STATE OF CALIFORNIA – THE RESOURCES AGENCY
BEFORE THE
CALIFORNIA ENERGY COMMISSION (CEC)

In the matter of,	)	
	)	Docket No. 12-AAER-2
	)	
2012-13 Rulemaking on	)	
Appliance Efficiency	)	
Regulations	)	

Staff Workshop on Responses to Invitation to Participate in the 2012-2013 Appliance Efficiency Rulemaking Water Appliances

California Energy Commission
Hearing Room B
1516 9th Street
Sacramento, California

Friday, May 31, 2013

9:04 A.M.

Reported by:
Peter Petty

APPEARANCES

CEC Staff

Harinder Singh
Tuan Ngo
Peter Strait
Ken Rider

Consultants

Josh Butzbaugh, Trust for Conservation Innovation

Also Present (* Via WebEx)

Public Comment

*Shabbir Rawalpindiwala, Kohler
*John Keller, MaP Testing
*John Bertrand, Moen
*Len Swatkowski, PMI
Heidi Hauenstein, Energy Solutions
Tracy Quinn, NRDC
Gary Fernstrom, PG&E
Forrest Kaser, Energy Solutions
Kristin Macey, CDFA Division of Measurement Standards (DMS)
*George DeJarlais, Badger meter
Joshua Huntsinger, Place County Agriculture Department

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P R O C E E D I N G S

MAY 31, 2013 9:04 A.M.

MR. SINGH: Welcome to the Energy Commission. My name is Harinder Singh. I'm an engineer with the Appliance Efficiency Office.

First of all, some housekeeping items. For those who are not familiar with this building, the closest rest rooms are located on the right-hand side as you come out of the doors, the main doors.

And there's a snack bar on the second floor, if you wish to go get some coffee or something. It's under the white awning. It's there on the second floor. The stairs are on the -- as you come out of the doors it's on the left-hand side.

Lastly, in the event of an emergency and the building is evacuated, please follow our employees to the appropriate exits. We will reconvene at Roosevelt Park, located diagonally across the street from this building. Please proceed calmly and quickly, again following the employees with whom you are meeting, to safety exit the building.

Thank you very much and now I would start to introduce the first speaker.

Before that, I'd like to mention that today's proceeding is being recorded and the transcripts will be

posted on the Commission website in three to four weeks.

The Energy Commission conducted a scoping workshop in August of 2011. The Commission approved and issued an OIR in March 2012. And in March of this year the Commission issued an invitation to participate, an ITP request on various topics that were listed in the phase one of the OIR.

The Energy Commission received the comments from the stakeholders, a number of comments, and data information from various stakeholders.

And we have looked through the comments and scheduled these workshops.

So, this is the last workshop today. We started our workshops on Tuesday, and we had Wednesday and Thursday workshops on other topics.

Today's topic is the water topic. It includes toilets, urinal, faucets and water meters.

After today's workshop the Energy Commission will issue a proposal template on June 10th, and issue a request for proposal.

Stakeholders, if wish to submit proposals can use the template or stakeholders can use their own format to submit proposals. The due date will be 25th of July.

And with this I will hand over to my colleague,

Tuan Ngo, and he will make a presentation on the water topics. Thank you, Tuan.

MR. NGO: Thank you. Good morning everybody. Can you hear me? Now I have a much harder question, do you see me?

(Laughter)

MR. NGO: Okay, let's start. Good morning, again. My name is Tuan Ngo. I'm with the planning process, Energy Office.

The first topic we want to discuss today is about the toilet and urinal. I want to go over a little bit with the agenda.

First, we want to discuss what we've done so far and then we discuss about the data and any information that we received on May 9th.

And then I'm probably going to have -- we have some interesting point that I'd like to bring it up for discussion.

And then after that we have an open forum, and then the comment, and whatever at the later time.

Well, the Commission held a public workshop on August 31st, 2011 to seek comments about a proposed scope of potentially appliance efficiency standard.

Interested party gave a technical presentation, provide comments and submit a proposal for various

appliance.

On March 14, of 2012, the Commission issue an order introducing rulemaking, OIR, to formally begin the process of considering standards, test procedures, labeling requirement and other efficiency measures for appliances.

Throughout the course of this proceeding our material will be available, as well as staff will be available. And I encourage you to go to our website and join the list server for this proceeding.

During the public meeting the Commission will receive and take into account, into consideration input from all parties concerning the design recommendation, the cost consideration and other factors that would affect consumers and California business by the proposed standard.

And the Commission will take into consideration prior to this the input provided during the meeting. One of the data -- one of the data that I particularly really like to put a lot of attention on is the cost effectiveness, and how do we calculate effectiveness, and what does cost effectiveness mean to different people.

What we are trying to do is we’re trying to receive --

MR. STRAIT: One second, I'm going to try to solve that popping issue.

(Pause)

MR. STRAIT: Try speaking now?

MR. NGO: Is this okay, now?

MR. STRAIT: It's okay, a little bit of noise. Oh, I'm sorry about that popping noise that we're hearing over the audio. We're trying to fix that, but it might just be the mic that we're using. So, we'll see what happens, but we apologize.

MR. NGO: Testing again. Okay.

MR. STRAIT: It's better, I guess.

MR. NGO: Yeah, okay, sorry about that.

The cost effectiveness is what I'm interested in, also required by the statute that we consider to investigate.

Anyway, the reason why I mention that is because we want people and interested parties to understand why we're asking some of the questions and why we're asking for some of the information that we ask.

The Commission will also consider all of the relevant factors including, but not limited to, the impact on housing costs, the total statewide cost and benefit of the standard over its lifetime, the economic impact on California businesses and alternative

approaches, and all the associated costs.

Outside of the statute, the other components of the regulation include terminology and definition, consensus test method, marking and labeling requirement, the data collection parameter, and specific efficiency that use the standard, sometimes include these as standard.

So, when we issue the information the request and then we receive a lot of responses. And thank you for those responses. We receive encouragement for adopting or for developing new standard from ACEEE, American Council for Energy Efficient Economy, Appliance Standard Awareness, National Grid, and Northeast Energy Efficient Partnership.

We also receive response with technical detail information, and data on sale information from California Investor-Owned Utilities, short name referred to as IOU, and Natural Resources Defense Council

We also received some information from Hayward Industry, also.

The response that we see here, what you see in the table here is what -- when I review the response and then we can see, okay, can we use the response. That’s where you see the yes, and yes, and yes, that’s what it means. If you see a no, then say, well, we need to a

lot more on that. And you see a question mark and I say, well, I need to call whoever it is and investigate more.

So, by that and then we received the product definition and scope. We're okay with that, with sources tech data, we're okay with that.

For standard, new and existing standard, we're okay with those.

Product lifetime and duty cycle, well, we need to talk about it a little bit, but we do receive some information.

Product development training, I'm not sure I'm clear with that, but we'll talk about it.

Consumer acceptance, so far no issue with efficiency unit is the information that I receive.

Having technology in future, pretty much okay.

Incremental cost, so far what I receive is no differences, but we'll have a separate slide to talk about that.

And then there's an issue with compatibility with existing plumbing system and I just received some information from the City of San Francisco, there was some problem with the sewer system over there so, you know, we'll spend some time to talk about that.

And then the issue with force and multiple

flushes for toilets and urinals, and we'll have a separate slide to talk about that, too.

And for this standard will affect any small businesses, we're not sure, yet, but that one I will need some time to look into that as the process is going.

I also provide the table, at the bottom of the table is a link to the document so that you can just look and see and you can look for yourself and to know the comment that we receive.

Okay, first of all, I want to bring up the issue of the scope of the standard that we are planning to -- we are trying to develop standard for.

So far what I see is that we are considered blow-out water closets, electromechanical hydro electrical water closets, flushing meter, tank water closet, tank timed water closets, and vacuum tied water closets.

Now, the question I have is what about the paperless toilets, like a Bidet, or the Washlet? I'm not -- well, these are the kind I'm talking about where you don't need any water, and they may have some kind of spray. It's when you finish your business and then they spray into your boom-boom, and then they clean everything.

So, that's the kind of thing that I'm talking about. So, the question is what are we going to do with those? Are these kind of products -- should we include it?

And then the other thing, too, well, I think a little bit further. If these paperless toilet considered, should we think about whether the spraying water will be including a part of the volume of the flush, or no?

So, anyway, you know, your comment is -- I accept it now. Anybody have a comment?

Oh, by the way, first of all, I want to have the -- I want to invite comment from the room and then after that I will open the line for everybody on -- anybody on the WebEx, by phone, that can comment on.

MR. STRAIT: Yes, we'll be following just a general plan for these. After we raise these questions we'll accept any comments from anyone in the room right now, then we'll move to the phone.

Those of you that are attending on a computer terminal, you can mute and unmute your own line, so we'll give a moment for people who want to make comments remotely to unmute their line to speak.

Afterwards, we'll be opening all of the phone lines for those people that are attending solely by

telephone, and then we'll move on to the next topic.

So, is there anyone in the room, now, that would like to comment or have any information about these two questions that we've raised regarding toilets?

MR. NGO: Anyone? No takers? Come on. Okay.

They opened the line for you. Anybody want to comment or need to question from the WebEx?

MR. RAWALPINDIWALA: Yes, I would like to comment.

MR. NGO: Shabbir, how are you?

MR. RAWALPINDIWALA: Yes, sir. I don't think the two products should be included at all because in some of these houses people have improvised with their own sprayer next to the toilet and -- or they could use some other means to -- if they want to so use water to clean themselves. And there is no control of that so, therefore, this should not be the purview of California Energy Commission to control the amount of water in those kind of a product.

MR. NGO: So, let me ask you this, so the water -- the spraying water is not part of the system?

MR. RAWALPINDIWALA: The water used to -- sometimes it is a part of the system, sometimes it is not. It is a lot of times, like the Washlet, and/or the seat is separate from a toilet.

MR. NGO: Oh.

MR. RAWALPINDIWALA: I mean, you know, how far does California Energy Commission want to go to regulate the water? So, you know, as I mentioned, people in their house may use water, other than the Bidet or Washlet, and so how are you going to control that?

MR. NGO: I don't know, that's why we want to open the thing just for the scope and see whether we should include it. And if we don't want to include it, we should be able to have some kind of reason for it.

MR. RAWALPINDIWALA: The amount of water used is minimal. How about that?

MR. NGO: Oh, okay. Well, how much is minimal then, Shabbir?

MR. RAWALPINDIWALA: Minimal is, I will say -- I will have to find out. Off the top of the head, I don't remember.

MR. KELLER: Well, Shabbir and gentlemen, this John Keller.

MR. RAWALPINDIWALA: Well, of course.

MR. KELLER: I don't even classify these as toilets or water closets at all.

MR. RAWALPINDIWALA: That's right.

MR. KELLER: They don't belong in the scope of toilets, in my view.

MR. RAWALPINDIWALA: Well, thank you, John.

MR. NGO: Okay, can I ask somebody who was just talking? What's your name? Can you tell me your name and the organization?

MR. KELLER: John Keller with MaP Testing.

MR. NGO: Okay, thank you.

MR. STRAIT: Just to clarify a little bit what we're asking for here, we know there are toilets that have a built in Bidet or a Washlet, and in -- those toilets would be regulated as toilets. The question is how it would be appropriate for us to handle this additional water use, if they should be excluded from a test procedure, or included, and how the Energy Commission should look at them?

MR. RAWALPINDIWALA: When it is a part of a toilet, it has to comply with two different standards. One is the seat part with the washing and all, and the other one is the 19.2 standard for water closets. And that one, as you know, measures how much flush per gallon per flush you measure.

As far as the Bidet, there is a -- perhaps somebody else that is on the phone can remember what that amount of water is in a Bidet seat. That would be helpful. I'm trying to find, as we are talking.

MR. NGO: Let me -- I guess let me ask you for

some clarification, and for my own clarification. So, the Bidet and the Washlet, those kind of devices, they are the separate -- a completely separate system from the toilet. Am I clear to that point, is that what you are saying?

MR. KELLER: That's correct. That's correct, a Bidet is nothing more than a floor-mounted sink. It's not for receiving the waste, it's mainly just more like a sink.

MR. NGO: Okay.

MR. KELLER: And by AQ-1 standard Bidets' fittings have a minimum flow at one and a half GPM.

MR. NGO: Okay. So, again for my own clarification purpose, would this kind of system interfere with the test, current test procedure for a toilet?

Because what it does is adding more water to the system, right, and I assume -- I assume the toilet, when you test for the water displacement there will be some water, and then on top of that some more of this water. So, are these things -- how do you separate one from another?

MR. BERTRAND: This is John Bertrand from Moen. I agree with John Keller's original comment, I don't think these should be included in this discussion at all

because they're separate devices. Even though they can be provided in a single combination, it's a totally different function than the flush mechanism of the toilet.

MR. NGO: Okay.

MR. STRAIT: Who was that just speaking?

MR. BERTRAND: And there is no defined amount of water that's provided via the Bidet portion of it. You have a minimum flow rate, but the person can sit there as long as they -- as long as necessary.

MR. NGO: As long as it feel good, huh.

(Laughter)

MR. STRAIT: I'm sorry could you state your name and who you're with more clearly? Our stenographer had trouble picking you up.

MR. BERTRAND: Yeah, this is John Bertrand from Moen, Incorporated.

MR. STRAIT: Thank you.

THE REPORTER: Could he spell his name, or John what?

MR. STRAIT: His last name is B-e-r-t-r-a-n-d, Bertrand, and he was with Moen, M-o-e-n.

MR. NGO: Okay, can you guys send me some more information on this system?

In the meantime, I'm probably going to dig a

little deeper to understand about these things. But anyway, I think that we want to go ahead.

Is there any more, anybody want to comment in the room? No.

MR. RAWALPINDIWALA: Well, when you say what kind of more information, what kind of information are you looking for, other than what has been just cited to you?

MR. NGO: The information I'm looking for on this one is that how are these Bidet, the wash less system incorporated to the toilet and how do we -- are they in the same plumbing system? Are they separate plumbing system? You know, information for my own purpose to look at that at a later date when we say, okay, whether we want to include or not to include this kind of toilet in our scope. That's all it is. Nothing's --

MR. BERTRAND: I would suggest you just -- I mean I just did a simple Wikipedia search for a Bidet and it gives you quite a nice explanation of what these are, and show you some images of the installations.

MR. NGO: Is that John with --

MR. BERTRAND: John Bertrand, again, from Moen.

MR. NGO: Thank you. Yeah, please identify your name for us because we have a recording man over here

and he give me trouble so --

MR. BERTRAND: All right, sorry about that.

MR. NGO: That's all right.

MR. STRAIT: Yeah, each time someone speaks, when you begin to speak just clearly identify who it is just so that our stenographer can pick that up.

MR. NGO: Okay, John, sorry to cut you off. What were you saying something earlier about some --

MR. BERTRAND: Oh, I just said a basic Wikipedia search will -- for a Bidet will provide a very nice explanation of their uses and they had some nice images there showing an installation.

MR. STRAIT: I think what we're mainly after in this case is without conducting a market survey and buying, for example, like three example models from each manufacturer that makes these, how are these most commonly made?

Is it most common for the Bidet portion to be a separate plumbed system or for it to be integrated into the same plumbing system that the tank is attached to?

So, for example, if we're looking at tank volumes for ordinary toilets, we wouldn't want to create a regulation that would then make Bidets inoperable simply by not knowing there was a connection in the plumbing lines. It's just information like that.

We figure that manufacturers have the best ideas about how these are normally made and might have easy access to spec sheets or diagrams that would assist us in making sure we don't make regulations that do things that we aren't intending to do.

MR. RAWALPINDIWALA: This is Shabbir Rawalpindiwala with Kohler Company. The system, when you talk about systems, a lot of manufacturers supply the whole toilet with the seat, like the Washlet.

When you install them, there is a T at the water connection. One goes to the fill valve of the water tank, the other gets connected to the spray portion of the Bidet seat.

MR. STRAIT: So, these are hooked in prior to the water entering the tank, effectively, they draw off the tap and it splits both ways.

MR. RAWALPINDIWALA: That's right, yeah.

MR. STRAIT: Okay.

MR. RAWALPINDIWALA: And it's not a continuous water coming out of the spray. When you push a button, a certain amount of water comes, enough to cleanse you. It's not gallons of water.

MR. NGO: Just curious though --

MR. RAWALPINDIWALA: And you can find these spec sheets from going to the website and seeing them.

MR. NGO: Okay, I guess I need to think about this one a little bit more, because when I -- when I'm just thinking about this one, I just imagine about a test, and then I take away should we talk about it?

But anyway, I think we're going to investigate about this paperless toilet for a little bit more. And then for my own part I will look more into it and then we'll talk about it at a later date.

Okay, so anybody else have any comment about the scope of the toilets? No.

Okay, I'm going to go, now, to the next discussion point.

Oh, by the way, I haven't received any response, data response from any manufacturer, and I know that you guys told me that you're going to be late. But do you have any idea when you'll be able to give me those information?

MR. RAWALPINDIWALA: This is Shabbir, again, from Kohler Company. I believe some of us sent you the information, referring you to the requirements that are in the California Plumbing Code, and also in the California Green Code.

MR. NGO: I completely lost that, Shabbir. Why do I go over there for data on -- they have data on -- they have data on these appliances?

MR. RAWALPINDIWALA: You were asking us to recommend to you what the consumption should be for toilets and flows for faucets, and all. And we had suggested that rather than reinventing the wheel that you refer to Title 24 requirements, and to also look at the California AB, I think 715, or something like that. Yeah, 715.

MR. SWATKOWSKI: This is Len Swatkowski at PMI. Tuan, we had talked about this during the conference call we had because we've been working for many years with the Department of Housing and Community Development, as well as BSC on clean inputs. And I know you were looking for some cost data but, you know, we can't do that. As a trade association or industry we can't do that, it has to be done confidentially. And we can go up to that point.

But as far as the flow rates and everything that's in place, AB 715, which goes into effect on January 1st, as well as the new California Green or the California Code requirements, which also go into effect January 1st of 2014 would be a good reference to see what the newer flow rates are that have been adopted in the Building Code.

MR. NGO: Okay, so I guess I can simply say that now that I wouldn't expect any data from any

manufacturer. Is that the word?

MR. SWATKOWSKI: It's already provided.

MR. NGO: Okay, that's okay because we -- I was thinking that we work together to make sure that we have a standard that are good.

Somebody's talking on --

MR. RAWALPINDIWALA: This is --

MR. NGO: But it seemed to me like I didn't have any -- anything from manufacturer, then so we just have to get some way to get some data and go forward with this, whatever it is then.

MR. RAWALPINDIWALA: This is Shabbir from Kohler Company. You had asked us to recommend to you what a consumption -- somebody's on the phone that's talking. Could you please mute yourself, please?

MR. RAWALPINDIWALA: As I was mentioning, we had suggested to you what the flow rate and gallons per flush should be. And you are mentioning that you -- we have not provided you with the data.

What other data are you looking for?

MR. NGO: You know, the data that we have issue on that questionnaire that we provided on the -- during the ITP. The ITP workshop -- I mean presentation I guess in sometime in March.

MR. RAWALPINDIWALA: If I'm not mistaken, in

that one what you were asking for was the sales information. Is that not correct?

MR. NGO: Yeah, we're asking for sale information. We asked for cost information. We asked for the technology where you can do some water savings with the appliances. And I think there's a few more. I don't have that thing -- let me see if I have those slides over here?

Anyway, I don't have those slides with me today. But we're asking for more information. We're asking for information far more than just the sales figures.

Again, let me repeat, let me repeat why we want to ask for all this information because what we really want to do, we want to make sure that we provide some kind of calculation for the cost effectiveness, not only to make the decision for them to adopt or to approve the standard, we want to make sure that we have that information available to the public so they can understand what we're doing, and why we do it.

And then not only that, we want to do the -- we want to have -- we want to work on the regulation on the standard that are workable, and that will bring the benefit to the consumer, and will bring cost savings, and all those.

I mean I don't just want to ask the information

myself just to mess around with it, no. This is all of the necessary information of what we needed.

And again, let me repeat what I saw earlier, the cost effectiveness is the one number that I really pay a lot of attention. I think the most critical information that we need to have to adopt or to develop a standard.

And then the cost effectiveness can be a different meaning for different people.

But what I'm interested here is from the statute requirement. That's why we got -- we asked for the information and so far, you know, we have zero.

And the reason why I want to ask you about all this information because we don't want to just sit here and then just write some standard that may give you -- might give the manufacturer problems. We want to have something workable for everybody and make sure everybody benefit. It's a win/win business.

We don't want to just be coming out with regulation and say, okay here we go, this one we're going to do it this way and it's, therefore, be it.

No, we want to work in cooperation with you and we want -- you know.

MR. RAWALPINDIWALA: Well, this is Shabbir, again. I don't know why other people are not speaking out, but that is why we are here, or that is why I'm

here on the WebEx to participate and assist you.

As you know, AB 715 was developed with the cooperation and input from the manufacturers and that is what we would like to do the same.

As far as the -- you keep talking about cost effectiveness, I don’t know what cost effectiveness, how you calculate.

Perhaps California Energy Commission, I don’t know what data you need from us that will help you to develop the cost information.

MR. NGO: Okay, I think I make myself clear.

I want to go next to the lifetime and duty cycle, discussion on lifetime and duty cycle.

Information that we receive from IOU and NRD indicate that the lifetime of the toilet was pretty much 25 plus year. And also, assume 12 years for commercial and 25 years for residential toilets.

And information that we also have from IOU provider, actually from a study in 2011 was daily flush at 4.76. And another information we have it 4.92 and that one from link at AR, in 2003 study, so they are very close.

So what’s the question that I would ask everybody to look into is we’re converting lifetime to sale or installation of new toilet, new toilet used in

combination with the study data duty cycle for calculating water saving.

In another work, lacking the data of sale information from manufacturer and from sale information we have to find a way to -- find a way to calculate the water savings.

So, what I was thinking is if we can use the combination of the duty cycle and the age of the toilet, then we might be able to come up with some sort of water savings for it.

And then other option would be should we use age in the sale which is about 1.2 million unit per year. And that information provided to us by NRDC.

My second question is since there are too many -- not too many -- since there are very many old toilets used what is the baseline water consumption would be.

You know, a lot of the information I have the toilet, old toilets are 25 plus year, at 3.5 gallons per flush, and some of the ones that are older than that are pretty much 6 gallons per flush.

And then I can look forward ahead and then I say, okay, how will -- in order, first, to calculate the water savings, so we got to know what the baseline is. And my point is which baseline for water consumption

should we use?

And so, I'd like to pose those two questions and then we'd like to ask your comment on those questions. From the room?

MS. HAUENSTEIN: Hi, this is Heidi Hauenstein from Energy Solutions, on behalf of the California IOUs. I just wanted to point out that in our response to the invitation to participate, on page 4 we talk about product lifetime. And there's two different reports that we reference. One is the Aquacraft study from 2011 that looked at water use in single-family homes, homes in California.

And they found that 24 percent of all toilets were flushing at 3.5 gallons or above, which can help answer that second question of what should the baseline water consumption be.

And then, similarly, we referenced a 2002 study from the East Bay Utility District that looked at water consumption of toilets in nonresidential buildings and figure 1 presents the results from that report.

And overall we found that between 17 and 56 percent of the toilets in nonresidential buildings were consuming more than 3.5 gallons per flush. Thank you.

MR. NGO: All right, thank you. Again, I saw that one, but I'm not sure how to calculate for that.

That's why I want to ask the question. But I think I need to talk with you a little bit more, later, and then you can say how to calculate those.

MS. HAUENSTEIN: Okay.

MR. NGO: All right, thank you.

Okay, I'd like to open the comment to the public on the WebEx. Any comment on this or a question.

MR. RAWALPINDIWALA: Yeah, this is Shabbir. I have a question for you on question number one. What do you mean by studied duty cycle?

MR. STRAIT: Would you like me to explain duty cycle.

MR. NGO: Yeah.

MR. STRAIT: To explain the concept of duty cycle, for appliances in general we look at how often an appliance is used, like how many times in a day or how many hours. So, for a toilet it would be how many flushes would take place in a day, or a week, or a year, or we could look at, for dual-flush toilets how often is one flush versus the other flush used? It's to get kind of an average or just a general picture of operation that kind of be generalized.

MR. RAWALPINDIWALA: All right.

MR. NGO: Now, I found out where you asked the question. Oh, you asked me what do I mean by the -- in

the question number one, the duty cycle?

MR. RAWALPINDIWALA: Yeah, and he just explained it.

MR. NGO: Oh, okay. Yeah, those are the one title that they use in the -- they use the duty cycle in the graph in 2011, and the East Bay MUD in 2002. And that's why I use the duty cycle. I mean, I got the duty cycle from the two studies of that.

Does that answer your question?

MR. RAWALPINDIWALA: Yeah, yeah, thank you.

MR. SWATKOWSKI: Tuan, this is Len Swatkowski from PMI.

MR. NGO: Hi Len.

MR. SWATKOWSKI: I work on rulemakings with California and other states, and the Federal government on appliances. I think I know what you're looking for. There are technical support documents and economic impact studies when looking at life use and life expectancy of appliances when looking at energy efficiency.

To my knowledge, that has not been done on water products in any regulations that have been put forth, which is why we had the trouble with impact implementation in the early 90s because we found that it did not meet consumer expectations.

These things have gone for over 20 years, now, without having an economic impact study and I cannot offer you any resolution to that because there are certain restrictions that trade associations have for putting together data like that.

Now, when you're looking at daily flushes, there are people on the call right now that are part of the Alliance for Water Efficiency and are looking to put some of this data together with the studies that exist out there. We're not there, yet.

The problem is you have confounders in situations where you have a family of six living in a house with one five-gallon-per-flush toilet and a family of two living in a house with three 1.6 gallon toilets. How do you average that into your study duty cycle.

So, you really have to look at what people are using.

And we've been trying to grasp this information out from the Aquacraft study and other studies to get a real idea of what the actual baseline is. We do not have this data, yet.

So, I wanted to offer that. You can't really -- the data you're looking for to assess plumbing products has never been put together in the way you're looking to do it, like electrical products have done in the past.

MR. NGO: Len, you speak my mind. It's a problem.

Any other comments?

MR. SWATKOWSKI: Yeah, we've seen places like, you know, California using Lawrence Berkeley Lab, for instance, to put together a technical support document and economic impact study, and doing it that way takes a very long time and it's very, very costly.

MR. NGO: Okay. Any other people want to comment on these two questions?

MS. HAUENSTEIN: This is Heidi Hauenstein again, with Energy Solutions. I think I might not understand question number one completely. Are you trying to get a sense of how we should calculate the annual sales, if you don't get that data from the manufacturers? And is the question can we back out the annual sales based on maybe population estimates, and how many toilets there are per household or can you -- maybe try to explain that question and --

MR. NGO: Okay, this is what I have in mind. Thank you, Heidi. This is what I have in mind, when you have a lifetime estimation, I guess from the two studies, something like 25 plus year, and then you have the -- and also you use the 12 years and 25 years for commercial and residential toilet that gives you an

idea -- and then with the population it will give you an idea of what the new installation's going to be.

And then plus, on top of that, with the daily flush and the duty cycle, and then you'll be able to -- from those two information you would be able to convert into your original data that's requested, what is the number of installation. Okay.

And by doing that, again, I really -- I really do not want to track the new -- I want to use some data that are available and accurate, as accurate as it can be. That is one option.

The second option is we could use the EPA data. I haven't looked into the EPA information data carefully to see how do they arrive at that number of 1.2 million unit per year. And that one number provided by NRDC.

And so, you know, I will have to look into it. I mean, you know, either way would be fine but, you know, at least we know what it is.

MS. HAUENSTEIN: Thanks. So, I think that, if I remember correctly, the EPA number is based on a national average or national sales, and then they took a percentage of that to get what the sales are in California.

MR. NGO: That's what I thought.

MS. HAUENSTEIN: Yeah. And I haven't looked at

the study, you know, in the last couple of weeks, but if I recall it's they look -- they used the methodology based on population, not on actual sales data.

So, I guess a question for some of the manufacturers on the line is would you feel comfortable if the Energy Commission uses projections of population and an estimate about the replacement rate based on the lifetimes presented in this slide to back out what the annual sales would be?

MR. STRAIT: Yeah, I -- this is Peter Strait with the Energy Commission. Yes, that's part of what we're asking is just a quick question of which approach would be preferable or more acceptable to manufacturers? Or, as was identified, if there's additional data that is in the process of being generated that would be superior to this, and we're just trying to get a feel of the comfortability of this approach in kind of a basic sense.

MS. HAUENSTEIN: I guess another option is to look at projections of the new housing starts as a start of, you know, how many sales there will be for new construction. Have you thought of that?

MR. NGO: Well, I was thinking about using the East Bay MUD study and then based on the East Bay MUD study, with the population vetted, and then we are

projecting the number to the statewide.

But then, remember, 2002, 2001 was actually when the building explosion, you know, happened.

MR. STRAIT: Before the crash.

MR. NGO: And so, yeah, before the crash, just like before it crashed, and then the data may be over-inflated.

So, I'm concerned over that. But, you know, we'll find a way.

MS. HAUENSTEIN: Okay.

MR. NGO: You know, right now I think about it and I'm comfortable with this number. I don't want to -- whatever is easier to use.

MR. KELLER: This is John Keller, again, for MaP Testing. We did a study in 2005, which I assume you have in your possession, for the California Urban Water Conservation Council that showed the inventory of efficiency and non-efficient toilets in California, and projected to the future. All that has to be done is for that to be updated to give you data that was current to the State of California.

MR. NGO: So, John, this is Tuan. So, you're saying you have the data in 2005 -- I mean the study in 2005?

MR. KELLER: Yes, and it's published.

MR. NGO: And how hard is it to update it, John?

MR. KELLER: How did what?

MR. NGO: How hard is it to update it?

MR. KELLER: Well, I mean it's taking the data for the last, what, 17 years and updating what exists in the study by using building construction data, and retrofit programs, as well as an estimate of sales into non-retrofit --

MR. NGO: Can you e-mail the title of the 2005 study, whatever it is?

MR. KELLER: It's *The Potential Best Management Practices Report on Toilets and Urinals*. It's on the CWCC website. And I'll be happy to send it to you, if that's easier.

MR. NGO: Yeah, please send it to me, I appreciate that.

MR. KELLER: But it seems to me that the problem is somewhat made more difficult just because of the housing slump, and so forth, to try and get an estimate, an accurate estimate, or reasonably accurate estimate of the install base.

Because your last question says since there are very many old toilets in use. Well, first you have to establish what that means, what is "many very old?" And I think you can start with the 2005 data and bring it

forward to 2013 and at least have an estimate that's better than what's in the East Bay MUD report, if there is even an estimate in there.

MR. NGO: Yeah, but if I do that with it, will it under-estimate the cost saving?

MR. KELLER: Would it what?

MR. NGO: Will it under-estimate it? In other words, the value from cost value savings will be lower.

MR. KELLER: I can't answer that. All I know is you're trying to establish what exists today.

MR. NGO: Right.

MR. KELLER: Then you move forward from that.

MR. NGO: Okay. Well, that's an idea.

MR. KELLER: Okay.

MR. NGO: Thanks John.

MR. STRAIT: This is Peter Strait with just a quick question. I've put in the chat box a link I was able to find, with a quick Google search, to the California Urban Water Conservation Council's best management practices page. Is this where you were talking about?

MR. KELLER: Well, let me look. If they've -- this is the phage, but you would have to -- you would have to -- well, no, it isn't the page, now that I look at it.

MR. STRAIT: Oh, okay.

MR. KELLER: It's potential best management practices. I'll send you the link, also, as well as the document.

MR. STRAIT: All right, thank you very much.

MR. KELLER: Sure.

MR. NGO: Anybody else want to comment on these two questions.

Okay, so let's go to the next. Okay, here we are -- here what I -- I'm sorry.

MR. STRAIT: You know, I can grab a water from upstairs, if you need it.

MR. NGO: Yeah, that's fine.

Here, what is potential issue that I kind of thought it over and I want to put it up so to solicit everybody comments.

Okay, for auto-flushes, is that the incorrect information that they put in there or with better -- you know, for the first problem is really I can't -- I would say that I we have a lot of auto-flush toilet in our agency. And we go in there and we just stand there, and then all of the sudden it flood over and spray over on everyone. And it's kind of really bad.

You know, and so I realize later what happened was that the installation of that sensor was a little

bit off to the side. And then that's why I was thinking about, okay, for the problem of auto-flush toilet in urinal, would the correct installation or better maintenance would help.

And then the one sensor that I really like and it work best so far, and I can see, is the kind of unit with the sensor facing the wall. In other words, what you have to do is you kind of swipe your hand over and then it work really well so far that I can see.

And then the problem with multiple flush needed to flush -- to flush the toilet, I'm not sure what -- I'm not sure what can we do about that.

My first impression was if multiple flushes are needed, and then it probably wouldn't pass the -- it wouldn't pass the life from manufacturer because no manufacturer want to put a bad product. So, I'm not sure what we do about that one.

And then I want to say the single backup, that's another topic.

Also, I would like to know if any -- if the manufacturers have any customer feedback with the dual flush system.

And then I don't see any data for cost of toilet in the submission.

So, with those one, two, three, four, five issue

that we'd like to discuss with folks. So, any of you have any comment to help me with this issue here? Anybody in the room? Oh, thank you.

MS. HAUENSTEIN: This is Heidi from Energy Solutions, again. I just wanted to address the drain line issues. So, we are aware of this issue and we're looking into it, and we intend to do further research to understand this issue more completely.

I did speak with a representative from the San Francisco Public Utilities Commission about the specific experience in San Francisco, and they let me know that they intend on submitting a letter to the Energy Commission to explain their perspective on the reports of drain line cloggages, or they think there's more issues in San Francisco, actually.

So, if they haven't already submitted a letter, they may do so shortly.

But I wanted to just relay some of the few points in my conversation with the SFPUC and, of course, their letter will be further clarification.

But the representative from SFPUC kind of reiterated that many factors contribute to odor issues in the San Francisco sewer, and one of those issues is the system design. The sewer in San Francisco is a combined system. San Francisco's the only city in

California that has a combined system. There are parts of Old Sacramento that have a combined system. But there are several issues about combined systems and how they operate differently from separate systems that I won't get into. But that's one factor to consider is that San Francisco sewer system is not necessarily representative of other sewage systems in California.

There's also an age factor that contributes to odors. There's also just design characteristics like odor issues may be more likely to happen in really long lines that there's not a whole lot of elevation drop.

There's also -- so, there's no denying that water from buildings has -- the amount of water used in buildings has reduced over time. But there is no evidence and the SFPUC has no evidence to back up the assertion that low-flow toilets are the sole cause of odor issues.

And in my conversation, the SFPUC reiterated that some of the media coverage of the odor issues in San Francisco, in 2011, were not backed up by data, or any reports, or claims by the SFPUC.

So, I think that covers that issue and I don't want to be -- I think that the letter that SFPUC will submit will clarify some of these points.

MR. NGO: Oh, okay, so they will submit a letter

to us?

MS. HAUENSTEIN: They told me that they are intending to submit a letter.

MR. NGO: Oh, okay, that's good.

MR. STRAIT: Simply for clarity, could you explain what the difference is between a combined system and a separate system? I'm assuming this a combined storm water drains with other flows, but just so that it's in the record.

MS. HAUENSTEIN: Yeah, so that's correct. So, a combined system, the waste water from buildings and the runoff from storms, storm water goes into one system. In the separate systems they're different pipes.

MR. STRAIT: All right, thank you.

MS. HAUENSTEIN: Okay.

MR. NGO: I don't want to -- maybe I don't want to dwell a lot on this issue but, you know, even if low-flow appliance, low water flow appliances is not -- is not the only reason to cause the water -- the sewer backup, but it is a reason, right? It is one of the contribution, but we don't know how significant it is.

MS. HAUENSTEIN: Right.

MR. NGO: And so, the potential problem is there. So, that's what I'm saying. I didn't mean to, you know, disagreement with you or anything, I mean it

just -- I mean I agree with you, I mean that's not what it is.

MS. HAUENSTEIN: Yeah, I think that it's undeniable that when the sewers were first being built in a city like San Francisco, where the sewage system is very old, water use from buildings was a lot higher. And it's undeniable that water use from buildings has gone down over time.

And in fact, at some point if you eliminate all the water from buildings then you might run into a problem. If you take all the water out a sewer system, then the solids are not going to flow through the system.

The question is there are a lot of merits to water conservation and water efficiency, so our concerns about reducing water use are warranted, I don't know.

The other question is if we look at water use in toilets, if you go from a 1.6-gallon-per-flush toilet to a 1.28-gallon-per-flush toilet, which is the Water Sense standard, and you make an assumption that each person is flushing the toilet about five times, that amounts in a reduction per water use of about two gallons per person per day.

And a lot of wastewater flushing systems are running at a hundred or more gallons per person per day.

So, the incremental reduction is two gallons, which might not lead to an immediate problem.

MR. NGO: Yeah, we know that the City of San Francisco saved 20 million gallons of water. We also know that this kind of problem have a higher problem to happen with the combined system because of the diameter of the sewer and it's basically in the summer, when the flow is low. In the winter the storm water will flush all those things away, no big deal.

But if the thing -- another thing -- another thing that also, in the back of my mind always bother me is that these kind of problems is not going to happen overnight. It's an accumulation of day in and day out.

First, you have -- but over time, you know, you see all of this scale and it's kind of like black, and it's no flow.

And it's the same thing like that, it's happened over time. And water saving, I'm all for it. It's just that we have to do it in a responsible way where we save from water and we're creating a lot of problem.

Another thing that worry me about the City of San Francisco and what they're doing is that they are trying to use hypochlorite to disinfect the system because the odor in the sewer. I don't have a problem with that. The only problem is somebody needs to look

at -- now, downstream of that treatment to make sure that the water that they release into the Bay is not going to affect the ecosystem in the Bay Area waterway.

So, all those things I will have to follow up and question with the City of San Francisco, and that's a problem.

But still, my question and concern about the accumulation of this drain sewer backup, you know, over the long period of time is still there, no answer to it yet.

I wish there was a way to look at that and say, okay this is how we do it.

Another way to do -- another way to handle this is the question is if we have -- if we have this low flow appliance, low water flow appliance to be installed, in combination with higher from the sewer facility will that take care of this problem? I don't know. We have to look at the cost, also. There's a lot of things involved.

So, but anyway --

MS. QUINN: This is Tracy Quinn with the Natural Resources Defense Council. We've recently conducted interviews with academics, and civil engineers, and representatives from utilities across the country specifically on this topic.

There was consensus among those experts that it would take an extreme amount of water conservation to have an impact, generally, on sewer collection systems due to both the impacts of diurnal flow, as well as infiltration and in-flow within the sewer systems.

You can look -- everyone pretty much agreed that it would take greater than, you know, a 20 percent reduction in water in order to really see any impact there.

There's also a study that was done on that, that is quite old, but also has the same conclusion.

And you can look back to historical droughts when there was reduced water use and, therefore, sewer discharge to see what the impacts were there. And this hasn't historically been an issue and we don't foresee it to be an issue.

And as far as the potential clogging within the building or, you know, in the drain lines leading to the public sewer system there has recently been a study published on that, that I believe was submitted to the California Energy Commission. And if not, I can see if I can get that to you. That's all.

MR. NGO: You know, by the way, does anybody know what the required gradient for the --

MS. QUINN: There's a minimum of two feet per

second, I think. I believe the design is based on a velocity of two feet per second. It's been a while since I did sewer design, but it's based on --

MR. NGO: You know, if you find that information can you send it to me?

MS. QUINN: Uh-hum.

MR. NGO: Like if I have some conflicting information, anyway.

MS. QUINN: Yeah.

MR. NGO: Somebody told me that was like, I mean, so every three feet. But then he couldn't tell me where he see it and that didn't help.

MS. QUINN: I can get you that information.

MR. NGO: Yeah, thank you.

Okay, is there any -- okay, is there anybody else in the room want to comment on this issue?

How about are you having -- have you got any comment on any of the other issue besides the problem of the sewer backup? No.

Anyway, I'm going to open the line to the persons on the phone.

MR. KELLER: Yes, this is John Keller. I wanted to again speak to the issue of sewers and drains.

MR. NGO: Okay, sure, please.

MR. KELLER: I have to disagree with Tracy Quinn

a bit. That the experiences in Australia that have occurred and began occurring with the drought and the exceptional water conservation activities that took place there clearly was an issue that affected sewers, not just building drains, but sewers because of gray water that followed from the drain system for treatment and reuse.

So, this does happen. It has happened. And as long as the industry and commercial ventures are reducing the water consumption of their systems, and appliances, and equipment and they reach that 20 percent that Ms. Quinn is talking about, and I think it will happen sooner, rather than later. I can't give you a year estimate or anything like that, but it is an issue in the sewers and it's been proven to be an issue elsewhere.

So, I don't think it should be ignored at all.

MR. NGO: John, can I ask you a question? Do you agree with me that the problem -- the issue of the problem not only with the combined system where they are using bigger draining pipe? Or they happen everywhere or anywhere?

MR. KELLER: I'm just speaking, not to a combined system, but to a normal system that separates sanitary waste from storms -- the storm drain system.

MR. NGO: Okay.

MR. KELLER: And other than that I can't comment. But I will say that the wastewater utilities in Australia are spending mega millions of dollars cleaning out sewer lines now that they didn't have to do 20 years ago.

So, there's money to be spent, it's an economic issue. And if you're going to consider it, it's not a simple study.

MR. NGO: Maybe people should eat more salad.

(Laughter)

MR. NGO: Okay, I get no comment -- one comment from the room.

MR. FERNSTROM: This is Gary Fernstrom representing PG&E.

We, the investor-owned utility advocates, had a discussion with Heidi and Energy Solutions, along with Charlie Stevens, and some water wastewater experts in the Pacific Northwest last week on the issue of adequate flow in the sewer system.

It convinced me that, you know, this is indeed a significant issue and probably the most important one facing all of us in this rulemaking.

There is no question that, as Heidi said, the total flow in sewer systems is reducing over time as a

consequence of conservation. And this has the wastewater treatment managers worried about how they're going to deal with it, where it's going, where it's going to end up.

However, I think we need to look in this rulemaking about the incremental effect that the measures we're proposing are going to have on change in overall flow in the sewer system.

I believe when we do that we'll find that the incremental effect is small and the larger issue of where we're going in general is beyond the scope or not important with respect to this single small step.

So, I'd just like to suggest we view the whole issue in the context of its marginal or incremental effect, rather than where we're going in general.

MR. KELLER: This is John Keller, again. I would agree, but that's exactly why I don't think this belongs in the discussion of toilets and urinals. It's an overall overarching situation that needs to be discussed in the context of water use reduction, generally

MR. NGO: John, I don't understand your comment, can you repeat to me again?

MR. KELLER: Well, to put this in the category of toilets and urinals, which is what we're talking

about in this two hours, seems like a stretch because if there is an issue it's not being caused or will be caused solely by toilets. And, therefore, it's a larger issue that ought to be discussed in the context of all water efficiency, and all standards that CEC is considering and proposing.

MR. NGO: That's fair enough. Okay, that's --

MR. KELLER: Thank you. Perhaps whatever you do with clothes washers might have a bigger impact on sewer flow than toilets.

MR. NGO: Thank you. Anyway, does anybody have any comment on any of the other potential issues?

MR. SWATKOWSKI: Tuan, this is Len Swatkowski, PMI.

MR. NGO: Hi Len.

MR. SWATKOWSKI: I just wanted to point out that the top couple of notes you have there, we've written some magazine articles, we had a magazine article in *Maintenance Solutions* that went into the issue of maintaining and actually properly installing auto-flush urinals and water faucets and it has a huge impact on how these things work.

If they're put in correctly and maintained correctly, it's just like gas mileage on your car. If you don't maintain it right, you run a lot more fuel.

So, maintenance on products is critical to having them operate correctly and operate efficiently. Yeah, to eliminate flushes and that, they have to be installed correctly and maintained.

MR. NGO: So, Len, can I ask you this question; thinking further ahead if we have a standard, and I'm saying if, if we have a standard should we make this installation manual or installation direction, and maintenance requirement be included with the package or be labeled somehow?

MR. SWATKOWSKI: You know, normally in codes you don't put any maintenance type of language in. But for your regulations I would just note that the product should be maintained in accordance with the manufacturer's directions and that's how you get it to work the way it's supposed.

MR. NGO: Okay. Well, that's fair enough, yeah. And then the installation instruction -- I assume that is included with -- will be included with the hardware.

MR. SWATKOWSKI: Yes, installed and maintained in accordance with the manufacturer's installation and maintenance instructions. That goes for any product that's installed anywhere, of any kind.

MR. NGO: Thank you.

MR. STRAIT: This is Peter Strait. You

mentioned a magazine article. Would you be able to e-mail us a reference that we could use to cite that article?

MR. SWATKOWSKI: I can send you that article, no problem, or a link to it anyway. Should I just send that to Tuan?

MR. NGO: Yes, thank you Len. I appreciate receiving the information.

By the way, I'd like to introduce to you -- I forgot about it -- Peter will be the one who help me with the project when I'm in trouble, when I'm in -- so, he's my like project conspirator, or something.

MR. STRAIT: Today, I'm just the guy running the WebEx.

But anyway, we have a comment in the room here.

MR. FERNSTROM: This is Gary from PG&E, again. Excuse me, I'd like to conclude my comments by saying that the industry has done a good job of making us aware of the wastewater issue, which at least I was not previously aware of, and will keep it in mind strategically, as we continue to pursue water and wastewater-related measures. So, thanks to the industry for bringing that up.

MR. NGO: Anybody else have any other comment on any of these questions or the issue here? I assume no.

Anything else that we should cover in this part of the urinals proposing, maybe? I guess not.

Okay, well, what next? What we are doing -- what we will do is we will start, we'll prepare a proposal template for the request for proposal and we plan to issue that template and the guidance probably by June 10th, and we're expecting to see the request for proposal by July 25th of 2013.

In the meantime, if anybody want to submit any data or comment on this issue, on these items, please do so. We welcome more information and more data coming in, that will help us to develop better standards.

Also, what I note is also the Commission staff is also available to discuss questions or concerns at any time during the proceeding of the standard.

Okay, so where are we on the public participation in the rulemaking process for this toilet and urinal?

Where we are now is you see where the yellow -- I'm sorry, the green arrow. The green arrow pointing to be, so the request for proposal from stakeholder that's the next step, that will be July 25th. And then we will analyze all the proposal and then we'll go forward with the proposed standard.

With that anybody have any comment on the public

participation diagram there?

Okay, and the last slide of the toilet and urinal is my e-mail information, my telephone number and the docket for comments.

With that I don't, I'm not sure if anybody have any other comment or anything else, so we --

MR. STRAIT: Let me unmute the phone lines here. So, if there are any final comments or anything else people would like to know, or any questions anyone has, then the lines are open.

MR. RAWALPINDIWALA: This is Shabbir from Kohler Company. Can you be a little bit more specific as to what kind of information you are looking for from us, other than what we had previously supplied to you or, rather, had given you the direction to where to look for it?

MR. STRAIT: If you'd like, I can read the questions that were in the March presentation that we gave, that had a list of questions. Some that applied to all our products and some that applied to toilets and urinals, specifically. But, simply, you can download that from our website, if you'd like, and take a closer look as well.

MR. RAWALPINDIWALA: All right. So, let me ask you a follow-up question is to -- from the March follow

up we had said that if California Energy Commission is looking for a new consumption rate and flow rates that perhaps they should look to Title 24, to the California AB 715, and also to the California Green Code.

Was that not sufficient enough?

MR. SINGH: Hello, this Harinder Singh. Let me explain to you that we are going to be issuing an information proposal template and that will have the information we are requesting in the proposal format. So, please, when we issue that take a look at that, that's what we are looking for from the stakeholders in the proposal format. All the information fields that we need and some of the calculations we need for analysis will be there, so some formulas and things like that.

So, our proposal information template will have some guidance on what you're asking for, further guidance. Thank you.

MR. NGO: Thank you, Harinder.

MR. RAWALPINDIWALA: I don't think I got my answer. Is that the information that we have referred you to, is that not satisfactory?

MR. SINGH: We look at it because we have received that. Thank you very much for the information and, like I said, that's part of the information. But for us to develop a staff report or a proposal we need a

lot more information.

So, we looked at it, what you have provided us, and we will include that if the information is relevant into the -- when we develop the staff report and the proposed standard. So, we looked at it, but we also are going to issue the proposal template for complete information so that we can develop standards and have some analysis, staff report for the stakeholders to discuss with us.

MR. BERTRAND: This is John Bertrand from Moen, Incorporate. Maybe just a basic question, what is your definition of a standard? Maybe that's where we're having a disconnect from a manufacturer's stand point.

The California Plumbing Code and CAL Green Code contain references to plumbing standards, which we recognize as a certain type of document.

So, what is your view or definition of a standard?

MR. STRAIT: I've got this one. Very quickly, when we talk about a standard, basically anything that we require would be called X standard. So, when we say a certain test procedure must be followed strictly speaking that's a test standard.

There's also two broad categories of requirements, where we can either require a design

standard or a performance standard.

A design standard would be something that says you will incorporate X feature or you will not incorporate Y feature, or it might be something as simple as saying you will include printed instructions with every device that you sell.

A performance standard would be an efficiency metric, such as an energy factor or a water factor, or it could be a maximum energy use or water use limit.

So, when we talk about standards it is broader than just a 1.28 or 1.67 gallons per flush. It's literally anything that we might put into the regulations.

MR. BERTRAND: Okay. Yeah, when we talk about standards -- again, John Bertrand from Moen, when we talk about standards it's a minimum set of performance requirements embodied in a document and that document ranges from, you know, 10 pages to maybe 100 pages long, published by various standard-developing organizations.

And again, the California Plumbing Code is probably 20 pages of reference standards in there that we, as industry, you know, that's what we term as standard.

And I understand, now, that your definition of standard is broader than that and encompasses different

things than what we're used to.

I think as part of where we're having a disconnect is what -- you know, aside from what the California Plumbing Code and CAL Green already mandate for the State of California, you know, what other things are you looking to achieve, you know, in addition to those?

We already, as manufacturers, comply with the standards in there in order to have our products installed within the State of California.

So, I'm a little confused with what you're looking for and this is kind of on top of what Shabbir was asking, what are you looking for in addition from us, because we already comply with the standards, as we see them, that are mandated in the State of California.

MR. SINGH: Thank you very much for your comment. This is Harinder Singh, again.

One of the things I mentioned here, we're going to be issuing the proposal template that will -- you know, that will have the fields, the information that we are looking for to develop the standards. And we may -- you know, if you need to have answers on the standard, I think you can always call us and contact us, we can set up a separate meeting to discuss with you. And we can explain to you. I think that's the better way to do it.

And Tuan's contact number is there, so please give him a call, we'll set up a meeting and in person, or on the phone, and we can answer the questions there for you. Thank you.

MS. HAUENSTEIN: this is Heidi from Energy Solutions, again. I just wanted to clarify that the standards that are outlined in the California Plumbing Code and in CAL Green both appear in the Building Code, which applies to new construction and certain types of retrofits. And the enforcement mechanism is linked to the installation of the product.

What we're looking at here is Title 20 standards, which are appliance standards, and they apply to all products sold in California. So, there's a little bit of a difference there in that the standards for Title 20 are for sales and the standards that are in Title 24 which is, again, the Plumbing Code and CAL Green, apply to buildings.

MR. BERTRAND: Hi, this is John Bertrand from Moen, Incorporated, again. And we understand that part. And our hope is that there isn't developed a different set of requirements from what is in the Plumbing Code, Building Code, CAL Green, that the CEC doesn't develop something different because -- so products have to be reconfigured, you know, for one agency versus another.

MR. SINGH: Hi, this Harinder Singh again. Please submit your comments and questions and if you need further discussion, we can set up a meeting. And, you know, we'll look at it, what you're saying. So, your comments are also going to be captured in the transcripts. And if you have further comments, or information, or you want to have a discussion, we can do that.

Because, you know, we have a limited time at the workshop. So, we are open, always, to discuss these issues, so any questions you have we are happy to discuss with you.

MR. NGO: Okay, any more comments? Going once, going twice. Well, thank you everybody for participating in this lively discussion of toilet and urinals.

The next one will be --

MR. SINGH: Yeah, we'll take a break.

MR. NGO: We'll take a little break and then at about 11:10 --

MR. SINGH: Yes.

MR. NGO: -- then we will start the next item, which is faucets.

Well, thank you very much for participating and I really appreciate. Again, I cannot say enough

important about the data and response, and cooperation from the manufacturer in this process. So, please think it over and then we'll look at it.

Well, thank you, everybody, for coming and we'll see you in a little bit.

(Off the record)

MR. NGO: So, we'd like to convene the workshop. And welcome back everybody in the room and the persons on the web.

I'm going to go ahead and start the second item on the agenda, with the faucets.

Too, maybe I should mention that for the people that are participating in the phone or using the computer, when you're not speaking please hit the mute button and that way when we clear the line we didn't get interference with the voice and that way everybody can hear you clearly.

And then before you comment, please tell us your name and organization, just for the recording purpose.

Okay, we're going to the second part in the agenda with the faucet. Is there anybody that is not in the audience in the first session, in the first item on toilets and urinal?

Can you clear the mute?

MR. STRAIT: Hold on.

MR. NGO: For the people on the web, is there anybody just get participate and not in the previous item, toilet and urinals?

I guess not. So, okay, that way I can go ahead and process all the way to the part that we want to talk about, without going through some of the -- some of the information that is repeated.

Anyway, we issued a ITP, we asked for information and data regarding data for us to be able to work on those standards.

And we received response from various organizations. We received favorable response to go forward with standards from ACEEE, ASAP, CFA, National Grid, and Northeast Energy Efficient Partnership. We also received comments and data submitted to us by IOU, H2Options, Incorporated, and National Resources Defense Council. Thank you.

And then I also provide at the bottom of the slide, there's a link to the document that was submitted in relation to this item for faucet and, you know, you can click over there and find the document that I'm talking about today.

Okay, for the response detail, we received information for product definition scope adequately, source tech data, we got those. Standards with new and

existing standards, we got them.

Product lifetime and duty cycle again is -- we receive it, but I'd like to have -- I want to have a different, a separate slide later that we can talk about it.

Development training nothing, it's not clear. Nada, nothing, but it's not clear, so we'll talk about it a little later.

Consumer acceptance so far no issues with consumer acceptance.

Energy-saving technology and feature pretty much all exist in technology, so I suggest we're okay with those.

Incremental cost, what we've seen so far is no different between regular faucet -- I mean the low-flow toilet -- low-flow faucet and the regular faucet.

Comparing it with existing plumbing system, again, it's already covered in the previous session.

And small business affected by the potential proposed standard, we're not clear on that yet. So far we get no response.

Okay, here we go to the -- we want to go a little bit more into the scope of the faucet that we are -- that we think we want to go develop standard for.

What I received so far was that the standard

development should cover all lavatory faucet and accessories.

My question is kitchen faucet, do we want to -- does it deserve a separate -- or again something, somehow, and does it differ from lavatory faucet.

And then faucets used in a medical facility, the one I have in mind was for the doctor that scrub his hand before they go into the surgery room or something.

And then faucet used in emergency washing station. For example, the eye wash, and the hand wash in the shower station.

Faucets used in rest rooms.

And then another thing, I kind of think, kind of go over the place here and say, so we use at faucet using manufacturing plan or processing life. I'm talking about a fish or poultry processing plant. And then on top of that, what about the faucet, are they in the same category? Probably not, but I just want to throw the question out there.

And then any other faucets that we should give a special consideration to the standard.

With that, I'd like to open the -- or ask for comment from the room. Anybody have any comment on any of these questions here?

No. How about the peoples on the web? Anybody?

MR. SWATKOWSKI: Yes, Tuan, this is Len. Can you hear me?

MR. NGO: Yes, I hear you. Thank you.

MR. SWATKOWSKI: Len from PMI.

Yeah, there's a significant difference between a kitchen faucet and a lavatory faucet, where kitchen faucets are used to fill pots and fill sinks. Don't really have any impact on what savings you would get because it still takes the same amount of water to fill a pot or fill the sink.

In the lavatory there are requirements for lavatories in residences and, as you said, in restaurants and commercial settings.

The biggest difference is in commercial settings you have a .5 gallon-per-minute or a .25 gallon-per-cycle limitation for faucets in restaurants because people are specifically just using those for washing hands in the lavatory, in the restaurant or commercial setting.

And a lavatory in a residential setting is going to have -- be exposed to shaving cream, toothpaste, different kinds of cosmetics, a lot of different materials that you don't want to have built up in the sink at all to cause fogging at all.

So, there's a difference in forays between

residential and commercial for that reason, alone.

And as far as medical or emergency stations, they're left up to the professionals that need to provide enough water to clean a doctor's hands until -- you know, as sterile as possible. In emergency stations, when you have a chemical or a fire, or something, you need to have enough water, determined by the plumbing engineer designing those stations to be able to take care of the emergencies, depending on where those emergency stations are.

And as far as bathtub faucets, it's the same thing, we're filling the tub. So, there's no limitation on filling the tub because you're still going to use the same amount of water.

MR. NGO: Okay, let me repeat what you've just said. So, kitchen faucet, faucet used in medical facility, emergency washing stations and bathtubs should be excluded from the scope of this standard.

MR. SWATKOWSKI: Well, I think the kitchen faucets are already covered by EPAC right now at 2.2 gallons per minute for a flow rate. But any further reduction doesn't save you anything because you're still filling the sink or filling a pot.

MR. NGO: Okay, that's what I thought.

What about the faucet used in manufacturing or

processing, is there any difference there?

MR. SWATKOWSKI: Are you talking about cleaning food products in a food processing plant. I'm not familiar with that so I can't speak to that.

MR. NGO: Okay. Yeah, my concern was, okay, if we have faucet that restrict flow to a certain point and the sanitary -- the sanitary issue will -- because you need that much water to -- or you need that long of washing to be able to achieve that sanitary for your hands or whatever. So, I just want to make sure right from the beginning we have the one that requires special attention, then we should have special attention to them. That's the whole idea.

Is there anybody have any questions of any other kind of faucet that should we give any special consideration?

MR. FERNSTROM: So, Tuan, it's scary from PG&E. Maybe I'm badly behaved, but I have a little different perspective on the kitchen faucet. I rinse my dishes before I put them in the dishwasher and unlike filling a pot or filling the sink, I leave the water running while I'm rinsing.

MR. SWATKOWSKI: Oh, no.

MR. FERNSTROM: I'm so sorry to have to confess that in front of this audience. But, you know, the flow

rate does make a difference there. And I'll bet there are other people that are perhaps as badly behaved as I am.

So, I think maybe kitchen faucets should be considered separately, but I don't know that regulation wouldn't result in additional savings on account of the fraction of the people that are bad like I am.

MR. NGO: Yeah, I was thinking about the same thing pretty much. My thought on the kitchen faucet was that we will have it included in the kitchen, but we gave them a different standard because, you know, my own personal thing I like to wash my hands where I do cooking, and I like a lot of water just to make sure that I clean my hand properly in a timely manner. I mean, I don't want to stand there, you know, with like half a gallon and then just stand there for an hour cleaning. So, I mean I'm exaggerating.

But kitchen faucet, you know, we go ahead and include it, but we will give them a little different -- we consider giving them a different standard.

And then, again, faucet used in medical facility and emergency washing station, I agree with Len, maybe we should exclude them from our standard and then leave it to the professional to make sure that they do it correctly.

And I'm not sure about the one in the restaurant, though. We have law that requires worker to wash their hand before they prepare food or selling food. And I know, I'm saying that their time is a concern and we don't want to just have a faucet that are too low flow that wouldn't give them enough of water to maintain the sanitary condition.

So, those are my thoughts. You know, I'm putting the question up here to ask for everybody comment to see how do we -- what we do with it.

Heidi, a comment?

MS. HAUENSTEIN: Yeah, Heidi with Energy Solutions.

MR. NGO: Oh, Heidi, can you sit a little closer to the --

MS. HAUENSTEIN: Oh, sure.

MR. NGO: -- to the microphone?

MS. HAUENSTEIN: Okay.

MR. NGO: People complained that they couldn't hear you.

MS. HAUENSTEIN: Oh. I don't know if you want to hear me. Okay.

(Laughter)

MR. NGO: I want to hear you, come on.

MS. HAUENSTEIN: Okay. So, I know that the

objective of this meeting is not to discuss specific standards --

MR. NGO: Right.

MS. HAUENSTEIN: -- but I just did want to point out that CAL Green does have a different standard for kitchen faucets and that standard is the maximum flow rate of 1.8 gallons per minute at 60 PSI as the default, and it allows a temporary increase in the flow rate to 2.2 gallons per minute.

So, someone could increase the flow rate if they wanted to fill a pot. So, that could be something to consider.

MR. NGO: Yeah, I think I saw that part. Thank you.

But how do they -- well, how do they temporarily, is there two types of switch or something? Do you know?

MS. HAUENSTEIN: Yeah, I'm not familiar with the specific design. Maybe some of the other manufacturers on the line can answer that question, so I'm not sure.

MR. NGO: Yeah, I mean I saw that one and I'm very confused about how you want to do that.

(Musical interruption)

MR. NGO: Thank you for the music.

MR. STRAIT: I'm going to put everyone on mute

and then I'm going to take everyone off of mute really quick here, and it will take me about a minute to figure out which phone is producing that sound, so just bear with me for a second.

Just a second, just a second.

(Musical interruption)

MR. STRAIT: All right, I think we've resolved that.

There was a question or a comment somewhere in the room.

MR. NGO: Tracy?

MS. QUINN: I can't speak for all products, but I have seen at least one kitchen faucet which you can manually adjust the flow rate, so you'll have two or three options. And you can go up higher to fill pots and lower for hand washing and --

MR. NGO: Oh, you mean like the one like they have the one in the front with the little controller thing and you can switch to either side? Is that it?

MS. QUINN: I can't recall the specific design feature but I know you can manually change it.

MR. NGO: Okay, thank you very much.

MR. BERTRAND: Tuan?

MR. NGO: Yes.

MR. BERTRAND: Tuan, this is John Bertrand from

Moen, Incorporated.

MR. NGO: Yeah, John.

MR. BERTRAND: As far as that question goes, yeah, the specific product would have to be -- would have that feature included, and not all products have that, so it would have to have some type of high flow rate mode and alternate water path, you know, incorporated into the faucet design.

MR. NGO: Okay.

MR. BERTRAND: And, additionally, I have a question about your first sentence there, it says, “Lavatory faucets or accessory.” What is an accessory? What is your meaning there?

MR. NGO: Oh, I’m sorry, let me explain this. The faucet is the device, is like the one that connect to the pipe directly. And then the accessory could be the one like the tap, or the aerator, or the flow restrictor. That’s what I can explain.

MR. BERTRAND: Okay. One other question --

MR. NGO: I mean she want to answer your question right here, so Heidi, please.

MS. HAUENSTEIN: Yeah, I have just one more comment on that. So, right now Title 24 -- or sorry, Title 20 defines an accessory as an aerator. And one thing that the Energy Commission might consider is

expanding that definition to include laminar, flow devices, and other restricting devices, not just aerators.

MR. NGO: Thank you.

MR. BERTRAND: Okay, actually, that's consistent with our standards that we use.

MR. NGO: Oh.

MR. BERTRAND: One other comment about the bathtub faucets, those actually have a minimum flow rate requirement to them because in the interest of energy conservation you want the tub to fill as fast as possible so that water doesn't cool while you're waiting for it to fill.

MR. NGO: So, would that be a separate item that deserve special consideration, Len?

MR. SWATKOWSKI: Yeah, let me for a moment --

MR. BERTRAND: Go ahead.

MR. SWATKOWSKI: Yeah, you'd want bath faucets separate from a lavatory or a kitchen faucet.

MR. NGO: Okay.

MR. SWATKOWSKI: Because it has a minimum flow rate as opposed to a maximum flow rate.

MR. NGO: Thank you.

MR. SWATKOWSKI: And that's in 1801, isn't it, John?

MR. BERTRAND: Correct.

MR. SWATKOWSKI: So, if you refer to the standard, the ASME A112.18.1 --

MR. NGO: Oh, who's speaking?

MR. SWATKOWSKI: This is Len from PMI.

MR. NGO: Okay.

MR. SWATKOWSKI: I sent you a list of standards from both the International Plumbing Code and the Uniform Plumbing Code that's quite extensive. But some of the major codes would be the ASME A112.18.1 and 19.2, but there are a lot of other codes or standards, as well, that reference performance requirements, such as the one that Mr. Bertrand just quoted.

MR. NGO: Yeah, I received that list and thanks.

MR. RAWALPINDIWALA: This is Shabbir from Kohler Company.

MR. NGO: Yes.

MR. RAWALPINDIWALA: When you were talking about your title standards should cover all lavatory faucets are you implying that whatever flow rate that you come up with for lavatory faucets that that should apply to all the bullets that you are following it, or what?

MR. NGO: No, no, no.

MR. RAWALPINDIWALA: Because why are you saying that --

MR. NGO: Let me clarify this. The information that we received so far would include all the lavatory faucet and accessories. However, there was a few other things that in my understanding that might deserve a different consideration or a separate consideration, and should be excluded completely from lavatory faucet standards. And those are the one item -- those are the items I can think of. And that's why I put up in the question of should we consider this or should we -- what should we do with it. That's what I mean.

MR. RAWALPINDIWALA: Okay, this is Shabbir from Kohler Company. I think what we are saying is that kitchen faucets and bathtub faucets should be excluded. It should remain what the flow rates are in the standard, meaning the ASME standard.

MR. NGO: Okay. Now, Shabbir, why you are there and you mention that? This kind of remind me that I should -- maybe I should say a little bit more about what do we want here when we develop standards.

Perhaps I didn't make myself really clear in the very first session. But what we want to do here, we want to develop standards that should make -- not penalize manufacturers in any way. What we want to do, we want to make standards so that make life of manufacturers a little easier.

We want to develop standard that's -- to make sure that we have data from your -- from the manufacturer so that we make sure that the standard doesn't go against what you have or go against or provide some roadblock to what you already develop that meeting standard.

In other words, we want to have it consistent. If your standard already -- I mean, if your equipment that you are selling already meet the standard and already do whatever is necessary, and you already meet the standard somewhere, and as long as those standards match the goal of what we want to do here in this standard that we are going to develop, then that's good.

And that's why we need, you know, manufacturers to provide the good data to make sure that we don't do that, we don't make a mistake into getting some kind of standard that's against the manufacturer.

So, I'm not sure in so many words I can try to say that. I mean, so that's why we need the cooperation from manufacturers to make sure that we get that goal.

And so, you just mentioned the part about kitchen faucets and whatever, and that's why -- that's why if you provide us with comment and data, whatever, to say kitchen faucets should be different, in the docket, then we will consider that way.

I mean right now we don't have anything from manufacturer and say anything about kitchen faucet, or bathtub faucet, or whatever it is. So, it's hard for me to just say anything else.

Am I clear in making this -- I'm not sure I can make my message a little clearer.

MS. HAUENSTEIN: This is Heidi. Maybe I can just ask a clarifying question. So, right now Title 20 covers kitchen faucets, lavatory faucets, metering faucets and replacement aerators.

For the scope of this rulemaking are you looking at those same products, just those kitchen, lavatory, metering faucets and replacement aerators? Or are you -- you also have bathtub faucets up here, and like emergency wash stations.

Are you proposing or thinking about including the wash station and bathtub in the faucets rulemaking or are you kind of thinking about just updating --

MR. NGO: I'm just open -- yeah, I'm sorry. Sorry, I jumped too fast.

MS. HAUENSTEIN: Okay.

MR. NGO: I'm just talking about faucets in general.

MS. HAUENSTEIN: Uh-hum.

MR. NGO: And what we want to do right now, we

want to look for, okay, in the faucet what does the standard cover, what kind of faucet? So, right now we haven't got -- we got to go to the next step of saying, okay, should we only consider lavatory, or should we only consider this, or that, or whatever?

So, if you want to say lavatory faucet is the standard that we consider, then we should include whatever but not in -- that's why the reason what scope needs to be discussed to make sure that we exclude the --

MS. HAUENSTEIN: So, will the proposal information template be clear about what proposals you'll accept? You know, maybe just clarify that you'll be accepting proposals for kitchen faucets, and lavatory faucets, and metering faucets so that it's clear that when we submit our responses to the proposal information template that we know what you'll be considering?

MR. NGO: Good question. I think what we're going to do, we're going to go ahead and request all the information on faucets in general. And then for the request for proposal it's up to stakeholders or interested parties to propose what kind of faucet that should be in the standard, and then we'll go from there.

MS. HAUENSTEIN: Okay.

MR. NGO: Okay. But, you know, if you guys

believing -- you know, if somebody say, one of the stakeholders consider, think that kitchen faucets shouldn't be in there, they should say so in their request for proposal.

MS. HAUENSTEIN: Yeah, so in the request for proposal someone might respond you should keep the kitchen faucet standard as it is, as it currently stands in Title 20.

MR. NGO: Right.

MS. HAUENSTEIN: And someone else might say you should adopt the CAL Green standard.

MR. NGO: Right.

MS. HAUENSTEIN: So, we'll have the opportunity to present our proposals, I guess, for the different categories.

MR. NGO: Yeah.

MS. HAUENSTEIN: Okay, thank you.

MR. NGO: And then if we have -- if everybody's on the same page on what kind of faucet then we're okay. We're a home run.

But if somebody saying this way and somebody's saying that way, then we're going to merge those two together and then we talk about it at the workshop and say what should we do about it, and how.

MS. HAUENSTEIN: Okay.

MR. NGO: And then we'll take those into consideration. We'll take all of the data, and comment, and response from those, and the information and we'll go from there.

Okay, anybody else have any comment on the scope?

Okay, we're going to go to the next one. Okay, well, I'd like to talk a little bit about the flow restrictor. I know that there are two kinds. One of them is the built-in and the other one is the removable. I'm not sure of any type of accessory that acts as a flow restrictor.

And then the question when I -- you know, from after kind of thinking out loud, does the aerator restrict flow?

And then I just read recently, on the internet somewhere, there's an innovative faucet design, somebody designed it somewhere and it gave the -- even though it's a restrictor, you have a very low flow rate of water, but it made the customer sense there's plenty of water. So, they improve the customer acceptance to the faucet. In the meantime, you are actually saving some water.

The way I heard was that somebody make some kind of design that are built-in so to improve the flow, and

make all the water coming out like instead of like a droplet, they come like a bubble or droplet. And so, actually, you feel that with your hand, water all over, and it does. But, actually, the volume flow is very low.

And then the last question, what's the potential for tampering with the flow restrictor? Especially like an aerator?

With that, I'd like to open the floor for questions -- I mean for comment on these three questions here.

Anybody in the room?

How about anybody on the web?

MR. SWATKOWSKI: Well, a lot of the -- this is Len Swatkowski from PMI. A lot of these new designs are specifically patented and are proprietary information within the manufacturers.

Having said that, as we continue to push for more -- less water-using products, we still have a responsibility to meet the expectations of consumers when they buy these products, so these kinds of designs are trying to get people -- the level of satisfaction they had with eight-gallon-per-minute showerheads, and whatever else they had grown up using.

So, these are actually proprietary designs that

are trying to gain more customer acceptance with the lower-flow products that are in the field, and that's it. But they're all specific to individual companies.

MR. NGO: Yeah, I understand what your comment is. Really, it's pretty much like make sure the customer acceptance to the device.

But what about the aerator -- does the aerator -- sorry, does the aerator restrict flow then?

MR. BERTRAND: Tuan, this is John Bertrand from Moen, Incorporated.

MR. NGO: Yes.

MR. BERTRAND: Manufacturers have various means with which to meet the flow rate requirement, one of them being the aerator. We can put a flow control element within the aerator, itself, and have it do double duty, if you will.

The flow control device could be upstream of that at any point along the way, as long as the total -- the flow rate through the device, you know, is less than the maximum flow rate allowed by law.

So, to answer your question, there's various -- and you noted some at the top there, it can be built-in, and that can be an in-line sort of device located, again, upstream of the aerator or the final outlet, or it could be at the end point in the aerator or laminar

flow type of device. It could be anywhere along the flow path.

As far as tampering goes, the aerators are removals for reasons so they could be serviced. Water, even the best water contains some, you know, sediment in the lines, along with mineral deposits that accumulate into the small flow passages of an aerator or a laminar flow device. And they're specifically designed to be removable and cleaned periodically. It's, you know, a necessary maintenance item.

So, you know, that could be viewed as tampering by some people but, you know, they're designed to be maintained.

And actually, during the setup, when they're initially installed, it's our instructions anyway to direct the installer to remove the aerator so the system can be flushed of any contaminants before you reinstall the aerator again.

MR. NGO: Thank you.

MR. RAWALPINDIWALA: Tuan, this is Shabbir from Koehler Company.

MR. NGO: Hi Shabbir.

MR. RAWALPINDIWALA: The other thing is that if you're worried about tampering and all, I don't think in general the masses know that the aerator is the one that

you can change it and increase your flow and all. Very limited amount of people know that.

MR. NGO: Oh. Okay, well, you know, actually I just want to throw this question out for discussion. I'm not sure the significance of this could be -- I'm not sure if it could be a problem or not. But it's just something, like I said, if tampering with the restrictor then all this standard is worthless.

MR. BERTRAND: Tuan, this is John Bertrand from Moen, again. Do you -- is there -- let me rephrase this. Is there evidence that people are tampering with them today? I mean have you gotten some feedback that this is an issue?

MR. NGO: Yes, personally. It's a friend of mine who had a house built and what it does -- he do a lot of vegetable washing. He's a vegetarian. He have a lot of vegetable washing and he actually removed the air restrict flow to make sure that he can wash his -- and have enough pressure to flush all the dirt and these things from those.

Another one I know of, tampering with the flow restrictor in the bathtub that he has. The whole intents and purpose was to make sure that all the water fill the bathtub as quick as possible. But when he put in the flow restrictor for the bathtub, I can see that

the flow is coming out very slow, but the moment he removed it I mean it just like flooded out.

And so, you know, these are the -- I don't know a lot of people, but these are the people I know, friends that I can call friends, probably, maybe 10 percent so far.

So, you know, I'm just thinking of the 10 percent of the population that I know doing it. Would that be the 10 percent of the population in general would do the same thing?

I don't know. I'm not sure what is the significance of this issue.

MR. STRAIT: Were there some comments in the room that people had wanted to make?

MR. NGO: Okay. Well, we can acknowledge that it is a potential issue then, and then we're going to go forward with the next item that we want to discuss.

The next item I want to discuss is the sell data.

Information that we receive from IOU and NRDC were pretty much very close, roughly 27 million units provided to us by NRDC, or 28 million units provided by IOU.

And then the annual sale, approximately 2.8 million units, provided to us by IOU, or 3 million units

provided to us by NRDC.

And then question here is are the provider data supported by sale data from manufacturer? If not, what number should we use?

And then another option will say should we use the Water Sense reported sale data? I'm not sure how extensive their data is, though.

But I know my contact with the Water Sense, they said they have some -- they are requiring some manufacturer to report the sale data, but I haven't gotten a chance to look at the data and see how good are they and can we use them.

And then the last question was I have comments from, I guess, DeOreo. For the reporter, D-e-O-r-e-o, DeOreo. Duty cycle of 57.4 for set events, 37 seconds per event, and 1.1 gallon per minute flow rate.

Can we use these numbers?

And then I want to open the floor for comment on these questions. Anybody want to comment from the room?

How about from the web? Nobody interested in sale data but me. Okay. Well, we have to do something. the reason why I want to dwell on the sale data and stuff like that is to make sure that what we do correctly, and then we didn't have anybody, in any way, which way possible.

And so if we don't have them, then we just have to estimate it somehow.

MR. RAWALPINDIWALA: Perhaps -- this is Shabbir from Koehler Company. Perhaps you can a little bit explain further as to how the sales data -- by giving an example of how the sales data will help you to establish the standards for the flow rate for the faucets and the consumption rates for the toilets and urinals.

MR. NGO: Okay, let me try to make one something -- it may not necessarily be it, be the way to do it. But let me put it this way, when we develop a standard, so we have the baseline of what existing condition now, and we have the post-baseline, which is when the unit was installed, the unit was supposed to be some saving installed. That meter say -- you know, some saving with that meter standard installed.

And then you look at the number of the units, and you look at the amount of water saving of those units, and you look at the costs of those units, when you have all three data the number that you have, you have a dollar value for those units.

And then you have the saving water value for those units.

And then on top of that you calculate what is the saving from the embedded energy for those water

delivered to the facility or to the residence.

Now, from all those three what you do is you take the dollars amount, you divide it by the savings, and that will give you an indication of how good or how long will you recover your capital investment.

And then after that it will give the decision maker some kind of benchmark -- I suppose not to say benchmark, some kind of value whether consider -- for them to consider to adopt, or approve the standards.

So, therefore, the sale data will give me the cost and the cost differential between the new and the old unit, and then the baseline and the post-baseline will give me the savings.

And if we have the cost incremental divided by the saving, it will give me the dollar per gallon of water, or the cents per gallon of water savings. And that way we can provide it. As long as those numbers are a positive unit, then we'll be able to provide the decision maker with a recommendation for approval of the standard.

Does that answer your question?

MR. RAWALPINDIWALA: I think I got the picture.

MR. NGO: Okay, thank you.

Heidi want to make comment.

MS. HAUENSTEIN: Yeah. So, we have a broad

sense of what products are available on the market from the Water Sense database, and from the CEC database, and DOE's database, and MaP database. But what those databases don't tell us is what percentage of the sales are in certain categories of efficiency.

So, we know, for example, that there are some really high performing toilets out there that are only using less than one gallon per flush.

But we don't know if you're selling 100 of those products a year or if they're accounting for a really large percentage of your total sales.

So, getting some sort of aggregated data about -- you know, that gives us a sense of where sales are actually happening will give us a better sense of what you should propose as a standard, considering where the market is, and where it's going, and what is technically feasible to achieve.

The other piece of information that's useful from sales is getting an accurate estimate of what the water and energy savings could be from a proposed standard.

Is that accurate, Tuan, or is that --

MR. NGO: You know, it's hard to answer. I look at the data and right now I have to admit I'm going to run into problems calculating the cost effectiveness for

the -- for recommendation to go forward with the standard.

And, you know, thinking out loud, I just say I just put up these data and then just see if we can get it from somewhere.

Because I look at the data from the DOE and from our database and, again, they have the number, but they didn't see how much, or how long, or where they sell to or whatever.

So, one of the way I can do it is just, you know, make some gross assumption. But again, the gross assumption, the bigger the assumption the bigger potential for mistake we might have.

So, right now I don't have anything else, so I'm going to have to look some more. Maybe at a later date -- I was hoping that by the time we received the -- after the time we -- after we receive the proposal from stakeholders, then we may get more of the data, but right now I don't have any.

MS. HAUENSTEIN: I think some of the stakeholders for the water measures have not been involved with the Energy Commission's process for collecting data, so it might be helpful to provide a little bit of an overview of what -- like what -- how manufacturers have submitted data for other rulemakings,

and kind of the background of how confidential data is treated, or just a kind of more broad overview of how the Energy Commission works with manufacturers to collect the sort of information that's used in the code and standards process. Is that --

MR. NGO: I don't know. Right now I'm desperate for data. I don't know the answer to your question. I guess probably next week I'm going to call up and see what kind of data they have, and then we go from there.

Anybody else want to comment on this sales data? I guess that's about it for faucets.

Again, I'm going to repeat that we're going to issue the request for proposal by June 10th, including with it would be the template and guidance documents so that we're -- we will better, you know, so the stakeholder and interested party can provide that proposal.

And then we want to say that we are available to discuss questions and concerns at any time during the proceeding.

And if anybody want to submit data that we requested in the ITP, please do. It's never -- at least late is better than never.

And the next step will be we will issue the request for proposal and we go from there.

And my contact information and the docket number for the faucet.

Okay, any general comment on faucet?

MR. RAWALPINDIWALA: This is Shabbir. I have a general question.

MR. NGO: Yeah.

MR. RAWALPINDIWALA: After our -- I think it was in March, or something, WebEx, you asked for information and we provided you with the reference where you can see what the flow rates and the consumption rates are, respectively, for faucets, and toilets and urinals.

Can you give us -- yet, are you still saying that you are going to issue a template and for us to give you a recommendation.

Can you tell us, perhaps I'm sure you've had some chance to review some of the references we directed you to look at. Can you give us some idea as to whether that is acceptable or are you looking for more reduction, or what?

MR. NGO: Okay. Let me put this straight. I received nothing from you, Shabbir, so the only thing I have received is a letter from Lens, saying we should go to -- in general, saying we should go to Plumbing Code and it lists the link for Plumbing Code.

Again, we already say before Plumbing Code is

only for Title 24, and these are Title 24 appliances.

So, you keep repeating that you tell me this information, and where to go, and this is -- you know, we don't have any -- let me put it this way, we have nothing in the docket on any manufacturer, period.

MR. RAWALPINDIWALA: Well --

MR. NGO: So, if we have to develop standards, we have to take information from the docket and right now we got zero information from docket from any manufacturer, period.

So, you know, I want to make myself clear.

MR. RAWALPINDIWALA: I want to make myself clear, too.

MR. NGO: If you -- okay, Shabbir, hold on. If you want to do something, please submit to the docket that's saying staff, you should look at the Plumbing Code, or you should look at CAL Green, or you should look at whatever. You submit into the docket and that will become the information that we consider.

MR. RAWALPINDIWALA: Well, the reason --

MR. NGO: And then I got my senior, Harinder, want to comment on this.

MR. SINGH: Go ahead, Shabbir, first make your comment and then --

MR. RAWALPINDIWALA: The reason you heard from

Len is because we belong to the Association and he speaks for all the manufacturers that are member of that Association.

MR. NGO: Yes, I understand. But Len's -- I asked, I repeat the question. I asked whether, if you want these comments to be considered in the proceeding and we have received no comments docketed.

MR. SINGH: Shabbir, thank you very much for the comment. I just want to mention that we have not decided which way to go and, you know, this is ITP was the request to -- invitation to participate and receive information from the manufacturers, and all stakeholders to look into the standard.

So we, again, are requesting the information. First we issued the ITP in March and now we're going to issue the proposal template for another opportunity for the manufacturers and the stakeholders to participate in the process.

And all we can do is answer clarifying questions and, you know, explain what we are looking for. And to that extent, we are willing to meet you any time or, you know, have conference calls, or if you have clarifications.

So, we are open and we'll discuss that. But we are not discussing the standard that we are developing

right now because that is the next stage after the proposals.

So, at this time I think we need your help. If you have data, please submit it into the record, the docket number.

MR. RAWALPINDIWALA: Okay.

MR. SINGH: And if you have questions, you know, we are -- related to the ITP or related to, you know, when we issue the proposal template we are -- we're available and willing to, you know, at any time talk to you about it.

MR. RAWALPINDIWALA: I'm sorry I didn't get your name. What is your name?

MR. SINGH: Harinder Singh.

MR. RAWALPINDIWALA: Harinder Singh, H-a-r-i-n-d-e-r?

MR. SINGH: Yes, sir.

MR. RAWALPINDIWALA: All right. S-i-n-g-h. Okay, thank you.

MR. SINGH: Thank you very much.

MR. NGO: Is there anybody who wants to put in any general comments?

Okay, with that, again, my name is there, so my name and my contact number is there. Anybody, if you have any questions, you can contact me. I will try my

best to respond.

With that, I'm going to end the session for faucets and thank you for participation. We look forward to hearing from you in the proposal. Thank you very much.

MR. STRAIT: Water meters next or --

MR. NGO: Water meter right now. Oh, thank you. I have a break?

MR. STRAIT: No, there are no breaks scheduled.

MR. NGO: Okay.

MR. STRAIT: For those listening in, we're going to be moving on to the water meters presentation. Thank you.

MR. NGO: Okay, the next item that we want to talk about is the water meter. Again, I'm going to pose the question, again, is there anybody just recently joined us, and not in the previous two sessions?

MR. STRAIT: Similar question to those attending remotely, has anyone logged in or just joined us that was not hear for the previous presentations? There are a couple of housekeeping things that we need to remind people of, if needed.

MR. NGO: Okay, I guess not.

We're going to go to the part of the response. Again, I'm going to repeat this. We received all

approval -- not approval. We received --

MR. STRAIT: Comments.

MR. NGO: We received comments, thank you. We received comments from various agencies that encouraged us to go forward with the standards.

And then we also received the comment and some data from Badger Meters, from California Investor-Owned Utilities, and from the Natural Resource Defense Council.

And then at the bottom of the slide, again, there's a link to all of the documents that we received so far in the docket.

You're welcome to access those documents and read it for your own at any time.

I guess for the definition and scope what we have here is that all water meters should be considered. And the test data we have is from Aquacraft, Incorporated. I guess the same one in 2011.

Standard, we have the AWWA, California Department of Measuring Standards. Is that -- am I correct? Hi.

And then product lifetime and duty cycle we have like 15 years. We probably will have some discussion about that.

And then product development training is not

clear for now.

Consumer acceptance, no issue with efficient unit.

And then energy-saving technology and feature will be just existing technology.

Incremental cost, the information we have so far there's no difference when they improve on the new version of the water meter in considered -- I mean in compared to the current.

And then we have one special question for the water meter is that who going to pay about it? And the information that we received was that the utility providers.

Small business affected by proposal standard, we're not clear.

Okay, with that I'd like to go to part of the -- to the question.

For the scope of this proposed standard would we want to consider all water meter types?

And then the question I have is who are the customers? And then the direct purchasers are utility companies.

And then have the public appeared in the process?

And then, accordingly, water meter is not

covered in Title 20.

And then my question is shall it be?

So, with those questions, with those two questions I'd like -- if anybody has any comment on those two questions, please do.

First, I do it in the -- first, we'll have it in the room.

MR. KASER: Yes, hi, this is Forrest Kaser with Energy Solutions, on behalf of the California Investor-Owned Utilities.

And actually, if we could go back a couple of slides, I had a comment on the data sources, first. So, source of test data, I just wanted to point out there's actually a really important source of data here that I don't see represented.

MR. NGO: Oh.

MR. KASER: And that is a large study of water meter performance conducted at Utah State University, funded by the United States EPA.

MR. NGO: It was --

MR. KASER: I'm sorry?

MR. NGO: What was it, Bar something, Barflow or something?

MR. KASER: Yeah, Barfuss, it was actually Barfuss. Yeah, and that is including the --

MR. NGO: I noticed that.

MR. KASER: Okay, great. So, I just wanted to make sure that was clear.

MR. NGO: Right.

MR. KASER: That's a great source of data on actual performance of meters at low flow rates.

MR. NGO: Yeah, thank you, my mistake. But, actually, you know the reason why I didn't include it because it's submitted as part of the reference to your comment.

MR. KASER: Right, it was in the Investor-Owned Utilities' response. I referred to it, right, and I included it as --

MR. NGO: Yeah, but I know about that one. I read that one, too.

MR. KASER: Okay, great.

MR. NGO: There's a lot of information in there.

MR. KASER: Yeah, there is.

MR. NGO: Thank you.

MR. KASER: It's a very rich resource.

And then I guess the next -- actually, the previous slide had another comment there in terms of small business. I think this is going to get to the scope questions you're asking, too. You said, you know, you're not clear on how it affects small businesses.

And the question of who are the customers, you know, the utilities or water purveyors, more precisely, are the entities that own water meters, typically.

And, you know, the people who actually use the water pay the water bills to the purveyors, and that includes small businesses.

And so one point I wanted to make in terms of water meters and accuracy at low flow rates is that more accurate -- meters that are more accurate at low flow rates will save money for small businesses and customers because the wasted water that would otherwise not be charged ends up being included in the rates that everyone pays.

So, if I'm wasting a bunch of water that isn't metered, then the water purveyor doesn't know who to charge it to. So, they have to spread that charge out among everyone in the water district, and that includes small businesses and other customers.

Yeah, I think it's a good question; who are the customers? Really, utilities buy them but they pass their costs on to the end-users.

MR. NGO: Yeah, this is a unique situation.

MR. KASER: Right.

MR. NGO: So, my question -- let me ask you the question while you're in the stand. You know, the other

day my -- we made, I guess, like a flash new on one of the utilities, it's a very small one up there in Northern California, Sonoma, Cali, somewhere, called Sea Ranch.

And then they have installed this new water meter and they have a whole bunch of people, like $1,100 worth of water billed. I haven't gotten a chance to look into the issue but, you know, the condense new was on it.

And then when I read that and then I think about this process, so I see the impact -- the impact of what or who the customer here would be. Okay, so you have customer who have no leaks and a customer who has leaks. Okay, let's just simplify things.

So, the customer who has links, the impact of this one will be a negative impact to them because they have to do two things. One, they have to fix -- they have to pay money to fix that leak or leaks, okay. And number two, they probably have to pay extra money for the water that leaks, but that's charged by the utility companies.

So, say they do that. And then the other one, the other customer who have no leaks, well, I know the way -- the way the rate structure by, you know, controlled by the Public Utility Commission is that they

have to provide them with costs and whatever to be able to set that cost.

And I'm not sure -- I'm not sure that that structure will bring benefit. I'm not sure how long or when. There's a possibility that it would never. It would never, you know, never happen. I'm not saying it will never, I say there's a possibility it would never happen.

MR. KASER: Well, the only case that I can think of where it would never happen is if there were no leaks anywhere in that water purveyor's district, in which case there wouldn't be any customers that would be paying extra, either.

So, as long as there's -- if there's water that's flowing through that water purveyor's infrastructure, whether it's metered or not it's going to be a cost to the purveyor to acquire that water.

MR. NGO: Uh-hum.

MR. KASER: So, they have to be able to pass that cost on to their customers.

So, if there's a reduction in that amount of water that's flowing through their infrastructure, to their customers, if that water -- that amount of water is reduced, then their costs are also going to be reduced, and so that has to be a benefit to all of the

rate payers in that water purveyor's district.

So, if you just think about it in terms of if there's less or more water passing through that purveyor's infrastructure, those costs are going to be -- you know, it's either going to be a benefit or a cost to their customers.

MR. NGO: Do we know the -- any reason for any estimate?

MR. KASER: I'm sorry?

MR. NGO: Any estimate of what the cost of those are supposed to be or the base of --

MR. KASER: Oh, the cost of the meters?

MR. NGO: -- the measure of water loss.

MR. KASER: Are you asking about the cost of the meters or the --

MR. NGO: No, no, the water, itself. Is that in here? I saw some analysis in your report.

MR. KASER: Well, yeah, I mean, so it will vary depending on -- so, the cost of the water that is saved, so the rates vary quite a bit throughout California, so different regions have different costs. So, it will be specific to that region.

So, regions that have very high water costs, the benefit of saving water will be greater. In regions that have very low water costs, the benefits will be

lower.

But anyone -- I mean water's always a cost, so any saving's is always a benefit.

MR. NGO: Well, the Antelope area will have probably a bigger benefit, maybe? Anyway, I'm just kind of wondering that.

MR. KASER: Yeah, I don't want to speculate. I don't know the specific rates across the State but --

MR. NGO: Okay. So, let me summarize. What you're saying is that you're definitely saying that there will be a long-term benefit to all customers.

MR. KASER: Any time water is saved there's a benefit to customers. I mean it's a cost. The water, itself, is a cost and the energy to --

MR. NGO: And that's controlled by the CPUC.

MR. KASER: What's that?

MR. NGO: Because they were controlled -- because the rates were determined by the CPUC. And companies, utility companies have to make that special request for rate changing --

MR. KASER: Based on the cost.

MR. NGO: Do they ever do any requests for changing to reduce the cost?

MR. KASER: Well, you might think of it as a postponed increase. The benefit would be a postponed

increase that might be a way you would think of it.

MR. NGO: All right, thank you. Thank you, I'm clear now.

MS. QUINN: This is Tracy Quinn, NRDC. I believe the CPUC only --

MR. NGO: Can you speak --

MS. QUINN: I believe the CPUC only controls rates for private utilities. Public utilities would have a -- would regulate their own rate setting.

MR. NGO: So, there was an investor-owned utility and then the nonprofit organization. What about the district, the municipal district, a little one? They're not part of it, right?

MS. QUINN: They set their own rate structures.

MR. NGO: Oh, okay.

MR. KASER: But they're still accountable to the Public --

MS. QUINN: Yeah.

MR. NGO: But they still have to go through the process?

MS. QUINN: Yes.

MR. NGO: Okay, thank you.

MS. QUINN: They have a separate process.

MR. NGO: Okay, now I'm clear.

MS. QUINN: If possible -- this is Tracy Quinn,

again, NRDC. I'd like to address the second question you have up there, "Should water meters be covered under Title 20?"

The 20 by 2020 conservation plan that was prepared by several State agencies, including the California Energy Commission, made recommendations that the State establish accuracy standards for water meters.

As noted in the responses from other stakeholders, there are existing standards, including those by the American Water Works Association and NIST, but those are voluntary standards and do not preclude CEC from setting an accuracy standard here.

Additionally, NRDC has called out shortcomings of those voluntary AWWA standards. Of note, those standards have not changed significantly in over a hundred years.

The minimum test flow rates have been the same since 1921.

And as you can imagine, technology has improved since that time. Many meters are now capable of accurately registering low flows, such as those indicative of leaks that we're trying to address here.

And, well, my last comment is what Forrest addressed. You know, unintentional water use, as in leaks, which go unrecorded or -- unrecorded don't

provide customers with the financial incentive to address the issue of fixing leaks. And the cost to produce and deliver water that is wasted is socialized to all customers.

So, this also addresses a fairness and an equity issue.

MR. NGO: Okay, thank you.

Anybody want to comment from in the room?

MR. KASER: You know, if I might add something, this is Forrest Kaser, again, with Energy Solutions on behalf of the IOUs.

So, you know, one additional factor in terms of why I think the CEC's actually really well-positioned to take action on this product category is the fact that the public utilities don't actually have any legal requirements for the accuracy standards in place right now.

So, there are legal standards established by the PUC and through the DMS for privately-owned utilities and for submeters.

But for public utilities in single-family homes there are no legal requirements in place right now. So, there's this regulatory gap that the CEC is actually well-positioned to fill.

MR. NGO: I'm not clear about that. Can you say

it again, one more time?

MR. KASER: Sure, absolutely. So, let's think about, you know, you have your privately-owned water purveyors, so it's a private company that's selling water to people in a particular place. So, the CPUC regulates them and there are legal requirements for the accuracy standards that those meters must meet. So, those are legal requirements.

MR. NGO: Okay.

MR. KASER: Those aren't voluntary.

For multi-family housing, those meters, there are legal requirements that are administered through the DMS for the accuracy of those meters. Those meters must be tested and meet particular accuracy standards.

For single-family homes that are served by public utilities, and not nonprofit, not-for-profit companies, but public utilities, there's no legal standards that those meters must adhere to statewide. You know, individual cities might have certain standards, they might not. There's no statewide accuracy standards for meters for single-family homes in public utility districts. So, there's a gap there.

And the CEC, through Title 20, has the opportunity to fill that gap.

Does that help clarify?

MR. NGO: I think I'm a little clearer. I need to think a little bit more. My mind is --

MR. KASER: Sure.

MR. NGO: -- kind of go like this on that issue. So, I need to think a little bit more, but I think I know what you're saying.

MR. KASER: Okay.

MR. NGO: Thank you very much.

MR. KASER: Sure.

MR. NGO: We have any other comment from the -- oh, no.

MS. MACEY: Thank you, Kristin Macey with the Division of Measurement Standards, a division of the California Department of Food and Agriculture.

And I'd like to speak to the issue of submetering. If it becomes within the scope of the rulemaking that you include water meters and water submeters, I can address this issue.

As part of our mission with the Division of Measurement and Standards is to ensure the accuracy of commercial devices and the CPUC has determined that water utility submeters do not fall under their jurisdiction. And, therefore, because the measurement of water is used to bill a person it is a commercial device and, therefore, it does fall under our

jurisdiction.

Our division works very closely with county agricultural commissioners and sealers who actually do much of the enforcement of meeting the testing of these devices.

And so as the -- by the way, the IOU response I thought was very excellent, and very thorough and comprehensive.

And as they mentioned, we have a two-tiered approach to our regulatory requirements. First of all, every make or model of meter must be tested and evaluated by our Division of Measurement Standards to ensure its accuracy, and its repeatability, and its suitability as a commercial device in the specific application.

And in the submetering application we're talking about mobile home parks, apartment complexes, marinas, and that sort of thing.

And then the other regulation that we have is for the routine testing, in other words, the regular testing, and that's primarily done by the counter sealers at test facilities in each one of the 58 counties throughout California.

The counties are reimbursed for this function, this regulatory function by the Business and Professions

code, which authorizes county boards of supervisors to establish ordinances to recover the fees for testing.

And for water utility submeters it's very low, it's only $2 per meter.

I can't tell you how many -- how many apartment complexes or, you know, mobile home parks are actually in California, and I'm sure you can find out that information.

But I can tell you that in 2011-12 fiscal year there were 375,000 registered submeters by the counties. And of those meters that were tested there was an 88 percent compliance rate for accuracy.

The typical water utility submeter that we see is going to be around at 5/8ths inch submeter and it's going to be tested at three flow rates.

A high flow rate of 15 gallons per minute, an intermediate flow rate of 2 gallons per minute, and currently the low flow rate is tested at .25 gallons per minute.

And I believe that the NRDC is calling for an even lower flow test rate that would be appropriate for the leak detection.

And, certainly, Weights and Measures officials agree with the goal to provide more accurate measurements for the purposes that NRDC is proposing.

You ought to be aware, though, of a couple of things, and I'm sure you are, you're going to do cost benefit analysis. The impact to manufacturers, of course, is that they're going to build a meter as inexpensively as possible for the application.

As the Barfuss study pointed out, that's the one that you mentioned earlier that was done by the USEPA and Water Research Foundation, not all meter types are created equal and there's a lot of variation between meter manufacturers.

And certain types of meters are more suitable to measure accurately at low flows. So, the manufacturers obviously have to weigh that when they try to build a meter that then has to pass our accuracy test.

So, this will drive up costs. And as was pointed out earlier, ultimately that cost is passed on to the consumer. And in this case the submeter cost would be passed on to the apartment resident or the mobile home park resident.

The Weights and Measures official also has considerations to take into effect. The testing time to test these meters and the test equipment, there's considerable variation of test equipment from county to county. Some of them can test more meters in a batching system at once, than others. Testing equipment is

expensive. State and county resources are dwindling in this area.

So, obviously, we would have to charge more to the apartment complex for the registration of the devices.

The current time to test these meters is actually quite extensive. At those gallons per minute that I mentioned earlier, the high flow, the intermediate and the low flow of 15, 2 and .25 gallons per minute, the low flow rate currently takes 20 minutes to do that test, alone.

And if we're talking about conducting a test at even a lower flow rate, that's going to probably double the time, so you're probably talking about an hour to test the meter. That has to be taken into consideration.

And then also, lastly, if you want to include in Title 20 water meters and submeters, there would probably be some alignment then between our laws and regulations with the Department of Food and Agriculture, Division of Measurement and Standards with the new CEC standards that would be set.

And that's not a problem. We can do that through the rulemaking process.

We adopt the NIST Handbook 44 that's referenced.

We adopt it by reference and we are authorized it to make amendments to it via regulations.

So, I just want to say that we're in support of these efforts and --

Oh, I might mention one more thing. There is currently an ongoing study of water submeters here in California. The Barfuss study was on water meters in general, utility meters. However, California is rather unique in that we are the only state in the nation who is actively regulating and testing water utility submeters.

And so the meter manufacturers funded a study here in California. It began last year and the data is in, and it's being analyzed right now. And it is studying the water submeter accuracy, so the accuracy of the device. It's studying the differences between various manufacturers.

Although, like the Barfuss study, it's coded so that you can't tell which manufacturer is which.

And then we're also evaluating the test equipment and the variations between county jurisdictions.

We anticipate that the results of that study should be public probably July, maybe August. Thank you.

MR. NGO: Oh, this year?

MS. MACEY: Yes, this year.

MR. NGO: Oh, cool. I have to look at it. Can I give you an e-mail later? Can you give it to me something about that one when you have that information?

MS. MACEY: Yes.

MR. FERNSTROM: So, this is Gary from PG&E. I have a question of our friends from the Department of Weights and Measures, have I got that right?

MS. MACEY: Division of Measurement Standards.

MR. FERNSTROM: Division of Measurement Standards.

It sounds like this State of California agency checks all the meters. The discussion was about submetering of water meters, but it sounds like where they have the authority and responsibility they're responsible for assuring that these meters in the field comply with their requirements. Is that correct?

MS. MACEY: Yes, that is correct.

MR. FERNSTROM: Okay, so I just want to be clear about how these different regulations apply. Whatever regulations Title 20 and the CEC might adopt apply to all products offered for sale in California and, consequently, would apply to new water meters being purchased by whomever for the purpose of measuring water

consumption, as well as replacement or retrofit ones.

But the CEC standard is that the manufacturers of these products essentially testify, under oath to the CEC, that the products perform as specified. And every product is not usually tested, although the CEC has the option of testing and validating that they perform as represented.

So, there are two different standards of compliance here with respect to what the CEC would be requiring and what the Department of --

MS. MACEY: Measurement Standards.

MR. FERNSTROM: -- Measurement Standards -- thank you -- is required to do.

MR. STRAIT: Just as a point of clarification, for the majority of the regulated appliances they are tested by the manufacturers. You're referring, I assume, to the independent testing that the Energy Commission performs, which is only on a handful of the devices out there in total that are certified to us. But that manufacturer's certifications are based on tests that they have performed on the models and certified to us.

MR. FERNSTROM: That's right. The point I was trying to make is manufacturers test their products, essentially testify that they meet the specifications

and the CEC reserves the right to validate that they do.

MR. NGO: Anybody else want to comment on the question here?

How about on the web?

MR. DE JARLAIS: This is DeJarlais from Badger Meter.

MR. NGO: Oh, hi. How are you?

MR. DE JARLAIS: I'm hanging in there. In the interest of time, I'll note that we have a series of comments to submit and we'll do that in writing.

One set of comments speaks specifically to whether the scope of regulation can cover water meters within the context of Title 20 or within the context of water appliances.

Our second set of written comments will cover the other submittals given to the Commission. And I'll briefly go over the latter right now.

As far as the California IOU response, we will note that it does not address some of the metering technologies currently being used in residential metering.

It does not cover the issue of power supplied to solid state meters accurately. Not all solid state meters and, in fact, many solid state meters no longer need power supplies.

In oversimplifies and perhaps overstates the useful life. You'll note that the California IOU does have a lot of caveats involved in the statement about useful life. But again, we believe it's an oversimplified statement and perhaps overly optimistic in some cases.

On the other hand, the California IOU response understates the actual product warranty periods that are being used in the marketplace right now.

But both with product life and with warranty statements, those would have to be reassessed if there were different water meter standards to be enforced in the future.

Also in the California IOU submittal there is the cost issue. It will not be free. And Kristin Macey from California DMS has already commented on some of the cost issues with testing.

In addition, there will be cost issues with test stamps, either additional test stamps because test times are so long, or enhancements to existing test times to accurately and repeatably dial in these new florades for testing.

Moving on to the NRDC response, even more so than the California IOU response, it does not address many of the metering technologies currently in place in

the market.

It also asserts that the majority of meters from the Utah State study are of the type, kind and quality covered by the standards.

And our own analysis of the Utah State study would contradict that.

In addition, Badger Meter has concerns over the scope of the Utah State study if this, alone, were to be used to justify writing new water meter standards.

As far as the sources of test data, the Aquacraft data is very impressive. One thing we want to note is that the Aquacraft data shows there is considerable metering of significant leak flows already in the marketplace.

And so our interpretation is that increased billing because of metered leaks is not perhaps as large a motivator to get those leaks fixed as one might think.

And again, more details will be in our written responses.

MR. NGO: I'm looking forward to receive your comment, George.

MR. DE JARLAIS: Okay, so I just went through this briefly and there's a lot more that will be in our written comments.

MR. NGO: Yeah, actually, a few of what you say

and what you mention will be covered in my next two slides.

MR. FERNSTROM: So, this is Gary with PG&E, with one more comment. I realize this proceeding today is to raise questions and supply information, and not try and make decisions.

However, I'd like to raise the issue about which costs ought to be considered relevant to the Title 20 proceeding and weighting the cost against the benefits.

And I would suggest that the Department of Measurement Standards costs associated with testing meters are not a cost that ought to be considered by the California Energy Commission because its regulation does not require that action and, consequently, does not incur that cost.

The cost that ought to be considered is the incremental cost of making the water meters more accurate in order to perform as might be specified by a subsequent regulation.

DMS needs to do its job regardless. If there is an increased testing burden on their part, that's not as a direct consequence of what the CEC regulation may be.

So, I'm just raising that point for consideration and further discussion.

MR. NGO: I agree, we don't want to talk about

that right now. Those will be addressed about, thought, later, in the later process. But I thank you for the comment.

MR. DE JARLAIS: George DeJarlais from Badger. One party that's been missing from this is that utilities also test water meters and they also would incur costs if they have double, triple, quadruple the test time under a different type off meter standard.

MR. NGO: Anybody else want to comment?

MR. RIDER: So, actually, this is -- not very much a comment, but a question, since we've got an opportunity here with everyone in the room.

This is Ken Rider. I'm with the California Energy Commission.

So, we were speaking about costs and benefits, and where they happen, and who should -- you know, which one we should be looking at. Title 20 will cover products that are sold or offered for sale in the State. The majority of the products will be retrofit products, or retrofit water meters for ones that have broken in the field.

They will also be water meters for new construction, for new buildings.

And so the question I had was are the way that costs are passed to the water customers different in

each case? For example, for a customer with a new building do they pay for the water meter with the new construction?

And then for retrofits, do they pay for a new water meter when it breaks or is that distributed amongst all ratepayers?

And if we've already covered it, or if it's in the comments, or if anyone would like to speak to that, I was kind of curious if there's different ways that the costs are incurred and how they actually recoup the costs for water meters. Thank you.

MR. HUNTSINGER: I'm Josh Huntsinger. I'm the Placer County Sealer of Weights and Measures on behalf of the California Agricultural Commissioners and Sealers Association.

I just want to clarify a little bit that we do work in very close partnership with the California Division of Measurement Standards. DMS is responsible for ensuring that our standards are up to -- that meet the uniform standards required on a national level, and they provide a lot of supervision and uniformity.

However, the actual testing of these meters, almost 100 percent of it for submeters is done at the county level by the 58 counties in California. And so, this cost issue is not just one to a singular State

agency but, rather, to 58 individual counties that would be very concerned about any cost increase for these meters, as we do have just a fairly minimal cost recovery mechanism in State law right now that would need to be addressed if our testing times did increase significantly.

MR. NGO: Thanks.

MR. KASER: Just this is Forrest Kaser with Energy Solutions, on behalf of the California IOUs. And I think possibly reiterating slightly what Gary had said earlier, there's nothing -- as far as I can tell, there's nothing in the regulation that CEC would consider for water meters that would necessarily require any additional testing by the county or by California DMS.

So, that would be a decision that could potentially be made down the road. There's nothing that would theoretically require additional testing there.

And I think I'd just add another point of clarification. I think, typically, the CEC model is sort of a type approval approach as opposed to an individual product testing approach.

Which as I understand it, and the folks that have spoken earlier can correct me if I'm wrong, the individual counties test the individual meters that are

being installed, whereas type approval for a general meter model, of which many instances would be sold and tested again at the county level, that happens separately.

And so the CEC model would be more approving as to type, as opposed to individual meters. So, the impact on counties could be actually zero. But again, that's something that would be later on in the process.

MR. NGO: Thank you.

MR. DE JARLAIS: This is George DeJarlais from Badger, again. I think there's a large difference between an appliance, something where all of them basically behave the same, and a metrological device that's generating billing information.

So, I would contend that a manufacturer would have to do very exhaustive sampling or 100 percent testing if there was a meter performance standard in the State of California that required performance at an extended low flow.

MR. NGO: Anybody else?

Okay, well, we already touched a little bit about cost and cost effectiveness.

So, I notice there was no costs -- unless I missed it, there was no cost data on water meter provided.

And then the other thing I noticed was the baseline water waste, where the water savings calculated, it pretty much automated, is not -- well, anyway, not raise the question because the costs are not available, and then because of the effect that the costs of these meters are going to be factored into the cost of the utility doing business to justify the rate structure so that you end up being the customer is going to pay for it over the long run.

So, I'm not sure. I mean, you know, I'm just thinking like that. And then let's say because of that what I was thinking was that if I'm going to take the conventional cost, and saving, and so forth, and so on and do some type of calculation that calculation will be compromised.

And then another thing, too, is how do we quantify the water waste and saving? I mean it's just a very simple thing. Further, we don't know how much it wastes. We estimate it. But what about the savings, how do we know they're going to have that savings?

So, with that I listen to comments.

MR. KASER: Okay, so this is Forrest Kaser with Energy Solutions and the California IOUs.

And I guess to your first point, I'm not sure what you mean by compromised there. But just to speak

generally about that issue I think, you know, the Barfuss study that was referenced earlier was done on meters that are currently available on the market, that are sold right now. So, we're not talking about -- and we're seeing in that data a wide variation in the performance at low flow rates.

So, meters that you can buy as a utility -- if you're a utility, you can purchase these meters from Badger, from other manufacturers currently in the market.

Some of them perform really well at low flow rates, some of them perform really, really poorly at low flow rates.

So, we're not necessarily talking about, you know, new product development, we're talking about products that are already out there.

And to get to the second point, in terms of how to quantify it, part of the California IOU submissions included reference to an article published in the peer-reviewed AWWA Journal that addressed that exact question. So, there are methodologies for quantifying the amount of savings you can get from improved low-flow accuracy.

So, I would encourage the CEC to take a look at that article, and there are two different approaches to

doing so outlined in that article. So, I just wanted to point that out, thank you.

MR. NGO: Thank you.

Anybody want to comment on these two questions?

How about the people on the web?

Okay, I guess not so we're going to go to the next one.

This one is what I call the auto issue. Okay, I know that a lot of the -- one of the option of water saving and accuracy of low-flow water meter was to reduce the piping diameter of water. So, you might go from the two-inch water to 5/8ths inch water meter, or maybe three-quarter, whatever number it is.

But my question would be when reducing the piping diameter of the water meter would that compromise, or make less effective operation of the fire sprinkler system?

And then number two, and then the IOUs submit a report and indicate that non-mechanical meters have far more accuracy than conventional meter, but there's no performance standard for them.

So, therefore, if we develop standards now would we actually penalize these types of meters, the ones that actually do better?

And then, if that's the case how do we account

for them in the standard?

In other words, if you have a standard right now and we say, okay, if you're going to sell meters you have to meet that standard and, yet, these ones were far more accuracy -- these kind of meter were far more accuracy and, yet, they don't have a standard so they can't sell. So, in that case are we actually penalize them for -- I don't know. This is something that we need to address.

I would like to invite comment from the room.

MR. KASER: Okay, this is Forrest Kaser, again. So, as to question number one, the California Fire Marshal actually studied this issue when it was adopting a new residential fire sprinkler code, and I think there's a reference to that in the California IOU submission.

And there's a bulletin that the fire marshal released where it included recommended best practices for metering systems that include a fire sprinkler. And the recommended best practice is actually to use a shut-off valve, such that when the sprinklers are activated the supply to domestic fixtures is turned off. So, that is --

MR. NGO: Is it automatic?

MR. KASER: Yes, it is automatic. So, that's

actually what the California Fire Marshall recommends as the optimal strategy for handling metering when there's a fire sprinkler downstream of the meter.

And the purpose of that is actually to address this exact issue that you wouldn't want to -- actually, it's the opposite. You wouldn't want to oversize the meter just to account for the very, very rare fire sprinkler flow because then you sacrifice the accuracy at low flow rates all the rest of the time.

So, if you have an oversized meter, meters tend to be less accurate the larger they are at the lower flow rates. And so, if you oversize meters you end up giving away a lot of free water.

MR. NGO: Well, I don't think -- I don't think that oversized piping is the issue here.

MR. KASER: Well --

MR. NGO: Let me finish. Say we have a resident and this guy having -- what's some number? Let's use some number just for scenario description. He have 2-inch pipe water meter going to his house and they have a fire sprinkler system, and the reason why he need to is because he's a single-family -- I mean, a single-family house, big, 5,000, 6,000 square feet.

Okay, so when, say, in the case where, okay, we have this standard and then the utility company going to

go out and install the new meter, I'm thinking out loud here wouldn't the -- the utility company have to tell him that -- have to ask him to see whether he have the fire sprinkler in his house? Or whether or not if he have the fire sprinkler system he have to install additional item that is the automatic shutoff valve.

And think about that, yeah, this is just a little detail here but, again, it's just a little detail but is -- I know you mentioned that this is an event that might not happen. But still, if it does happen, it involves lives, so we want to make sure.

MR. KASER: Absolutely, absolutely. I know, I think the fire sprinkler system is obviously a really important requirement in the California Building Code and I don't think there's anything at issue here with the water meter standard that would -- you know, in putting in smaller meters, it's really just about the accuracy of the meters that are in place so --

MR. NGO: No, no, actually not because you have the water flow restriction because of the pipe smaller, smaller pipe.

MR. KASER: But why is there a smaller pipe? I'm not following you.

MR. NGO: It's just the smaller diameter water meter.

MR. KASER: Why is there a smaller diameter water meter?

MR. NGO: What about the pressure drop of all those things, are they all the same?

MR. KASER: But how does -- I guess I'm not following the relationship between that scenario and a potential meter accuracy standard. So, we're just talking about potential standards or potential requirements for a meter serving any given dwelling to be more accurate low-flow rate.

So, we're not talking about changing sizes in particular.

MR. NGO: No, we are talking about changing the size -- well, one way of getting the reduction on the accuracy of the new meter were to -- were to use smaller diameter meter, right?

MR. KASER: I wouldn't recommend that. No, I wouldn't recommend that.

MR. NGO: No, would not recommend that. But that's what I see in the IOU.

MR. KASER: No, no, no, it's only more accurate flow rates. We're not talking about under-sizing meters, we're talking about --

MR. NGO: We better make sure about that one but, anyway, thank you for clearing that.

MR. KASER: Yeah, absolutely.

MR. STRAIT: I think the misunderstanding is that we're looking at ways to make things more accurate --

MR. KASER: Absolutely.

MR. STRAIT: -- and we're saying is that something we should avoid doing for the sake of accuracy or is it something that should be considered as a way to increase the accuracy of these meters?

MS. QUINN: This is Tracy Quinn, NRDC. I would say that, yes, appropriate sizing for use or for the structure to which the water is being supplied is one way of ensuring or optimizing accuracy. But that is not within the scope of this proposal that we're discussing here.

MR. NGO: Yeah. Okay, well, actually, you know, when -- I keep that in mind because if we have -- if we are developing the standard for this one, I'm going to make sure that we're going to address that one to the bottom of it because this is something that worry me.

Anyway, my second question, anybody have any comment on that?

MR. KASER: Yeah, let's see, I'm trying to remind myself here. So, yeah, and this came up in the gentleman from Badger's comments as well, in terms of

the non-conventional, or static, or non-mechanical meters.

MR. NGO: Yeah, uh-hum.

MR. KASER: So one thing, I guess to clarify, is that meters typically are -- the accuracy of meters are typically regulated differently depending on the type of meter that it is so that's why there's a different standard for positive displacement meter versus a single-jet meter or multi-jet meter. These use fundamentally different measuring technologies to measure the flow of water through them.

And there's a huge class of new, non-mechanical meters that are out there, that measure things in very different ways. And so far, we're not really taking a stance on standards for those type of meters, we're only talking about addressing the mechanical meter.

So, it's not -- it wouldn't penalize anyone that wanted to install a static or non-mechanical meter at all. It wouldn't penalize them they're free to do that. In fact, there would just be -- there's no standards that govern the accuracy of those types of meters right now, with the exception of fluid oscillator.

MR. NGO: Let me ask you a question, just a scenario question.

MR. KASER: Uh-hum.

MR. NGO: You go to the Home Depot to buy the light bulb -- oh, not the lamp right here. You want to buy the one that is certified or you want to buy the not-certified? See, that's what I'm saying.

MR. KASER: I see. I see what you're saying.

MR. NGO: Not only -- not only they couldn't sell if we are developing standard that somehow excluding them --

MR. KASER: Right.

MR. NGO: -- but also it would make a motivation factor for customer what is the utility to buy. See, that's what I'm saying.

MR. KASER: Yeah. No, I see what you're saying and I understand that. Thank you for clarifying it.

And, you know, I think that there are already -- there's already that difference. That difference exists right now in the marketplace.

So, right now, currently, there are the AWWA and NIST standards for mechanical meters and there really aren't for the static type meters. So, there would be no change. Any Title 20 regulation that might take place wouldn't change that dynamic in any way. There would just be additional standards for the mechanical meters.

So, fundamentally, there's really no penalty for

the static meters.

MR. NGO: Okay. Anybody else want to make comments on these other issues, questions here? How about --

MR. DE JARLAIS: This is George DeJarlais.

MR. NGO: I'm sorry. Okay, go ahead.

MR. DE JARLAIS: George DeJarlais from Badger. I'd like to comment on both points.

MR. NGO: Yeah.

MR. DE JARLAIS: On item one, I think the discussion really has to engage water utilities directly and also Building Code administrators directly because the whole discussion about both meter size, and service line size, and one service line shared by sprinklers and domestic use versus a dedicated service line just for sprinklers, it's very contentious.

And so, I think those parties are very important in this discussion.

As far as the second point, first I'd like to clarify that there already is an AWWA standard for one type of solid state meter, and that's the fluidic oscillator.

I also believe that in the NIST Handbook 44 standard, I don't believe it's technology-exclusive. There are some differences in tolerances depending on

what type of technology you're using, but the NIST Handbook 44 standard does not exclude the solid state metering technologies.

And perhaps Kristin Macey could comment on that, as well.

The other point I wanted to mention is that the statement of non-mechanical meters have far more accuracy than conventional meters, well, if you pull up the raw data from the Utah State study, you'll see that that's not the case.

For example, in the 5/8ths inch or 5/8ths by three-quarter meter the fluidic oscillator does not have very good accuracy at the extended low flows that some of the interested parties here are talking about.

So, there are limits in the technologies with some solid state devices.

And I also want to point out that the Utah State study is quite impressive, there's a lot of testing going on. But if you're trying to make a conclusion about any single make, model and meter size, please be aware that at most there were only six units being tested, and that's for the smallest sizes.

When you come to the largest meter sizes, I'm guessing only one or two samples were tested for any given make, model and size. Thank you.

MR. NGO: Thank you, George.

Anybody else?

MR. RIDER: Yeah, this is Ken Rider, again, with the California Energy Commission. I just wanted to clarify some aspects of Title 20 and how it would affect the market for water meters, if we were to regulate them.

We would not be able to dictate in a Title 20 standard what diameter was installed by a water district. Rather, we would control what is sold and offered for sale.

So, it would be really up to the person installing the water meter to correctly size the water meter.

And unless we were talking about banging of some large or certain diameter then it would never be -- the Title 20 would never affect the installation of a water meter or the choice of installation of which diameter of water meter to install. That would not be within the Title 20 standard.

MR. NGO: Anybody else comment?

Okay, let’s see, we cover this. Next one, again, my name and my telephone number is there so anybody have any comment or want to discuss about anything -- not anything, about the proceeding, please

call me. Yeah, they can talk to me about anything else, too.

Anyway, with that I thank you, everybody, for participating. And we look forward to the -- receiving the proposals.

MR. SINGH: Yes, I want to thank everybody for participating and traveling to attend the workshop, all these four days, so we want to thank you.

You know, please, we're going to be issuing the proposal RFP request and please submit your proposal if you're interested in participating in the formation of the standards for these products.

Again, thank you very much and have a good one. Thanks.

(Thereupon, the Workshop was adjourned at 1:07 p.m.)

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