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CALIFORNIA ENERGY COMMISSION

STAFF WORKSHOP

In the Matter of:	) Docket No.
	) 17-AAER-05
	)
	)
Phase 2 Pre-Rulemaking: Commercial	) STAFF WORKSHOP RE:
and Industrial Fans and Blowers	) Response Invitation
	) to Participate

NOTICE OF STAFF WORKSHOP ON
RESPONSES TO INVITATION TO PARTICIPATE IN THE PHASE 2
APPLIANCE EFFICIENCY REGULATIONS & ROADMAPS:
COMMERCIAL AND INDUSTRIAL FANS AND BLOWERS

CALIFORNIA ENERGY COMMISSION

THE WARREN-ALQUIST STATE ENERGY BUILDING

FIRST FLOOR, ROSENFELD HEARING ROOM

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

WEDNESDAY, JULY 19, 2017

1:00 P.M.

Reported By: Kent Odell

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Mary Anderson, PG&E, Representing IOUs

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I N D E X

P R O C E E D I N G S

JULY 19, 2017 1:00 p.m.

MR. NELSON: Welcome to the Participate Workshop on Commercial Industrial Fans and Blowers. Before we get started, just a few items we need to point out. If you need to exit the building please use the exit to the right, the main entrance that you came through. The exit to the left is alarmed and the alarm will sound if you use that exit without a key card. That said, in case of an emergency please use either exit to exit the building. We will meet diagonally across the street at the park and take a headcount of the building if that should occur.

Restrooms are located directly across from the hearing room today. As you exit the front doors of the hearing room they'll be directly across and there are also some to the right of the stairway. If you see elevators you've gone too far.

So today Alejandro, also known as Alex, will be presenting on Commercial and Industrial Fans and Blowers. The schedule on the screen is tentative, depending on how the meeting is moving forward. We'll adjust the schedule as need be. Hopefully, after a spirited discussion we can get you out of here a little early.

Throughout the presentations there will be points for discussion, so as Alex goes through his presentation we

will open it for comment. We will first take comment from the room. If you're in the room currently and you would like to make a comment raise your hand and introduce yourself and the organization, wait for the court reporter, and then give your comment or question.

And then we will take comments from the WebEx online. And online you can use the "raise your hand" function. And we will call on you online to give your comment or ask a question. You can also use the chat box online, if you prefer that, and we will try to get to your written comment through the chat box.

At the end of the day we will have a session for general public comments. If there is anything left to discuss you can raise your questions or comments at that time.

Are there any questions before we move on? Okay. I'll hand it over now to Sean Steffensen. Go ahead, Sean.

MR. STEFFENSEN: Hi. I am Sean Steffensen, California Energy Commission.

The Flow Chart addresses why we request the information and how we plan to use it. We need the information to define the problem, in this case an inefficiency. The information provided helps then to define the solution.

The Scope and Definitions provide the "what," of

what will be included in the standard, how we know what will and will not be subject to the regulation.

The Efficiency Metric provides the measure by which we can rank the performance of the individual products. There can be more than one efficiency metric to consider, one or more may be chosen to develop a standard.

The Test Method defines the conditions under which the appliance is tested. Test data identifies the role to performance among products that allows consideration of a standard.

Once these items are selected, "Scope, Definition, Test Method, Test Data and Standard," an analysis must be performed to understand the effect of the proposed regulation. Does the standard achieve the goals of significant water and energy savings, while being cost-effective and technically feasible? If So then it is a good standard. If not, then we should reconsider the data and modify the standard to meet the criteria.

MR. NELSON: Thank you, Sean.

Any questions on that?

(No audible response.)

Great. So on the screen now is a diagram of the public -- of the Rulemaking Process. Currently we are at the third stage there, the third icon with a blue arrow. We are in a public workshop for the information to --

invitation to participate. And I'll hand it over to Alex.

MR. GALDAMEZ: Well, good afternoon. My name is, as you know now, Alejandro Galdamez. I'm a Mechanical Engineer for the California Energy Commission here in the Appliances and Outreach and Education Office, within the Efficiency Division.

Agenda-wise we are going to discuss the purpose, the information requested. I'm then going to present a summary of the comments received and open for a five-minute discussion followed by a general-comments time where if we don't have time to discuss the topics you guys can discuss it then. Or other comments, the general comments that you might have not pertaining to the topics, and then concluding with an explanation of next steps to follow.

So the Energy Commission is gathering information for Phase II products in its Appliance Efficiency Rulemaking. The invitation to participate, or ITP, is an opportunity for stakeholders to provide information and data that will help shape the Energy Commission's policies regarding the Phase II appliances.

The ITP requested information and data on the following appliances, as you can see here: commercial and industrial fans and blowers, general service lamps, spray sprinkler bodies, tub spout diverters, irrigation controllers, set-top boxes, low power modes and power

factor and solar inverters. For this meeting, however, we're going to be discussing only the fans and blowers.

I would like to thank the following participants for submitting their comments. That'll be the Air Movement Control Association International, better known as AMCA; Air Conditioning, Heating and Refrigeration Institute or AHRI; University of Illinois at Urbana-Champaign -- sorry if I kill that, it's my accent -- Trane; Cooling Technology Institute, or CTI; Twin City Fan Companies, Ltd; Appliance Standards Awareness Project, or ASAP; too Keith T. Lins and Dale Price; Morrison Products, Inc.; the Greenheck Group; Natural Resources Defense Council or NRDC; the Sacramento Municipal Utility District or SMUD; the Ebm-papst, Inc.; Acme Engineering and Manufacturing Corporation; California Investors Owned Utilities, IOUs; and Northwest Energy Efficiency Alliance, or NEEA.

Here we have a list of what we requested from the ITP. These are going to be the topics that we are going to be discussing today, as we go, and I'll be providing some summary of them.

So let's start with Product Definition and Scope. Definition-wise, we got some definitions submitted independently. Others reference definitions made -- just to use the ones on industry. Also the ones for AMCA 210 and definitions provided in the U.S. Department of Energy,

DOE's 3rd Notice of Data Availability, or NODA.

So these were all the definitions that were -- or comments that were submitted for the definitions to be used.

Scope-wise, the scope of the test procedures, the majority of the comments received should be for: axial cylindrical-housed fans, panel fans, centrifugal-housed and un-housed fans, inline and mix-flow fans, radial housed, and power roof ventilators.

It was also suggested that the fans listed above be greater than 1 brake horsepower, but less than 150 air horsepower.

As for the scope California should also look at the possibility to include fans embedded in non-regulated equipment, follow a specific set of steps to assure those are within the scope.

Additional comments also refer -- there was a consensus that the exemptions of the California -- that California should implement sorry, for the proposed regulations should be the ones agreed on the ASRAC term sheet addressed on the DOE's 3rd NODA.

Consensus also was on what should be included to be that, that was concluded through the agreements made through ASRAC negotiations and that were reflected also on the 3rd NODA.

So as for Product and Scope, we're going to enter our first discussion time. Most comments, the session questions to bear in mind is most comments point to the 3rd NODA for the definition and scope, including exemptions. Should California adopt the scope and the definitions of DOE's 3rd NODA and ASRAC term sheet? Why and why not? Could California consider fans to operate under 1 brake horsepower and greater than 150 air horsepower within the scope? Why and why not? Should California implement a procedure to regulate embedded fans in non-regulated appliances?

So now I'm going to open it up for five minutes, so raise your hands if you have any comments or any online.

Nothing online? Oh, hold on.

MS. ANDERSON: So this is Mary Anderson, on behalf of the California IOUs. So we support the Energy Commission using the Fan Energy Index as the regulated metric -- oh, sorry.

MR. GALDAMEZ: Scope.

MS. ANDERSON: Sorry, my bad.

So we continue to support the scope of the ASRAC term sheet as it pertains to stand-alone fans and embedded fans.

MS. MAUER: This is Joanna Mauer, with the Appliance Standards Awareness Project. We continue to

support the scope of coverage that's in the ASRAC term sheet. That scope was agreed upon by a wide variety of stakeholders and we think that it makes sense as for initial Fan Efficiency Standards. It certainly could be expanded, but we don't -- we think that sticking with what was agreed in the term sheet makes sense for California for now.

And in terms of definitions the term sheet didn't include definitions. We think the definitions in the 3rd NODA are, at least, a good starting point for CEC.

I know, as part of the AMCA 208 Committee, that Committee is also considering incorporating some definitions as part of that standard. So that may also be able to be helpful to CEC in coming up with definitions.

And then the term sheet also included recommendations regarding the treatment of embedded fans. There was a lot of discussion during the ASCRAC Working Group about embedded fans. We came up with an approach, which I think was a good compromise, addressing a variety of concerns related to that topic. And the compromise, essentially, is that fans that are included in regulated equipment and where the efficiency metric captures at least to some extent the energies of those fans, that those fans would be excluded. And then other fans embedded in equipment would be included as part of the standards. And

we think that that approach in the term sheet makes sense for embedded fans.

MR. IVANOVICH: Excuse me, this is Michael Ivanovich from AMCA International. And we just simply want to reiterate that we covered these questions in our written comments to the docket and there's been no change. Thank you.

MR. GALDAMEZ: Any more -- oh, we got two online?

UNIDENTIFIED SPEAKER: Mm-hmm.

MR. GALDAMEZ: Okay. Let me see, don't --

(Off mic colloquy.)

Oh, go ahead Laura. You can go ahead and talk.

MS. PETRILLO-GROH: Hi, this is Laura Petrillo-Groh from AHRI and, you know, AHRI did not end up signing off on the final term sheet. And one of our main problems, as I know no one will be surprised with, is the provisions that were included for embedded fans. I know that's a little bit more information about when California said they intend to exclude fans in regulated products, is that some fans or all fans and then regulated by whom? Is it DOE or the State of California through ASHRAE 90.1; can you provide any other details on that statement?

MR. GALDAMEZ: We're just gathering comments right now. That's a good question. I'll have to look into it to more detail. And then maybe talk to you in a one-on-

one on where we're trying to go. But if this is something, maybe an idea, maybe submit them as part of your -- how do you call it -- not the proposal to submit, our next step, basically. Yeah, the proposal.

MS. PETRILLO-GROH: Yes, that's put in. Thank you.

As for the next step yeah, as much information as California has collected so far, would be very helpful to those in the public who've been asked to essentially put together a draft regulation showing cost-effectiveness of regulating fans. It's difficult when the -- on what scope should be used for analysis if we don't have an idea of what is intended to be regulated.

MR. GALDAMEZ: As most of the information that we are aware of it's basically coming direct from the DOE, from what DOE has already worked on, plus the information that we just received through this ITP. But if you would like we can discuss that in more depth at a separate time. It seems like the questions are a little more than I can answer you right now. I don't want to be miscommunicating or saying anything that -- where I don't have the information in front of me.

MS. PETRILLO-GROH: A follow-up? Yeah, a follow-up would be appreciated. Thanks, Alex.

MR. GALDAMEZ: You're welcome.

Skip, you can go ahead and participate. Hello?

(Off mic colloquy._

Oh, so I guess he doesn't have a mic. Okay, so anybody else in the room? No? Okay.

Okay, so let's move to the test -- let's talk about comments for received for Test Procedure and the Metrics.

According to AMCA 205, a comment was received that the European Union is using this. However, this standard does not take in consideration motor/drive influences or sizing of the fans. Consensus of the comments received though, reflected that AMCA 210 should be the test method for fans and blowers.

As far as the Metric goes, a discussion was given during the ITP that the metric used for the European Union is the Fan Efficiency Grade or FEG, and the Fan Motor Efficiency Grade or FMEG. One of those does not consider the motor/drive influences and the other one does not consider sizing.

However, AMCA 207, and the one that's being worked on right now by AMCA 208, uses the FEP or the Fan Electrical-input Power, to calculate a weighted Fan Energy Index or FEI.

In addition to those, those metrics, the following were also suggested. And that was cubic feet per

minute per watt, or CFM per watt metric for agricultural purpose fans. Another metric that was suggested was to go back to the 1st NODA by DOE. And it was suggested to use the best efficiency point metric, which is a metric based on an average of three operating points of the fan.

The majority of the comments received have consensus of utilizing the FEP and FEI metric as discussed in the 3rd NODA by DOE.

As far as the Test Procedures and Metric Discussions, we have some questions that we would like to ask. Is there data supporting a CFM per watt metric to be better than the FEI metric being suggested? Could FEI also be utilized for agricultural purpose fans? Should California develop a different metric for agricultural purpose fans, why or why not? Is there data supporting that a BEP metric will provide a better basis for a standard?

And so I'll open it now for discussion, if anybody has any comments, for five minutes.

MR. WORTH: Chad Worth on behalf of the Cal IOUs. I just wanted to reiterate our support for the FEI/FEP framework as outlined in the term sheet and how this conversation has evolved to support FEI as the regulated metric through Title 20.

We've been engaged in this process through the

FEG and the PBR and the FER and FEP. And we're happy how it's evolved into the FEI and think it'll provide many benefits.

MR. WAGNER: This is Greg Wagner of Morrison Products, my comments concern overlapping between Test Procedure and Scope. And we talked briefly about including embedded -- fans embedded in equipment. The test procedure identified 210 is for a fan only and not equipment. I guess the question would be how does the Commission look at evaluating embedded fans in equipment and the performance thereof? Thank you.

MR. GALDAMEZ: So thank you.

Anybody online, no?

Should I move on or everybody okay? All right.

MS. MAUER: This is Joanna with ASAP. Maybe just at a high level we really see the value of the FEP/FEI framework as both driving in proof and design and also in proof and selection. And we see a lot of potential upside to that approach.

The way the FEP/FEI metric is designed is to really take into account that the inherent efficiency of a fan varies with flow and pressure. And therefore, the single metric can really capture a wide variety of applications, because it does take into account that variation and inherent efficiency with flow and pressure.

And we see more potential upside compared to what's referred to here as the BEP metric, because our understanding is that that BEP metric, the practical impact would really be to limit the maximum speed of -- rate and maximum speed of fans. The FEI metric would also do that, but would go further in driving a better fan selection.

MR. GALDAMEZ: Thank you. And I saw, did Louis Starr raise her hand or his hand? I can't -- I don't know.

MR. STARR: Yes.

MR. GALDAMEZ: Yeah? Okay, go ahead.

MR. STARR: So this is Louis Starr with Northwest Energy Efficiency Alliance. And So I wanted to kind of just provide a little bit of history on how we ended up with the FEI metric.

But I'll say that we, just energy advocates and AMCA met prior to the start of the rulemaking for the NOPR on fans. And through much work with development with AMCA, we kind of came about with this FEI metric. And some of the other -- and also during the ASRAC process, we were in negotiated rulemaking for test procedures and then ultimately kind of got around to setting levels. But much time was spent on coming to the conclusion in the FEI.

And I -- some of these other suggestions, these are fairly new, the two. In other words, they weren't brought up during the rulemaking and weren't in the private

negotiations. And it just seems like this is somewhat of a Johnny-come-lately on it. And I just don't really see the purpose of investigating those anymore.

And then the BEP metric, it's sort of a throw-back to what happened on pumps. And while the initial idea of it wasn't really applicable, so I would encourage as stated the FEI metric.

MR. GALDAMEZ: Thank you.

I see Laura Petrillo, also heard your hand is raised. I don't know if you have a comment?

MS. PETRILLO-GROH: It was raised from before. Let me put it down. Thank you.

MR. GALDAMEZ: Okay, thank you.

Oh yeah, go ahead. Please?

MR. IVANOVICH: This is Michael Ivanovich from AMCA International. And we'd like to reiterate that we support use of AMCA Standards 207, 208 and 210 for this rulemaking. 207 is a method for calculating efficiency when the test is not conducted. And 208 is under development and we want to emphasize that that's an AMCA standard process. And although it's going to be an AMCA standard, that the 208 Committee does include members from industry outside of AMCA membership. So we wholeheartedly endorse that of course. And of course, 210, which is the test standards that's been in existence for decades.

Thank you.

MR. GALDAMEZ: You're welcome. Thank you.

MR. WOLF: Mike Wolf. Just to clarify a little bit on the other metrics that are listed there besides the FEP and FEI, I think it's important to understand the primary distinction between those other metrics. They're primarily a single point metric, so there's reference made to a BEP, or Best Efficiency Point.

So for example on FEG and FEG or FMEG, they're basically a single point metric that reflects the fan's efficiency at its best operating point. And the reality is in most, probably almost all applications the fan never runs at its best operating point. So if we start designing fans to have a high-peak efficiency at one point the opportunity to actually save energy in the real world could be diminished, actually.

And the same thing goes for the CFM per watt. I believe that metric has to be at a given point of operation at a certain pressure.

So as a result, for example FEG, if you look into ASHRAE 90.1 there are a number of exceptions to using that metric in ASHRAE 90.1 as well as some additional requirements to specify that the fan needs to be selected within a certain number of points of the peak efficiency in order to gain any energy savings.

So the FEP and the FEI that's being looked at and was agreed to in the DOE, of the ASRAC term sheet that was submitted to the DOE as Joanna mentioned, kind of accomplishes two things: it will drive positive behavior on the part of the fan manufacturers to build more efficient products across the entire operating range that those products will be used. As well as providing a real nice, useful tool to the marketplace in order to apply those fans correctly.

So I think that's an important distinction to understand between the various proposals that have been shared.

MR. GALDAMEZ: Thank you.

Okay, so I don't see any comments online, so -- no, right? Okay.

So let's continue there.

So Source of Test Data, California has grounds in our eyes -- part of the -- and there is consensus for commenters on the Test Data provided as part of the 3rd NODA.

These are the data that was viewed was the Engineering Analysis; the Government Regulatory Impact Model, or GRIM; the Life-Cycle Cost Analysis, LCC; and the National Impact Analysis or NIA.

So Sources of Test Data Discussion, how should California analyze the Engineering Analysis, LCC, NIA and

GRIM to be representative of California? Should California use a simple percent value for the data analyzed? If So what percentage would be representative of California?

MR. CATANIA: Tom Catania, Consultant to AMCA.

For purposes of those who aren't regular participants in CEC Proceedings, is there any way that you can make available to us information about how California does its own version of GRIM and how, what variables it uses, and how it assigns weight to the various elements? Particularly, obviously of the environmental benefits and so forth associated with any calculation of the economic value of those benefits?

And I'm not anticipating that there's an issue there. It's just that we're just not familiar with the factors that go into and the weighting and economic dollars that you assigned to it.

MR. GALDAMEZ: Would it be best to submit it into the docket, an explanation, so that everybody --

MR. CATANIA: Yeah, that would be fine.

MR. GALDAMEZ: -- then can get it from there and participate that way, I mean to understand it?

MR. CATANIA: Yeah, that would be fine.

MR. GALDAMEZ: Okay, will do.

Go ahead.

MR. IVANOVICH: This is Michael Ivanovich from

AMCA. And with respect to the data that were analyzed, AMCA is in the process of re-surveying members for more recent data. The data that DOE used -- they used our data -- we're not quite sure right now, but that's from 2012 from our own survey. And those data are old and our analyses are more sophisticated, but it's going to take a while to get that dataset, understandably, given the scope of the parameters that we're being asked to provide. So all I'm saying is that it's going to take a little time to get that data, but that data is going to be very useful for this rulemaking.

MR. GALDAMEZ: Good.

Greg, go ahead.

MR. WAGNER: This is Greg Wagner, Morrison Products. I would echo what Michael said. I'm glad that AMCA is relooking at that. Because when the data was submitted to DOE it wasn't per the test procedure that was agreed to in term sheet, because that procedure didn't exist at that time. And So therefore the data that goes into that analysis wasn't accurate. And it didn't include things like tolerance of test, tolerance of manufacturing. The other things it didn't include were cost to redesign fans and blowers accurately. It didn't include the cost of manufacturing higher -- or more expensive, higher efficiency fans.

If you look at the DOE model, basically, all of them have flat costs. So if you project outward, the fans would start paying for themselves in a few years, because it's basically free to get a higher efficient fan. And which begs the question of why aren't people using more efficient fans if they don't cost more?

And then finally the cost of replacement or of replacement and looking at replacement fans wasn't fully accounted for. It's something that safety reasons, fans need to be replaced with like-for-like in many HVAC appliances, because in essence it's starting fires inside people's building multiple times a day. And so safety is an important factor.

MR. GALDAMEZ: Mike Ivanovich?

MR. IVANOVICH: I just want to clarify that the AMCA survey is not going to include all those parameters, because the parameters that are necessary for energy savings calculations only attributable to the metric and the scope.

The other data that he is talking about, I think, were provided by DOE's own analyses and we weren't party to that.

So that's it. Thanks.

MR. GALDAMEZ: Anybody in the room? No?

Okay. I --

MR. STARR: This is Louis.

MR. GALDAMEZ: Yeah, go ahead Louis. Go ahead. I was just going to come to you.

MR. STARR: I just have maybe a clarification a little bit. Is the new data that's going to be collected, (indiscernible) the data that was collected in 2012 was performance data. And I'm trying to understand, while it obviously is great to have the newest information what kind of new information is going to be provided that's going to help make the decision about setting the levels that's different than the information?

I mean, I agree that it's important, but I'm just about thinking about the timing of it. And I'm trying to understand, in the new data that AMCA is collecting, what is the value proposition as opposed to just the data being new? I mean, maybe someone at AMCA can help you on that?

MR. IVANOVICH: Well, one major difference in the data protocol Louis -- this is Michael Ivanovich -- is that we did not ask for fan speed in the original dataset and it's a very important parameter for using the FEI metric. And there's other parameters as well that --

MR. STARR: Okay.

MR. IVANOVICH: -- that California was asking for specifically that are now included in the protocol.

MR. STARR: All right. Yeah, I think that would

be important for the, I guess, the California Energy Commission to look at that parameter and make sure that is an important element in figuring out. In other words, is it necessary?

I sort of asked that same question of some people that had done the original analysis, an LBNL. And I had asked them if that was an important data. And they had sort of indicated that it used to be, but how the fan metric changed in the negotiated rulemaking was not as important. That being said, it's probably not at this time to figure it out, but it is certainly worth I think, of the CEC to investigate the importance of that in making sure.

You know, obviously, re-collecting this whole set of data means you would have to redo a lot of the work that DOE did. And if it doesn't have much effect then you don't want to do a lot of work for little or low value of current -- you know, not much gain in value.

MS. MAUER: This is Joanna with ASAP.

Greg, I'm a little confused by your comment about costs at least looking at DOE's latest analysis for NODA 3, because they do show increasing installed costs with efficiency levels. That increased cost is significantly outweighed by the energy bill savings, because the lifetime operating cost of a fan is much greater than the initial installed cost. But DOE's latest analysis does show higher

installed costs with higher efficiency levels.

MR. WAGNER: This is Greg. I would say that it did not include any equipment size changing, space changing, that's oftentimes required in order to increase efficiency, so those equipment cost changes weren't accounted for or installation costs weren't accounted for.

The other thing is there's still many of them that have flat cost curves, all the way from EL 1 or EL 0 or whatever it is, the lowest one, all the way up to EL 6. They had flat cost curves. And that is not necessarily the case, anyhow, not for like-for-like at the same operating point.

MR. GALDAMEZ: I see Laura has her hand raised. Laura?

MS. PETRILLO-GROH: Hi. Yes, Laura Petrillo-Groh from AHRI. One question for CEC to clarify, so does CEC have access to the DOE's raw data, the original data phase Or simply the publicly-available data that the DOE has published?

MR. GALDAMEZ: Only the public data. That's what we have looked at.

MS. PETRILLO-GROH: Okay, thank you. So the AHRI has noted errors in the analysis with respect to embedded fans, including number of operating hours the fan was assumed to be performing. The DOE assuming that an

increase of a fan size of two inches in diameter wouldn't impact the housing in which the fan resides and I think the -- and that had significant impacts on cost and performance of the products in which the fans are embedded, as well as on the consumers, who are going to be purchasing the overall piece of equipment. So I would support waiting for additional collection of data, new collection of data from AMCA with important features.

And I would also suggest that that data be supplemented by embedded fan manufacturers. There, during the original surveys of our manufactures it seemed as if I remember correctly, about 80 percent of our manufacturers buy the impeller and shaft and motor and install that in their own housing, directly into the embedded equipment. So they do not purchase a fan and the fan never exists as a stand-alone fan. So that impact was never accounted for in the DOE's analysis.

MR. GALDAMEZ: Okay, thank you.

MS. PETRILLO-GROH: Thanks.

MR. GALDAMEZ: Also I'd like to reiterate in regards to test data or data if anybody else has data supporting a different point of view, please, by all means, submit it to the docket so that we can take a look at it.

Let's see, one more question here? Go ahead.

MS. MAUER: This is Joanna. I just wanted to

point out that I think AMCA had acknowledged with their original data submission that it was representative of a certain portion of the market, not the full market. And so what DOE did in their 3rd NODA was to augment the AMCA data, I think with the specific purpose of better capturing sales of forward-curve fans and better capturing these fans, these kind of OEM fans that I think Laura was referring to as well as incorporating OEM conversion costs. So DOE did at least did attempt to augment the AMCA data to better capture the full market.

MR. GALDAMEZ: Thank you.

Go ahead, Mike.

MR. WOLF: It's Mike again from Greenheck. Can you clarify again if we're interested in submitting data, but we don't want it on the docket how do we go about doing that?

MR. GALDAMEZ: If you have data, but don't want to submit it on the docket you can contact me directly and I'll see -- if it's proprietary then we have to go through the whole proprietary process. If it doesn't match that definition by Legal then I can go get a one-on-one to get the data and talk to you directly and go that route.

However, once I think that -- and don't quote me on this -- I think once we are closer to finalizing the process or through the next step that data has to, in a

way, be public or become public, because it's part of the public record, right?

Go ahead.

MR. CATANIA: I have a question about data that's available to California about the California situation, specifically. There was an earlier reference to people who might not be buying more efficient fans despite the payback period being relatively short and that that would seem to be an irrational choice. But does California have access to any data in the commercial sector, at least, where it identifies what percentage of the people in the building or who built the building actually pay the energy bill as compared to the residents of the building, so to speak, or tenants paying the energy bill?

Therefore, where the economic value of a more efficient fan would actually rebound to the benefit of the building occupant paying the bill rather than the building, either developer or supplier to the building?

MR. GALDAMEZ: That's a good question. I'll have to look into it. I'm pretty sure we might be able to have access to that data. Again, I'm not familiar with the entire picture of the CEC. I just started in December, but I'll look into it for sure. Thank you, that's a good point.

MS. ANDERSON: So this is Mary from PG&E. The

CPUC, the CEC's sister agency, has done a few studies on commercial split -- we call that the split incentive: owner versus renter. It isn't specific -- so it has that as a general commercial percentage, but not according to the type of building. But that data is publicly available and we can include that in one of our submissions to the docket. The utilities can submit that.

MR. CATANIA: Good. If I could just follow up on that -- this is Tom Catania again -- how about for public buildings? So in that case you would always have I guess, the public entity as the tenant paying the utility bill. And is there a break-out of public building, schools, government buildings and so forth?

MS. ANDERSON: Not positive. It's been a little while since I've read those studies. My gut is no, but we can give a general percentage.

MR. GALDAMEZ: I see Louis, you still have your hand up. Do you have another -- you would like to participate again or Mr. Starr? No? Okay.

So with that, let's go to the next topic for now.

For Existing Standards & Standards Under Development, DOE has developed significant analysis presented in the 3rd NODA. This analysis demonstrate consensus around FEI as a metric for the standard. There is currently no efficiency standard for commercial fans and

blowers in the U.S. and California, as well.

So we're going into another discussion topic. And here are some of the questions: Is it feasible to set an efficiency level higher than EL 3 for fans as discussed in the 3rd NODA? Why or why not? Should California incorporate the work already done under the DOE 3rd NODA in all of what was agreed upon? Would a tiered standard be more beneficial to California?

So I open the floor for you guys to discuss. Yes, Mike.

MR. IVANOVICH: This is Michael Ivanovich from AMCA International. There are AMCA comments regarding the 3rd NODA in the public docket and we'd like to reiterate those. As well as a comment -- as a correction to a comment to the ASRAC term sheet that was made -- authored by Mark Stevens regarding test speed. And we'd like to reiterate that, as well.

MR. GALDAMEZ: Okay, thank you.

Go ahead.

MR. STARR: This is Louis. Can you hear me?

MR. GALDAMEZ: Oh, hold on Louis. I'm going around the room now, my apologies.

MR. STARR: Oh, okay (indiscernible).

MR. GALDAMEZ: I'll let you know when I'm ready for you.

MR. STARR: Okay, thank you.

MR. GALDAMEZ: Great. No problem.

Go ahead.

MR. WAGNER: I'm Greg Wagner, again. With regard to that --

UNIDENTIFIED SPEAKER: Turn your mic on, Mr. Wagner.

MR. WAGNER: I'm sorry. Yes, sorry. Better?

With regard to the feasibility of efficiency level, as mentioned before the analysis that was done by DOE looking at test data from AMCA and elsewhere, test data that was provided and done by manufacturers isn't to the agreed-upon term sheet and so the analysis is not necessarily complete. There are things that are missing from that that include the speed of tests as discussed, as well as tolerances for manufacturing, uncertainty of measurement and other things. So that analysis needs to be done in order to evaluate the efficiency level that would be set by any entity that wants to regulate commercial and industrial fans and blowers.

Similarly, the cost side of it wasn't complete either as mentioned before.

MR. GALDAMEZ: Thank you.

Anybody else in the room that would like to go? Oh, go ahead.

MS. MAUER: This is Joanna. So DOE's analysis shows that the greatest energy savings and economic benefits would be achieved at the highest efficiency levels. However, of course when you're setting an efficiency level it's a balance between benefits for consumers and impacts on manufacturers.

As part of the ASRAC Working Group it wasn't included in the term sheet, wasn't something we voted on, but AMCA and efficiency advocates did jointly present a recommendation for efficiency levels that essentially was something between EL 3 and EL 4. And something in that range, EL 3 to EL 4, is what we believe was a reasonable kind of compromise between on the one hand benefits for building owners and benefits of energy savings. And on the other hand, impacts on manufacturers.

So we continue to support those levels that we agreed on in that EL 3 to EL 4 range.

MR. GALDAMEZ: Thank you.

MR. WOLF: Mike Wolf, Greenheck. Alex, could you just explain a little bit more, I guess I'm not familiar with what a tiered standard would entail?

MR. GALDAMEZ: Say that again, I couldn't hear you.

MR. WOLF: I said I'm not familiar with what a tiered standard would entail. Can you maybe explain that a

little for me.

MR. GALDAMEZ: Oh, a tiered standard basically is saying for example, choosing Efficiency Level 3 right, and say in five to ten years for it to move to Efficient Level 4. So there are like two tiers at different dates that will like become effective, depending on the date, so that's what I mean by tiered, a tiered regulation, right? Trying to like allow manufacturers to -- if they need to do some R&D right, to catch up to that tier. And be ready for the next one in knowing beforehand that that's going to take place in say five or so many years in the future.

Oh, go ahead Mike. Mm-hmm.

MR. IVANOVICH: I wanted to provide one quick clarification on the EL 3 statement position that AMCA took is as Joanna is absolutely correct, it was between EL 3 and 4, but we were also recommending that the compliance date be four years after the published rule. And so I think that merits -- if your compliance data is one year after your rule that sets up the timetable possibly enough that we might want to take a quick look at that.

MR. GALDAMEZ: Okay.

MR. IVANOVICH: Thank you.

MS. MAUER: And thanks for that clarification, Michael. And you're absolutely right, it's the combination of the two things that's important.

MR. WOLF: This is Mike again. So that brings me back to the tiered standard approach. What is the normal, I guess enforcement timeframe from the time the rule is put out to when manufacturers will have to comply?

MR. GALDAMEZ: I will need some help on that. Do you know?

(Off mic colloquy.)

Go ahead Sean.

MR. STEFFENSEN: Well, as we propose regulations, there'll be a proposal. It'll be put on by the Commission, adopted by the Commission, then go to what we call the Office of Administrative Law. They'll then review our process, ensure it meets all requirements at which point it will be published with the Secretary of State.

In that proposal, we'll note an effective date for the standard. As of that date we typically will then require that products that are manufactured on or after that date meet the standard. And of course, the proposal would provide that effective date. We typically provide at least one year as our practice between adoption by the Commission and the effective date.

But that would be part of the proposal and we would look to those participants to suggest effective dates.

MR. GALDAMEZ: Okay, Mr. Starr, go ahead online.

MR. STARR: Okay, great. Can you hear me?

MR. GALDAMEZ: Yes.

MR. STARR: So a couple things, so I wanted to echo Joanna's comment and clear it up a bit more, put it in a more eloquent way. The other thing I would like to speak to is a little bit on the idea of tiered efficiency standards. And my general thought is we would probably not -- or my preference would not want to be that. I think what you'll find is that as the market matures more, you'll have more information. In order to make a more educated marketing you lock in what those efficiency standards are. Eight years out you may regret the levels that you choose, especially if you end up there's a lot more opportunity. So my recommendation would not be to shoot doing a tiered thing where you have multiple levels out.

It also in my mind, will affect the ability to incentive programs to get to higher levels. And I think based upon California's efficiency goals and what they're trying to achieve, that would not be a good approach for trying to meet some of your ambitious goals around that zero energy and a few other things.

The other item I -- sorry, I'm learning about unmuting and muting and all that -- I wanted to pick up on the last one, the second one. And it's the necessary -- so I talked to Sanaee, who is one of the people that headed up

consultants for DOE last week. And I talked to her specifically about fan speed. And in that call she indicated that the reason the fan speed was necessary was when they were doing the best efficiency point and they were using it, that's when it was necessary to know what the fan speed was in the data.

In the act of switching to a metric that involves the FEI and it's not really around that, I don't know that that information is necessary. So I feel like you may have the data in the current database, but you need to make some decisions about efficiency levels and some other things. So that's what I had to say. Thanks.

MR. GALDAMEZ: Thank you.

And I see Ms. Petrillo also has a comment.

MS. PETRILLO-GROH: Yes, hi. I think a tiered implementation would be beneficial if you are looking at regulating fans embedded in equipment, especially those products that are regulated by -- there was no clarification provided earlier -- in California, within the California and ASHRAE 90.1, it'll be practically impossible to implement and revise efficiency for the component in the product simultaneously.

MR. GALDAMEZ: Okay, thank you.

MS. PETRILLO-GROH: Thank you.

MR. GALDAMEZ: Anybody else in the room? Yeah.

Go ahead, please.

MR. WAGNER: This is Greg again. I wanted to correct a little bit what Louis was stating there. And the difference between the data that was submitted in the NODA and the speed of test is important, because as speed of test changes, efficiency changes.

And when you're using that FEI metric or the FEG metric or any of them it changes that efficiency that's reported out and published in data. So the analysis that's being done is not necessarily being done at the same efficiency point as what was put forth in the term sheet and agreed to by all the participants in Washington. So therefore, the data and the analysis don't agree with each other with what the final test procedure is.

MR. GALDAMEZ: Thank you.

Go ahead, Mr. Starr. I can't hear you.

MR. STARR: Louis Starr. I think we've --

MR. GALDAMEZ: There you go.

MR. STARR: -- oh, can you hear me now?

MR. GALDAMEZ: Yes. Go ahead.

MR. STARR: So I think that would be a good discussion to have. I think we should probably have a little more robust discussion about it, so I think it's just more of something we should talk about it a little bit more.

The other thing I would say as a part of the tiered approach and the single standard I think we'd want to keep all the products together. If you're going to -- I strongly suggest not doing tiered products -- but if you do tiered products do both embedded and stand-alone fans separately. Or don't do them separately, because I think you'll end up with market distortions of fans going in products that are embedded having different standards. And you could have some things happen that you would not want to. So I would suggest paralleling.

So if you're going to do tiered standards, do it tiered standards for stand-alone and embedded fans together. Or if you're not going to do tiered standards, then do both stand-alone and embedded fans together just without tiered standards for that. Thanks.

MR. GALDAMEZ: Thank you.

Anybody in the room? Go ahead Mike.

MR. WOLF: This is Mike Wolf again, so a couple questions. The first one is my understanding with the Department of Energy is that there would be some review of these regulations every few years. And traditionally, or historically, the metric would get ratcheted up. Is that not the case with California? Once you set it you kind of set it and forget it or do you review as a -- the typical process is to review every few years and then potentially

increase or tighten the requirements as time goes by? That's the first question, so I'll just wait for an answer.

MR. GALDAMEZ: Anybody? That's a good question.

MS. DRISKELL: This is Kristen Driskell from the Appliances and Outreach and Education Office. I was looking to the engineers to hopefully answer. We do not have a statutory review of regulations after they're adopted unlike DOE who has to adopt -- review its regulations every six years. We do have the ability to review any regulations that we think need to be updated. And we can update those regulations every five years.

MR. GALDAMEZ: Thank you.

MR. WOLF: So this is Mike again. So my second question, then, is do you guys -- can you share any experiences you've had? And this kind of relates back to Chad, some of the dialogue you and I have had, relative to setting an efficiency level and then complementing that with some sort of an incentive program through the utilities or some other mechanism. Does anybody have any experience with that in California they can share?

MS. ANDERSON: So this is Mary Anderson from PG&E. Often, when there is a standard we work with our programs to provide incentives until the standard becomes effective. Once the standard becomes effective we work with manufacturers to provide an incentive at the higher

efficiency, the above-code efficiency. And that level will begin to go up over time as the market becomes saturated as our regulators -- not the CEC, but the CPUC -- try to push the market even further.

But we work with those manufacturers to try to find what that should be and how it should be incentivized.

MR WOLF: So a couple questions, so first of all I'm acronym-challenged, so can you share with me what those other --

MS. ANDERSON: The CPUC is the California Public Utilities Commission, and so they regulate the incentive programs for California. The CEC regulates the standards. So there's two separate agencies that we work with to provide those, to work on these different projects.

MR. GALDAMEZ: Please.

MR. CATANIA: So again, this is Tom Catania, AMCA. To follow on to your previous comment, is there sort of an annual budget set through Commission proceedings as to how many dollars are available for efficiency incentives like that and what slice of the pie might be an area of opportunity following the effective date of a commercial and industrial fan rule as opposed to a refrigerator standard, a clothes washer standard, or any of the many other things that might be pursuing those dollars?

MS. ANDERSON: So this is Mary Anderson from

PG&E. So there is a public proceeding that determines the energy efficiency incentive budgets. And it's broken out usually between different customer types. But the actual budgets are not necessarily determined based on upcoming standards. It's kind of based on a couple of different things. The portfolios have to be cost-effective and so its measures that provide significant savings that are pretty cost-effective usually get the highest priority. And those discussions are determined through the IOU engineers.

The CPUC, the sister agency, did the CEC's technical support and the program and implementers. As far as how the budgets are actually allocated, from most commercial products it's on a "first come, first serve" basis that we determine incentive level. And in many cases the customers come when they have a project. It isn't that we necessarily define and say, "Okay we're going to have $5," as an example for fans exclusively." We kind of have to work with the market forces.

MR. GALDAMEZ: Okay. Mr. Ernst? And I hope I pronounced that right. Go ahead.

MR. ERNST: Yes. Skip Ernst with Daikin Applied. You can hear me?

MR. GALDAMEZ: Yes, go ahead.

MR. ERNST: Okay. Laura at AHRI already pointed

out that there were -- that AHRI commented to DOE that there were many flaws or at least big, bold questions in their analysis that should be corrected or at least addressed before you would use their analysis.

But there is a bigger reason why California cannot accurately use DOE data. And that is that California already regulates fans in many, many products through Title 24 and 90.1-related regulations. You have minimum efficiency tables. You have maximum brake horsepower per CFM. I mean, California has already saved the energy that DOE was planning to save. You can't save it twice.

And as you get into these, this component regulation in a product that's already regulated by California as far as their minimum efficiency tables are concerned to focus on one component is wasteful; it's just wasteful. It doesn't save energy, because manufacturers inevitably, if they have to change a fan to become more efficient, well then they will cost-reduce coils to keep the unit overall efficiency where the market and where the regulations require it.

You have a lot of manufacturer burden without energy savings. And DOE did not consider these issues in their analysis.

MR. GALDAMEZ: Thank you.

Who is this, go ahead, Mr. Louis.

MR. STARR: So one of the things I would tie to, I guess, have somewhat of a little bit disagreement with the last speaker, was that DOE did look at equipment that is not regulated. In other words, things that had an efficiency metric associated with it that wasn't included in part of the analysis. So I mean, I guess it would be good to overlay California's regulations and see how they match up with DOE's. But I think specifically they dealt with this issue that he brought up.

The other thing I would argue is that the efficiency metrics that are defined around some of the appliances, and I'll take IER, which is a roof-top unit. It inherently is not really reflective of the fan energy in there. And I think at the ASRAC rulemaking or at the process we agreed not to do that, but to my mind deficiency of the fan and that the energy-saving capability is not reflected in the test metric and that's a lot of problems. But, that being said I'm not necessarily proposing that we proposing that we regulate equipment. But I would say stuff that does not have a regulated metric with it the fan efficiency should apply or we're going to have market distortions associated with it.

MR. GALDAMEZ: Thank you.

And Ms. Petrillo?

MS. PETRILLO GROH: Hi. This is Laura Petrillo-Groh from AHRI. My question is then if CEC decides to use the daily public data for this rulemaking, what would be used in future rulemaking? Because that standard, it would practically impossible to compare apples to apples and look and see what has been saved, since there is no raw data behind the analysis that you can provide in the State of California.

MR. GALDAMEZ: Well, my understanding is once California implements a standard we'll basically have a database in which data will be inputted by every person that wants to sell that product here. And then that data will be the one used to be further analyzed and see if there's more savings or more savings could be applied to it.

MS. PETRILLO GROH: All right. To bring up an interesting point, how would CEC enforce or regulate these products when we're talking about it within a metric, there's a compliance bubble. It would be difficult to just -- I mean, all their operating points in this in this CEC database, it's not set up for more than model numbers and manufacture information and basic efficiency information.

MR. GALDAMEZ: Yes. And that's what we are doing by doing this process here, to basically get to that point and see what data points is it that we are going to ask for

manufacturers to input into that database, if that makes sense.

MS. PETRILLO GROH: So the incentive is to input other data points?

MR. GALDAMEZ: Okay. So once the standard gets done right, once we complete this process we'll know what is to be enforced. And then we'll know as well what data points is it that we're going to be asked to be inputted into that database. Right now that's what we're asking for, for that information of what will be put in, what will work, what will not work, what do we need to enforce and what we cannot? And that's why we're asking for your input and to put basically your two cents into this process, so that we can make the best analysis and move forward. So right now I cannot give you an answer.

MS. PETRILLO GROH: That's great. Perhaps then I mean for those that are not as intimately familiar with the FEI metric maybe Mike Wolf or Michael Ivanovich can provide what information would be useful in a static online database or suggest some information?

MR. GALDAMEZ: Yes, yes. And that's exactly what we're going to do yeah, as we move forward.

I see Mr. Starr raise his hand.

MR. STARR: So essentially what Laura is asking for is what a certification database would look like. It's

what you would -- it's kind of old-school, but it would be a fan fact sheet that shows all the operating points. And so it's a typical item that you would do when you go to select "fans." It probably couldn't be handled by one line inside of a database although it could easily reference. The one line could then have a PDF that would cover the operating points, so it's not a technologically impossible thing. And DOE was headed down this route, so I don't really see that as -- as long you can refer to a data sheet that's an 8 1/2 x 11 you'll cover all the data points. But the fan would need to be certified and which FEI is it that -- I'll leave it to Mike or one of the other people there in the room, but this doesn't seem like a barrier to me.

MR. GALDAMEZ: Thank you.

Go ahead.

MR. WORTH: Hi. Chad Worth on behalf of the IOUs. Yeah, Louis I echo those comments. We don't see the database as being a barrier. Certainly it's different, I think, then how a lot of other products have been with a one row per one model number.

But, for example, just going back a little bit on how a utility program might work if a given fan had 24 operating points that had a FEI of 1, if that was the minimum standard that was required. You could then, if an incentive was applied for, you could search the database --

the flow, the pressure, and say it has an FEI of 1.1, then the incentive can be determined from there. So we see it as a -- well, it's different providing a lot of opportunity on that front.

I wanted to make another comment about Title 24. And while there's definitely some overlap with what we're trying to do here and some savings that have already been counted, I did want to point out that Title 24 generally doesn't cover industrial sector applications, of which many of these fans are. It's mostly commercial buildings and residential buildings, so there's still a large opportunity out there.

Furthermore, not to keep singing the praises of the FEI metric, but I think it's from what I've understood, the intent to get FEI in through the ASHRAE process and Title 24 to simplify some of these other fan power limitations, brake horsepower per CFM, things that have been out there for many years. And we're certainly supportive of that and think there can be further savings. When you do know the application FEIs can be tailored to a given application.

MR. WOLF: This is Mike Wolf again. I'll just take a stab at how I would envision this thing being handled from a listing perspective. For those of us who manufacture fans and certify them to the AMCA certified

ratings program we're not, I guess regulated by that program on a single point, I think as Chad or others have mentioned, Louis too.

We publish a range of performance in our catalogues although catalogues are going away, so now it's typically done via software. And every point in that catalogue and every selection point that comes out of our software needs to comply with the performance set that we've certified through the AMCA certified ratings program. It's certainly much more complex than just putting a point on a spreadsheet. It certainly couldn't work that way. But from my perspective it would just be an extension of what we've been doing for years through the AMCA certified ratings program.

Now, how the California Energy Commission would be able to facilitate that, I can't answer that question, but I can tell you how we've been doing it. And it's been working, I believe.

MR. GALDAMEZ: Oh, yes.

MR. IVANOVICH: Michael Ivanovich from AMCA. I can confirm is that FEI is certainly being looked at by ASHRAE 90.1. I'm a member of the Mechanical Subcommittee, leading an effort to draft the replacement language and there's a sense of urgency to get that done. So it is moving forward.

MR. WAGNER: To the gentleman from the California Investor Owned, yes there's a lot of energy that is accounted for in Title 24 that's similar to 90.1 and those kind of things, but that wasn't accounted for in the DOE analysis. So that's the difference between what California has and should be looking at.

The second thing regarding the FEI, it can be an infinite number of points rather than a finite number of 24 points, because it's a compliance bubble that's basically an infinite number of selection points possible by customers to use a fan. So it's a different management of data than what is typical for what the Commission has done. And that just needs to be part of the consideration.

MR. GALDAMEZ: Thank you.

With that, I would like to ask a question, if participants would like to take a ten-minute break and come back? Or continue to the next discussion point? By raise of hands, I guess. Let's just take a ten-minute break then. Just a bathroom break and all that, so we'll be back in ten. So that'll be 2:26-7, around?

Okay, thank you.

(Off the record at 2:17 p.m.)

(On the record at 2:29 p.m.)

MR. GALDAMEZ: Hi, people. There online we're about to start. Just waiting here, just for everybody to

take a seat and we'll go from there.

All right. I think I'm going to have Ryan just clarify something that everybody has been questions, so here's Ryan.

MR. NELSON: There was a question earlier about confidential information. Everything said today or submitted to the docket is on a public record. If you have something you want submitted confidentially we have a process within the Commission. We encourage you to contact us directly to work through that process to determine if we can accept it as confidential information. Confidential information, if it is accepted and submitted, we can't post that to the public record. So we would have to figure how to integrate that data if that was the intent, aggregate it in some way so that it would usable for the rulemaking process.

Are there any questions regarding confidential information for the docket or public information?

(No audible response.)

Great. Thank you.

MR. GALDAMEZ: Thank you.

Well, welcome back. I hope everybody is a little refreshed. Sorry, I had to take a sip of water there.

Anyway, let's continue on to Product Lifetime. Per comments received it was pointed out that the DOE did

an average, provided the information in regards to LCC analysis done under the 3rd NODA. And the average lifetimes are here, in this slide. As you can see, this is for stand-alone fans for axials. I'm going to just take one of them, it's about 29 years. Centrifugal-housed is 27. I mean this data is available online through the DOE or there's also it is part of our comments, so it's also in our docket as far as the information goes.

For Product Lifetime Discussion, I would like to ask everybody here can California use the 3rd NODA's LCC for the fans sold in California? Yes or no or why or why not? Is there other data that negates or further supports the conclusion of the product lifetime? If So please, if you guys can provide that, that'll be great.

And I'm going to open this for five minutes.

MS. MAUER: This is Joanna with ASAP. So we do believe that the lifetimes in DOE's third NODA provide a good basis for LCC to use in its analysis. As we noted in our comments that was based on a variety of sources and also incorporated input from the ASRAC Working Group.

MR. GALDAMEZ: Thank you.

MR. WORTH: Chad Worth of the Cal IOUs. Similar comment, we think the LCC and the lifetimes can be used. And I guess just with regards to the LCC if it's cost-effective nationally it'll certainly be cost-effective in

California due to electricity prices.

MR. GALDAMEZ: Thank you.

Yes, go ahead. Yeah, please go ahead, Greg.

MR. WAGNER: Right. This is Greg. With regard to the NODAs, LCC, there are flaws as we've mentioned previously in the evaluation of that data, so those need to be corrected before use.

MR. GALDAMEZ: Thank you.

Anybody else in the room? Maybe we should go online. Mr. Starr?

MR. WAGNER: Yes. But I just wanted to kind of echo Chad's comments. And I think the thing is that the California energy rates are much higher as opposed to national ones. To some extent, if you -- the ability or the ease of it to maybe reflect some of the higher energy costs would I think influence possibly higher standard levels and certainly it'd affect life cycle costs. The only thing is if you had the ability in an effective way, and you can do that analysis easy, I would encourage you to do so.

But if not, you can I would think, use the DOE's analysis and it'd be a conservative way to do it. But I think there's more opportunity if you could include California's energy costs. Thanks.

MR. GALDAMEZ: Thank you.

Okay. With anybody else, we have a couple minutes. No? Okay. So let's continue on.

Product Development Trends, we didn't get any information in regards to Product Development Trends. California would like to understand the trends for the proposed fans. What research and development is necessary, if any, to comply with the proposed standards?

With that I'll open up for discussion.

(No audible response.)

Anybody online? No? No, okay.

(No audible response.)

So Energy Consuming Features, on this we didn't get any information either in regards to fans and blowers. So I would like to ask what is the major contributor or the different contributors to inefficient energy consumption in fans and blowers? And if there is data that supports this question, right?

So we'll go ahead for five minutes then.

MR. WOLF: Mike Wolf with Greenheck, I guess my initial response -- although I don't have a reaction to this, I don't have any data to support this, but it's one of the drivers behind the development of the FEI metric in trying to link the metric to the application. And I made these statements in my initial comments that are on the record that with this particular product, it's pretty

crucial that we not only incent and find a way to get manufacturers to build more efficient products, but as important, and I would argue maybe even more important, is to get those products applied right. Because in terms of major contributors that contribute to inefficient energy consumption from my experience it's largely around poor selections or poor installations.

And that's why it's very important that we tie whatever we do here very closely and somewhat harmonize it with whatever is in Title 24, because I think that's where the rubber will really meet the road is making sure that we connect the dots between the product and the application of that product.

MR. IVANOVICH: This is Michael Ivanovich from AMCA. And we've communicated this in many technical paper publications and in peer review papers that generally when fans are selected you're using electronic selection software programs and a spectrum of fan sizes are generally presented to meet the duty point that they're going after. And in those cases, the fan efficiency varies considerably with the size. And the smaller fans were generally selected, which use more energy, because they have a lower first cost. And the FEI metric does nudge selection behavior towards the more efficient fan selections.

Additionally, again we're on record for this, in

many cases that a lot of fan consumption is wasted in the application phase where there is improper inlet and outlet conditions known as fan system effect.

And then another type of system effect is when the fan is selected for a given application and the selection does not match the test configuration. So it's heading for a configuration A, but they're using a fan selected under test conditions for a configuration B or some other configuration.

So those are just some areas to look at. And of course, the only one that the Title 20's regulation could address is improper selections using FEI.

Thank you.

MR. GALDAMEZ: I'm going to go online. Mr. Starr?

MR. STARR: Yeah, so I think Mike hit on a couple of the items. I guess one of the things is the application of the fan, so the outlet conditions. So sometimes these site conditions aren't -- it's not such that you can install the fan in the best configuration and so as the end result they have air coming back on itself. And in 90.1 and I'm sure actually it's in the ASHRAE handbooks, but it's also one of the AMFA standards -- and I can't remember if it's 204 or 203 or whichever one it is -- but it has basically the recommended configurations for how you have

the fan outlet conditions. And it also quantifies what the fan system effect is of that, so you can quantify in that sense. And so obviously, that drives it. Things like putting elbows and things less than three diameters outside of the fan.

And so in some ways -- Mike Wolf alluded to this -- is that Title 24, there's some prescriptive requirements that you can maybe add to the Code that would be helpful in reducing this fan energy in addition to maybe selecting more efficient fans.

Another thing that kind of drives more energy use in fans is a split incentive. And this is perhaps the contractor that's selecting a fan that's really too small and really speeding it up very fast and it causes the fan to be inefficient; an inefficient fan. And so he doesn't -- the person that buys the fan doesn't live in the building and pay the energy bills. And that's why the FEI metric is somewhat novel in that it basically drives someone to picking an efficient fan.

And it gets some energy savings that really don't, in some ways, don't force much redesign of the product, but just making sure that the person that's selecting the products selects the correct product. And so this ties in a little bit of the compliance data as well. It's like well normally when you have a product that you

want to regulate in California you give them a time window of when you might allow that to become, "This is the regulation." The thought process is that there has to be a lot of development.

Many times these fans that are being requested are just the ones that are basically about make the more efficient selection of the fan by the consumer or the selector of this fan. And so it's not really the typical scenario that you have with most products that roll out on the market that you're forcing a higher efficiency. In this case you're basically making people buy a larger fan. And it's, at the same time, saving them energy.

MR. GALDAMEZ: Thank you.

MR. STARR: So that's what I had to say. Thanks.

MR. GALDAMEZ: Thank you.

Anybody else on the line?

(No audible response.)

No? Okay, with that I'm going to move to the next topic, which is Energy Savings Features and Technology. In regards to the Features for Energy Savings, we didn't receive any comments or none were provided. However, based on the National Impact Analysis provided, it's mentioned that there's a national savings of 2.17 quadrillion Btus and a maximum of 19.13 quadrillion Btus. That's from Efficiency Levels 1 to 6 respectively. At EL

3, or Efficiency Level 3, the savings would be of 4 quadrillion Btus.

So we would like to ask you some questions to discuss here. Should California adopt a 12 percent share of electricity savings from a national energy savings discussed in the NIA? Should California adopt a higher efficiency level than EL 3 and achieve a higher energy savings? Should California implement a tiered (again standard to provide a stepped increase in energy savings for California consumers?

Please, go ahead.

MR. CATANIA: Tom Catania, AMCA. This is more in the nature of a question. Increasingly, given the CARB regulations and so forth, the source of generation, is this relevant to California as the amount I guess to consume? So how is California thinking about energy savings in the context of an effort to substantially change the nature of the generation?

MR. GALDAMEZ: Well, I'm going to ask for some help here. Sorry.

MS. DRISKELL: This is Kristen Driskell. And I'm not going to be very helpful. That's a really good question. We do analyze the greenhouse gas savings benefits from efficiency standards, but the focus of the Energy Commission is solely on energy savings and not

necessarily when those savings occur, which would be relevant to where the greenhouse gases are happening. But it is something we consider as part of our analysis.

MR. GALDAMEZ: Thank you.

Okay, with that, I guess Mr. Starr?

MR. STARR: Yeah. So on your first point there as far as the 12 percent of shared electricity savings this is a non-regulated product. So it hasn't been regulated in California or anywhere. I mean, I know that it's technically in – there's a previous version in the IECC, but it probably didn't have a lot of effect.

My general thought is that we do this a lot in our utilities and figuring out savings with it. But my guess is actually California would have a higher than 12 percent share of electricity. And that's because I would think there's more industry than most other states on a per-capita basis. I think your 12 percent's probably just really coming on population. But I think you're going to find that you have more industry and therefore, more opportunity for savings. There's multiple different ways, but I think normally we have a contractor that would kind of go through and come up with a way to do it. But I think you're going to be higher than 12 percent, is my guess.

The other thing is I would say the last NODA 3 had some recommendations for an EL level in DOE's analysis,

I think, at least at that level. And I think really if you did some of the numbers you would find actually it'd be a higher level, but I'd say at least as high as what's in the DOE. I know it would be a good ideal, that 3rd NODA.

And then on the last item, the tiered standard, I kind of mentioned that before that I'd think it'd be a good idea not to do a tiered standard at this point. It would be once you get the regulations out there, see how it's working. If it's not working, that way you're not tied in to something.

This is something that we're able to really -- the utilities in California really get programs around, which force you -- potentially have the ability that you won't be able to use programs, especially if you're tied into a regulated second tier that's not really high enough. And then all of the sudden you sort of lose one of the great tools you have and that's the utility programs that encourage higher level savings.

So my suggestion is to set a level out, and at the next three-year level or whenever you do your next rulemaking on it, look for setting what the level is there. And by that time you'll have a lot of data and you'll be able to make a much better decision about kind of the trajectory of what you're trying to achieve.

MR. GALDAMEZ: Thank you.

Mr. Ernst?

MR. ERNST: Regarding the 12 percent, I don't know if I have a comment specifically on that as far as the electrical savings, but as far as the manufacturer investment to redesign equipment to comply you'd have to use 100 percent of what DOE used. And DOE vastly understated what would happen in the consequential redesigned costs for embedded fans as AHRI commented to them.

The other thing is there is lots of talk about the savings and looking at the DOE data as if its gospel. But I mean, there is many -- again AHRI pointed out some areas that at least beg questions. Where if you look at, for instance, the un-housed centrifugal life cycle analysis and they show the annual energy savings between the EL levels might be $15 or $20. But again they show it as a positive return on investment, because they say there is no cost difference between these. And then they say they looked at manufacturer redesign costs and factored that in, but it's just none of these.

I mean, in some of these areas you're looking at very small differences in efficiency between the EL levels and they show a savings. I mean, just test tolerances would explain some of the differences in their EL levels.

So again the whole study needs a lot of scrutiny,

which it has not received as of to date.

MR. GALDAMEZ: Thank you. Go ahead, yes.

MR. WAGNER: Greg Wagner, Morrison. The first question about should California assume that 12 percent share? The DOE's NIA did not account for the effect of Title 24 or ASHRAE 90.1 energy savings that exist today.

Secondly, the same comments regarding the second bullet about the Efficiency Level, EL 3, the data analysis from DOE has a number of errors, including starting with the data that went into it was not per the test standard that was proposed.

MR. GALDAMEZ: Thank you.

Does anybody else have a comment online? No? Not in the room?

Okay, come on. And with that we will move to the next bullet point, the Test Procedure Under Development. According to the comments there's agreement that AMCA 210 as the test procedure developed to certify fans and blowers. So the question comes up, should California continue from the agreed 3rd NODA and conclusion agreed upon under the ASRAC term sheet or why and why not? Basically should we (indiscernible) on or just take this as the test procedure?

Go ahead.

MR. IVANOVICH: This is Michael Ivanovich from

AMCA, and of course we support 210 as the test procedure. Check. The other thing is on the NODA I'd like to just repeat myself that we'd like to have it adopted by reference our comments to the third NODA. And then also earlier a comment to the docket as a correction to a comment to the ASRAC term sheet about test speed.

MR. GALDAMEZ: Thank you.

MR. IVANOVICH: And I'll provide those in writing as well.

MR. GALDAMEZ: Thank you. Anybody online?

Oh, Joanna. Go ahead.

MS. MAUER: This is Joanna. We also support using AMCA 210 as the -- such as a bare shaft fan test procedure. The term sheet included specifications for how you would take the data from AMCA 210 and come up with a wire-to-air rating.

Since the conclusion of the Working Group, AMCA has published AMCA 207, which is very similar but does contain some differences compared to what was in the term sheet. Our understanding is that those differences are relatively minor. And as we've indicated in our comments, we're open to using AMCA 207 rather than the default values for motor drive efficiency that are in the term sheet.

MR. GALDAMEZ: Thank you.

I think Skip is first.

MR. WOLF: Mike Wolf, who's --

MR. GALDAMEZ: Oh, go ahead. Go ahead.

MR. WOLF: -- one other thing just to add on to Joanna's comment there, there is an additional document. Just to make it a little more confusing, AMCA 208 is another companion document to 210 and 207, to get us to the FEP and FEI calculations.

MR. GALDAMEZ: Thank you.

Mr. Ernst, I think you had your hand up?

(No audible response.)

Oh, okay. So I guess that's no longer there.

How about Louis? Mr. Starr?

MR. STARR: Yes. Can you hear me?

MR. GALDAMEZ: Yes. Go ahead.

MR. STARR: So yeah, I would support using 210 as the test procedure. And also 207 with modifications there, the modifications from the term sheet to match 207 and as Mike also identified, 208 as well.

Currently, I think it's going be out for a vote soon, it should be coming out. And me in particular, and other advocates have been working on the committee for that. So we, in thinking we were trying to keep -- in my mind, I guess I should say what I was trying to do is keeping it closer to what DOE would need to do for rulemaking and also what someone like California would need

to do. So we've done our best to try to keep that in mind, so that would be useful with the rulemaking at CEC.

The other thing that will probably still need to be done is there's some things in AMCA 211 that would help out with the certification and some other things that would probably give you some pretty good direction. And I think most of these documents are pretty good documents that you could probably use all over. And if not, you can modify them slightly.

The other thing that would be helpful in using these documents is that we can use the standards for setting up programs that would helpful. And in terms of market transformation it would not just be the California market, but the other markets as well. And so to the extent that those are harmonized it's helpful in creating more the opportunity to have higher standards. And also leverage additional savings through programs.

So I would certainly encourage you review the AMCA standards and use as much as possible. If not, then in the whole. Thanks.

MR. GALDAMEZ: Thank you.

Please, Greg.

MR. WAGNER: This is Greg again. I agree with the use of the AMCA 210 test procedure and associated other documents. The key will be redoing the analysis with those

new test procedures to make sure that the data that the Commission is using is consistent with what those test procedures are and not just accepting what's put forth in the NODA.

MR. GALDAMEZ: Thank you. All right, any more comments on the line? No?

Okay. So next we'll discuss Control Features. There were no comments regarding Control Features for Fans and Blowers. Applicable questions to think about would be should fans controls be implemented into the standard, why and why not? And are all control features energy saving ones? Is there data there to support such, the energy savings?

So I'll open up for five minutes, let's see online?

MR. WOLF: This is Mike Wolf with Greenheck.

MR. GALDAMEZ: Oh, go ahead.

MR. WOLF: I guess the one thing to just maybe comment here, I haven't seen it in any of the comments that have been submitted, but the DOE regulation, when we factored in the FEI's wire-to-air metric was intended to account for speed controls on fans. And the one thing we were working to accomplish there is to not create a disincentive to use a speed control on a fan, because I think everybody who understands fans and fan technology

understands the best way to save energy with a fan is to slow it down because of the fan law.

So the intent is, or was and I think still is, to encourage the use of speed controls on fans. The challenge there is again we can supply fans with speed controls all day long, but if they're not used in the field in the end application they don't save any energy. So again, we've got to tie the appliance regulation to the end use of that fan to really gain the benefits of any speed controls used with fans.

But the metric that we are working on, the AMCA standards that we're developing, will take into account speed controls on the fan.

MR. GALDAMEZ: Thank you.

Anybody online? Louis, go ahead.

MR. STARR: Yeah, again I look at this line. My tendency, when I see the word speed control, I think everybody's current perception is variable speed drives. But in general with fans for the most part they come with belts. So they're different pumps, which are usually just direct drive and where fans have (indiscernible) speed with belts, so it's less of an opportunity.

That being said, there's other components in the drive system, the drive system being the motor linkage and some other things. And Tim Matheson or Sarah Whittier

would actually be a good source to talk a little better about this concept.

There is, in some ways in AMCA 208, there is different options for how you rate the FEI. And it's based upon the configuration of which things are sold or how they're sold. And you could potentially use a more efficient motor or you can use something, use a default motor and there's other things in there and around ECM motors, as well. So there's some things inside that indirectly kind of touch upon these control features. And perhaps if someone on the phone can maybe speak to us a little more directly, it might be better. But thanks.

MR. GALDAMEZ: Thank you. Anybody else on the line? No? No more? Okay.

So this brings me to Market Characteristics and Competition. We, other than reference to the NIA there were no other information received in regards to Market Characteristics and Competition. So here's a couple of questions. Should California use the shipments and shipment projections under DOE's NIA? What calculation should California perform to DOE's NIA for the shipments and shipment projections to be representative of California?

So I'm going to open up for five minutes if anybody has comments.

MR. IVANOVICH: This is Michael Ivanovich from AMCA again. We are seeking to create a new fan shipment database that's going to have more parameters than we've asked for in the previous ones, which we think would provide California with a more accurate assessment database. This also includes, by the way, we are asking for shipment zip codes, so we would have a much more geocentric database.

MR. GALDAMEZ: Thank you.

Anybody online? Skip, go ahead.

MR. ERNST: As I've mentioned there's several questions about DOE's numbers. This is where there a couple of good examples. Under their LCC tab for embedded panel fans, power bin of 1 to 1.8 horse power, they show 0 percent. I mean that is so far off -- that is where most condenser fans fall. So I mean, I don't know if people have correct data, but it's probably more like 100,000 or more. But they show 0 percent.

Under there they tried to put in some information about embedded fans and in their Shipments 2012 tab they claim there's 330,000 in-scope air handlers. And I have no idea where they got that (sounds like) footed, but again, the actual data is probably more like half of that. I mean, their flaws are not small. In many cases, they are more like an order of magnitude.

MR. GALDAMEZ: Thank you.

Mr. Starr?

MR. STARR: Yeah. One of the things that might be my suggestion is take the shipment data that you have from DOE. And I think some of the manufacturers, some of the bigger manufacturers you could probably get through an NDA if you get what the shipments are to California. And what you can do is use that to look for -- if you have a few of them you can sort of tech analysis by Sanaee to determine what the calibration is between those sales numbers and what is the actual sales number that some of the manufacturers may know. But the appropriate size is the number of samples, I think you can kind of get an idea of is that a good assumption or not. So that might be my suggestion.

MR. GALDAMEZ: Thank you.

Anybody else online, how about here in the room? No? Okay.

Then the subject will be Installed Base Characteristics. We didn't receive any information in regards to Installed Base Characteristics. So what calculation should California perform to the DOE's NIA in order to represent the installed base or the stock currently in California?

And I'm going to open up for five minutes.

(No audible response.)

Okay, how about somebody online? Okay, Mr. Starr. Go ahead.

MR. STARR: Yeah, I've seen that, and maybe Joanna can pipe in here, but I think that this came from the CBECC's data is probably what was used to determine what the installed base was. I think that that information is probably about as good as you're going to get. Otherwise, someone will have to go down and specifically do a fan census or a sample. So there are other databases, but they're not really -- for the northwest, we have a commercial stock building assessment. And we could probably, with that, we could give you potentially some information, which makes some assumptions about -- we haven't necessarily specifically look at fans, but we know the items in the stock assessment that have fans.

But again, what I would do is try to use some version of that. And I'm not sure what they have in California, but if they have some sort of stock assessment that could also be used as a calibration against DOE's assumption. See if they're correct or in the ballpark.

MR. GALDAMEZ: Thank you.

Go ahead, yeah.

MS. ANDERSON: This is Mary Anderson, PG&E. California did a Commercial Saturation Study, or the CSS.

And it was completed, I think, two-ish years ago -- time flies -- maybe three. And that has some data. It is not exhaustive. It's not as extensive as NIA's data collection effort. But that can be used as some indication of installed base characteristics.

MR. GALDAMEZ: Thank you.

Anybody online? No? Okay. Well, with that --

MR. STARR: So this is Louis --

MR. GALDAMEZ: Oh yeah, go ahead.

MR. STARR: -- let me ask, Alex. I don't know what the timeframe is, but Lawrence Berkeley National Lab is working with the DOE Advanced Manufacturing Office on a motor system market assessment. And I believe that's going to be drilling down into the application, so I don't know what state that is right now, but they may have some data available at some point.

MR. GALDAMEZ: Okay, thank you.

All right, anyone else on line? No? Okay.

Well, with that I would like to open it up now for general comments. Are there any comments on other topics, on any other topics stakeholders, you guys, would wish to discuss? And this one can go a little longer, so it's not five minutes by the way.

Yeah, please.

MS. ANDERSON: So the IOUs have been

collaborating on the C and I Fans And Blower Standard, with the efficiency advocates and fan manufacturers since 2012. We participated in DOE's rulemaking as well as numerous informal meetings with Air Movement and Control Association, AMCA, to discuss metrics, test procedure and various other issues.

In 2015, the IOUs also participated in the ASRAC Working Group and continue to support the ASRAC term sheet, which outlines an innovative market-based approach to enabling more efficient fan selections. Commercial and industrial fans and blowers have been an unregulated equipment. And based on our experience in the DOE process we know that there are significant savings opportunity for this equipment class.

Furthermore, the fan energy index will enable engineers and designers to more easily select more efficient fans.

Lastly, we believe there are significant opportunities for utilities and building codes to build upon this rulemaking to enable greater efficiency gains beyond the minimum efficiency requirements. And we support the CEC undertaking this rulemaking and look forward to future participation.

MR. GALDAMEZ: Thank you.

Anybody else in the room?

(No audible response.)

Okay, how about Mr. Kleiss online? I can't hear you. If you have it on "mute," maybe take a look at that. Okay. Well, I'll give you some time, Mr. Kleiss. There may be some technical difficulties there.

How about Mr. Starr?

MR. STARR: Yeah, I would agree. I'd like to say this is -- it's something I think the AMCA and the energy efficiency advocates have worked on a long time. And I think it's an opportunity in many ways, this is a very unique fan regulation. It's a cross between codes and standards in that it actually gets at the application. It's very unique and it's a very clever idea that AMCA came up with. And I know they, as an organization, spent a lot of time and energy. And manufacturers individually have spent a lot of effort and I think they see value in this in helping energy efficiency.

But also I think it will result in them selling more efficient fans that happen to be bigger, so I think it's a rare chance in the standards world that it's really a win-win for both the manufacturers and the consumers of the product. And I would certainly encourage you to pursue this thing. And unfortunately, DOE was not able to finish this, but I think it's a locked opportunity and it's a golden opportunity for one thing to get into the industrial

market through standards, which you really can't get into by codes. And so there's certainly things that you can do a little bit in the industrial market that are in my view are maybe not as high a standard for industrial fans or something. We'd have to think about that more, but I just think it's a really golden opportunity to save energy in the State of California. And I encourage you to continue on the rulemaking. Thanks.

MR. GALDAMEZ: Thank you.

I don't know if Mr. Kleiss has figured out -- No?

(No audible response.)

Okay. Mr. Kleiss, if you would like, you can also submit your comments straight to the docket and we'll take a look at it.

Laura, I think, raised your hand; is that correct?

MS. PETRILLO-GROH: Yes, hi. Especially in the context of embedded fans I think that this regulation provides a lot of difficulties, especially while DOE is in the middle of their rulemaking. There's been no announcement that DOE has suspended the process. This is a very complex rulemaking that really requires a lot of separate -- complete analysis and review the analysis that's already been done to make sure that this turns into

a viable regulation. here were many ASRAC meetings and yet no one -- could not finish a term sheet that didn't have significant holes and deficiencies, because of the complexity of the standard.

And while I think that this is a value for a stand-alone fan and that it could be done, it's inherently difficult to look at the performance of a stand-alone fan and compare it to an embedded fan. And that it'd be very confusing for consumers to have a separate California regulation only to be pre-empted by a federal regulation after that comes into force. And not to mention the incredible expense it will impart on the manufacturing community.

And I really -- I just urge CEC to like include embedded fans from the scope of this regulation. Thank you.

MR. GALDAMEZ: Thank you. Please.

MR. CATANIA: Tom Catania with AMCA. I just want to follow up with Laura on that question. Has AHRI taken a public position, urging DOE to complete its existing fan regulation?

MS. PETRILLO-GROH: We have taken no position at all. We're waiting for the DOE to continue with the process.

MR. CATANIA: Oh, okay. I was just trying to

understand you. You seemed to be urging California to wait, because DOE is proceeding with the regulation. So I just wanted to understand if you'd actually asked them to proceed.

MR. GALDAMEZ: Thank you.

MS. PETRILLO-GROH: Well, we haven't asked them to stop.

MR. GALDAMEZ: Thank you. Good, good.

Okay, anybody else here? Or -- yeah, go ahead.

MS. MAUER: This is Joanna. We think there's a lot of work that's been done: that the CEC can leverage the work that DOE has done; the analysis that they've done for their rulemaking; the ASRAC term sheet, which included consensus on a number of important items related to scope, test procedures, efficiency metrics.

And it's now been almost two years since the conclusion of the ASRAC Working Group. And DOE has yet to publish a proposed rule for either test procedures or standards. And the status of the DOE rulemaking, of course, is uncertain. So we think that it makes sense for CEC to pick up where DOE left off and to advance fan efficiency standards in California.

MR. GALDAMEZ: Thank you.

Any other topics, top of the hand? All right. The weather maybe. No? Okay. Just kidding, just kidding.

Okay. With that well let me just explain what the next steps to follow will be. After these workshops, of course there's two more tomorrow. But as far as fans and blowers we'll be giving -- providing a template and guidance for you guys to submit your proposals for the standard, okay?

Commission staff, I'll be available to discuss questions or concerns that you might have during this process or in this next step.

We're basically, right now, at the Vetting Information and Public Workshop, which is right here. So the next step basically is going to be inviting you guys -- I think the invitation went out what a day or two ago right, to submit proposals. And once we gather information from that we'll meet again and have a further discussion on those proposals and iron things out as they go, okay?

So please, any comments or any other information that you would like to submit, just email it to the docket, our docket at energy.ca.gov. The docket number is 17-AAER-06. And if you have any questions here is my email and my phone number. Please feel free to contact me in any way that -- I mean not in any time, but I'll respond as soon as I can. I have a life out of here too.

So with that, I conclude my presentation. And if -- oh go ahead, Mike.

MR. WOLF: Alex, this is Mike Wolf with Greenheck. Can you just maybe help clarify the expectations on these proposals? I'm still going to pretend to be somewhat a neophyte when it comes to this regulatory stuff, even though I've been listening in on it now for about three or four -- well, three years plus.

You know, with the DOE process we have the ASRAC Working Group who developed a term sheet recommendation. And then they go back into their world and we don't know exactly what they're doing right now, but somewhere we think there's probably a test procedure that they've developed. And they may have a rule developed, as well. And the next step would have been to issue a NOPR that then the industry could comment on.

I sense that with the California process you're looking for us or for the industry or the participants here to give a proposal on what you want that test to -- or the procedure and regulation to be pretty specifically or not? I guess help me understand exactly what the expectations are with regard to the proposals. Both in terms of the standard, but also I guess in terms of some of the data collection and analysis that I think needs to be done.

MR. GALDAMEZ: So since I'm working here with Ryan, I'm going to have Ryan my Senior Engineer, answer.

MR. NELSON: This is Ryan Nelson with the

California Energy Commission. So the invitation to submit proposals was posted yesterday. The deadline is September 1st 5:00 p.m. So hopefully everybody received that information.

On August 1st we'll be giving a webinar to go through the template, which was also posted yesterday, the proposal template going through the format and what information is important to us in our rulemaking process. And that will cover, basically all the -- one of the beginning slides, where it listed all the information we requested in the ITP: market analysis, test procedures, definitions, scope. Those are the items that are collected in that proposal when you're proposing a standard supported by all the data that well hopefully we're getting through the ITP process here.

Does that help clear it up, Mike?

MR. WOLF: Yeah, I think it does. And again, where my mind keeps going back to is where AMCA is in their process in terms of the standards development. We're just about complete with the 208, which is kind of the last critical piece of getting everything defined, so the market can look at it and review it and comment on it. But I don't we'll have that done by September 1st.

So I mean, how critical is that, I guess if assuming that that is the metric we end up going forward

with, it being the FEI.

MR. GALDAMEZ: This is just the first step, so I mean I would say don't stress about it too much, because after that there's -- we're going to develop a staff report. And from there, if information is missing or you find out that more data is available then you can also -- we go through the same process and iron that out as we go, right? So then once we get all the data and everything we'll get a final staff report in order to move forward into what then will be the regulation or the standard, so there are other opportunities. This is just the first step to start ironing things out and getting more data and more, "Well I support it. I didn't. I don't," based on what is the basis and all that. And that's how it goes about working out.

Mr. Starr, I think you have a comment?

MR. STARR: Yeah. Well, I guess just a series or well, two questions. So one, it sounds like the proposal, is it a proposal for standard level or a proposal for test procedure? Is that what you're looking for in -- pardon my terminology -- is that what a case study is? Or is it something else? And then I have a follow-up question to that.

MR. GALDAMEZ: Ryan?

MR. NELSON: Yes. This is Ryan Nelson again. So

you mentioned a case study. That is an example of a proposal. And there would be a proposed standard. To have a standard we would have to have a test procedure, we'd have market analysis, install base characteristics. All of those things are required to support our cost-effectiveness and technical --

MR. GALDAMEZ: -- feasibility.

MR. NELSON: -- feasibility.

So a case report is a good example for proposal. We'll collect all those proposals. We'll evaluate them, and from there we'll move forward on our process. We will collect -- well, after we evaluate them we will develop a staff report as the Commission. And we recently posted a couple of staff reports on that previous rulemaking just last week.

However, so the staff reports we will put a proposal forward. And then we'll continue the process of publicly vetting those for staff reports, so that's later down the line.

MR. STARR: Oh, I see. I see. So it sounds like there could be several proposals come in. And those case studies, I actually haven't seen one, but I can imagine they're somewhat complex, but probably doable. And so it looks like you'll look at maybe several of those and you'll basically make some recommendations based upon reviewing

several of those.

A second question I have is, is it an obvious thing -- and I think this is obvious to maybe AMCA as well -- is that LBNL developed a law that's (indiscernible) some of the questions we're asking on this call are sort of related to the DOE rulemaking. What I'd like to know, would it be acceptable for someone like LBNL to develop a case study and submit it? Or if not that, providing some way which you all can -- and obviously LBNL doesn't work free -- but some way which you can, the staff, can have information and help you kind of dial in your analysis and get a lot of -- a very good understanding. And so my I ask, is there -- is that a viable pathway?

Well, I guess, first can LBNL develop a case study? And two, can they just provide technical assistance to help you do your job or how would that work? If you could help me understand that, that would be valuable.

MR. GALDAMEZ: Wow.

MR. STARR: Not all at once now.

(Laughter.)

MR. GALDAMEZ: Yeah, go ahead, please. Please help. Yeah, that's good.

MS. DRISKELL: This is Kristen Driskell with the Energy Commission. The high-pitched "Please help," means I have to speak.

We don't have contract funding to contract with LBNL, so if you're asking whether we're going to hire them as a consultant, the answer is no. However, other people in the room might have ways of funding work with LBNL.

We've also discussed work with LBNL directly, in sharing information between the two agencies. Well, the Lab and the Energy Commission, they've been open to that. So I don't know if that answers your question, Louis.

MR. STARR: Yeah. Well, I'd have to think about if there is a way for us to fund that. Essentially, we're not going to be an in-between, but we would just provide the funding for either a development for a case study or for you to provide a technical assistance. And do it's just we would basically provide the funding to do that.

Or potentially, it could be more than a group of us, perhaps. Frankly, I don't know. But anyways just really -- I realized that there was probably not a financial way for you to support that and that's kind of what I was getting at. But it sounds like the answer is yes, is what I kind of heard. Is that --

MS. DRISKELL: Yeah, I realized I missed --

MR. STARR: -- as long as the CEC talks about paying for it.

MS. DRISKELL: I missed your first question. If let's say NIA wanted to contract with LBNL and have them

submit a case report that would be acceptable. If LBNL out of its own goodwill wanted to submit a case report we would accept that, too. Those are both viable options as well.

MR. STARR: Okay. And as part of just them providing technical assistance to you -- in other words, it's kind of like a help line or you have questions about it, is that also -- as a cheaper solution to all of the other ones? So I just wanted to see is that an option as well?

MS. DRISKELL: Yes, but we would also still consider them as a public stakeholder, so communications between us would still be something that we'd want to put in the record.

MR. STARR: Okay. All right, well thanks a lot. That's what I needed to know.

MR. GALDAMEZ: No problem.

Go ahead.

MS. ANDERSON: So this is Mary Anderson from PG&E. We might be -- we have a contracting mechanism with LBNL. I don't know if they'd be willing to work with us, but we would interested if there was technical assistance that they were able to provide.

MR. GALDAMEZ: Okay. Any more comments online? No? How about here? No? Going once, twice, that's all? Yeah.

(No audible response.)

MR. GALDAMEZ: All right. Well, this concludes my presentation. Thank you for coming and participating.

The good news is we got out of here earlier, so please enjoy the rest of the afternoon. Thank you very much.

(Whereupon, at 3:25 p.m., the workshop was adjourned)

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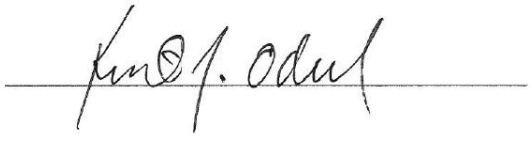
REPORTER'S CERTIFICATE

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 8th day of August, 2017.



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

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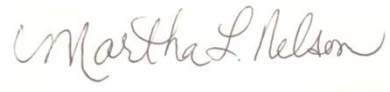

August 8, 2017

MARTHA L. NELSON, CERT**367