For the standby mode, the definition will be only the default settings as shipped by the manufacturer are enabled, except the water temperature, which may be adjusted to meet the testing conditions. No manual operations are enabled as defined in ANSI/APSP/ICC-14-2014.

So, this proposed test method remains the same one. We will still be going forward with that one, with the exception of the swim spa standby requirement, since staff is still proposing, as of right now, a uniform standard for all portable electric spa types.

So, for that uniform standard, staff is still proposing that for portable electric spas manufactured after January 1, 2018, the normalized standby power standard shall be 3.75 times the volume to the two-thirds, plus 40.

The proposed label still closely resembles the original label in the proposed test method. And it also includes a few modifications since our last time. There

will be a separate label for portable electric spas, for all three types. So, for the traditional portable electric spas, the exercise spas and combination spas.

The manufacturer will identify on the label what spa covers or covers were used during the tests.

For models testing with more than one cover, only the covers that result in compliance may be sold with the unit at the point of sale, which is congruent with language that exists in Section 1608(a)(3), of the California Code of Regulations. Which requires that the unit is sold with only and all the components, design characteristics and other features that affect energy or water consumption as the units that were tested and for which information was submitted.

For the sake of the label, only the cover that yields the maximum standby test result shall be the representative of the displayed energy consumption on that comparison spectrum.

One thing we'd like to make very clear about the staff proposal is that it will not affect sales of replacement covers or any stand-alone cover sales, since covers sold on their own are currently out of the scope of Title 20. They're not defined on their own as an appliance type. So, we are still proposing to maintain that.

The table shown in this slide is of Table X, and the additions and alterations to it, so those yellow fields. And so, these will accommodate the spa cover model number, the spa type, and designated volume and standby consumption fields for traditional spas versus the exercise spas. So, having these parsed out based on the spa type will allow for easier sorting of the data and easier certification.

So, for example, for combination spas both sets would be filled out, since there are two reservoirs, one being traditional and one being the exercise portion.

The feasibility of our revised proposal still relies on the data we've received in our Appliance Efficiency database, which was submitted to the Commission under penalty of perjury, for selling the units in California.

So, the total number of spas certified has been increased by about 120 or so models since the last time we analyzed the data, so we revised some of our numbers.

Looking at the data, compliance was found to still be achievable across most volume ranges.

For traditional spas, the percentage of those that would be in compliance with the proposed standard was 73 percent. And then for exercise spas, it was approximately 48 percent.

But these percentages do not account for the change in the testing temperature that the new test procedure proposes for the exercise spas, which is a 15 degree difference. It's a decrease.

So, our staff assumes that there could be at least 20 percent less of a normalized standby power consumption resulting from this decrease in the testing temperature. And overlaying that on the data, there would be about 90 to 100 percent compliance based on the exercise spas that have been reported to us so far.

So, staff still could not, however, find any models in our database that were the inflatable spas. And we do realize that under the current scope and standard by default, their historical designs which may lack proper insulation or cost effective avenues for improvement prevents them from meeting the current and proposed standards, which is why they're not included right now in the projected statewide savings and cost benefit analysis.

Staff did consider, however, the energy consumption impacts of exempting inflatable and easy storage spas or creating a separate, more suitable standard. Staff also considered how to define the term "easy storage", as we are aware of rigid bodied spas that are modular and are designed for mobility.

We could not, however, at this time find a proper way to do this without creating a loophole where the market could shift to or in a sense race to the easiest energy standard level to comply with. So, we are really welcome right now to any suggestions.

Staff still believes, based on the data spread that we have in our database, that improvements can be made in the industry. Additionally, the test method we're proposing is a jointly-developed test procedure that represents current technologies in the market, making it suitable for the proposal.

So, our methodology for the cost effectiveness is still based on the reports and studies of the differences between a noncompliant spa and a compliant spa. We then looked at savings from decreased evaporation rates, and decreased electricity use, plus studies on the impacts of the label on consumer decision making as they're shopping.

The updated incremental costs from noncompliance to compliance for the exercise spas is up to $375, now. We used the study that we referenced, which did not actually distinguish between a traditional and exercise spa sort of as the foundation. And we looked at the difference in cost of the units on the market and we scaled that.

And for the updated label costs, it's gone up by one penny, so 39 cents, based on some assumptions we've made of combination spas that could be out on the market.

The estimated savings from the proposed standby standard would total 6.1 gigawatt hours after the first year and 77.6 gigawatt hours per year following full stock turnover.

For the labeling requirement impacts, the estimate is based on a five percent impact on total consumption, with improvement made on sales-weighted average efficiency. After the first year, 6.9 gigawatt hours would be saved. And after full stock turnover, 83.8 gigawatt hours as consumers continue to make more informed spa purchasing decisions.

For the environmental benefits, the estimates show approximately 17 tons, with 55,000 tons of GHG emissions being avoided. These projections are based on the amounts of energy savings from the proposed standby standard, as well as the impacts of the labeling requirement.

So, a couple of discussion items we thought of are shown in this slide here. The first one was what current method of improvement from noncompliance to compliance does the industry believe is the most cost

effective?

Another one is do manufacturers see any improvement trends in the spa market today?

And, how are small spa businesses affected by the staff proposal?

So, these are just some to help facilitate the discussion we'll have soon and the comments coming.

So, that about wraps up my presentation on our updated proposal. An important reminder, again, is that the comments during this comment period are due by 5:00 p.m., on July 29th. They can be sent electronically to the docket link or by digital copy to docket@energy.ca.gov. Just be sure to include the docket number and indicate the correct title in the subject line.

And in this day and age, the hardcopy method still exists, so you can mail your comments to our Dockets Office.

So, my e-mail is up on this slide, so feel free to contact me with any of your questions. Again, we appreciate your attendance today and we're looking forward to all the comments that will be in the docket and at the workshop right now.

So, are there any questions right now, clarifying questions about the presentation I just gave

or the staff proposal? So, anything substantive please save for the comments.

MR. MOREAU: On?

MR. FISCHEL: Yes.

MR. MOREAU: David Moreau, Western Urethane Systems. In your presentation, the CEC is estimating that the cost for improving insulation systems, exclusive of covers, is $100 per spa. Is that correct?

MR. FISCHEL: Let's see, so this was back at the -- yeah, so this was -- well, it says "and/or the cover", so we had those together.

MR. MOREAU: Well, just to clarify was that -- oh, okay, don't need to hold it down. All right.

So, is CEC projecting that improvement in insulation on a portable spa, including the cover?

MR. FISCHEL: Yeah, so it could be the insulation or the cover.

MR. MOREAU: It could be the cover, the insulation, or a combination?

MR. FISCHEL: Yes.

MR. MOREAU: You're not designating that strictly the insulation system for the spa, exclusive of the cover; is that correct?

MR. FISCHEL: Right.

MR. MOREAU: Okay. And is that an improvement

in the efficiency of a spa that's already insulated or is that one that's not really or not insulated?

MR. FISCHEL: It should be for one that's already been insulated so --

MR. MOREAU: Okay, it's an existing insulation system of some kind existed in the spa?

MR. FISCHEL: Yes.

MR. MOREAU: Okay. I have one other question concerning EU compliance issues. I just want to comment that we're fully familiar with EU compliance issues, particularly labeling. They have very strict requirements on like -- the amount of detail that they require for components in insulation systems is actually impressive, if not difficult. To the point where they want to examine all of the components of the insulation system in its raw state, not in its finished state, right. And that does impact choices and efficiencies in insulation, right.

MR. FISCHEL: Yes.

MR. MOREAU: And that really needs to be understood if you're going to include -- and maybe I need to quality, are you saying that your regulations would take into consideration EU compliance issues?

MR. FISCHEL: So, you're talking about the European Union?

MR. MOREAU: Yes.

MR. FISCHEL: So, we looked at a study that was based on -- it was looking at labeling impacts for refrigerators, and this was -- I think this was an EU label. I don't want to misquote this.

But we are saying that with the label that is proposed there, which is really based off of the test method. So, in the test method there's a section for a labeling requirement and that's heavily based on that. So, we're not bringing in any EU requirements, necessarily. We're just taking that label that was in the test procedure and --

MR. MOREAU: Okay. And then, when you refer to the label, you're referring to the published label on the appliance or the device when it's sold, as far as its energy consumption?

MR. FISCHEL: Yes, so the standby energy consumption.

MR. MOREAU: Okay, but you're not referring to the requirements of EU, as far as the components that went into the product to achieve that insulation labeling?

MR. FISCHEL: No.

MR. MOREAU: Okay. All right, you've qualified my question there, thank you.

MR. FISCHEL: Okay, yes. Any others?

Okay, well, I will invite the next presenter. This would be Charles Kim, from the California IOUs.

MR. KIM: Thank you. I'm Charles Kim from the Southern California Edison Company. I'm speaking on behalf of the California IOUs.

Accept my son's personal story. I wish my son is here, he can talk about spas more passionately than I am. Ever since he was about two, he fell in love with the spa. But he always asked me a question, why every 15 minutes or 30 minutes, depends on where he is, he needs to go there and he has to reset the time clock.

And I explained to him because spa is very energy-intensive and it's demanding. And then, it looks like there's energy usage and the joy of being inside the spa is directly proportional. So, he learned that early on. And if he's here and sees that he can enjoy spa more, that costs less to him, then he will be ecstatic.

So, that's a personal story, not speaking on behalf of the California IOUs on that one. Sorry.

So, just like my son, I'm here to support this rulemakings. And in terms of the homes, there are three components that uses more energy than anything else. Air conditioning is the one, pool pump is another one,

and potentially someone who can afford spa is another one as well. And if people get any other components, like a refrigerator, 20 years ago, 30 years ago, they demand about a thousand watt. Today, on average, it demands about 150 watts. With the benefit of leadership, the CEC set out long time ago and transform the market. Look at the lightings. It used to be the number one energy usage was the lighting. And for the last ten years, even shorter, we are now easily replacing 75 watts incandescent light with the LED that demands less than 10 watts.

And typical home has anywhere between 50 to 60 of them in your house. So, you multiply that and multiply it by California, it has a significant impact as well.

So now, spa industries. There are many products available. It used to be only a few choices, now there are many different choices available. Who imagined that there will be a spa for exercise? I never envisioned there. I thought I just go in there, sit down and enjoy the warm water. Well, actually, some people doing exercise inside of there.

There's many different markets. There are many different demands from the people. But I want them to enjoy cost effectively. And this well-written report

clearly demonstrates it's technically feasible, very cost effective. And on top of that, if we put this one in combination of the spa cover, that saves water as well.

So, it means a lot to Californians, not just saving gas, electricity, but also save water without jeopardizing the quality of the enjoyment that my son enjoys very dearly.

So, I'm here to support what is proposed on the table and I'm very appreciative to CEC for leading, once again, the nation on this particular topic for many, many years. And now, we are at another chapter to increase the energy efficiency. Staff report, once again, clearly demonstrate and well written, well written and demonstrate that it is technically feasible, cost effective, and brings many benefits to Californians.

So once again, thank you, CEC. And then, also, we cannot succeed without the support from the industries. I know there are some differences between cover manufacturers and spa manufacturers, but we're facing the same customer who want to enjoy this. So, my gratitude and also challenge is can we work together. We reconcile many differences, but I think we're very close to reaching the small details. Can you work

together to bring maximum benefits to California that is cost effective and technically feasible. Thank you so much.

And next speaker is Chad, my colleague. And he is going to provide a very specific, minor improvements where CEC can consider. Once again, thanks so much.

MR. WORTH: Hello again, Chad Worth on behalf of the California IOUs. I'll say that again. Chad Worth on behalf of the California IOUs. Thank you, Charles. And thanks to the CEC, again, for a well-written revised staff report.

The IOUs have been involved in spa energy efficiency, as well, for a number of years. In 2004, along with pool pump motors, we proposed a Codes and Standards Enhancement Study for Portable Electric Spas. This took effect a couple years later and we've now had a portable electric spa standard in California for 10 years, which has also been adopted in numerous other states throughout the country.

In 2008, there was actually a study of portable electric spas at Cal Poly San Luis Obispo to verify the savings, the test procedure and the standard level. And some of this data is still used today to inform this rulemaking.

And again, in 2012, the current rulemaking began

with CEC asking, initially, for a labeling proposal.

As has been mentioned, the current standard for portable electric spas, that went into effect in 2006, is a function of the volume. So, the volume raised to the two-thirds times five is the maximum allowable standby energy consumption. That's measured over a 72-hour period.

We have been involved in this rulemaking since the beginning. Back in July of 2013, we submitted a labeling proposal. A couple years later, the CEC had a public meeting and asked for, in addition to a labeling proposal, asked for a new standards proposal.

Shortly after, we engaged with the APSP-14 Committee and spa manufacturers to negotiate and work together on a label and an updated standard level.

We then submitted what was, essentially, an industry consensus document, a new case report, which kind of morphed into the APSP-14-2014 standard.

In February, we were here and talked through some of these issues and here we are again today.

The IOUs broadly support CEC staff's proposal. We believe the proposed standards are cost effective, achievable, and will lead to significant energy savings statewide.

We think there's really three important changes

that are made within these standards. One, that Ben highlighted, the clarification of the definition of portable electric spas, the updated standby standard, and the label.

So, again, as Ben mentioned, we support the current definition and CEC's clarification of the scope of portable electric spas, and that they cover traditional, storable, exercise and combination above-ground spas.

The standby standards, again we worked with the industry to look at a number of different lines and this is ultimately where we ended up. We calculated this rule yields a market weighted energy savings of eight percent and eliminate roughly 28 percent of the spas, at least as of when we did this analysis a year ago or so.

And as Ben highlighted, part of this was giving a little bit of relief to smaller spas, as they naturally use less energy and kind of tilting the curve down a little bit towards some of the larger spas.

We originally proposed two label designs. This was my doing and I'm not a label designer. But we got the ball rolling here. Looking at both a continuous label and a categorical label. I think what we've ended up with is a superior solution, which looks something like this. And I credit the APSP-14 group for really

taking the lead on this.

We broadly support the labeling concept. However, I think we're in agreement with -- I think what industry's going to comment on, with the original label proposed in the February staff report, where the upper bound is a fixed value as opposed to a function of volume. And the reason, just to -- I guess I can't really walk over here and point real quick.

The reason being, I think, currently what's changed in the current staff report, this upper limit would change as a function of the volume. This would be 208 watts up here. And the result is that every arrow ends up fairly close to the right-hand side. And we feel that the value of this kind of label is when you're walking through the Alameda County Fairgrounds Spa Show, or a spa room show floor, you can visually see this one's on the left, this one's on the right, this one's in the middle.

Whereas, under this proposal visually everything would be to the right and, therefore, it wouldn't have that same effect of illustrating energy efficiency. Though I do appreciate the intent of trying to say how efficient is this spa relative to others in its category, ultimately we just think it will be better for the consumer and perhaps make people consider smaller

spas that are more -- naturally more energy efficient.

Again, our suggestions for improvement, I guess that was one. And the other had to do with combination spas and, really, our proposal is that these spas just have one label. This isn't a major issue. However, the APSP-14-2014 test procedure does provide a test method for how to test the spa as the whole. You heat the swim part to 85 degrees, you heat the relaxation part to 100 degrees, and then you test the spa. We think if that is what the test procedure says and what the manufacturer recommends, then we think it should be, you know, one wattage displayed with one label.

Or, perhaps, there's other technical reasons we can work through but, ultimately, we think it would just be most simple to follow the test procedure. Thank you.

MR. FISCHEL: Okay, next we have Matthew Vartola from Bestway.

MR. VARTOLA: Okay. Good afternoon, everyone. My name is Matthew Vartola and I am here on behalf of the manufacturers of inflatable spa products.

Today I'm here to discuss the impacts that Title 20 has had on our product category. So to begin, for those of you who are not familiar with what type of product I'm actually talking about today, as you can see from this picture here is basically a spa in a box.

Everything that you need, from pump, liner, cover, everything but the water comes in nice, convenient retail packaging that the consumer can take home, set up and have, basically, the water heating within hours. There's no need for any type of professional installation. No need for any type of rewiring or reconfiguration to the consumer's home electric system. Basically, plug and play.

So, inflatable spas in the U.S. market really started to receive significant placement and exposure around 2012. What's significant about this is that as you just saw from Chad's slides, that the Cal Poly had initiated in 2008. Thus, suggesting that inflatable spas and their product performance were not considered in the initial testing and, therefore, establishing of the test standards for portable spas.

The market for inflatable spas basically focuses on the price conscious consumer. Ranging from young adults, who are looking for a spa, you know, just for their college or rental home, to senior citizens who are looking for something more of a therapeutic and a relaxation type of product.

The size ranging on these types of products that you find in the market are relatively small, just about 135 gallons to 250 gallons of water capacity. Which

from, you know, our literature, usually sits about two to six adults.

The average cost of what you find in the market is roughly between $300 and $400. And compare that to what you find in your hard-sided portable spas, which is $2,000 to $3,000.

So, in general, for many consumers, mostly lower, middle class and your renter, who do not want to invest or cannot invest in a more permanent fixed spa in their property, this is really the only type of product that gives them the benefits and the access to a spa.

Also, due to their ease in storability, and the fact that they're inflated, can be broken down and stored back into the retail packaging, and their inability to operate in cold climates, per our manuals and manuals of our competitors in the market, this is around 40 degrees Fahrenheit. Products are used and seen as seasonable products.

So, therefore, we do not assume that they are run year round and that they are mostly used when weather and temperature are permittable.

So, therefore, testing under current or proposed formula for year round usage produces misleading results.

As we've covered before, the definition of a

portable spa also includes our inflatable models. And the issue that we have as an industry, with this, is that we're applying the uniform test standard to a product type that, by design and by usage, is very different than what you find in your traditional portable spa.

So, basically, the effects on the inflatable spa. So, testing on inflatable spas by industry-leading manufacturers have shown that all models of inflatable spas have tested very, very high above the threshold that has been set by California. Thus, making all inflatable spas illegal to be sold in California.

And just taking some of the data produced by some of the more relevant models in the industry shows about 126 percent over the current threshold.

So, when actual energy usage and seasonable metrics are applied, the annualized consumption and cost is much closer to the portable spas of similar size. And I'll get into these metrics here, in a little bit.

So, the point of this slide, basically, is to show that and, you know, Ben had alluded to earlier, that there is no data, no availability to post these products on the CEC database because every single model of inflatable spa is illegal to be sold in California.

So, in the revised test report -- in the revised

report, I should say, the CEC estimated that inflatable spas utilize $65 in electricity per month, for consumers. However, when looking at the data that manufacturers have received from testing to the 16G2 standard, this number comes out to be much lower.

So, when you break it all down, the total cost per month, averaged out, is around $49.65. Now, taking into the fact that these are not year round products, we're assuming that about seven months of seasonal use is applied. So, when you take seven months and average it out over a 12-month period, the total cost per month comes out close to $30, at $28.96.

And just making the assumption that manufacturers would incur a 10 percent improvement on their energy efficiency levels, this number would be dropped down to closer to $25 a month.

So, when you break it all down, over a three-year life span, which is what we promote our products to be, around three years of total lifespan, plus the $310 average retail cost that the CEC assumed, the cost of the total life, including product and electrical usage, comes out to roughly $1,250, which is less than that of a comparable, hard-sided portable spa.

So, just to highlight some of the recommendations that the CEC made in their revised

report, number one that any type of inflatable spa should not be granted any type of prescriptive measure. What this alludes to is the fact that many models on the market already come with a function that allows products to shut down after 72 hours of continuous use. Not all manufacturers have adopted this, but a large number have, and a large amount of models currently being sold in the U.S. have this.

So, to go along with what the CEC has said that, basically, this type of requirement as a prescriptive measure would open up loopholes to other types of spa manufacturers to have some type of prescriptive 72-hour shutoff, which would exclude them from needing to adhere to any type of efficiency standards.

Generally, as an industry, we do agree with that position and do see the -- kind of the conundrum that you would be in with having that type of prescriptive.

So, getting to the point here, what we recommend as an industry is that the CEC does not adopt uniform standby power performance standards across all types of portable spa products and that inflatable spas be held to their own unique standard based off of efficiency standards that are achievable without compromising the cost sensitivity and inflatable functionality of this item.

So, hypothetically speaking, if we were to improve these products to meet the current standards set by the CEC for portable spas, this would drive manufacturing costs up to nearly $300, doubling the cost of the product, itself. And the reason for this is that the energy and efficiencies are coming from the fact that the spa, itself, is inflatable, and that heat convection causes the products to lose heat a lot quicker than a hard-sided spa would.

So, in order to meet the standards as they fall for any type of portable spa, that inflatable function would need to be eliminated. The spa walls, the spa cover would need to be filled with some type of foam, some type of insulating material which would increase, of course, the size of the retail package that -- well, it probably wouldn't even be able to be sold in a retail package. The shipping costs, as well as just the inflatable function, itself. Also, altering its seasonal use.

So, as an industry, we have proposed to commit to improved levels of energy efficiency compared to what the products are currently at, still keeping in mind that we do not want to lose the inflatable functionality, nor the price point that these products are coming in at, at the retail level.

In order to do this, we would need to work together with the CEC to develop concise definitions of inflatable spas that would not allow any other spa type to be basically included as a loophole, so that our energy efficient standards would be exclusive to our product type.

So under this proposal, we believe that it is a win/win/win for everybody involved. A win for the CEC, so that they could show improved energy standards in this product category. A win for manufacturers as this product category would not be, by default, eliminated from sale in California. And a win for consumers as it gives consumers, basically, an entry level, low price point spa. And overall, just extending the demographic and allowing spas to be enjoyed by a wider variety of people within the State of California.

Okay, thank you.

MR. FISCHEL: So next, from the APSP, we have Mike McCague.

MR. MCCAGUE: Hello, can you hear me?

MR. FISCHEL: Yes.

MR. MCCAGUE: Yes. Okay, great, thank you. Okay, I'm Mike McCague.

MR. FISCHEL: Sorry about that. I can control my slides for you, since I'm here.

MR. MCCAGUE: Okay, thank you.

MR. FISCHEL: Yeah.

MR. MCCAGUE: Okay, let's go to the next slide, please. So, I'm Mike McCague. I'm the Chairman of the International Hot Tub Technical Committee. And I've worked in conjunction with Angelo Pugliese, who is the Chairman of the APSP-14 Portable Electric Spa Energy Efficiency Committee.

The next slide. So, we just have a couple of real quick things to bring up today, just to review and make light of the recently released information.

The next slide. So, I just want to point out real quick, we've done this already once, but we'll point out that the reference to 6.3.1, we believe, was taken from a previous draft of the APSP-14. With the intent there is that 6.3.1 was the exercise spa energy usage of the five to the two-thirds volume. That, in fact, has been moved to Section 8.2 in the published standard, in 2014. So, please make note of that in the legal language that was presented.

The next slide. Okay, so briefly I want to talk here about the labels, the labels that were presented in APSP-14, and then also touch on the label that is recommended or proposed by the CEC, and give an argument one way or the other on which one should be used.

Currently, you see the spa energy label has the manufacturer's information, basically what was presented earlier by Sean.

The next slide. This label here is for the exercise spas. Again, the same information. I do want to note and I didn't note previously -- can you go back a slide -- that this label here has a -- the energy bar chart goes from 50 watts to 450 watts, and that is representative of the industry of reported products on the CEC database for spas.

The next slide. The exercise spa label, again similar language to the spa. This one goes from 100 watts to 750 watts, again representing the reported energy consumption from the CEC website.

The next slide. The proposed language or the proposed label, rather, is very similar. There's two points I want to bring up and discuss. One is the change or recommendation to change the bar chart label to reference the maximum allowed energy for that particular product. And there's also the additional cover language which just amends the existing language.

But the significant change here is the label now not representing a market piece, but rather specific to this particular model. And we spent a lot of time and discussion in the committees, working with the IOUs, and

the states and everyone when we put together the latest edition of APSP-14, and went with an industry wide bar chart because it will be easier to compare models side by side.

So, I wanted to explain and demonstrate the differences that you'll have if you take this approach.

The next slide. So, when you have someone shopping for a spa, they look at the size, they look at the cosmetic appeal, the color, the seating, the layout, and they look at the features and functions. And then, they make look at the performance numbers. There's a lot of wow factor when people look at hot tubs. And they look at, well, how is that going to fit in my backyard.

But now we have this energy label on the spa so people can have additional information to pick and choose.

The next slide. So, for example, we have spa A. Looking at this label, it's not a very efficient hot tub. It's like way falling off the edge of the unit. So, this is maybe not a good thing, I don't know.

The next slide. Now, we have another hot tub the consumer's looking at and they say, well, this energy marker is not hanging off the edge. This looks to be a more efficient tub.

The next slide. So, based on a consumer just looking at this and looking at that chart, they'll see that, well, this spa here, spa B is more efficient.

The next slide. But the reality is, is when you look at that and you compare these two units more closely, you'll see that the first spa, spa A, was a 250-gallon, 180-watt spa. It uses quite a bit of energy on that bar chart, but the reality is it uses 30 watts less than the spa that they ultimately wanted to buy because it looks more efficient, the 500-gallon at 210 watts.

So, there's this perception that this could happen very easily because when people just look at the visual information, they're not necessarily looking at numbers. They don't remember numbers. But they say, well, this one's way over there, it's not efficient. This other one's not so bad. I'll get the other. But the reality of it is it may not actually be that.

The next slide. So, we want to -- the problem with that maximum watt energy is you're only looking at one spa and people don't look, they don't shop that way and by, well, this 300-unit, 300 gallon versus 450. Because the volumes vary widely within a particular class of product, depending on the seat layouts and the lounges, or not lounges. And so the volume is not

always the best and most easy way to compare product. Make sense?

So, we recommend right now to stay with the APSP-14 label program which compares the products as a whole, so when the consumer's shopping they can compare. When they look at that, they can see that, in fact, this one is more efficient than the other one. This one uses less energy to be more specific. Because what we're looking at is reducing the California energy consumption. We want people to use spas with less energy. We want people that are farther down that bar chart to a lower energy state.

The next slide. And here, on this way, I just wanted to bring up something here on the exercise spa label. Recognize the need for label or some way to address these spas and the proposed label, with both information, certainly is a possibility and doable.

But what we recommend here, the next slide, is we're asking for an option to just put a spa label and an exercise label on the product side by side.

The next slide. And the reason to allow for that is most manufacturers don't build combo spas. Those that do probably have one model, maybe. So, there's not a lot of these out on the market. And there's, basically, just a manufacturing, an extra cost,

now, of having to manage yet this third label that's different, that is not going to be used very much. And you're going to have to get quite a bit of these produced and then you're going to have to manage these labels separately through controls.

And we feel it would be nice to have the option to put side-by-side labels on there because that's consistent with how everyone else -- I mean, how all the other products are going to be labeled, spa side, exercise side, and people can see the data for that.

The next slide. Thank you for your consideration. And thank you very much.

MR. FISCHEL: Okay, thank you, Mike.

Chad, you have a question?

MR. WORTH: Yeah, quick clarifying question, Mike. This is Chad, with the IOUs. A new APSP-2014 standard, you referenced a section 8.2. I guess I'm looking at the 2014 standard, the one that was submitted to the Energy Commission in January of last year. I don't see a section 8.2. Has there been a newer version published since?

MR. MCCAGUE: We're looking into that right now. I'm not sure how -- what you received. That may have been a draft. I don't know. The published language and which was, I know Jennifer Hatfield with APSP has -- or

has resubmitted to CEC today, or yesterday, the published released standard.

The only difference, I believe, would be that movement of that information. So, there's no changes to the test protocol, there's no changes to the formulas. Just where that language is placed. It might have been an editorial change in a draft copy that you may have received, and there might have been an update or cleanup after that point. So, I apologize if you have an old -- you know, and old standard there. But a new standard should be in your possession or available to the CEC already.

MR. WORTH: Thank you.

MR. FISCHEL: Thanks, Mike. Yeah, in our final proposal, we'll make sure we go back and look to see if that's correct. Because right now we definitely don't have 8.2 in there, so we'll look at that. Thank you.

MR. MCCAGUE: You're welcome.

MR. FISCHEL: So, from Western Urethane Systems we have Dave Moreau.

MR. MOREAU: Yeah, I have a question, though, on this.

MR. FISCHEL: Yeah.

MR. MOREAU: Sorry. I have a question on this presentation. I think it was the first or second slide

you had the name of some people on the Committee and I missed that because you went away from it fast. Yeah, can I just get the spelling? That's Angelo?

MR. FISCHEL: Yes.

MR. MCCAGUE: Yeah, Angelo is the Chairman of the APSP-14 Committee. And I am presenting on behalf of APSP and the International Hot Tub Association.

MR. MOREAU: Okay, good choice in talent, thank you.

MR. MCCAGUE: Okay.

MR. MOREAU: Do you want me up here or sit here?

MR. FISCHEL: There's fine, as long as you speak loud enough for the whole room.

MR. MOREAU: Yeah, because I don't have -- my name is Dave Moreau. I'm the President of a company called Western Urethane Systems. And we currently insulate, and this will be debated by some people, but one in five spas produced in North America.

And we have stayed in contact, in communication with CEC because it is inevitable, and we're currently exerting pressure on the polyurethane industry for more efficient urethane systems. We're asking for innovation and R&D to see how we can improve the insulation properties of various foam systems, and their processing and procedure without cost penalties to the

manufacturer.

One of the things we've learned since 1996 is that good quality systems, properly processed and using proper procedures are actually very cost effective. Quality is not a penalty.

But we do have some concerns about the lack of clear definitions on various insulation systems and the proper understanding of things like what is dead air, and the tendency of confusion, on the consumer's part, to fully understand these systems. So, we're looking for common denominators for that.

Overall, we think that the industry is committed to improvement and they are asking for it. But we also want to outreach to the pump guys, and the plumbing people, because often we're asked to do things that impact the quality and performance of your product inadvertently. And so, we want to be able to communicate and look at the whole overall improvements as a composite system.

So, anybody that's in pumps and plumbing, we'd like to talk to you because we also know how your systems impact the overall efficiencies and test results of CEC.

I do want to quality, by the way, I do not speak on behalf of my customers. I'm speaking strictly on

behalf of my own company. So, that's it for now. We will be submitting some written comments by the 29th deadline.

And I have some questions. Can I ask them now?

MR. FISCHEL: Are these -- so, I think, if they're clarification questions, they're fine.

MR. MOREAU: Yeah, I need clarification.

MR. FISCHEL: Yes.

MR. STEFFENSEN: I think we should allow everyone to present, first.

MR. FISCHEL: Yeah.

MR. MOREAU: Yeah, okay, then I'll come back.

MR. FISCHEL: Yeah, we can come back to the questions.

MR. MOREAU: Because I have some questions on your new dates. Okay, thank you.

MR. FISCHEL: Yeah, okay, thanks, Dave.

So, finally, on our presentation lineup we have, from Coverplay, Jess Tudor. So, if you'd like to -- would you like to stay there or -- okay, if you can project your voice, it's perfect if you stay.

MR. TUDOR: I'll try and do that. I'll let you move the slides ahead, if you want.

I'll start by introducing myself. I am Jess Tudor, with Coverplay, and I am a stakeholder at this

point. I've been a reference point for the Energy Commission for energy efficiency on spa covers, now, for a number of years.

And I'm here today to present some information about a product that we think can help solve some of the problems with energy efficiencies.

Some of the people here may remember, in 2008 the CEC recommended that there be a test by PG&E, at San Luis Obispo, at the University there for Energy Efficiencies. And that became a matter of record.

Some of the people here may remember that Spa V was the one that I entered. And in all the test results it turned out that we had the most energy-efficient spa. We also believe that that became a matter of record because of the cover. I redesigned it to reflect a more energy-efficient barrier against heat lost, including convection.

I want to thank Michael Martin, formally, here at the CEC, of continuing to promote me to go in this direction, to try to do a better job while we're here. As engineers, we're here to design things and make them better, more efficient.

We think that the EPS foam cover as an irresponsible choice because it has interstitial gaps. those gaps allow water to invade the cover and become

grossly inefficient.

The next slide. The insulating value of EPS degrades in less than one year. We've tested it. We've seen it. It spurred my interest in this industry to try to resolve the issue. The industry-claimed R values mislead the public because they take dry test samples of foam and permit it, as if that were accurate if it's being used on the spa, when most of the people who know anything about foam, itself, it does take on the moisture in our immediate atmosphere, which reduces the energy efficiency about 35 percent.

The energy dollars lost every month to water-soaked covers is almost incalculable. A cover becomes water soaked and saturated after about two years. So, regulating a spa's energy efficiency by pumps and insulating cabinets is almost negated.

The MSDS reports toxic VOCs released when EPS and PVC are exposed to strong oxidizers is very prevalent on the internet, by the manufacturers of EPS and PVC.

The International Agency for Research on Cancer recognizes styrene as a probable carcinogen in humans. Mountains of polystyrene covers are tossed in landfills monthly, nationwide.

EPS foam buried in landfills for 20 centuries to

degrade. It is resistant to photolysis.

The inter frame spa cover is at least a sustainable solution.

The next slide. The average discarded spa cover represents 3,520 Styrofoam cups or 7 billion annually. This is a representation of that particular cup that I hold in my hand. Unfortunately, I have the bad news to report that I got this upstairs. And I was really surprised to see it, to tell you the truth. Oh, by the way, I did not have anything to drink out of it.

North Americans discard a mountain of spa covers a month. Annually, that would equal enough of these four-inch-tall polystyrene cups, laid end to end, to circle the globe at the equator more than 17 times. Incomprehensible.

The next slide. Planned obsolescence. Essentially, that's what you buy when you get a spa cover because it is going to fail. What length of time does it take? Depending on the ambient condition where you live. If you're in San Diego, you might get two or three years out of it.

But if you live in the mountains somewhere, maybe a year, maybe less. It's accelerated because of the condensation issue from warm water and the cold ambient condition which heats the water at the underside

or heats the air in the underside of the foam until it condenses at the surface of the foam. And that, of course, creates the condensation inside the permeable vinyl bags.

Oh, I guess I should do the bottom part. I described the spa covers that were, until recently, on a ratepayer's spa. These were all sitting on top of someone's spa a week or two weeks prior. The state, the condition of these spas is usually predicated on when the homeowner wants to replace it and usually that is when it's unmanageably heavy. He cannot move it anymore and he has to replace it, although that it's so degraded that he's paying two to three times the energy efficiencies that it would take to insulate that spa.

Some of these were so heavy that the -- I was with the gentleman who was throwing them away. This represents a one-month supply from his business. That he had to slash them to get them out of his trailer because he couldn't pick them up.

The next slide. Foam does not insulate. Some people do not understand that. But it's the air inside the foam that insulates. This is a ten power view of a typical section of polystyrene foam. And as you can see, the average vinyl spa cover on a heated spa is less than a year due to the interstitial gaps between those

foam beads, the last condensation to saturate it.

Applied vapor bowls intended to protect the foam actually help contain the condensation until the spa cover is unmanageably water heavy.

Warm water expands air and foam gaps until cooler ambient weather condenses it, creating water vapor inside the core. Increased differences in heated water temperature and cooler outdoor weather conditions accelerate water permeation accordingly. Water-saturated foam covers conduct heat and could cost up to three times more to hit a spa than standby ready power.

I know of no responsible representative for the spa industry that would disagree with this evaluation.

The dual hinge, the silent energy thief. There are still some people who can convince others their gusset provides an R-12 insulation, yet that differs from all test results. The dual hinge allows for a cover-lifting bar to transition the cover on and off the spa, stressing the thin vinyl hinge with predictable results. As you can see, it gets damaged.

Once these are damaged, it negates the warranties as a failed product from abuse.

Heat loss at the dual hinge is exacerbated in the ambient condition to create what we call the heat effect.

The next slide. The dual hinge versus the single hinge. A typical dual hinge design invites convection energy loss. The stitching leaks rainwater and the gap creates that chimney effect.

The single hinge or compression design eliminates the gap. I achieved that patent in 2005.

We also use the upholstery method so there's no stitching, no holes to perforate the fabric, itself.

The next slide. PVC vinyl stitching and UV sunlight. These photos are of damage done by the UV as it stretches the vinyl, which is made of PVC, petrochemical. It weathers poorly outdoors. These stitched spa covers are coming apart at the seams while off gassing dangerous VOCs bathers detect as they lift their spa cover. Everyone that's had one of these spa covers has had that obnoxious smell in their face a number of times.

The next slide. Toxic VOCs released when exposed to strong oxidizers. This is probably the most evidential information that we can present. The slide on the left shows a witness mark from the early damage from oxidizers to PVC scrim. The scrim is the underside of the cover that actually faces the water, that gets the oxidation of the sanitizers that are typically applied. And those sanitizers can be chlorine, brome,

hydrogen peroxide or ozone.

The slide on the right is all that remains of a PVC vinyl gray scrim, like the photo on the left, from spa sanitizers. This particular customer, who came to me and said is there a way you can replace the underside of my cover? And I asked him, what happened to this one? I'd never seen one so damaged. And he said, well, they set my spa ozone generator to run 16 hours a day. I said, oh, my, what are you protecting yourself from? He said, I don't know, that's just what they set it at. Well, that's a shame, you might be overdoing it. Again, this negates the warranty.

Inhaling these vapors or a transdermal exposure are inevitable when EPS foam is mixed with sanitizers, chlorine, hydrogen peroxide or ozone. The MSDS sheets, which are material safety data sheets, provided by the EPS foam manufacturers, suggest to avoid the contact with peroxides, oxidizing agents, acids or bases. It's extremely reactive.

Next. The Chemical Safety Act was just passed a few weeks ago and this is to safeguard and ensure that consumers are protected away from these kinds of criminal behaviors. You should be allowed to invite a chemical into our environment or our society without having it tested. And clearly, the EPS foam cover is

one of those.

This particular law allows the EPA to consider only the health and the safety impacts of a chemical, never the cost or the burden to the manufacturer who wants to use it. It ensures special protections for those most vulnerable from chemicals, defined in the bill as pregnant women, infants, the elderly and chemical workers.

It sets a new fee, so chemical companies will bear a larger share of the cost of evaluating and regulating chemicals. It provides certainty in the law about when states may step in if EPA does not act to regulate or ban dangerous chemicals.

The next slide. This is the list of the cities, 64 cities in the State of California, who have already adopted the EPS rule, as opposed to food utensils, take home cartons, plates, cups, saucers, anything that has anything to do with EPS foam, as far as food regulations go.

And they've adopted and passed it, some of them as early as 1988. And now, of course, they're coming on board more and more. So, there are already 64 cities in this particular State that would like to be done with it.

Again, as I noticed, I looked at the list when I

downloaded this, and I did not see Sacramento on this list.

The next slide. San Francisco, God bless them, they banned all styrene January 1st, 2017. They no longer want it. We can't have it in any composite at all for anything. No beads, no peanuts, no sheets, no nothing. I like that.

They also voted, unanimously, which means they can't come up against some other bill, or some legislation, or a lobbyist to argue the point. That just happened as well, June 24th.

The 21st Century technology, the air frame spa cover, has been energy tested for five years. It's environmentally friendly. It's technologically advanced. It doesn't gain water weight. It's lightweight and easy to handle. There's no harmful VOCs or styrene. And it has a beautiful gas permeable fabric. It's the first serious consumer alternative.

The next slide. This radiant barrier technology is one that we looked at early on to try to find a way to segregate it inside the chambers so that it didn't touch anything. We knew that the radiant energy efficiencies were there, but metal, as everyone knows, is a great conductor. So, we just found a way to segregate it in the air chamber so that it didn't

conduct that energy into the chamber.

It reflects the energy back to the water and, usually, the radiant energy protects 50 to 80 percent of a typical spa cover loss. Achieved the patent on this, May this year.

Pollution poison. I made a presentation at the CEC, to Betty Chrisman, former Director of the Appliance Division. And she told me, when I made the presentation in 2011, to please don't leave. You've given us all this poison, you better have an anecdote. And I chuckled and said we do, we have one. We don't have to continue on with this nonsense.

Our tests show that spa covers that are made of EPS insulate poorly at two years. That the average EPS spa cover is replaced every four to five years. That gives PG&E and other energy companies, like Southern California Edison, a really difficult battle to be able to regulate spa energy if it's going to leak in a year and a half to two years.

The largest spa cover manufacturers in North America left California and relocated in Mexico. They replace about 15,000 covers a month for California, alone. Importing replacement EPS foam covers cost fuel, lost local revenue and lost jobs. It also costs millions of dollars in wasted energy.

Another issue to be concerned with, that everyone should be, the exposure to toxic healthcare issues. And, most importantly, 2,000 years of toxic waste in American landfills.

The next slide. The air frame anecdote. The air frame spa cover is the solution to halt this dire future now, before another 35 years pass. It will save wasted energy and million in California energy costs, bring manufacturing and jobs back to California, dramatically reduce the OC health exposure from reaching California residents and families. Children are still the most vulnerable.

Tens of thousands of toxic covers prevented from landfills. Creating a substantial spa cover that's recyclable and repairable.

I'm glad that the CEC's reviewing all these measures and taking a look at what they can do for energy efficiencies. It's very important. And as we all recognize, there's a very powerful body of collective people to be able to help initiate this. This has taken eight years, and my relationship with Gary Fernstrom, who's not here today, to encourage me to keep coming back year, after year, after year until we get something done. Well, we're on the precipice, now, of probably being able to do that.

If we're unable to do that and we're still going to go with polystyrene just because we can't make these changes, I have some other recommendations that I'd like to bring in on the record.

All materials must not constitute health hazards or contain VOCs. Covers insulate efficiently for a minimum of seven years. A minimum R-9 insulating value. Bi-folded covers have tested, approved insulating hinges. Pliable underside padding for efficient perimeter contact at the upper acrylic edge. The viable radiant barrier facing the water. Insulating components not to contact the heated water.

Those are the recommendations that I would make if we don't get rid of expanded polystyrene. But I would hope, with the evidence that I produced today, that we would all be sympathetic to that. I thank the Commission.

MR. FISCHEL: Thank you, Jess.

So, that's it for the formal presentations. We'd like to open it up now to any comments in the room or online. Are there any online, Sean?

Okay, so Nathan. Okay, Nathan, you're unmuted.

NATHAN: I don't have anything to say. I don't think my hand was up.

MR. FISCHEL: Okay. Oh, Chad, do you have one?

Okay?

MR. WORTH: Yeah, I have a question for my Bestway friends here. You mentioned an additional incremental cost, I think it was $300 to meet the standard and you touched lightly on what it would take to do that.

Can you talk more about that?

MR. VARTOLA: Yes, this is Matt from Bestway. So, without giving away too much of our current R&D discovery, and everything like that, it would basically require that the inflatable chambers be filled with some sort of insulating material to reduce the amount of -- oh, sorry. It would require that the inflatable aspect of the spa shell be filled with some type of insulating material to reduce the amount of heat convection that occurs with the spas at their normal construction.

MR. WORTH: I wonder what our buddy Jess here would say about that.

But I guess my point is, I mean Jess just made a strong argument for how good of an insulator air and radiant barriers are. And it just seems to be contrary -- I mean, he thinks that's the efficiency to energy solution. And I guess you're proposing the opposite.

So, I'm curious, have you looked into

baffling -- or baffles, or radiant barriers, as well?

MR. VARTOLA: I would have to check specifically with our development team on that, for those specific types of materials. But just generally speaking, it would require that we fill the inside of our inflatable shell with some of material to be able to hold that heat in.

MR. FISCHEL: Okay, any other comments? Sean, from the -- oh, do you have one? Okay, Dave.

MR. MOREAU: I have a question. We've seen various dates. My understanding, originally, was that the new standard, and I want to quality that it's not a new test standard, it's just a different formula, was to be implemented July 2016 and enforcement date would be July 2017. But I've seen dates here of January 1, 2018. So, is that date that appeared earlier in a presentation, was that date the enforcement date or the implementing date?

MR. FISCHEL: So that was the -- this is Ben, here. That is the effective date. So, any spa manufactured on or after that date has to comply with the proposed standards. And one manufactured before that has to meet the previous set of standards.

MR. MOREAU: Yeah, because you're using the term "effective date" now.

MR. FISCHEL: Right.

MR. MOREAU: So, what CEC is advising the industry, then, is that you would have to be in compliance by January 1, 2018 and that's the enforcement date. Is that correct?

MR. FISCHEL: Yes.

MR. MOREAU: Okay, so that would imply to me that your implementing date would then be January 1, 2017. Would that be correct?

MR. FISCHEL: It could be in early 2017. We don't have an exact date. But it's whenever it becomes adopted.

MR. MOREAU: Whenever it becomes adopted.

MR. FISCHEL: Yes.

MR. MOREAU: In 2017?

MR. FISCHEL: That's the hope right now.

MR. MOREAU: Yeah, okay, I just wanted to quality that because the timeframe before, Sean, when we spoke, was that you generally were forecasting approximately a year between when it was adopted and when it would become, in effect, law. Correct?

MR. FISCHEL: Yes.

MR. MOREAU: Yeah, we just -- thank you.

MR. FISCHEL: Yeah, thanks, Dave.

MR. STEFFENSEN: Hi, this is Sean Steffensen. I

would just like to ask Dave if there are any common issues that come up or arise when you take a look at, say, a spa that may be under-performing and how those may be cured.

MR. MOREAU: Am I on?

MR. STEFFENSEN: Yeah.

MR. MOREAU: Yes, we do see, and I'm fortunate that we have some really committed customers that use our insulation system, that have very large integrity in what they're doing in terms of efficiencies. So, we get some access to actual test results and get to actually go through the entire process with them.

The assumption, from our point of view, is that the insulation system, and it alone, right, can change dramatically the results of a CEC test. But what we do find is -- and I think, I know the question I believe you're specifically asking is we'd had a discussion on this before, is that how the plumbing is, where the plumbing's position has a big effect on the results.

And also, of course, the number of pumps, and everything else, and size of the spa, and all of that is true.

But one of the things that -- we've been in factories where we've looked a test results with very efficient plumbing systems, and then we've looked at

others that have what we call heavy-clustered systems. And where it's positioned in relation to the shell, to the skirt impacts the efficiency of the system, and it impacts it substantially, yes.

You know, I can't discuss that in too much detail because in some of these cases this is confidential, internal information, right. But that's why we'd like to talk to plumbing people, though, to see. You know, between the foam insulator and the plumbing people can we develop joint -- you know, can we work together on more efficient systems.

Did that answer your question?

MR. STEFFENSEN: Yeah, I think -- we had spoken prior to this workshop and you had used a radiator as an analogy to the plumbing system. That sometimes the plumbing system acts more as a radiator to take heat out of the skirt. Is that --

MR. MOREAU: Well, that's theoretical. The reason that we had mentioned that was because we looked at models prior to being insulated, a whole array of them. And then we looked at test results of those same exact models, right. And then we looked at discrepancies. Like why a certain spa, of a certain size, similar to another model of a certain size, the same water content, why was it getting -- one getting

poor results -- or less results, or what we call a pass level, right. And so, when I went back and I looked at all the photographs, I realized that, you know, it was the plumbing.

And then I went to another factory where I looked at a very -- what I considered to be a very unique plumbing system, and I looked at high results from there. And it coincided perfectly with that.

So, I'm not saying that's science that I'm quoting there, I'm just saying that was a theory that we raised that the plumbing moving forward, closer to the skirt.

And this, we suspect and we're doing some research on this right now, is related to air barriers and air movement. Okay.

MR. STEFFENSEN: I just have one, I guess, final question at this point, for myself. As far as like a spa, and this may be a question to the entire room, when a spa is under performing is running it in different modes, taking different control schemes, does that sometimes change the performance, alter it, or improve the performance, say, if the water flows more slowly, or more quickly, or just a different control scheme as far as how the spa maintains its temperature and pumps the water through.

You know, I'm just looking to see -- I always wonder by just pressing on how does that affect the spa performance versus, you know, there's sometimes eco-modes and other things that are characterized, or put out there, to see if that would change the results of testing.

MR. MOREAU: On that one, we did have a case of a company, and they actually are no longer in the business. They were a casualty of the crash in the market of 2008. But we did note and looked at their results, and they used an outside testing agency at the time. They didn't have their own internal, or own in-house testing system.

And we were having discussions with them on what, you know, what we were looking at. What we could do to improve the efficiency or to get a better CEC rating, right.

Now, when we came back a couple months later to resume that discussion, we were told that they didn't wish to change anything in the insulation system, that they did it simply -- and they showed us their test results. They did it simply by how they were reprogramming the run cycles of the motors.

Now, I want to qualify. We have no expertise in the area of that, other than does too much insulation

overheat electric motors, you know, on issues like that.

But they did show better test results and they did claim that it was almost exclusively in reprogramming. We considered that suspect. That's not to say that it was not true, but it just seemed like a little bit of too easy of a solution, right. So, that was the ever time when we ever saw how cycle times worked, right, and that.

The only other differences we've seen, as you may be aware, the Canadian standard requires that the test model be placed on a deck so that there's air movement under the spa. And then, the results of that depends on how the bottom of the spa is constructed, or whether it's covered, or et cetera. So, that's about the only difference.

There are differences in depreciating rates. So, insulation value over time, and there are studies that point towards possibilities that R values in insulations, values of products at the time of installation will depreciate over time. And that's been done by the Canadian National Research Council. It was a very good one.

I was going to address that to your spa guy, talking about the rapid depreciation of the insulation value when the insulation product in the cover gets wet.

And there is actual proof of that. That's an absolutely accurate statement.

So, one thing that we've noted in the industry is really good quality improvement in reducing leakage, which is a concern to the insulation aspect of it because water and permanent amounts of water in an insulation system rapidly depreciate it.

But anyway, I'm getting off track here.

MR. STEFFENSEN: I value these comments. They are important to understanding the system that we are intending to propose regulations for or change.

MR. FISCHEL: All right, any other comments at all, online or in the room?

Jess, you have one? Meg Waltner, from -- okay, so we'll have Jess go first and then we'll have Meg up next.

MR. TUDOR: Do you want me to wait?

MR. FISCHEL: You can go ahead.

MR. TUDOR: Oh. I was just going to mention that during the test that CEC performed at Cal Poly, the head of the engineering department there, Glenn Thorncroft, was the PhD on the project, called me at my office when they had my spa being tested. And he said, Jess, I'm going to ask you something, what did you do to your spa?

And I said, what do you mean what did I do? He said, the pump doesn't run and the heater doesn't run very much. It's just running randomly, but it's really, really hardly even working at all. What have you done to this spa in this energy pack? And I said, nothing. It's just like a refrigerator with no gasket. If you don't seal it, it's got to keep coming on, keep running.

This industry probably brought all these dual-hinged covers and they're dashing off. You've got a convection leak on every one of them, and mine doesn't have that.

And he said, so, your idea of energy efficiency is to shut off the equipment? And I said, well, that's what I would do. So, anyway, thank you.

MR. FISCHEL: Okay, so Meg Waltner, from the NRDC, we're unmuting you right now.

MS. WALTNER: Yeah, can you hear me?

MR. FISCHEL: Yes.

MS. WALTNER: Great. Meg Waltner from NRDC. Just wanted to voice NRDC's support for the CEC proposal on portable electric spas. Specifically, we support the updated standby standards. As the staff report demonstrates, these updated standards are cost effective and technically feasible.

We also support the clarification of scope as

discussed and inflatable spas are covered under the definition today, and we support the clarification of the definition in the staff report.

And finally, we support the addition of the spa label. We think this will enable further energy savings by customers choosing more efficient spas, when they're purchasing a spa.

We do agree with the IOUs' comments that on the label we think the maximum value should be a set amount for each category of spa, rather than changing depending on the spa size. So that a customer can more clearly see the difference in energy use between different spas.

So, in summary, we support the CEC's proposal and thank you for your hard work on this proposal.

MR. FISCHEL: Thank you, Meg.

So, we have a couple more comments, you said, Sean?

MR. STEFFENSEN: Yeah, there's a question online from Jason Sin. His question is, "Is the January 1st, 2018 date the planned implementation date or effective date?"

MR. FISCHEL: So, right now that is what we have in our revised proposal. But we are open to consider anything -- any time to add to that. We can't say if we will or not, but you can provide that as a comment and

we'll look into that to see if we can.

Okay, and there's one more? Okay, Nathan, we're unmuting you.

Okay, so if that's all the comments, then, that concludes our spa portion of the workshop. So again, I encourage everybody in here, who's mentioned some really great comments, such as I remember the one from the inflatable spas, the average tested standby that someone mentioned, and any test report for that would be great, any data. So, anything you guys can give to reinforce your comments right now is really, really helpful so we can have a great final proposal.

So, Dave, you have a comment?

MR. MOREAU: Yeah, if I can, I just wanted to address your issue on that -- or make a comment on your cover. That's a question that we get asked a lot is how -- because we have a lot of expertise in urethane and my background is also in injection systems for urethane, how to improve the quality of a spa cover.

And you go through various scenarios and it always comes down to nobody wants to pay that kind of price because a good one -- we made an experimental one in 1988, and I made it in conjunction with a company called Polysource. And we used an injection machine and we made a cover. And this cover, the owner of

Polysource took it home and put it on his spa. And it lasted exactly 20 years. It was not, and I quote, "not an EPS-insulated system".

And the only way he destroyed it was his son's graduation party, when they got a little inebriated and they all danced on top of it, right.

And so, he had to go out and he was complaining to me that he had to go out and buy a conventional cover, EPS, right, and it lasted exactly one year.

So, you know, I concur with you that your concerns are extremely valid. But the issue comes down to cost and getting the consumer to understand the added value of an extended life and better, improve cover.

MR. FISCHEL: Thank you, Dave.

So, if that's it, we will just wrap it up. And I think I'll turn it back to Leah for the next steps, before we end. So, thanks, all.

MS. MOHNEY: Thank you all for attending. I'll drop the microphone, now.

The next steps would be for you to submit all your comments and/or data, as was mentioned, so that we can consider it. And after we have considered all of your comments and the data that you submit, we will move forward with this. And we will either come up with a new or updated report, and we'll do that once we

consider all of your comments.

So, please, make sure your comments get in by July 29th, at 5:00 p.m. And thank you for attending.

(Thereupon, the Workshop was adjourned at 1:33 p.m.)

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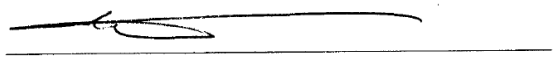

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