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CALIFORNIA ENERGY COMMISSION

APPLIANCES AND EXISTING BUILDINGS OFFICE

In the Matter of:	)	
	)	Docket 15-AAER-02
Appliance Efficiency	)	
Pre-Rulemaking for Pool Pump	)	
Motors and Portable Electric	)	
Spas	)	
_____	)	

STAFF WORKSHOP ON

POOL PUMP MOTORS AND PORTABLE ELECTRIC SPAS STANDARDS

CALIFORNIA ENERGY COMMISSION

1516 Ninth Street

Art Rosenfeld Hearing Room

Sacramento, California

THURSDAY, FEBRUARY 18, 2016

10:00 A.M.

Reported by

Peter Petty

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Sean Steffensen

Ben Fischel

STAKEHOLDER PRESENTERS

Bach Tsan, Southern California Edison CA IOUs

Chad Worth, Energy Solutions

Gary Fernstrom, PG&E

Matthew Vartola, Bestway

Jennifer Hatfield, APSP

Mike McCague, International Hot Tub Association

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PUBLIC COMMENT

Jeff Farlow, Pentair Aquatic Systems

Bob Nichols, Precision Pool Service

Shajee Siddiqui, Zodiac Pool Systems

Meg Waltner, Natural Resources Defense Council (NRDC)

Scott Petty, Hayward Pool Products

Paul Lin, Regal Beloit

Ray Mirzaei, Waterway Plastics

I N D E X

P R O C E E D I N G S

FEBRUARY 18, 2016 10:00 A.M.

MS. DRISKELL: Good morning, everyone. Welcome to today's workshop on pool pump motor and portable electric spa draft efficiency standards.

I'm going to pull up my slides here.

My name's Kristen Driskell. I am the supervisor of the Applicant Efficiency Program at the California Energy Commission. I'm going to go over a few housekeeping items for those in the room before kicking off the substance of the workshop.

First, if you haven't been here before and you need to use a restroom, it's outside the door to the left.

If there's an emergency, please follow staff out those doors to the park across the street.

If you need a snack or coffee, there's a snack shop upstairs to the right on the left-hand side of the building.

WiFi access is available. The password, I think, it just outside this room and you can use that to access our WiFi system.

And on WebEx, everyone on WebEx right now, you are currently muted. You'll be muted on entry. If you'd like to speak during the public comment period

you can use the raise hand feature or indicate a wish to speak in the comment box. If you're only tuning in online, I might not be able to unmute you but I will try. But I will then unmute you and call on you to speak.

[Start Slide Presentation]

Here's our workshop agenda. It's also posted on our website and on hard copy outside this room.

After my introduction, Sean Steffensen will present staff's proposal on pool pump motor efficiency standards, followed by stakeholder presentations and then open discussion and public comment on the topic.

We'll take a short break, then Ben Fischel will present staff's proposal for portable electric spa efficiency standards, followed by stakeholder presentations and public comment.

During the public comment period we'll start with comments in the room. You can fill out a blue card and hand it to either Sean or Ben, who are sitting right here. Or we'll just open it up for public comment after that and you can come up and use the podium to speak.

Make sure you give your name and provide a card to our court reporter so they can get your name

accurately in the record.

After we take comments in the room we'll take comments on the WebEx. Again, you can use the raise hand feature on WebEx to indicate that you wish to speak or use the chat box to talk to me about whether you would like to comment.

[Next Slide]

Going over the history of these proposed standards.

We started working on these standards in 2011 with a scoping workshop that helped inform our 2012 Order Instituting Rulemaking, or OIR.

Pool and spa efficiency standards were identified for Phase 1 work in the OIR.

We began collecting data through an invitation to participate and subsequent invitation to submit proposals, and we workshopped both of those responses.

After reviewing the data, we held a webinar requesting additional information on pool pump motor and portable electric spas. Based on that information and staff's additional research, staff has released its draft analysis for pool pump motors and portable electric spa standards, which is the subject of today's workshop.

[Next Slide]

This is an overview of our rulemaking process. We are where that giant green arrow is pointing at a staff workshop.

Once we receive feedback through this workshop, we will either revise the staff report and republish for a new staff workshop or we'll proceed into the formal rulemaking process, which is where that blue box is. It depends on the results of this workshop.

Either way, there is plenty of opportunity for public comment on the staff analysis and on the formal rulemaking as noted throughout this chart.

[Next Slide]

We'll be accepting oral comments at today's workshop and they'll be recorded for the record. You can also submit written comments on the staff analysis until February 29th at 5:00 o'clock p.m.

There are three ways to submit written comments. You should only use one of these ways, you don't need to use all three.

First, you can submit them electronically using our E comment feature on our website.

You may also send a hard copy to our Dockets Office indicating the docket number for the

rulemaking.

Or you can send a digital copy by email to our Docket Office, again including the docket number and name of the rulemaking proceeding in the subject line.

[End of presentation]

We will now have Sean Steffensen up to present on pool pump motor efficiency standards.

MR. STEFFENSEN: Hi, good morning. My name is Sean Steffensen. I'm a mechanical engineer here at the Efficiency Division. I've worked on a number of water-related initiatives, including the recent showerhead and lavatory faucet rulemakings.

Today I will present staff's proposal to update the pool pump motors, including motors sold with a pump and replacement motor standards.

(Begin presentation]

I would like to welcome everyone today, both in the room and online, and thank them for their participation. This is the agenda for my presentation.

I will summarize the findings of the draft staff report and end by suggesting for topics for discussion.

I will offer a little background here as to

why this topic is important and is being considered today.

[Next Slide]

Pool pump motors including motors sold with a pump and replacement motors use a significant amount of energy, as much as 2500 kilowatt hours per year per pool, according to the Residential Appliance Saturation Study.

The California Energy Commission did not regulate pool pumps and motors before 2004. Most pool pump and motor systems use single speed motors with some systems utilizing fairly inefficient electric motor constructions.

The good news is the industry is making a lot of good progress toward lower consumption pool pumps and motors, and even better, the improvements and progress are cost-effective. They have introduced a variety of pumps and motors and the energy efficiency improvements are very impressive.

The current standard for residential pool pumps and motors and replacement residential pool pump motors includes a prohibition on inefficient split phase or capacitor start induction run electric motors, and a requirement that all pumps and motors that have a total capacity of one horsepower or

greater provide at least two-speed operation and controllers.

[Next Slide]

Today we will discuss staff's proposal to update the standard.

As I present today, I will attempt to say pool pump motors including motors sold with a pump and replacement motors, but since this is a mouthful, I may from time to time say pool pumps to briefly mean pool pump motors including motors sold with a pump and replacement motors.

As Kristen noted in the introductory remarks, the Energy Commission has been studying the pool pump and motors topic for some time. I have summarized the proposed updates to the pool pump and motor standards. We have focused the effort to modernize the standards to take into account current market trends, technology advances, and to extend statewide energy savings.

I will speak to the details and rationale for the proposed regulations on subsequent slides. Much more detail is shown in the draft staff report at this link.

We hope to receive public comments today and in the upcoming weeks as part of the workshop

process.

[Next Slide]

So the scope. The scope will be expanded to cover all pool pump and motor combinations and replacement pool pumps under five total horsepower and five total horsepower.

Replacement pool pump motors are typically used as a low cost alternative to replace only a broken motor rather than the pump and motor. The regulation will cover appliances regardless of end use, including both residential and commercial applications regardless of the pump type, including filter, booster, and waterfall pumps, and regardless of the pool type, including above ground, in-ground, permanent, and storable pools.

The expanded scope will increase compliance and enforcement of the regulation by closing loopholes and lead to greater energy savings by applying the standard to additional pool types, or pump types.

[Next Slide]

I created this slide to indicate the proposed scope. The regulation will apply to all pumps and motors shown on the left.

The intent of the regulation is to cover all

pool pumps and replacement motors five total horsepower or less. Pumps shown on the left over one total horsepower and five total horsepower or less will need to be dual speed or variable speed after the effective date.

To be clear, the minimum two-speed requirement is proposed to include commercial pool pumps and motors of all types, booster pumps and waterfall pumps and motors that do not currently fall within the scope of the two-speed regulation.

The regulation will not apply to pumps shown on the right. These include pool pumps and motors over five total horsepower, portable electric spa pumps and motors whose energy consumption is covered as part of the portable electric spa appliance standard, and those covered under the recent U.S. Department of Energy commercial and industrial pump rulemaking.

[Next Slide]

Motor Efficiency. Staff proposes a new approach for motor efficiency by replacing the existing prescriptive motor type prohibition with a minimum motor efficiency requirement. Where in the past split phase and capacitor start induction run motors were prohibited, these motors and all other

motor types would be allowed if they meet a minimum performance level for electric motor efficiency.

The performance requirement is a measure of the motor efficiency by itself and measures how well the motor converts electricity into rotational energy. The minimum performance standard does not include the pump's hydraulic efficiency.

The proposed standard would be technology neutral for motor constructions; AC induction motors, electrically commutated motors, permanent split capacitor motors, and all other motor constructions will be permitted. This will allow for market innovation while improving the performance of all pool pump motors sold in California.

[Next Slide]

Motor efficiency requirements are shown here. All pool pump motors five total horsepower or less will need to meet a uniform minimum efficiency at full speed regardless of motor design, type, or size.

No minimum efficiency standard is proposed for single speed pump motors over one total horsepower since single speed motors over one total horsepower are already prohibited by the current standard.

Pool pump motors that are dual speed, multi-speed, and variable speed will need to meet an additional minimum efficiency standard at half speed.

Tier 1 will take effect January 1st, 2018, at least one year from the anticipated adoption date.

Tier 2 will take effect January 1st, 2024, four years from the anticipated adoption date.

The effective date would apply to motors manufactured on or after the effective date.

The Energy Commission proposes a tiered approach to the minimum efficiency standard to allow time for the manufacturers to transition to compliant motors.

[Next Slide]

Staff proposes to update the test procedures for measuring both motor efficiency and pump and motor efficiency.

CSA 747-09 is an industry standard small motor test procedure to test for motor efficiency. The test method will replace the current IEEE 114-2001 test method.

The ANSI/HI 14.6-2011 is proposed to replace the current ANSI/HI 1.6-2000 test method to modernize the standard to current industry practice.

Motor manufacturers will report motor and

pump efficiency at uniform speeds to allow direct comparisons between models.

Pump efficiency will still be tested and reported as part of the pump and motor combination certification process. No minimum pump efficiency standard is proposed.

[Next Slide]

Staff believes the minimum motor efficiency standard is technologically feasible and can be achieved through existing motor design practices.

Efficiency improvements can be pursued through reducing conduction losses, friction losses, hysteresis, and eddy currents.

The staff report summarizes available approaches such as through the use of better bearings, careful material selection, controlling lamination thickness in an effort to reduce losses.

As illustrated on this chart, conduction losses can be reduced by adding more conductors to the rotors and stators or by relying on permanent magnets to eliminate conduction losses within the rotor.

[Next Slide]

Staff performed a survey of pool pump and motor combinations and replacement pool pump motors

certified to the Energy Commission. The left chart shows single speed pumps less than one horsepower. The plot shows full speed motor efficiency on the vertical axis and motor size and horsepower on the horizontal axis. Points above the orange line show pumps currently compliant with the Tier 1 standard. Many single speed pumps meet the Tier 1 standard.

The right chart shows dual speed and variable speed pumps up to five total horsepower. The plot shows half speed motor efficiency on the vertical axis and full speed efficiency on the horizontal axis. On this graph blue dots represent dual speed models where all red points represent variable speed models. Points to the right and above the blue lines show pumps compliant to the Tier 1 standard. Many dual speed and variable speed pumps currently meet the Tier 1 standard.

Staff reviewed motor size versus compliance to the Tier 1 for dual speed and variable speed motors and found many motors of all total capacities currently capable of meeting the Tier 1 standard. All size ranges were represented with the current compliant models.

[Next Slide]

This slide shows the Tier 2 technical

feasibility. On the left shows the single speed standard. Staff believes the standard is technologically feasible as some pumps nearly meet the standard for single speed. As discussed on the previous slide, there are multiple technological and cost effective pathways to achieve the Tier 2 standard.

Staff has found two single speed pumps exceed the Tier 2 standard in the APSP pump database. Those points are not shown on this graph.

In addition, market innovations point to increased efficiency such as the recent introduction of a less than one horsepower variable speed pool pump.

The graph on the right shows the dual speed and variable speed motors versus the Tier 2 standard. Many models currently meet the Tier 2 standard. The majority of compliant models are variable speed although some dual speed motors also qualify.

Staff reviewed motor size versus compliance for dual speed and variable speed motors and found some motors of all total capacities currently capable of meeting the Tier 2 standard. All size ranges were represented with currently compliant models.

[Next Slide]

Staff applied the standard savings methodology used on the previous rulemaking effort to calculate savings on a consumer and statewide level. Efficiency of current compliant products are held at the same level while noncompliant products are moved to exactly meet the minimum standard.

Staff assumed product stock, duty cycles, operational speeds, and product lifetimes based upon published research. Calculation details are shown in Appendix A of the draft staff report.

[Next Slide]

Staff found the proposed standard is highly cost effective with payback periods well within the ten-year expected product lifetime. The cost of incremental efficiency gains were estimated by comparing market prices of pumps and motors with efficiency shown in the appliance database while controlling for motor size.

As an example, only various two horsepower motors were compared to other two horsepower motors to estimate the cost to consumers for an improved motor efficiency.

The most significant per unit savings are shown for commercial pool pumps due to their much higher 24/7 full speed duty cycles.

Staff found the proposed efficiency standards cost effective for all cases considered.

[Next Slide]

Staff found substantial statewide energy savings for both Tier 1 and Tier 2 minimum motor efficiency levels. When fully implemented, the standard will save 1,178 gigawatt hours per year. That translates into millions of dollars of savings for California businesses and consumers. At full stock turnover there will be $188 million of savings in electrical costs to Californians.

[Next Slide]

Staff found substantial statewide environmental benefits from the proposed standards. The standards when fully implemented will reduce criteria air pollutants by 131 tons per year and reduce greenhouse gas emissions by 406,000 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 the efficiency from existing buildings through the appliance and building standards as well as the goals of the Warren Alquist

Act to reduce energy consumption through cost effective and technically feasible energy efficiency standards.

[Next Slide]

I have listed some items to facilitate discussion at the workshop. We would like comments regarding the interactions between the proposed and existing regulations on pool design, equipment, and operation, and I have listed a couple codes here.

We are interested in the alternative duty cycles and technological trends and innovations in the marketplace.

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 the impacts to the environment, small businesses, and manufacturers by the proposed regulations.

The list is a start and we would welcome comments on other topics relevant to the staff's proposal.

[Next Slide]

Staff has released the draft staff report. We are in a comment period right now. Comments may be submitted electronically at the link above or emailed

to the docket. Hard copies may also be sent to the Energy Commission at the address shown on the slide.

For those of you on the phone, this entire slide package has been docketed and is available in Docket 15-AAER-02.

Comments are due by 5:00 p.m. February 29th. 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 will work hard to incorporate it into our next draft of the standards.

[Next Slide]

Again, I'd like to thank you for your participation today. My contact information is shown here.

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

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

Thank you.

[End presentation]

So I guess up next will be Bach from the California Investor Owned Utilities.

MR. TSAN: Good morning. My name is Bach Tsan from the Southern California Edison, and I will be speaking on behalf of the Statewide Codes and Standards Program, which consists of Southern California Edison, Pacific Gas and Electric, San Diego Gas and Electric, and South California Gas.

Thank you for the opportunity to comment today. Thank you to the Energy Commission staff for your efforts regarding the pools and spas as well as other Phase 1 topics.

We commend the Energy Commission for their leadership and vision. We commend Sean for his professional review of the rulemaking.

The standards are one of the most cost effective methods for the state to meet its energy and climate policy goals. IOUs have been involved with the efficiency for over 15 years in developing and implementing various pool efficiency rebate programs across the state.

The proposed pool pump motor standards will save, as Sean mentioned, 1,170 gigawatt-hours per year, and that's what I was told is equivalent to all the homes in Sonoma County.

We are supportive of the CEC's proposal that will lead the nation in efficiency standards for pools and spas.

I would like to introduce our technical team. Chad Worth of Energy Solutions, and also our other technical lead, Gary Fernstrom, as they've been working with the pool industry for quite some time. And Chad will be working through this presentation for us.

[Begin Presentation]

MR. WORTH: Good morning. As Bach mentioned, my name is Chad Worth. I'm with Energy Solutions on behalf of the California IOUs. I've been working on supporting the pool pump motor effort for roughly the last three years and have had the pleasure of working with a number of you.

So some of this Sean went over and I might be able to go over quick, and Bach mentioned. But the IOUs have been involved with pool energy efficiency for quite some time, starting back in 2001 PG&E had the first voluntary program for time clocks and two-speed motors.

A few years later, the IOUs proposed a case study, which is Codes and Standards Enhancement, to the CEC for residential filtration pool pump motors.

And this led to the current prescriptive motor design requirement that bans split phase or capacitor start induction type motors.

In 2008 came the requirement that all residential filtration pool pump motors over one horsepower be two-speed, multi-speed, or variable speed.

And shortly after in 2010, Title 24 requirements were put in place to ensure good efficient new pools were built throughout the state.

The IOUs were also involved in developing the Energy Factor Metric, which was then adopted by Energy Star in 2013, which I think has been definitely a benefit to this industry. So anything over 3.8 are currently in the Energy Star certification.

And then, as we know, this rulemaking really got going in 2013.

[Next Slide]

You kind of already went over this, but the current standards now, no split phase or cap start induction type motors on residential filtration motors. Anything over one horsepower has to be two speed, multi-speed, or variable speed. And also pump controls that are sold with those pumps need to be

able to operate the motor in that capacity, which is mainly for two-speed motors that weren't necessarily sold with the internal controllers that we're all so familiar with now.

[Next Slide]

So again, 2013 we submitted our original proposal.

In early 2014 the CEC held a workshop to seek input.

They issued a formal data request. We responded to that data request. And then shortly after we started engaging with the APSP-15 Committee and a number of folks in this room to work through some of the technical issues, mostly around the test procedure, test points, and also looking at some of the standards as well.

We docketed a revised data request response later that September, and then hosted a meeting at PG&E, again with a number of people in this room, in October where we talked through a number of issues. And then the next formal meeting is here today.

[Next Slide]

So, broadly the IOUs have reviewed the staff report and, while we have some suggestions which we'll get to, we support the big components of the

staff report. We believe the proposed standards are cost-effective, achievable within their timelines, and will lead to significant savings statewide.

And really, I think the proposal boils down to three main important changes.

First, significant clarification and simplification of the test procedure and reporting requirements.

Second, is making it clear that extending the motor design and motor efficiency standards to cover all single phase pool pump motors under five total horsepower.

Thirdly, to shift from a prescriptive to a performance standard.

[Next Slide]

Currently, we know the IEEE test procedure is not ideal for testing motors at multiple speeds. We worked with the APSP-15 group and manufacturers to identify the appropriate test procedure, which was the CSA C747-09, and we also came up with full speed, three-quarter, half, and quarter speed test points.

So this will help standardize how manufacturers are reporting their products into the database and also give a good picture of performance across the spectrum in which they may operate.

[Next Slide]

This, expanding the coverage to all pool pump motors, I think this is probably one of the most important pieces of this proposal as compliance with the current way the standard is written has been challenging.

So currently it only applies to residential filtration applications. Again, this has had significant challenges, confusion among installers, retailers, manufacturers. And I think by extending the motor efficiency standards to cover all pool pump motors under five total horsepower and expanding the two-speed, multi-speed, variable speed requirement to all pool pump motors between one and five horsepower, that should say, but making it clear that basically there should be no single speed products between one and five horsepower sold within the state.

So we think this will greatly improve compliance with the existing standard and expand the savings into new applications.

[Next Slide]

And then lastly, the shift to the performance standard will allow all motor types to compete. What we saw in the data is that there were cap start, induction run, all different types of

motor types. There wasn't a strong correlation between motor types and efficiency necessarily, and going to a performance standard will allow any motor design to compete.

And we currently support the CEC proposal that treats dual, multi, and variable speed motors the same, as we don't believe there is significant difference in utility to the customers.

Technology has evolved a lot in the last few years. The cost of variable speed motors has come down. And the size; variable speed and multi-speed products are now offered in various sizes, which makes them available in many applications.

And then finally, we support the proposed Tier 1 and Tier 2 standards. We think the Tier 1 standards are sufficiently achievable by 2018, and by 2021 the Tier 2 standards would be achievable as well. And again, the savings are significant.

[Next Slide]

So we're going to make a number of written comments for improvement, but again, we support the proposal and commend the CEC and the CEC staff for their work on it. That was a very professional report.

We want to clarify the compliance data with

the expansion of the two-speed, multi-speed, variable speed requirement.

We want to try to help revise the savings calculations with regard to small commercial pumps.

We want to make sure we're talking in terms of total horsepower motor capacity throughout the report.

And there's a number of other suggestions we'll make to help make things clear, but again, overall we're supportive.

So thank you.

[End Presentation]

MR. STEFFENSEN: Thank you, Chad.

Up next will be the APSP. I'm not sure if someone on the phone will introduce the next speaker or if Matthew was going to come up.

MR. VARTOLA: Good morning, everyone. My name is Matthew Vartola, and I am here on behalf of the portable pool pump industry, talking to you and giving you a little bit more insight and information about how the current CEC regulations are affecting our product category, and our recommendation on moving forward with modifications to the regulation.

[Begin Presentation]

So, storable pool pumps. In working with

other market leaders in evaluating the current footprint that we have on the California industry, it is estimated that in 2015 over 50,000 -- 51,000, to be exact -- portable pool pumps were sold in the California market.

When evaluating the current state of the CEC data with pool pump regulations, we have come to the determination that our product category hadn't really been considered and hadn't really been fully evaluated in order to form the regulation.

So in general, our pool pumps are going to be the single speed, less than one horsepower type of product, that are usually sold in two types; capacitor start, capacitor run, and permanent magnet synchronous motors, which the PMSM motors make up a vast majority of the sales in the state with, as we estimate, over 46,000.

So currently the situation with our product type is twofold.

Number one, the PMSM motors are not motors that are stated to be allowed to be sold within the California market due to the CEC regulation. However, with Sean's proposal earlier, I believe that we're going to be addressing this issue.

The second issue that we have come across is

that through talking with others in the industry and working on the efficiency factors, we have come to the determination that PMSM motors will not be able to hit the efficiency threshold that has currently been set for these single speed motors. And I'll explain to you what kind of effect that will have.

[Next Slide]

So when looking at the breakdown of pumps that are sold in the California market, as I said, the vast majority are the PMSM motor types. So therefore, if we are to upgrade our motor types in all of our pumps to capacitor motors, we are estimating that there's going to be about 160 percent increase in annual energy use for the pumps themselves in order to increase efficiency.

[Next Slide]

So getting to specifics of the numbers themselves. Based on the 2015 sales, we estimate that it's about 6 gigawatt hours of power that were consumed by pool pumps in the market.

So to replace the PMSM pumps with capacitor pumps, we would see an increase to about 15.6 gigawatt hours in total consumption, so with an annual increase of about 9.6 gigawatt hours in energy consumption.

So what does this mean? An additional energy cost to consumers at $1.4 million.

[Next Slide]

So the question that is being raised is, in order to increase the efficiency of our pumps, the consumer at the end of the day is going to have to be paying for more in actual energy consumption costs. So this is a question that we bring forth to the Commission, is if this is really the intention of the regulation?

So in general, improving the efficiency of these pumps is not very possible and not very feasible when it comes to energy savings experienced by the end consumer, and not even looking at the cost of upgrading and the actual product cost that is going to go into upgrading these motors.

So it is the opinion of the industry that the CEC look at not including the PMSM motors in the current regulation.

[End Presentation]

MR. STEFFENSEN: Okay. Thank you. That ends the formal presentations. We can begin going through the public comments and perhaps start a discussion as to the topics on pool pumps. And then once we conclude, then we'll take a short break.

I guess first up we'll have Jeff Farlow from Pentair.

MR. FARLOW: Hello, my name is Jeff Farlow, I'm with Pentair Aquatic Systems, and I had three basic points that I wanted to bring up.

One has to do with the Tier 1 and Tier 2 efficiency levels. I think that those were based on data that was currently published in the CEC database. And it was just brought to our attention just in the last days, starting Saturday, that the data that we as a manufacturer had published in the database was not consistent with what our motor manufacturer supplier thought those numbers should be. And we've done some investigation and found out that there is, indeed, a difference.

The numbers stated in the database are higher than the products that our motor manufacturer is supplying us. How this error happened, I'm not sure. The data has been in there for years and years. I don't think there was ever any malicious intent.

But the point is I think we need to update that CEC database to reflect more accurate numbers. And we're not talking about a big shift, a couple of percentage points on some two-speed low speed motor efficiencies, but I think that may impact the

analysis, so that's something that we would want to get corrected and we're in the process of getting that information corrected.

I don't think that that is isolated just to Pentair, I think it may impact some of the other pool pump manufacturers. Because we don't actually test the motors ourselves; we get all that data from our motor supplier.

But once again, it could have been an error in how we entered the data. The source of it I'm not sure, but I think it's worth getting corrected and taking another look at what are the achievable, or at the efficiency levels that are currently available in the market.

So that was the first thing regarding the technical feasibility.

The other comment I have is regarding the ten-year useful life of pool pumps. I think this was a study that was done -- I don't know how many -- maybe ten years ago. I know it was done prior to variable speed pumps even being available in the market.

And as a manufacturer, these variable speed pumps came to the market with additional costs, they were much more expensive to manufacture. We knew that

going into it and we wanted to offer more robust designs so that consumers got something extra for the money in addition to the energy savings that were available.

Some examples are the traditional single speed induction motor has an open drip-proof enclosure, which is much more susceptible to the environmental conditions.

The variable speed motors, on the other hand, come with totally enclosed fan-cooled enclosures, which increase the reliability of the product.

Another example would be bearings, because the drive-in bearing on a pump is probably the highest failure mode of any pool pump. To combat that failure mode, we used oversized bearings with double shields on them to even make them more protective, to prevent against this primary failure mode.

Also, I can't state this with fact, but my observation has been just coming from the motor world that single speed induction motors are not quite built the way they used to be built, so I think the reliability of those devices may have dropped a little since the ten-year life was estimated a decade or so ago.

The point being that when you compare ten-year useful life of all these products, I don't think it's a fair comparison and I would really recommend that an updated study be done that would highlight useful life of a totally enclosed fan-cooled product that runs at a very high efficiency with very minimal waste heat compared to the traditional induction motor technology of the single speed designs.

My anticipation is you would see a stark difference in the useful life of those two products, which would have a big impact on the cost effectiveness. If you found that one variable speed product would outlast two of the single speed induction products in its useful life, that would change the economics of this analysis significantly. So I think that's something that should be considered.

The third item I wanted to bring up, and it's only peripherally associated with this rulemaking but it has to do with rebate programs in California.

All pump manufacturers have to submit pump performance data to the California Energy Commission that's published in your appliance database. The way the IOUs operate, they use this database to determine

what is a rebate eligible product in their service territory.

I'm having a lot of trouble in getting the investor owned utilities to update their list, because they all maintain their own list on their own website of what's rebate eligible, and it's been very, very difficult to get the IOUs to keep their list current.

An example of difficult was ten new products were listed on the CEC database in September. By November no action had been taken. I sent an email out to all the investor owned utilities making them aware new products were in the database, please update your list. Then in January additional communication.

I think I corrected the third utility yesterday and I actually had to fill out their form myself, their rebate eligible form, and deliver it back to them in order for them to get that correct.

So that's a significant problem. And like I said, it's only peripherally related to this issue but it is within the CEC database pool pumps and how the investor owned utilities interact with that information and use it.

So those are my three comments.

MR. STEFFENSEN: Thanks, Jeff. I think the comments especially on the data, that's what we look to to establish the standards, so I look forward to written comments with some specifics both on the efficiency and also on the useful life so we can better understand if there is an impact to the current analysis that we performed.

Next up I would like to ask Bob Nichols to speak. And please introduce yourself and who you represent.

MR. NICHOLS: Thank you very much. My name is Bob Nichols. I made a few comments this morning. I came in a little short on background today. I went online and I really didn't find this report for whatever reason.

Anyway, a few things that I noted down was you had mentioned three-phase motors. There are several drive units available at this time that will convert 240 volt to three-phase. You will accomplish about 30 percent -- I'm still talking wire-to-water -- so you will save about 30 percent of your consumption and really maintain or improve your filter system time.

So they're available. Limited efficiency but great decrease in consumer cost.

Enforcement. At this time we've done a lot of work on asking people and trying to get numbers from distributors what the actual enforcement is.

Our numbers are you've got about 45 to 52 percent compliance at the distributor and at the retail. Actually, this is going to eliminate single speed motors, period, but they're not going to get there.

So at that point we're going to be going to multi-speed and that's what we support is multi-speed. We would rather just seen no single speed motors at all in the market.

A few things that that does to us.

That undermines the professional installer with the unlicensed contractor, the unskilled installer. It will go to distribution now by a single speed motor, cut the price to the consumer and leave us out of the process because the multi-speeds are more expensive, and the consumer is looking for dollar out right now.

It's difficult to tell them you're going to save this money in three years or four years. So enforcement is going to be a really big deal, and I don't have the answer for that. I might have later, I'm not sure.

And this is going to be completely new thinking that we have to tell our industry that now the manufacturers are going to be responsible to obtain efficiency on the motor. That doesn't change our responsibility as installers to set the pumps up correctly.

And like Jeff said, the failure rate on the multi-speeds is nonexistent. However, the drive units are failing. How much, I don't know. Jeff would know more about that than I do, but we've found that many of the drive units are failing or the circuit boards in the control units. And that comes in at additional cost before that ten-year period that the consumer has to absorb.

We would support your using the term THP in everything that you write out, because some of this was horsepower, some of it was THP. It took us four or five years to teach our technicians what total horsepower was. Actually, it's what you can load the motor with, it has nothing to do with the output, so it took awhile for us to get that term out there, so don't change it now.

Let's see. In your quest for commercial facilities, the regulatory parties, there being the local health departments, at this point are very

reluctant to go with multi-speed pumps because they do not have control over what the technician or the maintenance man or the manager does with that pump once it's installed. So that's going to be an issue you're going to have to deal with at some point where the health department says we don't want these because they get installed and they're doing fine, and then the Edison bill comes in because the air conditioner is running and they go out and cut the pool pump back. They don't want that, so they're going to be after you like that. Okay.

One of the things that we find in our world is the setup of the pump. Efficiency can come from the manufacturers and longevity is based on the environment and how the pump is installed. And as well, to get energy savings it's got to be set up properly.

Where it gets difficult is that all the manufacturers have their own software and their control units. In a dream world it would be nice to have our laptop with the software on it that we could plug into the controllers and tell it exactly what we want, whether it's Pentair, Jandy, Hayward, or whoever. I don't think they're ever going to get there with that, but that would really be sweet. And

that would be easy to teach our technicians if one software took care of all of them. That's a big problem with sales back and forth as well.

Will the CEC database now, will it still demonstrate flow rates at Curves A, B, and C somehow, or are they --

MR. STEFFENSEN: Yeah.

MR. NICHOLS: -- just going to totally disregard flow rates?

MR. STEFFENSEN: Yeah, Curves A, B, and C will still be there and data will be presented per the motor capability, either single speed at full speed; two-speed will be full speed, half speed --

MR. NICHOLS: Okay.

MR. STEFFENSEN: -- and then variable speed will be presented at quarter speed, half speed, three-quarters, and full.

MR. NICHOLS: Well, that takes care of me today. Thank you very much.

MR. STEFFENSEN: Okay. Well, thank you. And I look forward to any comments you can provide as to specifics that would help to update our analysis. Any data that you can provide as you touch through your comments here today would be helpful.

MR. NICHOLS: Like I said, I couldn't find

this. I didn't look for this specific thing, so once I get a study on it and talk to my committee. We work by committee areas and it takes a little while to get everybody on the same boat. So thank you.

MR. STEFFENSEN: Thank you. Next up is Gary Fernstrom.

MR. FERNSTROM: Thank you, Sean. I'm Gary Fernstrom representing the California Investor Owned Utilities. I'd like to make just a few comments on previous comments that were made.

First of all, I'd like to recognize the staff and the wonderful job they did in preparing the staff report. In my probably fifteen, twenty years' experience working with the California Energy Commission, this is one of the most thorough, thoughtful, and complete staff reports I've ever seen. It's just excellent.

With regard to Matt's comments, I was a little confused how he asserts that an energy efficiency improvement regulation would result in more energy use by customers using his products.

I think there may be some confusion between the existing regulations that prohibit motor designs other than cap start, induction run, and permanent split capacitor, and the proposed regulations looking

forward.

Rather than take time here now to investigate that, I propose that we collectively work with Matt to try and get a better understanding of the point he's making.

With regard to Jeff Farlow's comments, apologies if Pentair and others have been having difficulty getting their products listed on the California utility eligibility list.

It's long been the intention of the utilities to utilize the CEC list, and I think we're moving in a direction where that can be done, because going to the CEC appliance database one can uniquely sort for variable speed products, and currently it is those that the utilities provide rebates for.

So the intention here is for the utilities to get out of the listing business and defer to products listed on the CEC appliance database that have the design characteristics that form the basis of eligibility for the utility programs.

And with regard to the equipment life, I don't disagree that the life of the new variable speed products means that they have better designed and built motors, might be longer than ten years. However, in a lot of the utility programs we're

required by the California Public Utilities Commission to use the DEER, Database of Energy Efficiency -- I forget what the "R" stands for. Anyway, the energy efficiency performance in our programs, and I would suggest that if manufacturers believe the life should be longer than the ten years, that they address the California Public Utilities Commission and its consultants that sets the ten-year life.

Certainly, the Energy Commission in its analysis could use a longer life. It seems to me that if we did that, it would improve the cost effectiveness of the higher performance products, and that's the direction that the industry would like to see us all going. That's the direction that we'd like to go. So we would support Jeff in his recommendation that a longer life be considered.

With respect to Bob Nichols' comments, we agree and have long agreed with IPSAA that compliance is an issue with these products, and the CEC appears to be moving in a direction where more products and more applications would be covered, thus reducing the compliance issues at point of sale, and we support that.

With respect to health departments, yes,

some concern has been expressed about the potential that the settings on these variable speed pumps might be changed after they're installed, resulting in two potential outcomes.

One would be a flow higher than what the Health Code requires in suction and discharge lines. The other being fewer turnovers, or a lower flow than required by the health department.

It's our observation that a lot of this equipment has already been installed in commercial applications. We've seen in northern California relatively no difficulty with health departments over this issue. And the manufacturers have moved to provide service person only lockouts and other features in the pump, making it difficult to change the speed once it has been set by qualified and authorized personnel.

So we tend to believe concerns with the health department can be easily addressed, affording enormous savings in small commercial pool applications.

That concludes my comments, thank you.

MR. STEFFENSEN: Thank you, Gary.

I just wanted to go back to Jeff just briefly. I guess I'm trying to understand the

equipment life, because that is important to my analysis, and I just want to understand your comments and make sure I got it down correctly.

Were you saying that some equipment has a shorter equipment life than ten years and some may have a longer equipment life?

MR. FARLOW: What I wanted to do was just throw the ten years out for a second, and what I'm comfortable saying is that the open drip-proof current single speed technology does not last as long as the totally enclosed fan-cooled robust bearing designs.

Whether that's ten year, I don't know the answer to that. Currently it's ten years. If I had to guess, I would say that the single speed induction stuff does not last ten years anymore.

In the Florida market it's about three years. That's a more robust market. You know, it's a very salty sandy condition.

But in California my experience is that we're not seeing motors last ten years anymore. And yet the variable speeds, they've been in the market for ten years now. Some of those are still going strong.

So we don't have decades of data to show

that it's greater than ten, but I think any knowledge of fundamental motor design would show the TEFC design being superior and more robust than an open drip-proof design.

Does that address it?

MR. STEFFENSEN: Okay. Yeah, I wanted to try to get those comments and clarification, so I will be revising and updating the staff report, so I wanted to understand your position so I could incorporate that into the staff report. Thank you.

MR. NICHOLS: (inaudible)

MR. STEFFENSEN: Let's try to get through everyone first.

MR. NICHOLS: I just wanted to comment on what Jeff had to say.

MR. STEFFENSEN: Oh, just on that single topic, yes.

MR. NICHOLS: Real quick. The life of a motor is the manufacturer does everything they can to make it so it's going to last ten years or better. Installation environment is completely the crux right there.

If the motor is installed improperly in the bushes on the ground in the dirt, it's not going to last ten years. So again, it's the training.

Manufacturers offer a lot of training. FPSIE does a great job on helping us out. There's a lot there.

But just remember it's how it's installed and what kind of plumbing it's installed is how long it's going to last. And we don't -- let's wait until they're ten, twelve years out there and then we'll know how long they're going to last.

What we're talking about is the drive units, the control units on top. They're failing under five years. I think it's only been a few months now that we've been able to purchase a drive unit for an 8 by 160, right? I don't know, it's just recently, yeah.

But prior to the last six months, any of those drive units that failed, they were replaced on warranty. So we don't really know for sure, but we know the drive units are costly to repair. That's it.

MR. STEFFENSEN: All right. Thank you, Bob.

Let's have Shajee up next. Please introduce yourself and who you represent.

MR. SIDDIQUI: Good morning, thank you. My name is Shajee Siddiqui, I'm with Zodiac Pool Systems. And really I just wanted to echo, as a manufacturer. We manufacture the Jandy line of products.

I wanted to echo what Jeff indicated earlier about the motor efficiency data. We were also informed a very short time ago that some of the data that has been out there may actually be incorrect regarding the single speed motors, so I would encourage staff to really look at that again carefully, make sure we've got the proper splits on that.

Secondly, I know we've been talking about the useful. And again, I agree with what Jeff said and certainly with what the gentleman there said as well, is that although the motors themselves may be designed robustly, we really don't have a lot of good data on the more recent of the newer products right now, because they in fact are susceptible or affected by environment, weather, installation, a number of features that are now in the pools, etcetera.

So again, I would encourage staff to look at that as well carefully because I think it does make a difference on what we're all trying to achieve here.

That's all, thank you.

MR. STEFFENSEN: Okay. Thank you. And if you have any data to help better inform the analysis, I would look forward to that in the written comments.

MR. SIDDIQUI: Sure. I'll see what we can

get you. Thank you.

MR. STEFFENSEN: Up next is Meg from the NRDC.

MS. WALTNER: Meg Waltner from the Natural Resources Defense Council. I just wanted to start by thanking the CEC staff for their work developing the proposal. We think you've done a great job.

NRDC supports the standards as proposed. As shown in the analysis, the standards are cost effective, achievable, and will result in significant energy savings, consumer utility bill savings, and emissions reductions.

In particular, we support the expansion of coverage to pool pump motors below one horsepower and the expansion to all single phase pool pump motors under five total horsepower.

There's a few small details that we'll comment on in our written comments, but in general, we thank you and support the proposal.

MR. STEFFENSEN: All right. Thank you. Up next will be Scott Petty. Please introduce yourself and who you represent.

MR. PETTY: Scott Petty with Hayward Pool Products. Just as another manufacturer of pumps wanted to also emphasize or reiterate that I think

the need for updated data with respect to the efficiency, with respect to the product life that we're talking about, especially motors.

We've talked as manufacturers a lot about pumps, but we're explicitly talking about motors, the life of motors, single, two-speed, and to a lesser extent variable speed. I think we do need some updated study. I don't think ten years across the board is appropriate at this point in time. So I would encourage that as an industry to work toward that.

And then also again to reiterate what was said before. I think from the service standpoint, let's try as a group through the CEC as an industry try to learn from what we did years ago when the first rulemakings came out, because unfortunately there is an opportunity for people that, because of enforcement or the lack thereof, to perhaps try to go around the system.

And when we're talking about a motor replacement that's typically in the aftermarket and our service industry is what does that and we've got a lot of great people in the industry that follow the rules. Some may not always so let's use our experience and training. I don't know if there's any

opportunities through the CEC, but as an industry through APSP as manufacturers, let's try to be proactive with getting that education out, promote the benefits of this.

We know there's never going to be perfect enforcement. Let's do what we can to help shortcut some of the learning. You know, it took four years as an industry, even within manufacturers, to get used to the term "total horsepower." Let's do something to try to short circuit that as much as we can and improve that education.

Thanks.

MR. STEFFENSEN: Thank you. I guess we could turn toward -- oh, is it Paul?

MR. LIN: Yes.

MR. STEFFENSEN: Okay.

MR. LIN: Hi, this is Paul Lin with Regal Beloit. I just wanted to make a couple comments relative to the staff report.

Regal Beloit has always been supportive of higher efficiency standards either through state efforts or through federal efforts, but we do see some issues relative to some of the proposal, so let me just go through a couple of them here.

One of the things that we see is for above

ground market. It's going to be difficult for us to meet Tier 1 and Tier 2 levels, and then especially for Tier 2 levels we see with current products of not being able to meet Tier 2 with the platforms, 48 frame platforms that we have today.

So we wouldn't see this as a wise investment in redesigning the whole platform just for this particular regulation given the total market.

And also, from the consequences of that we feel that there is a risk of this particular segment to go to a less than one horse design, so if today they're above one horse, we see a potential risk of them standardizing to a .99 horsepower just to try to get out of the two-speed requirements. So that's a concern that we have. And then in the end what we would lose is the energy savings relative to the two-speed design.

Another factor too is in today's market we do have some aluminum winding designs for manufacture that, because of cost issues, we've offered these aluminum designs to them.

With the Tier 1 and Tier 2 levels, we see that these designs will essentially have to be redesigned to be all copper, and therefore, have a higher cost to the end user.

For Tier 2 levels for the 48 frame efficiency levels that we see, it's going to be nearly impossible to meet, and we would see that the designs will go to a 56 frame design in order to meet the Tier 2 levels. And the 56 frame design, it's going to be obviously more expensive than the 48 frame, but there's still going to be a significant gap between a 56 frame design and a variable speed design. And currently the database, I don't believe, has any 56 frame designs in that.

And then speaking of the database, I think there were some models that were identified of being able to meet Tier 2 levels. And Jeff and Shajee had indicated, they're in process of restating the efficiencies on those.

So I think right now, based on some of the things that we see, the only designs that meet Tier 2 levels are the permanent magnet designs today and nothing else.

Something to also take into account on the single speed designs. It's going to be a little bit harder for us from a single speed design because typically these are lower output motors and efficiency levels may be a lot higher than what we can achieve in terms of improved design relative to

mechanical windage and friction. So there is some physics that we would have to run up against.

And also for higher cap run and high speed cap run and low speed cap run designs, there is also a need to incorporate relays in the design, which would add additional cost to the end user.

So we're, I would say, in general concerned about the impact to the industry relative to some of these efficiency levels that have been proposed.

MR. STEFFENSEN: Thank you. I guess I wanted to ask a couple follow-up questions just to clarify and enhance my understanding.

When you have said that it would be difficult for the 48 platform to comply, what parts of the standard would it be difficult? And again, could you maybe go a little bit more to the cost and what would advance the platform to, as you said, redesign?

MR. LIN: Okay. So I would say on the Tier 2 levels that have been proposed, the main issue that we have is the low speed efficiency requirements, and we see that as a driver, if you will, of having to meet the low speed minimum efficiency on that side to drive the design of the motor platform.

And our engineers have gone in and reviewed

our designs relative to those proposed efficiency levels and have came back and said that those are nearly impossible to meet with our current 48 frame design.

And as for the Tier 1, it's a challenge relative to, again, the low speed requirements that have been proposed. And I think even on some models the high speed is a little challenging but I don't think it's near as an issue as versus the low speed.

MR. STEFFENSEN: Are you speaking to -- what type of motor technology are you speaking?

MS. LIN: Whether it be a (inaudible). On the variable speed side, we don't view that as too big of an issue, but we're more talking about the induction side.

MR. STEFFENSEN: Okay. I felt like I had another question. Again, a lot of good detail and that's what this workshop is about. I'm much into the details and understanding and written comments will be very helpful. I know we're keeping it brief now but the depth and understanding that help to guide us, that's what we're looking for here today and in the future.

Okay. It looks like Gary would like to be recognized.

MR. FERNSTROM: Thank you, Sean. This is Gary Fernstrom on behalf of the California IOUs again. I'd just like to observe that several speakers commented on the importance of training and education relative to swimming pool pump and energy efficiency improvement opportunity and these regulations in particular.

The California IOUs have a training class and require that participating contractors in the rebate program take this class. Currently, as least for PG&E, it's offered on PG&E's behalf by FPSIE. PG&E is working on developing an online version of it.

But my opinion is that because this technology, two speed, multi-speed, variable speed, is enabling and the energy savings depend totally upon how installation contractors set the equipment up, that it would be useful to have some form of education throughout the pool service industry, not only those participating in the utility rebate programs, but all of the service personnel.

So to the extent that we can collectively work to strengthen education within the industry, that would be very useful for energy savings in California.

Secondly, commenting on Paul's discussion about above-ground pools, those fall into two categories; seasonal pools and year round pools. And in our opinion, there's no reason why the larger year round above ground pools shouldn't have pumping provided as efficiently as in-ground pools.

The whole notion of the 48 frame motor and associated pump being less costly in order to serve a market niche for above ground pools, in our opinion, is kind of misdirected. Those pools merit the same efficiency level as the equivalent in-ground pools because they pump year round with roughly the same operating hours, and in many cases close to the same volume of water. So we favor regulations that would require above ground pump motors to be equally as efficiency as in-ground ones.

Thank you.

MR. STEFFENSEN: Thank you, Gary.

I think that is something that -- just to speak to Gary's comment about the above ground. The assumptions in the draft staff report look to mostly in-ground, and so we are looking to expand that analysis and look to cases where we would look to other cases such as the above ground, the seasonal pools.

As Matthew from Bestway spoke about the above ground and seasonal pools, we are looking for comments, especially the written form, to describe those duty cycles and pumping rates so we can better understand and analyze that to show what is cost effective and technically feasible.

Is anyone else in the room commenting today, asking questions on the proposal? If not, we'll turn it over to Kristen for WebEx, anyone online wanting to make a comment today?

Ray wants to make a comment.

MS. DRISKELL: Ray, I'm unable to unmute you. If you can let me know what call-in number you are through the chat box then I can do that.

MR. STEFFENSEN: Is there anyone else? No?

MS. DRISKELL: I suggest that we try again after the break to see if we can get him online.

MR. STEFFENSEN: Okay. Anyone else in the room, just a last chance. Otherwise, we'll set up here for a break to return, say, 15 minutes at 11:35 sharp. So we'll resume at 11:35. Thank you.

[Off the record 11:22 a.m. to 11:35 a.m.]

MR. STEFFENSEN: I'd like to again welcome everyone to the pool pump and motor workshop and also portable electric spa.

We have one last commenter online. I'm going to unmute the line for Ray. Would you please say your name and who you represent?

MR. MIRZAEI: Can you hear me?

MR. STEFFENSEN: Yes, we can.

MR. MIRZAEI: Hi. This is Ray Mirzaei with Waterway Plastics. We manufacture (inaudible) variable speed pumps (inaudible) database and also we are Energy Star, and other pumps for in-ground pools and above ground pools.

I just want to comment in support of what Paul Lin from Regal Beloit mentioned and bring up the fact that energy factors include the motor efficiency, and the concern that is if an above ground pool that uses a three-quarter horsepower motor with a high energy factor to be replaced with an oversized (inaudible) horsepower variable speed pump, and the pump does not receive proper speed setting and schedule, it actually adds to the energy consumption.

And the other point I want to make is a lot of above ground applicants are 115 volt applications and the number of 115 volt variable speed pumps available in the market are relatively limited for the time being.

That was my comment.

MR. STEFFENSEN: Okay. Thank you, Ray. Again, if you can provide some written comments that would go into more depth, we'd like to analyze the above ground pool case, understand the duty cycle, types of equipment, motor efficiency, costs. That data would help to inform our analysis.

At this time, unless there's anyone else in the room that would like to make a comment on pool pumps and motors, I will turn over the presentation to Ben Fischel from the Energy Commission.

MR. FISCHEL: Hello everyone, my name is Ben Fischel. I'm an Associate Energy Specialist here at the Energy Commission and also a part of the Appliance Efficiency Unit.

Sean is the staff contact for the pool pumps and motors and I am the staff contact for portable electric spas so I'll be presenting on this half of our staff proposal.

I want to welcome everybody here and those also tuned in as well. Everyone's participation and comments help us develop a better rulemaking, so without further ado, I'll jump right into what we propose.

[Next Slide]

First, I want to lay out the agenda, which is very similar to how the pool pumps were presented.

I'll briefly walk everyone through what we are proposing, and at the end I'll mention a few discussion topics that we would really appreciate your input on.

Next, a few speakers will make their formal presentations, and finally, we'll open it up to the comments.

[Next Slide]

The purpose of this workshop is to present our staff proposal, and then allow for feedback.

Currently, the Energy Commission regulates portable electric spas.

Within Title 20 of the California Code of Regulations, there is a test method in section 1604 and a normalized maximum standby power standard in section 1605.3.

As most of you probably know by now, we've been studying spas for the last few years and recently released our draft staff report which can be found at this link.

Our proposal is to achieve energy and water savings through one of the industry's updated test methods, which includes within it an updated standby

mode standard and a label requirement.

The report details what we are proposing, so we hope to receive public comments today and in the following weeks until the February 29th deadline.

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A portable electric spa as currently defined in section 1602 of 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 proposed definition will define portable electric spas as factory-built and free standing electric spas or hot tub units, supplied with equipment capable of heating and circulating the water inside a rigid, flexible, or inflatable shell.

There will be a definition for exercise spas closely based off of the definition within the proposed test method.

And for combination spas, the definition will be a portable electric spa with separate bodies of water capable of heating each body of water at different temperatures.

In short, the scope of our regulations would remain the same; all portable electric spas would be regulated.

Clarification is made to remove any confusion as to whether or not inflatable spas or swim spas are covered by the definition.

All types as shown in this slide are covered by the current scope and definition so this updated definition will simply elaborate on it.

[Next Slide]

After looking at the cycle modes, staff noticed that the highest energy use modes are the startup mode and standby mode.

The startup mode can take from five hours to over 24 hours to reach a set water temperature of 102°F and represents a significant percentage of a spa's energy consumption.

However, over half of the energy consumed during standby mode is due to maintaining heat while remaining idle.

Only the standby mode is regulated under the current standards. In our staff proposal, this will still be the case.

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Insulation is a key component of a spa.

With current technology, if no insulation is included, it's almost a guarantee that the spa will not comply with either the current or proposed

standby standards.

As a spa is in standby, it needs to maintain a certain temperature, so the insulation along with the spa cover help trap as much heat as possible in the spa to decrease the amount of energy used to maintain temperatures during idle periods.

[Next Slide]

The importance of spa covers is a point we really want to emphasize.

Ninety-nine percent of currently certified spas in the Energy Commission's Appliance Database are fully insulated so the performance could hinge on the quality of the spa cover used.

Since spa covers mitigate the amount of heat lost through conduction, convection, radiation, and evaporation, they are a vital piece of equipment that should come with a spa unit being sold as they can significantly affect the spa's energy performance.

In a worst-case scenario of running a spa of 450 gallons in capacity on standby all year long and either not owning a spa cover or owning one but never using it, one gallon of water could be lost through evaporation every hour along with over $1500 in energy cost in total for the year.

This is on the lower end of the spectrum.

A swim spa would lose at least three times that amount due to the greater capacity and exposed surface area of water.

A more realistic duty cycle would be approximately 3 months out of the entire year which would still cost hundreds of dollars and a few thousand gallons of water.

One key issue that we would like to address in this rulemaking is how to ensure that consumers purchase and use effective spa covers with their portable electric spas. Because spa covers and spas may be manufactured by different companies, and because a consumer may purchase a spa cover separately from the spa itself, we are considering how best to draft a standard that would cover both products. The current approach we suggest in the staff report is somewhat of a soft approach directed at consumer education, but we are also considering more mandatory requirements.

[Next Slide]

The current test method for portable electric spas is section 1604(g)(2) under Title 20 of the California Code of Regulations.

The proposed test method will be the ANSI/APSP/ICC-14 (2014) test procedure with the

exception of the swim spa standby requirement found in Section 6.3.1.

In the draft staff report, there's a typo. Where it shows an exception of 6.3, it should be 6.3.1.

Section 6.3.1 of the test method is the actual section we intended to have as the exception as it sets a separate standby standard for exercise spas rather than matching the uniform standard we are currently proposing across all types.

[Next Slide]

For the standby power consumption, the current standard is 5 times the volume to the two-thirds.

The proposed standby standard will be 3.75 times the volume to the two-thirds all added by 40.

This will provide some relief for the smaller capacity units. As volume increases, the relief decreases.

This proposed standard will be uniformly applied to all types of regulated portable electric spas which is why we have made an exception to section 6.3.1 of the proposed test method.

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The labeling requirement we are proposing is

based off of the same labeling requirement found in section 7 of the proposed test method.

However, at this point, we additionally propose to remove the requirement in that label template that states a spa with the affixed label must be sold with the test cover or a manufacturer approved equivalent.

Until we better understand any nuances and the methods of shipping and selling both spas and their covers, we will have that as a discussion topic for the comment period.

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Since the label we are proposing will have the model number of the spa cover used during the test, we will be asking for the model number of the test spa cover during the certification process in which we refer to Table X of section 1606 of the California Code of Regulations showing what data fields are asked for in certification.

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In short, the feasibility of our proposal involves 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. Looking at the models in the

database, compliance was found across the multiple volume ranges. Both conventional spas and swim spas have approximately 70 percent of compliance with the proposed standard being overlaid on the data. We could not however find any models in our database that were inflatable spas and we do realize that under the current scope, their lack of insulation prevents them from meeting the current and proposed standards which is why we left inflatable spas out of our statewide savings and cost benefit analysis.

[Next Slide]

Ways to increase performance from non-compliance to compliance could be using better shell insulation or including a spa cover that utilizes an improved cover design and/or improved insulation materials.

There are different types of hinge designs, skirt designs, thermal barriers, and core materials used.

Regarding the test method:

The 2014 version of the test method closely resembles the current test method in Title 20 of the California Code of Regulations by expounding on a few of the procedures within, also providing different testing temperature guidelines for conventional spas

and exercise spas, and was developed to be considered for adoption by federal, state, and/or local government.

[Next Slide]

Our methodology for the cost-effectiveness involved looking at reports and studies on 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 a label on consumer decision making. The incremental cost from non-compliance to compliance is $100 for the cover and 38 cents for the label.

Prior to the projected $100 cost for the covers, the 2006 study showed the cost decreasing throughout the years as better technology became widely available so we believe the $100 estimate is rather conservative.

The approximate lifecycle benefit for both types of spas is at least

$500 which our staff believes provides great incentive for improvements to be made.

[Next Slide]

The estimated savings from the proposed

standby standard would total 4.8 Gigawatt hours after the first year and 61 Gigawatt hours per year following full stock turnover.

For the label requirement, the estimate is based on a 5 percent impact on total consumption with improvement made on sales-weighted average efficiency. After the first year, 6.5 Gigawatt hours would be saved.

After full stock-turnover, 80 Gigawatt hours per year would be saved as costumers make informed spa purchases.

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The estimated environmental impacts show the total avoided air pollutants to be nearly 15 tons along with 48,000 tons of GHG emissions being avoided.

These estimates are based on the amount of energy savings from the proposed standby standard and the labeling requirement.

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Some discussion topics which we are very eager to hear feedback on involve the spa cover, as mentioned before, the labeling requirement, and how inflatable and exercise spas fit in the picture.

Are spa covers used during the test

sometimes sold separately from the unit?

Are test spa covers adequately labeled to provide the Commission with the model number during the certification process?

How much will a modified label requirement affect multi-state sales?

And how are inflatable and exercise spas treated under the proposed standard and test method? Should the definition exclude them rather than being broad? Should they have a separate standard?

So these are some of the discussion topics. There might be more brought up during discussion.

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That concludes my presentation on our staff proposal.

An important reminder is that comments during this comment period are due by 5:00 p.m. on February 29th.

Comments can be sent electronically to the docket link or by digital copy to docket@energy.ca.gov.

The hard copy method is also available. Just be sure to include the docket number and indicate the correct title in the subject line.

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My email is in the slide if you want to contact me with any questions. I can also give you my card as well with my number.

Again, we truly appreciate your participance and I want to thank you all in advance for the comments you will have today and in the coming weeks.

With that, before we go into the next presentations, are there any clarifying questions about the staff proposal?

Alright. I'd like to invite the speaker for the next presentation. We have Bach Tsan from the CA IOUs.

[End Presentation]

MR. WORTH: I'm not Bach, but he told me that his introduction was sufficient earlier. I guess I can pull my...

[Begin Presentation]

Hello again. Chad Worth with Energy Solutions on behalf of the California Investor Owned Utilities.

I again want to thank and commend Ben and the CEC for their work on this proposal.

The IOUs have been involved in spa energy efficiency, again, for quite some time. In fact, they were the first to propose the CASE study for portable

electric spas back in 2004.

The standard again took effect in 2006.

And then there was a subsequent study that PG&E was involved with down at Cal Poly San Luis Obispo to verify the savings from portable electric spas, which was a really helpful study and I think even continued to support the staff report.

And then again in 2013 this rulemaking began, starting with asking for a labeling proposal.

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So again, Ben went over this. The current standard is 5(V-2/3) and that's just for the standby power, not the active mode power.

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So when this rulemaking began, we submitted a labeling proposal initially.

And I'm sorry, that should be January 2014, the CEC held a public meeting and then asked for a standards proposal as well seeing the spread of data.

Shortly after that meeting, the IOUs engaged with the APSP-14 group to negotiate a label and an updated standards level.

And then we took all that information and wrapped it together and submitted a new CASE report to the CEC reflecting this general consensus.

And then APSP-14 Committee subsequently went and published that consensus within their new standard, the APSP-14 2014 standard.

[Next Slide]

So again, given we were heavily involved in this, we generally support the CEC staff proposal. We believe they're cost effective, achievable, and will lead to pretty significant savings, 140 gigawatt hours per year after stock turnover.

And again, this really seems to boil down to three important changes.

There's the clarification of the definition, which we think is really important.

The updated standard.

And then the label, which is pretty innovative, I think, for this product.

[Next Slide]

The definition, as Ben mentioned earlier, is pretty broad. It means a factory-built electric spa or hot tub, supplied with equipment for heating and circulating water.

And we support the clarification that inflatable and exercise spas should be included here, and we believe the definitions they provided do as much.

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We also support the adoption of the APSP-14 2014 maximum allowable standby standard. Using this will lead to a market weighted average of 8 percent savings and will eliminate, at least at the time of this analysis, 28 percent of the spas within the CEC database.

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And as you mentioned, in discussing this standard we changed it to give a little bit of a break to the smaller spas since they inherently use less energy and slightly more stringent on the larger spas.

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This was the original label that I designed. I'm not a label designer but we submitted it and, again, eventually worked with the APSP group to come up with this label, which we believe is good. It provides consumers with some broad general information that will be needed to be stuck to the inside of the spa until the point at which it's sold. When someone is walking around the showroom floor, they'll be able to easily tell what the standby watts are and can kind of contextualize, oh, 192 watts, that's like two light bulbs on all the time. As

someone who used to sell spas, this would be useful.

[Next Slide]

So with that, we do have some suggestions for improvement. Again, we'll outline them in our comments. However, probably the largest one, and I think it was one of your discussion items that you requested, was with regard to the spa cover.

And upon thinking about this further, we believe that spas should be sold with the cover in which they are tested. Without doing that it would be like saying you can sell a refrigerator but choose your doors, which would seem kind of interesting and would largely impact the energy performance of the product.

And also, we need that product to match what's in the database.

One potential solution for this, perhaps -- the example was cited in the staff report. Well, what if a spa dealer wanted to upsell a more efficient spa cover?

We believe that that could be remedied through potentially creating a different skew within the database so you would have the hot tub 100 premium cover and the hot tub 100 standard cover, and they would have two different performance levels

listed within the database.

This would ensure that lower cost covers and thinner covers, less efficient covers, aren't sold at the dealer and the product performs less than what is published in the database.

Ben, you mentioned the clarification that APSP-14 2014 is supposed to be 6.3.1, not 6.3, so I think that's been addressed.

One concern we have with regard to the label, should this be extended to exercise spas. The current label only goes up to 450 watts and exercise spas go beyond that, so we may need to consider a different label baseline or design for those types of spas. Otherwise, it would just be off the charts and wouldn't fit on the label.

And we also would like to clarify how combination spas are dealt with in the test procedure, the label, and overall just throughout the standard as it wasn't clear if those are treated differently or the same.

So with that, thank you very much.

[End Presentation]

MR. FISCHEL: So next I would like to invite Jennifer Hatfield from the Association of Pool and Spa Professionals.

MS. HATFIELD: I'm actually going to defer my time to two of our technical members on the phone.

MR. FISCHEL: Could they introduce themselves? Who are they, Jennifer?

MS. HATFIELD: Michael McCague and Angelo Pugliese. I know Mike's on the phone.

MR. MCCAGUE: This is Mike McCague. Can you hear me now?

MR. FISCHEL: Yes.

MR. MCCAGUE: I believe Angelo had a last minute schedule change so I'll take charge of this.

My name's Mike McCague. I am the Chairman of the International Hot Tub Association, and I also am a member of the APSP-14 Committee. Angelo would be the chairman of the committee. So we just want to comment on some of these items here.

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[Begin Presentation]

A couple of our topics would be just reviewing the collaboration we've had on this process. And then discuss the exercise spas, inflatable spas, and the energy label. And it looks like a lot of these topics are coming back again, which is good.

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So just to recap. The Title 20 was portable electric spas, and as Chad mentioned before, (inaudible) was done on portable electric spas through Cal Poly and other locations.

And then we had created the APSP-14 standard in conjunction with the CEC.

And then in 2013 when there was the requirements for the desire to add labeling and other refinements, we worked again with the CEC and Chad and the IOU groups to create an improved standard, which hopefully covered all the parameters that we were looking for.

But one area that's come up is we want to talk about exercise spas.

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So the exercise spa is different than a regular spa. Large volume, 1,000 gallons to 2,500 gallons.

It's designed for exercising, so the typical standby temperature is going to be 87, 85, in that range. Some of them can go hotter to 104, which is maybe what's been put on the database from CEC. I can't comment to that exactly, but typically

operating temperatures are at 87. Exercising at warmer temperature is basically not safe and not healthy to do that.

So it's a physical therapy unit for that use.

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So as the new definitions have come out, we're pleased to see that they do call out exercise and common spas more clearly, because the original Title 20 language didn't call out exercise in a clear way.

So that created a little gray area and it was difficult for manufacturers to know where these would place and would have to call the CEC directly to get guidance on the interpretation.

But one of the things that we'd like to discuss, and I think we'll pick up in the comments section, and has also been brought up previously, is the dual temperature unit. How is that going to be treated?

Testing at 87 versus 104.

The APSP-14 standard that we've been talking about calls out an 87 degree temperature test, and we want to see that as excluding some of the different

sections, 6.3.1, what was the CEC impact or desire on the test temperature, if that was wanting to be changed as well or not.

Again, 87 is the recommended temperature.

So as we develop this new 2014 standard, the preference was to open up explicitly to some spas, get some spas added to the database freely without basically a limit, and then in two years' time review the database and see how things are really laying out, and then create perhaps a separate curve for some spas to better capture those and get the efficiency requirements that the state is looking for on these products.

But I think at the moment there's not a lot of data and not a lot of information out there to necessarily lump them in with just a standard hot tub.

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So dual temperature spas, these are a little different, and you're seeing some on the slide. It's got a swim portion and then a hydrotherapy portion. And per the standard which has been proposed in the CASE study, they're tested at two different temperatures.

And so one thing that we need to address here is, do we address it as a single product, which would make sense, but maybe two different labels, one for the hot hydrotherapy side and a label for the swim spa side. We need clarification on the intent in that.

I know some manufacturers have listed them as both spas and swim spas because it was confusing on how to address that issue.

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This here is just a snippet of the label. And I guess looking for clarification maybe after presentation briefly on the language that was in the report here.

So we have removed the "based on testing" statement and simply put in this spa was tested to the spa manufacturer's specified cover.

And if that is the label change intent, I think that's simple enough and we can update the APSP-14 label to reflect that. That's easily done.

I do want to bring up that the covers themselves, we need to be careful on this in that the intent on the label in APSP-14 was to list basically all the compliant covers whether they be from

different manufacturers or not, as well as the tested cover. And this is a whole other discussion on managing this, because not everyone produces covers and many people buy them separately at the point of sale, so this is going to be a challenge in terms of getting the right cover on the right spa, or allowing new or different innovative covers to be applied to this. And we'll maybe pick this up in comments.

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So a recommendation on some spas from the APSP-14 perspective is we want to go back or at least mention the thought of getting all the spas in the database and taking the time to review them, and then readjust that baseline energy savings curve there.

And so we request at this time to give us more time to review all this and work with the different groups involved and the stakeholders to get the proper information in there and get the test criteria exactly the way that everyone needs it to be to get that done.

Next slide, please.

[Next Slide]

So I want to briefly touch on temperature inflatable spas. As you can see, they're basically

what it says. It's something you'd roll out, fill up with air and use for a little while.

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So what these are, these are lightweight inflatable units, so similar to the little popup pools you'd have in the backyard or something to that effect. This is an extension of that product.

A small unit. Basically, you can go to Walmart and pick them up, or a big box retail. They're small. You can even throw them in the mail.

They're relatively inexpensive.

You can inflate it onsite. You fill them up with hot water, or fill them, they heat, they run.

They're typically used as a temperature product, so used in the spring, in the summer. You wouldn't necessarily have it out in the winter or year round when it's less desirable.

And again, it's kind of a popup and a tear down unit, so easy to disassemble, store down wherever you want.

And then finally, they are vinyl lined vinyl units, and lifetime on these are typically three years, if you're lucky. Otherwise, maybe less even, just depending on construction and how they're abused

in use.

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So kind of a comparison between the two products.

On the left we have the inflatable units, on the right the factory-built portable electric spas.

The inflatables are small, come in a little box, you assemble onsite. Basically blow them up.

Whereas you've got the rigid portable spas need to be truck delivered, potentially craned into the yard. They are build with rigid materials and typically foamed in different manners to be very efficient.

Whereas this little guy here is out of the box. You pull it out and you make it work.

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This is kind of as a clear simple differentiation slide here. We've got lifespan of the two is significantly different.

The usage pattern is temperature inflatable version versus permanent year round usage on the other.

Different in weights and sizes.

They're picked up. They're sold at different channels in terms of inexpensive at big box and you pick it up in your car versus something you buy at a dealer or something else of that effect.

They're all typically plug-and-play. You plug them into the wall and away you go.

Very portable and very storable. And so they're a little different.

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So this product, it never came up in the APSP-14 discussions as something that we've had and discussions within committee and discussions with the CEC and the other stakeholders in this.

So there's no metrics for it in terms of how it's working. There's no test data for us to understand how it's going to work.

And there's a lot of different things.

The temperature nature of it may not really reflect the energy savings that are projected. And I see the slides earlier didn't really show energy savings for these.

But it's not the same and I don't think we can apply the same portable standards to it because it's a different product and there's really no data

on that.

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And that's more or less what I just covered. Short life. Different animal.

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So the recommendations on this one is APSP-14 is working with the inflatable manufacturers right now looking at these products to addition to the APSP-14 standard. These would be a different classification of product and we would probably take these as a separate class with separate test requirements and perhaps a separate energy requirement as well.

The way that the energy limit is currently applied to these in the study here, they cannot meet that, simply. So we would then be removing them from the market if this was applied to them, the new language.

So at this point we request time to work with CEC and the shareholders to review this product line and create a more feasible plan for these so that we can get the energy statements for this class but still allow this class to be sold.

Thank you very much.

[End Presentation]

MR. FISCHEL: Thanks, Mike. Will Angelo be speaking?

MR. MCCAGUE: I don't believe Angelo, he was tied up in an emergency event that came up so he won't be on the call.

MR. FISCHEL: Okay. Thank you for your comments.

Just to clarify. So in our current proposal we plan to keep the 87 degrees for the test for the exercise spas. But you are right, we are still considering whether they should still be covered and should have a separate standard. But Thank you for your comments.

So next we have, I want to invite Jess Tudor from Coverplay.

MR. TUDOR: Hello. I'd like to thank the people that have gotten me involved in this project for the last eight years, most notably Mr. Gary Fernstrom. Seems that he and I have conferred a couple of times a year ever since and we're looking forward to our tenth anniversary together, I think.

Other people involved, Betty Chrisman, Harinder, Ken Rider, Sean Steffensen and Ben Fischel.

These are people that are new to me but certainly want to get to know them.

A little background on me is I'm a product developer and manufacturer. We make cover removal systems for the portable spa industry, and one that's safe. It's a forward fulcrum appliance and it actually attaches to the back of the spa cabinet and allows the cover to sit in a low trajectory so that it doesn't fall back unwarranted on the bather. It's a pretty important feature if you've got kids or a reckless neighbor.

Anyway, that was 18 years ago. And subsequent to that I watched the spa cover become the biggest problem in the industry. And now there's legislation here in California -- even though I live I live in Oregon, I still feel a California residency here. You guys are very close to us.

That California wants to resolve this issue with the portable spa. And I agree it's overdue, particularly in the wake of the Cal Poly test that happened in 2008, which I don't know how many of the people here know about that test, but certainly in 2008 out of the 27 spas that were tested, 65 percent of them were noncompliant for sale in California that year, even though the regulation was in force.

My particular entry, the Coverplay entry number V in that test was clearly the runaway winner by up to 75 percent more energy efficient.

It did prove beyond a shadow of a doubt that we can make spas more energy efficient because there are other people with my same skill that could be able to bring the spa under control, but I don't believe that anyone decided to change the cover back in those days.

In fact, even though we showed that a single hinge cover was much more energy efficient, the dual hinge cover has been pervasive for the last eight years in the wake of that test.

There was a subsequent test that I was authorized to do by PG&E through Gary Fernstrom in 2010, so we did a winter test in 2009 and 2010 to reflect the energy efficiencies and inefficiencies in an outdoor environment, the ambient. And that was more compelling.

We tried to make everything standard. We used six different manufacturers' spas, and we saw the differentials there were dramatic in an outdoor environment.

But one of the reasons that we knew that outdoors was going to be more compelling is because

there's an evaporation as an issue and it's something that I term the chimney effect, which is heat that seems to be pretty robust at the hinge.

A lot of manufacturers, for whatever reason, don't believe that that's happening, but we've actually seen it under some testing situations that we believe is probably the biggest criminal for energy efficiency.

All that said, we also looked at the foam board itself, being a hard surface, it has to sit on top of an acrylic hard surface. Because it sits on an acrylic hard surface, those two hard surfaces really aren't very malleable so they don't really want to come together very well and they can have a lot of gaps.

Those gaps, obviously, are somewhat concealed behind what's called a skirt. And I think up until now most people think that a skirt has some insulating property. It's made of vinyl so it has none, it's a petrochemical.

So really, I think what it does it obviate the obvious. There's steam leaking around the top surface of the spa. And in that vein, that has not been addressed either.

So what I've been trying to do is to market

our product, the air frame, which is a chambered air technology with radiant barriers and a perimeter barrier seal and a single hinge compression closure that offers much more energy efficiency and reflects the same design that we used in 2008 and in 2010.

Most notably, when the weather gets very cold, the typical spa cover, the foam cover, gives up more energy readily because of the very, very cold nature of the evaporation. And we've seen that quite (inaudible) and made reports on that, and certainly submitted them here to the CEC.

I think that you guys have those records for the test unit.

One of the things that I've discovered with the foam cover along the way is that there is an obnoxious smell associated with it when you open it, and a lot of people have noticed that even though they get water heavy.

This is a serious concern because it's probably something to do with volatile organic compounds. And certainly that looks to be the case. So we've done pretty much an extensive study looking into this very product.

And the manufacturers of polystyrene, expanded polystyrene itself, don't recommend that the

product be in the same general vicinity as a strong oxidizer.

That's unfortunate because most people recognize that a portable spa uses very strong oxidizers including chlorine, bromine, hydrogen peroxide, ozone. These are terrible things when you have chemicals in the same presence, which could be PVC, polyvinyl chloride, the very vinyl skin that covers this Styrofoam.

So these issues are very critical in that anyone who has had a spa for more than two years has recognized the fading to the bottom part of the scrim. That fading is there because the oxidizers are attacking it aggressively.

Well, what happens when all of that reaches the atmosphere; i.e., the vapor that's actually hovering across the top of the spa.

People breathe it. It's transdermal, so if it drips in the water it'll pass right into your skin.

There's so many different maladies today in American it's really hard for us to nail down which one of these particular compounds, including the VOCs that we're subjected to all the time, are actually the cause for these maladies.

But evidence seems to be pointing that we don't need another one. And I would suggest that if the CEC was going to make a ruling, we should at least follow the energy efficiencies of the air frame cover.

And on top of that, the compelling evidence is that we should stop using expanded polystyrene for a heated spa.

It turns out that none of the evidence that I'm talking about really reflects on a cold spa if it's just sitting outdoors and it's not sanitized. That does seem to be stable and Styrofoam is probably okay for that use.

So if you have an ice chest at home that doesn't get warm and you're not going to put a hot beverage in it and drink out of it, you're probably okay.

But we have seen so much evidence and there is so much available on the Internet, if anybody were to look it up they would be surprised about how bad it is.

There are over 200 cities in America today that currently outlaw EPS form for foot containers and beverage containers. There are governments, there are countries that are outlawing it. This is

compelling evidence, we think, for us to stop using it.

I've had the luck of having eight U.S. patents in my life, and some of them directly reflect on this industry, not the least of which is one that was just released about three weeks ago regarding the air frame cover.

So I'm willing to license this idea to others following along in the path of Elon Musk, who has developed the Tesla motorcar. Anyone who's willing to make these covers, we're certainly willing to help them, train and teach them how to do this.

It's a very simple operation, needs about 400 square feet and doesn't require any heavy equipment.

So what I would like to do today, certainly have plenty of information here that I can provide the CEC, and I'm willing to do that, and all these different tests and reports that we've garnered, and I would like to work with people here in figuring out how we can resolve this problem.

What this country doesn't need is another 11,000 covers -- and this particular state, by the way -- 11,000 covers being buried this month again, and another 11,000 covers coming in from Mexico with

different grades of ability to insulate.

So without any controls in place it's very difficult to be able to manage portable spas or to cause any one particular company to adhere to a standard when it seems like the cover seems to be the very criminal that's causing all this waste.

So I appreciate the time today and certainly look forward to following up.

Thank you very much.

MR. FISCHEL: Thank you, Jess. If there's any data you have that you can provide that supports all of what you said, that would be awesome. I know you just said that you have some stuff that you brought here, so thanks again.

Moving from the formal presentations to the comments now. I just have one blue card here right now, so if there's anyone else who wants to turn one in, please do so. Right now I want to bring up Meg Waltner again from the NRDC.

MS. WALTNER: Thank you. Meg Waltner from the National Resources Defense Council. I want to start by thanking the CEC staff for their work on this proposal.

In general, NRDC supports the proposals for updated standards for portable electric spas as well

as the labeling requirement.

I think the graph that was shown during the presentation tells a good story of just the range of standby wattages at all different capacities that currently exist in the spa market. It shows that there's room for both an updated standard and also that consumers could benefit by getting information about the efficiency of spas when they're purchasing a spa.

We think that the standard levels proposed are achievable and, as the data shows, will provide large energy savings, consumer savings, and emissions reductions.

In terms of spa covers, we support the IOUs proposal to require that the spa be sold with the cover that it's tested with and interested in working with stakeholders in how to make that workable. We do think it's very important that spas are sold with covers.

Thank you.

MR. FISCHEL: Thanks, Meg.

It looks like Gary's got a comment.

MR. FERNSTROM: Thank you, Ben. Gary Fernstrom for the California Investor Owned Utilities.

We'd like to agree with Jess Tudor that certainly covers are an important and integral part of the spa with respect to energy efficiency.

The spa body most certainly outlives the life of the cover, so looking forward we would encourage the CEC to consider some test procedure metric regulation for spa covers, particularly being sold into the retrofit market.

With respect to new spas, I'd like to address how the cover aligns with the compliance enforcement regulations of the California Energy Commission.

So as I understand it, in order to be sold in California, and for that matter, the primary criteria with respect to determining compliance is the fact that manufacturers need to submit performance information to the CEC's appliance database.

The test procedure and the metric requires that the spa and cover be tested as an integral unit. If the spa is sold without the cover that it was tested with, it is simply not compliant, because the proper report for its performance was not made.

So if spa manufacturers, or cover manufacturers for that matter, wish to offer choices

of different covers with the spas they sell, it's our opinion that they must be tested and reported with those alternative covers, and then the combination of spa and cover would appear in the database, and therefore, would be deemed compliant.

If that's not the case, it does not seem to us that the product could be deemed compliant, and would therefore be in violation of the regulations.

Thank you.

MR. FISCHEL: Thanks, Gary.

So I don't have any more blue cards, so looks like -- oh, Chad, do you have a comment?

MR. WORTH: This is Chad with the Investor Owned Utilities. I had a clarifying question, Mike, on your presentation.

The data for the exercise spas that has been submitted, I notice there's a number of them actually even submitted in the last month or so, was that that tested to 100 degrees or 85 degrees?

And I guess where given that the exercise spas were in the 2011 standard and the 2014 standard, how have those been tested and submitted thus far?

MR. MCCAGUE: This is Mike, can you hear me?

MR. FISCHEL: Yes.

MR. MCCAGUE: Yeah, I can't answer to that

exactly as I don't know what the manufacturer did.

My assumption would be that they would have been tested to the Title 20 102 temperature to that standard test. That would be my assumption is that it would have been tested to the requirements.

The APSP-14 language is different and that's kind of the gray area there that we were hoping to get through in this new phase of the update. But I'm assuming it's done to the 102 per the law.

MR. WORTH: Thank you for that clarification.

MR. FISCHEL: Okay, if that's it, we will move on to Kristen if there aren't any people wanting to comment online.

So before I end, I just want to provide a quick opportunity for anybody in here.

So I heard mentioning that some spa units can be sold without the cover during the test as we have been worried about. How often is this? Is this prevalent when units are purchased? Are covers separately? Does anybody have any feedback directly on that?

MR. FERNSTROM: This is Gary for the California IOUs. A spa sold without a cover, in our opinion, would not be in compliance with the

regulations.

MR. FISCHEL: It looks like no one. Oh, we have a comment online.

MR. MCCAGUE: This is Mike McCague. In regard to the covers, as Gary pointed out, all of the spas would be sold with covers. There's no way they would meet the requirement.

In comment to the issue of the covers going with the spas, in many cases for shipping purposes the manufacturer may test the spa with a cover.

When those spas are sold and they get shipped to a particular dealership in California, the dealership would then get the covers either directly from the spa manufacturer, which is rare, most don't make their own covers, or they would order those covers directly from one of the multiple cover manufacturers out there to then sell with the spa.

I think it would be very unlikely for someone to sell a portable electric spa without a cover just because of the evaporation rate. It wouldn't make sense and I doubt that's very common in the market today.

MR. FISCHEL: Okay. So just to clarify, Mike. The responsibility is on the seller to have the cover come with the unit?

MR. MCCAGUE: It's at the point of sale that there must be a cover. And in some cases it's not feasible for someone who works and produces in New Jersey, for example, to buy a cover produced in California and have it shipped to New Jersey and then ship it back to California.

So in many instances they'll come together. They'll be purchased separately at the dealership level, and then at the point of sale the two would be sold together.

MR. FISCHEL: Okay. Thanks.

MR. MCCAGUE: Very different scenarios across different groups of how they do that.

MR. FISCHEL: Okay, thanks, Mike.

Anyone else in the room or online?

Okay. Well, that concludes the public comment section of the portable electric spa portion.

MS. DRISKELL: Okay, thanks, Ben. That actually also concludes this meeting.

Some reminders from what I've heard today.

There was a lot of input during both discussions on, mostly in the pool pump discussion, on the data in our database not being up to date.

That burden is on the manufacturer to make sure that database is up to date, not on us, so

please make sure you update your information so that it's accurate, and that way we can use it for both this proceeding and as we do our compliance and enforcement efforts at the Commission.

Any additional data on both sides, please make sure you submit them in writing so we can evaluate it and incorporate that feedback into our revised staff report.

Are there any other comments, questions, in the room before we adjourn? Seeing none, thank you everyone. Thank you for your attendance today, we really appreciate it.

(Adjourned at 12:37 p.m.)

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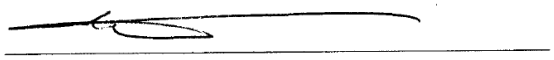
REPORTER'S CERTIFICATE

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

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

IN WITNESS WHEREOF, I have hereunto set my hand this 7th day of March, 2016.



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CER**D-493
Notary Public

TRANSCRIBER'S CERTIFICATE

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

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

IN WITNESS WHEREOF, I have hereunto set my hand this 7th day of March, 2016.

Terri Harper

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Terri Harper
Certified Transcriber
AAERT No. CET**D-709